

Acta Universitatis Upsaliensis
Uppsala Studies in Philosophy of Religion

7

The multifaceted role of imagination in science and religion

A critical examination of its epistemic, creative
and meaning-making functions

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UPPSALA
UNIVERSITET

Dissertation presented at Uppsala University to be publicly examined in sal X, Universitetshuset, Uppsala, Friday, 9 April 2021 at 13:15 for the degree of Doctor of Philosophy (Faculty of Theology). The examination will be conducted in English. Faculty examiner: Professor Yiftach Fehige (University of Toronto).

Abstract

Malm Lindberg, I. 2021. The multifaceted role of imagination in science and religion. A critical examination of its epistemic, creative and meaning-making functions. *Uppsala Studies in Philosophy of Religion* 7. 256 pp. Uppsala: Acta Universitatis Upsaliensis. ISBN 978-91-513-1144-9.

The main purpose of this dissertation is to examine critically and discuss the role of imagination in science and religion, with particular emphasis on its possible epistemic, creative, and meaning-making functions. In order to answer my research questions, I apply theories and concepts from contemporary philosophy of mind on scientific and religious practices. This framework allows me to explore the mental state of imagination, not as an isolated phenomenon but, rather, as one of many mental states that co-exist and interplay in our cognitive architecture.

Based on the philosophical discourse of philosophy of mind, four types of imagination are identified and conceptualized: sensory, propositional, experiential, and creative imagination. These categories are then employed on five phenomena that can be found in scientific and religious environments: metaphors, models, thought experiments, aspect perception, and - in the religious case - rituals.

In relation to the concept of religious "seeing" I consider how imaginings may influence visionary experiences and visualization, and compare these phenomena with cases of scientific visualization and eureka experiences. In regard to scientific and religious models, a distinction is made between, on the one hand, two notions of truth and, on the other hand, truth-independent meaning-making. In light of these categories, I differentiate between, and critically discuss, the use of imagination in doxastic, non-doxastic and fictionalist accounts. In light of this investigation, I formulate and defend the position of interactivism, which acknowledges a constant interplay between different attitudes and mental states. In my examination of rituals and scientific and religious thought experiments, special attention is given to the mental capacity to recreate the experiences that are entailed in an imagined scenario.

At the end of the investigation, I consider the possible impact that my study might have on how we view science and religion as well as the dialogue between these two fields.

Keywords: Imagination, science and religion, creativity, models, metaphors, analogies, thought experiments, aspect perception, rituals, doxasticism, non-doxasticism, fictionalism, interactivism

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ISBN 978-91-513-1144-9

urn:nbn:se:uu:diva-435118 (<http://urn.kb.se/resolve?urn=urn:nbn:se:uu:diva-435118>)

To Henrik

Contents

1	Context of the study.....	13
1.1	Introduction.....	13
1.1.1	The phenomenon of imagination.....	13
1.1.2	The relationship between science and religion.....	14
1.2	Purpose of the study.....	16
1.3	Formulating the problem.....	16
1.3.1	Research questions.....	16
1.4	Theoretical and methodological framework.....	17
1.5	Structure.....	19
1.6	Concepts.....	20
1.6.1	Science.....	20
1.6.2	Religion.....	22
1.6.3	Mental states.....	23
1.7	Previous research.....	24
1.7.1	Three approaches to the role of imagination.....	24
1.7.2	Religious imagination.....	26
1.7.3	Scientific imagination.....	27
2	The contemporary philosophical discussion of imagination.....	30
2.1	Introduction.....	30
2.2	Sensory imagination.....	33
2.2.1	Mental imagery.....	33
2.2.2	Mental images and perception.....	35
2.3	Propositional imagination.....	38
2.3.1	Supposition.....	38
2.3.2	Imagination and belief in pretense.....	40
2.4	Experiential imagination.....	44
2.4.1	Subjective and objective imaginings.....	45
2.4.2	Imaginative identification.....	46
2.5	Creative imagination.....	47
2.5.1	Active and passive imaginings.....	49
2.5.2	Conceptual blending.....	51
2.5.3	Aspect perception.....	53
2.5.4	Pretense and/or counterfactual supposition.....	53
2.6	Summary.....	55

3	Scientific imagination.....	57
3.1	Introduction.....	57
3.1.1	Two levels of mediation.....	59
3.2	The concept of scientific “seeing”.....	60
3.2.1	Different forms of scientific visualization.....	60
3.2.2	Visualizability and intelligibility.....	62
3.2.3	The ambiguous nature of “seeing”.....	63
3.3	The use of analogies and metaphors.....	65
3.3.1	Conceptual “seeing” as constraint or motivation.....	68
3.4	Scientific models.....	71
3.4.1	The propositional view of scientific models.....	72
3.4.2	The metaphorical view of scientific models.....	75
3.4.3	The additive view of scientific models.....	77
3.5	Scientific forms of aspect perception.....	80
3.6	Scientific thought experiments.....	82
3.6.1	About thought experimentation.....	83
3.6.2	Different kinds of thought experiments.....	84
3.6.3	The epistemic gain of scientific thought experiments.....	86
3.7	Summary.....	91
4	Religious imagination.....	93
4.1	Introduction.....	93
4.1.1	The thematic guidance of a religious tradition.....	95
4.1.2	Kataphatic and apophatic spirituality.....	96
4.1.3	The concept of religious “seeing”.....	99
4.2	Vision and visualization.....	100
4.2.1	Vision and visualization in medieval Christianity.....	101
4.2.2	Vision and visualization in Christian monasteries.....	103
4.2.3	Vision and visualization in Western esotericism and Mahayana Buddhism.....	104
4.2.4	Visualization as an experience of enhanced “realness” and transformation.....	108
4.3	Religious aspect perception.....	111
4.4	Religious analogies and metaphors.....	113
4.5	Religious models.....	115
4.5.1	Two kinds of religious models.....	115
4.5.2	Religious models and narratives.....	117
4.5.3	The propositional/metaphorical/additive view of religious models.....	118
4.5.4	Models and the notion of truth.....	120
4.6	Rituals as imaginative practices.....	121
4.6.1	Rituals as truth-pursuing activities.....	122
4.6.2	Rituals as transportation.....	123

4.7	Religious thought experiments.....	124
4.7.1	Narratives, models and thought experimentation	125
4.7.2	Different kinds of religious thought experiments	126
4.7.3	The epistemic gain of religious thought experiments	129
4.8	Summary	131
5	Interactivism	133
5.1	Introduction	133
5.2	Doxasticism, non-doxasticism and fictionalism	134
5.2.1	Doxasticism	134
5.2.2	Non-doxasticism	135
5.2.3	Fictionalism	140
5.2.4	Fiction-based religion: An ambiguous case.....	146
5.2.5	Jediism in the light of doxasticism, non-doxasticism and fictionalism	150
5.3	Interactivism.....	157
5.3.1	The interaction between imagination and perception	158
5.4	Summary	167
6	Transportation and experiential imagination	169
6.1	Introduction	169
6.2	An elaboration on the concept of “transportation”	170
6.2.1	Transportation, propositional attitudes, and attention.....	172
6.3	Experiential imagination and religious rituals	174
6.3.1	Ritual experience-taking and perspective-taking.....	174
6.3.2	Ritual transportation in light of interactivism.....	176
6.3.3	Rituals, truth and understanding	177
6.4	Thought experiments and experiential imagination.....	181
6.4.1	Scientific thought experiments	183
6.4.2	Religious thought experiments	188
6.4.3	Experiential imagination in science and religion.....	192
6.5	Summary	194
7	The role of imagination in science and religion	197
7.1	Introduction	197
7.2	The conceptualization of imagination.....	198
7.2.1	Heterogeneity.....	198
7.2.2	Truth-independence	199
7.2.3	Irreducibility	200
7.2.4	Interactivity and cognitive attention	201
7.2.5	Meaning-making.....	202
7.2.6	Summary of Section 7.2.....	204
7.3	The role of imagination in science and religion.....	205
7.3.1	The aim of intelligibility	206
7.3.2	Interpretative frames	207

7.3.3	Propositional imagination and the interactive position.....	211
7.3.4	Aspect perception and creative vision	213
7.3.5	Transportation and experiential imagination	216
7.4	Our understanding of science and religion.....	223
8	Summary.....	227
9	Bibliography	234

Acknowledgments

I am deeply grateful for having had the opportunity of writing this dissertation. The list of those I would like to thank for helping me in this process is long.

First of all, I would like to give humble thanks to my brilliant supervisors Mikael Stenmark and Ulf Zackariasson, who have guided me through this process and given me valuable advice. I also would like to thank my colleagues Oliver Li, Johan Eddebo, Mikael Sörhuus, Lina Åhlfeldt, Francis Jonbäck, Christoffer Skogholt, Johan Marticki, Lotta Knutsson Bråkenhielm, Carl-Reinhold Bråkenhielm, Elena Kalmykova, Karin Johannesson, Dan-Johan Eklund, Mikael Leidenhag, Maria Klasson Sundin, and Lena Edlund at the research seminar in Philosophy of Religion at Uppsala University. It has been an absolute pleasure and inspiration to be part of your team.

Other extremely valuable persons for my well-being and creative process has been Christiane Werner and Karin Tillberg who have been my room mates at the Department of theology. Without you this journey would have been much less enjoyable.

I am also grateful to the Faculty of theology for funding my research, and the Department of philosophy at Rutgers University, for letting me be a visiting student for six months in 2018. I could not have come to a better place to learn philosophy of mind. I also would like to thank the Helge Ax: son Johnson foundation, the Gunvor and Josef Anér foundation, the Olaus Petri foundation, the foundation for theological education and research, Sederholm's scholarship and Kungliga humanistiska vetenskapssamfundet for making this visit possible.

In addition, I would like to express my gratitude to the Carnegie foundation and the Donner Institute for the scholarships that facilitated the final year of my doctoral studies.

Another group of people that has contributed to this journey is the dialogue group at Sigtuna foundation which, in fact, was my Alma Mater in relation to the area of science and religion. I am especially thankful to Hans Liljenström, who has been patient and generous enough to answer my (probably a bit annoying) questions about physics and biophysics. It takes a great mind to be kind!

It goes without saying that I couldn't have done this journey without my wonderful friends and family. I am deeply grateful to my husband Henrik, who deserves a medal for having managed my ups and downs during the PhD profess. You are my true inspiration, and I am so glad that we have made this

journey together. I also would like to thank my sister Irmeli, for making the cover to this dissertation, and for being the best sister in the world.

Thank you all dear friends, wonderful nieces Kornelia and Mimmi, mom and dad and Peter, for being so supportive and encouraging. I am fortunate to have you in my life.

1 Context of the study

1.1 Introduction

1.1.1 The phenomenon of imagination

Imagination seems to be operative in a wide range of human activities, displaying heterogeneous features and functions in each of them. For example, engaging with fiction, deliberate hypothetical reasoning, and unbidden day-dreaming are all described as imaginative operations. However, whereas imagination has been explored from a wide range of philosophical perspectives, contemporary philosophers often abstain from giving substantive characterizations of it.

Given the heterogeneity with which this mental state is associated, it is considered to be particularly difficult to define. For this reason, when commenting on the uses and applications of the terms *image*, *imagine*, and *imagination*, P.F. Strawson (2003) refers to imagination as a “diverse and scattered family.”¹ In a similar way, in her introduction to a recently published encyclopedia about imagination, Anna Abraham (2020a) argues that it is “a formidable challenge”² to define a concept as expansive as imagination. However, as a way to capture the complex and diversified nature of human imagination, she makes a metaphorical comparison with the properties of water:

Imagination can manifest in widely different forms from the tangible to the intangible. Its workings range from calm and predictable to volatile and unpredictable. It is a fundamental part of our physiological make-up, permeating our very being, and it is essential to our mental life. It is nourishing and constructive yet can also be overwhelming and destructive. It is quiet. It is dogged. It shapes. It wields. It fits. It flows. It pushes against fault lines. It breaks away. It lacks definition, yet it is formidable.³

Despite the elusive character of this particular mental capacity, I suggest that we take Shen-yi Lao’s and Tamar Gendler’s (2019) definition as a point of departure for this dissertation. By giving a broad characterization of the investigated target, their description allows us to reach a general understanding of

¹ Strawson, 1970: 31.

² Abraham, 2020a: 2.

³ Abraham, 2020b: 814.

imagination. To imagine, according to them, is “to represent without aiming at things as they actually, presently, and subjectively are.” As a result, one can use imagination “to represent possibilities other than the actual, to represent times other than the present, and to represent perspectives other than one’s own.” Thus, when a subject imagines, it is not required that s/he consider the content of the imagining actually to be the case (which is something that, by contrast, is required of mental states such as belief and perception).

As a starting point for this dissertation, Liao’s and Gendler’s characterization points to certain essential features that most forms of imagination have in common. However, as my exploration below will show, there are also significant dissimilarities between how different kinds of imaginings operate. In this study, the phenomenon of imagination will be related to the areas of science and religion. The central question of my examination concerns, in turn, what role(s) imagination might play in these different contexts. As the bracketed “s” implies, we should expect a variety of different roles to be enabled by this mental capacity. However, as the main title of this dissertation suggests, such heterogeneity can also be captured by referring to the *multifaceted* role of imagination.

1.1.2 The relationship between science and religion

While the relationship between science and religion has been the subject of numerous books and articles, this introductory text has only a limited scope. In this case, it refers only to influential typologies of this relationship, and points to certain dimensions that will be of relevance for my own study.

The best-known typology of the relationship between these two domains is probably Ian Barbour’s (1997) fourfold taxonomy of conflict, independence, dialogue, and integration.⁴ Influenced by Barbour’s and by John Haught’s (1995) typologies, Mikael Stenmark (2013ab) formulates four models of how to relate science and religion. According to *the irreconcilability (or conflict) model*, science and religion make competitive claims about the same territory, and therefore cannot be reconciled as long as they maintain their distinctive features. *The reconciliation (or contact) model*, by contrast, is that science and religion are distinct practices that can coexist and have some areas of contact

⁴ *The conflict view* maintains that science and religion make rival statements about the same domain. *The independence view* holds, in contrast, that science and religion are totally independent and autonomous enterprises. Thus they can both be true as long as they respect their limits and stay true to their distinctive domain. According to *the dialogue view*, an exchange between science and religion can take place about methods, conceptual issues, metaphysical presuppositions, and so forth. It is only in rare cases that this leads to a reformulation of religious beliefs or doctrines. For defenders of *the integration view*, some sort of overlap is possible between the content of theology and the content of science. However, to a larger extent than with the dialogue view, changes in scientific theories may entail a reformulation of religious beliefs and doctrines (Barbour, 1997:77-105; Stenmark, 2013a: 775-779, 2013b).

and overlap. *The independence model* states that science and religion are compatible, since they are two independent practices that don't have any overlap or contact. According to *the replacement model*, in turn, the domain of science may expand up to the point of becoming the new religion.

Even if both Barbour's and Stenmark's typologies include views that acknowledge overlaps between science and religion, they conceptualize them differently. In the case of my dissertation, one could argue that it presupposes a certain overlap by seeing them as involving imaginative cognition. A more intriguing question, nonetheless, concerns how such an involvement is carried out and what possible consequences this has for either of these domains. This is a matter that, in the course of this study, I intend to investigate.

When exploring this matter, it is necessary to take into account that the relationship between science and religion, as Stenmark (2004) suggests, is multi-layered. According to him, there are, at least, four dimensions that need to be taken into consideration: (1) the social structure of either domain; (2) the aims of scientific and religious practices; (3) the kind of epistemology they exhibit, and (4) their theoretical content.⁵ Even if all four dimensions are important, it is the teleological and the epistemological dimensions that have the most relevance in my forthcoming examination.

The teleological dimension covers the aims of each practice. Whereas both science and religion search for intelligibility, it is not necessarily of the same sort. In the case of science, the aim, according to Stenmark, is to make the world technologically and predictively intelligible. For religion, in contrast, the goal is to make the world existentially intelligible. In addition, one can distinguish between epistemic and practical goals. In the former case, the aim is truth and the avoidance of falsehood. When it comes to practical goals, these are associated rather with the attainment of values such as peace of mind, happiness, the meaning of life, and so forth. However, even if religious practices can involve both of these goals, one does not automatically lead to the other. That is, whereas some cases of religious engagement aim at increasing the number of true beliefs, other cases are more related to the achievement of practical goals.⁶

The epistemological dimension, in turn, is concerned with the epistemological norms that are endorsed in either practice: issues related to knowledge, truth, rationality and justification. One aspect that Stenmark problematizes, for example, is the assumption that belief in God functions in the same way as a scientific hypothesis. That is, even if religious belief sometimes functions as a hypothesis, it doesn't necessarily resemble a scientific one. This is particularly the case, Stenmark argues, since many practitioners consider God to be

⁵ Stenmark, 2004: 12-13

⁶ Stenmark, 2004: 28-52

an experienced reality rather than a derived entity of some sort. For this reason, for them faith is an expression of something holy and beyond the mundane instead of an explanation of natural events.⁷

1.2 Purpose of the study

The main purpose of this study is to examine critically and discuss the role of imagination in science and religion, with particular emphasis on its possible epistemic, creative, and meaning-making functions.

1.3 Formulating the problem

1.3.1 Research questions

The main purpose will be pursued by answering the following four research questions:

- (1) *How should we philosophically conceptualize the mental capacity of imagination?*

The purpose of this question is to identify and problematize different theoretical suggestions on how we should understand and conceptualize imagination. As a point of departure, however, I shall embrace the common contemporary assumption that “imagination” functions as an umbrella term for a variety of mental operations sharing a certain family resemblance

- (2) *What forms and functions does imagination have in scientific and religious practices?*

The purpose of this question is to identify the possible functions that imagination may have, and to assess whether they are significant for the practice of science and religion

- (3) *In what ways, if any, do these imaginative forms and functions in science and religion (primarily Christianity) distinguish themselves from each other?*

The purpose of this question is to compare and contrast the functions of imagination, identified in research question (2), as they appear in science and religion.

⁷ Stenmark, 2004: 52-81.

- (4) *Do the answers to questions 1-3 in any way influence the understanding that we (as scientists and human individuals in general) should have of what science and religion are or ought to be?*

The purpose of this question is to assess the result and outcome of our investigation. This includes a consideration of the possible impact it might have on how we view the practice of science and religion (as separate entities) as well as the dialogue between these two fields.

1.4 Theoretical and methodological framework

As a framework for my examination, I shall use the contemporary discussion of imagination that, in recent years, has been taking place primarily within philosophy of mind. The philosophy of mind is a sub-discipline of philosophy that investigates the question of how mental states and processes should be conceived in relation to physical states and processes. Some of the issues that are addressed by philosophers in this field, for example, are the relation between the body and the mind, the nature of consciousness, and the characteristics of and relations between various mental states. In this dissertation, it is primarily the last-mentioned topic that will be investigated – in particular, the mental state of imagination and the role it plays in human cognition

In this dissertation, I shall apply concepts and theories from philosophy of mind on the mental state of imagination. Thus, while my examination considers results from a broad range of areas, I shall discuss these findings in a philosophical context. As a way to answer my research question, I am going to conduct a conceptual analysis of “imagination” in relation to scientific and religious practices. This includes a comparison between- and an argumentative analysis of different ways of conceptualizing imagination in relation to science and religion.

As a discipline, philosophy of mind comprises a wide range of orientations and methodologies. However, while intersecting with the fields of psychology, neurobiology, and computer science, it approaches the mind through a philosophical framework and a philosophical methodology. At the same time, it is important to notice that many findings in other scientific disciplines have played important roles in philosophical debates about the mind. As an example, we can think of the influence that Alan Turing’s paper “Computing machinery and intelligence” (1950) has had on various disciplines (including philosophy). One element of Turing’s work that has had a great impact, for example, is the so-called Turing test, which can be used to determine whether computers can “think.” Turing’s work – as well as other frameworks for discussing machine intelligence – have paved the way for the so-called computer

revolution that has influenced how many scientists reason about human thinking.⁸ That is, even if the comparison between a human mind and a computer has been criticized,⁹ it has indeed generated a philosophical discussion about the nature of human cognition.

Another area that has brought about progress in how we understand the human mind is the attempt to identify which neural regions correlate with which cognitive functions (neural localization or “brain mapping”). As an example, we can think of the split-brain studies in the 1970s, in which R.W. Sperry (1964) and Michael Gazzinga (1970) revealed new insight into hemispheric specialization and the way in which the brain’s hemispheres consolidate their activities independently of one another. While these empirical results were generated in the discipline of neuropsychology, they reached philosophers via Thomas Nagel’s “Brain bisection and the unity of consciousness” (1971). Since then, these findings have played an important role in debates about consciousness as well as about personal identity.¹⁰

While there are various ways philosophically to study the human imaginative capacity, I consider philosophy of mind to be the approach that best serves the purpose of this dissertation. In particular, it allows me to explore the mental state of imagination, not as an isolated phenomenon, but rather as one of many mental states that co-exist and interplay in our cognitive architecture. By approaching imagination in this way, I am able to explore the role that imagination have in human cognition as a whole. Furthermore, it allows me to investigate the possible influence that such interactions have on scientific and religious practices.

At the same time, it is important to consider what the possible methodological consequences of approaching imagination from this particular perspective are. One consequence, for example, is that mental states (such as imagination) are seen as representational states that carry representational content. This way of talking about mental phenomena differ, for this reason, from how many philosophers in the continental tradition conceptualize the operations of the mind. As an illustration, we can compare an analytical and a phenomenological way of exploring imagination. In the case of analytical philosophers, a common strategy, for example, is to infer the nature of imagination from certain functions ascribed to it in an overall theory of mind. However, for philosophers belonging to the tradition of phenomenology, it is more likely that they examine essential characteristics in concrete acts of imagining. For instance,

⁸ “Computer science and the issuing technological applications...have not only provided unprecedented epistemic and engineering powers over natural and artificial realities; by doing so they have also cast new light on who we are, how we are related to the world and hence how we understand ourselves” (Floridi, 2012: 3540).

⁹ Searle (1980) argues, for example, that a machine is capable of passing the Turing test by simply “simulating” thinking – rather than actually thinking.

¹⁰ , questions if the Turing test

¹⁰ Kind, 2019: 6-9.

in light of Edmund Husserl's phenomenological account, a philosopher may refer to imagining as an experience of something in the mode of "non actuality" which cannot be captured by representationalist models of the mind.¹¹

1.5 Structure

In order to answer my research questions, I shall apply theories and concepts from contemporary philosophy of mind on imagination on the fields of science and religion. The structure of my study takes the following form:

In the first chapter of this dissertation, I present the context of the study. This includes an identification of the main purpose of this study, a formulation of four research questions, definitions of relevant concepts, and an overview of previous research

In the second chapter, I give an overview of the contemporary philosophical research on imagination. In light of this philosophical discourse, four types of imagination are identified and conceptualized: sensory, propositional, experiential, and creative imagination. As a way to specify how imagination operates in scientific and religious cognition, I examine how imaginings interact with mental states such as belief and perception.

In the third chapter, the concepts and categories that I identify in Chapter two are employed on four phenomena that can be found in scientific environments – that is, metaphors, models, thought experiments, and cases of "aspect perception." As an analytical tool I use two levels of mediation through which imaginings are constructed and constrained. In relation to scientific models, the propositional, metaphorical, and additive views of models are presented. In regard to thought experimentation, I make a distinction between accounts that hold propositional, sensory, or experiential imagination to be operative in such procedures.

In the fourth chapter, the concepts and categories that I identify in Chapter two are employed on five phenomena that can be found in religious environments: metaphors, models, thought experiments, cases of "aspect perception", and engagement in religious rituals. As an analytical tool I use the two levels of mediation that were introduced in the previous chapter. In relation to the concept of "religious seeing," I explore the role that imagination plays in visionary experiences and visualization. In Chapter four, a distinction is also

¹¹ Even so, there are many areas of direct thematic overlaps between phenomenology and philosophy of mind. An example of such overlap is the contemporary philosophical discussion about perceptual content and the phenomenal character of perception. Similar to Merleau-Ponty's phenomenological view of perception, some philosophers of mind suggest that our perception is dependent on how our bodies are structured and how our perceptual systems operate in relation to the world ("the enactivist account of perception"). For a general discussion of the overlaps between philosophy of mind and phenomenology, see Walsh and Yoshimi (2019).

made between truth in a general sense (T-Gen), existential truth (T-Ex), and existential meaning-making (Ex-M).

In the fifth chapter, the propositional view of models is examined more thoroughly. In order to do so, I examine the distinction between doxastic, non-doxastic, and fictionalist stances in relation to science and religion. Instead of promoting any one of these views, I formulate and advocate the position of interaction. In light of this stance, I investigate the fiction-based religion Jediism, and the relation between scientific and religious cases of visions and visualizations.

In the sixth chapter, special attention is given to experiential imagination. I relate this type of imagination to the narratological concept of “transportation”, and investigate how it relates to religious rituals and scientific and religious thought experiments. In this connection, the epistemic state of understanding is discussed and related to religious rituals as well as to scientific and religious thought experimentation.

In the seventh chapter, I return to – and suggest answers to – the research questions that were formulated in Chapter one. Whereas the second and third questions have been at the centre of attention in Chapters three to six, the first and the fourth questions have only surfaced as an indirect background to my discussion. In Chapter seven they are examined more thoroughly. This results in an extensive conceptualisation of imagination, and an identification of its meaning-making, epistemic, and creative functions. These functions are then employed in my final discussion of the role of imagination in science and religion.

1.6 Concepts

1.6.1 Science

As used in this dissertation, the term “science” refers to the branches of science that do a systematized study of nature and the physical world, such as physics, chemistry, and biology.¹² However, while modern science is a succession of classical approaches to natural philosophy, I am primarily concerned with a contemporary understanding of scientific practice.

The aims of science are to describe, explain, and predict natural phenomena. In order to achieve these goals, scientists formulate falsifiable hypotheses and theories¹⁴ that are used to make predictions that are testable by experiment or observation (the hypothetico-deductivist approach). What counts as an approved theory, however, depends on the kind of qualities that scientists

¹² In addition, natural science can be divided into life science (to which biology belongs) and physical science (which includes physics, chemistry, Earth science, and astronomy).

¹⁴ In order to distinguish scientific from pseudo-scientific claims, Karl Popper (1963) argued that a theory must be falsifiable in order to be ranked as scientific.

in different disciplines value.¹⁵ In general, however, scientific inquiry has a critical relationship with the criteria of testability, transparency and empiricality.

The criteria of testability means that a scientific hypothesis must be observationally testable. If the hypothesis proves unsatisfactory, it is either modified or discarded. In order to meet the criteria of transparency, the running of an experiment must result in a publicly observable testimony that can be reproduced by any competent experimenter. Empiricality means, in turn, that scientific practice is restricted to empirical matters. Consequently, there is a distinction between *a priori* knowledge (in which justification is independent of experience) and *a posteriori* knowledge (in which justification depends on experience and empirical evidence). However, whereas the natural sciences are empirical, they make use of mathematics and logic to comprehend, predict, and communicate critical aspects of either of these disciplines.¹⁶

While one of the main achievements of science is to provide explanations, there are different opinions about its characteristic features. According to the deductive-nomological model, an explanation consists of a deductive argument that involves a phenomenon that requires explanation (*explanandum*) and an explanation (*explanans*) that deduces the phenomenon to a known general law.¹⁷ Causal theories of explanation, by contrast, hold that the explanatory work consists of identifying the causal processes behind an event or phenomenon.¹⁸ The basic idea of unificationist theories, in turn, is that scientific explanation is a matter of providing a unified account of a range of different phenomena.¹⁹

In addition, there are different views about what constitutes scientific progress. Historically it is associated with advances in scientific knowledge.²⁰ In recent years, a similar position has been defended, for instance, by Alexander Bird (2007, 2008, 2015). According to him, an episode in science is progressive “when there is more scientific knowledge at the end of the episode than at the beginning.”²¹ Competing accounts claim, however, that scientific progress can be defined by increasing verisimilitude and truthlikeness,²² an enhanced capacity to solve empirical and conceptual problems²³, or an increase in scientific understanding.²⁴ In the latter case, it refers to an epistemic state

¹⁵ For example, explanatory power, simplicity, accuracy of prediction, visualizability, and so forth.

¹⁶ Audi, 2009: 24-28.

¹⁷ Hempel and Oppenheimer, 1948; Hempel, 1962, 1965.

¹⁸ For example, Salmon, 1984.

¹⁹ For example, Friedman, 1974; Kitcher, 1989.

²⁰ For example, Bacon, 1900; Barnes, 1991; Bragg, 1936; Cohen, 1980; Sarton, 1927.

²¹ Bird, 2007: 64.

²² Niiniluoto, 1980, 2014; Popper, 1963, 1976.

²³ Kuhn, 1962/1970; Laudan, 1978, 1984. While Karl Popper (1972) also emphasizes the importance of scientific problem-solving, authors such as Kuhn and Laudan tie scientific progress entirely to this capacity.

²⁴ Bangu., 2015; Potochnik, 2015; Dellsén, 2016.

of “grasping” the relationships within the particular object of understanding. As argued, for example, by Finnur Dellsén (2016), an agent understands something “just in case she grasps how to correctly explain and/or predict some aspects of the target phenomenon in the right circumstances.”²⁵

1.6.2 Religion

Given the great variety of religious traditions in the world, some argue that it is impossible to give a coherent substantive definition of religion that applies to all of them. According to the most critical voices, religious scholars should abandon the term “religion” all together, since it doesn’t have a genuine referent²⁶ and therefore isn’t a “valid object of inquiry.”²⁷ Another critique of the term claims, in turn, that it is a product of the modern Western imagination, and has been used to group together various aspects of culture under the westernized conceptualization of religion (which is closely tied to the history of Western European Christianity).²⁸ What is implied in these remarks, consequently, is that religion is an imaginary and invented concept that doesn’t correspond to an objective reality.²⁹

Despite the controversy, I shall use the term “religion” in this dissertation. However, even if many of my examples come from a Christian context, the intention is not to limit the conceptualization of religion to a strictly Christian framework. Following Kevin Schilbrack (2013, 2018), I suggest instead that a polythetic – rather than a monothetic – definition is best suited for the project at hand. Whereas a monothetic definition stipulates necessary and sufficient criteria for membership in the category of religion, a polythetic (or family resemblance) definition “identifies some class of things in terms of a number of features, no one of which is necessary or sufficient.”³⁰ One advantage of a polythetic definition, consequently, is that it doesn’t assume that members of a category share a necessary essence or feature. This aspect is stressed, for example, by Victoria Harrison (2006), who advocates a family resemblance perspective as well:

If these traditions are thought of as composed of sub-traditions possessing family resemblances, there will be less of an inclination to search for a homogeneous tradition that is, itself, highly contested. Nor will we be inclined to expect all those who adhere to any one of the major religions to accept exactly the same set of beliefs. This approach thus allows us to be sensitive to the diversity

²⁵ Dellsén, 2016: 76.

²⁶ Fitzgerald, 2000: 17. The full quote: “The word [“religion”] has no genuine analytic work to do and its continued use merely contributes to the general illusion that it has a genuine referent.”

²⁷ Smith, 1963: 12.

²⁸ Smith, 1982.

²⁹ For example, Smith, 1982, 1998; Fitzgerald, 1997, 2000; Asad, 1993; McCutcheon, 1997, 2001; Webb, 2009

³⁰ Schilbrack, 2018: 155.

of religious belief and practice commonly found even within the “same” tradition, while simultaneously providing a framework for appreciating such diversity as part of richly textured and continuously evolving traditions.³¹

However, like Schilbrack, I support the view that the preferred definition should be “anchored” – that is, to hold that there are some features that are essential, but not sufficient, for membership in the category of religion. As the phenomenon of religion will be conceptualized in this dissertation, reference to supernatural/superhuman realities (whether theistic, polytheistic, or nontheistic), for example, is such a core feature. In addition to having this kind of focal object, it is argued that religions serve a variety of functions for the involved individuals. The brief summary of these functions, consequently, is that they provide participants with existential guidance and address problems of different kinds.³²

Nonetheless, when using a term such as “religion,” one should distinguish between (a) religious practice as the religious believer’s act of faith, and (b) the scientific discipline of theology. According to Mikael Stenmark (2004), (a) has no equivalent in science, while (b) is “an intellectual enterprise like science.”³³ That is, in the case of the professional theologian, his/her task involves special training and a higher degree of cognitive competence than what is required when taking part in religion in general.

1.6.3 Mental states

As the concept of “mental state” is used in this dissertation, it refers to a state of mind that an agent is in. Mental states can, for example, take the form of imagining, believing, desiring, hoping, perceiving, and so forth. In contemporary philosophy of mind, the received view is that mental states can also be described as the attitudes an agent takes towards a proposition: for example, “to believe that *p*” or “to imagine that *p*.” For this reason, many philosophers use the concepts of “mental state” and “propositional attitude” interchangeably. Furthermore, mental states and propositional attitudes are typically presented in their own right rather than being referred to as a conglomeration of many different states and attitudes

In my examination, I shall follow this common standard while, at the same time, taking into account that there’s an ongoing philosophical discussion about the relationship between the agent’s mental state and a proposition. Furthermore, in relation to imaginings, it serves the purpose of this dissertation to question whether one and the same mental state can actually satisfy the various roles attributed to imagination (Section 7.2.1).³⁴ In addition, we should take

³¹ Harrison, 2006: 148-149.

³² Schilbrack, 2018: 158-159.

³³ Stenmark, 2004: 25.

³⁴ Kind, 2013.

into account the recent suggestion that imagination can be broken down into more basic folk psychological states and processes such as belief, desire, and intention (Section 7.2.3).³⁵

1.7 Previous research

In this dissertation, I've chosen to work according to a problem-based procedure. This means that my examination is structured around the research questions that I formulated in Section 1.3.1 (which, in turn, address a distinct research problem; – namely, the role that imagination might play in science and religion). This approach also affects the content and scope of my overview of previous research. That is, instead of aiming for a comprehensive review of works that deal with imagination in science and religion, my principle of selection is based on what I consider to be relevant in relation to my research questions. This means that I am selective in relation to works that, for example, primarily give a historical overview of imagination. For this reason, the next section will not include a thorough exegesis of some of the major Western philosophical theories of imagination – such as those formulated by Plato, Aristotle, Immanuel Kant, and Edmund Husserl (among others). Even so, it is often the case that much of the contemporary literature, in some way or another, stands on the shoulders of these philosophical “giants.”

1.7.1 Three approaches to the role of imagination

According to Sandbeck (2013), one can distinguish three different kinds of approaches to the role that imagination plays in science and religion. According to the first approach, imagination has no role to play in either of these fields. On this account, imagination belongs to the domain of the unreal, and is therefore unable to give us access to an objective reality. One example is the view that knowledge of God depends entirely on God's self-revelation rather than on human reason and imagination. A twentieth-century example of this approach is that of the German theologian Rudolf Bultmann's (1941/1953) “demythologization program.” In order to secure divine self-revelation, Bultmann argues that one should exclude those parts of the New Testament that are contaminated by human imagination (for example, its mythical world picture).

In a similar way, it has been argued that imagination – as a subjective mental state – jeopardizes the epistemic objectivity of the scientific method, which, in turn, could lead to pseudoscience. For this reason, philosophers of science have often neglected the role of imagination in science. This has been done, for example, in light of Hans Reichenbach's (1938) distinction between

³⁵ Langland. Hassan, 2020.

the context of discovery³⁶ and the context of justification³⁷. As a result, many philosophers of science have argued that scientists' creative processes (as psychological procedures) are unimportant for the epistemic value of the resulting theory. For this reason, Karl Popper (1934/1959), for example, insists that the focus of the philosophy of science should not be on the insight stage of discovery but, rather, on the context of justification (in which the logical relationships between hypotheses and evidence are evaluated).

According to Sandbeck's second approach, imagination is found only in religion. On this account, religion is put in opposition to objectivity and scientific reason. This is the position of Ludwig Feuerbach (1841/1969), for example, who claims that religion is a projection of human wishes and, as such, is a product of individuals' illusionary imagination.

In the contemporary philosophical discussion, Neil Van Leeuwen (2014, 2016, 2017, 2018) formulates an interesting twist of this position. According to him, religious credence is different from factual beliefs by constituting "a secondary cognitive attitude" that is closer to fictional imaginings and hypotheses. He supports this argument, for example, by holding religious beliefs to be resistant to contrary evidence. Van Leeuwen is the author of a number of articles about imagination (written from the perspective of philosophy of mind) in which, for instance, he explores the relation between imaginings and beliefs. Interestingly enough, Van Leeuwen's writings on religious credence stand out from his other work by (as it seems) almost equating religious beliefs with imaginings (in the form of make-believe and hypothetical thinking about possibilities).³⁸

With Sandbeck's second approach we may also count Sigmund Freud (1907) and his dismissal of religion as an illusion and as the "universal obsessional neurosis of mankind." According to Freud's psychoanalytical theory, individuals' earliest childhood fantasies affect and shape how, as grownups, they understand the world. His critique of religion depends, in turn, on an oppositional construction of the relationship between science and religion (a view that is itself informed by nineteenth-century scientific optimism). However, as argued by Beverley Clack (2007), it is also possible to interpret Freud's discussion of the relationship between fantasy and reality in a way that allows for an account of religion that moves beyond seeing it as a mere "illusion." Under this view, it is instead the case that human beings construct their reality through a complex interplay between fantasies and real-world engagement. However, according to Clack, this is not something that is exclu-

³⁶ "The context of discovery... is the set of social, historical and psychological events leading to the formulation of a scientific result" (Barberousse, 2018: 228).

³⁷ "The context of justification... refers to the context within which a theory is formulated and founded rationally, independently of the contingent circumstances which led to its elaboration" (Barberousse, 2018: 228).

³⁸ For a reply to Van Leeuwen's view, see Boudry and Coyne, 2016; Levy, 2017.

sive to religion. Rather, it is the case, she argues, that this is an essential component in many other ways by which human beings attempt to make life meaningful.

Thus, as a result of Clack's alternative reading of Freud, we can see that his account also can be interpreted as belonging to the third approach that Sandbeck identifies. According to this approach, imagination plays an essential role in science and religion alike. Accordingly, it is this third perspective that my dissertation sets out to examine critically. However, since the forthcoming chapters include many references to previous research, at this point I shall only mention a selection of works that serve as a background to my own analysis.

1.7.2 Religious imagination

In regard to contemporary research on religious imagination, there are certain aspects that are particularly relevant to this dissertation. One of them concerns the relation between truth-normed beliefs and truth-independent imaginings. While philosophy of mind approaches this issue in a distinctive way, questions of truth can be dealt with by using many other philosophical frameworks. This is the case, for example, with Erica Appelros' *God and the act of reference* (2002). From a semantic perspective, Appelros analyses the underlying conceptual strategies that religious language has in common with make-believe activities (such as play). Instead of ontologically classifying religion as play and God as simply a make-believe object, Appelros's objective is to investigate how our conceptualisations contribute to what we are willing to consider as "real." In a similar way as make-believe play, religious language refers – according to her – to entities that have only a weak dependence on physical characteristics. Even so, this kind of reference can be meaningful and highly significant for participants in religious practices, Appelros argues. As we shall see, this is a perspective that relates to my upcoming discussion about interactivism, meaning-making, and fictionalism

Another work that deals with the "make-believe component" of religion is Ann Taves' *Religious experience reconsidered: A building-block approach to the study of religion and other special things* (2009). While being written in the discipline of the history of religion, this work give valuable insights into the processes through which experiences are deemed religious – at the individual as well as the intrapersonal level. Of particular relevance for my dissertation is Taves's discussion of the essential role that imagination plays in order for this kind of interpretation to take place. Taves's work involves two elements that are relevant to my own study: (a) a discussion of how experience seemingly becomes real to subjects in the context of ritual, and (b) a search for the cognitive foundation of these experiences.

Regarding the relation between imagination and enhanced realness, this is an aspect that also has been studied by anthropologist Tanya Luhrmann (1998,

2010, 2012), to whose empirical work I refer in Chapter four. In relation to the cognitive foundation of imagination in religious practices, this is something that has been explored by Egil Asprem (2017), for instance. In this article, Asprem draws on recent work in the neuroscience of perception in order to develop a general theory of kataphatic (imagery-based) religious practice. Thus, while coming from other scientific disciplines than philosophy, the perspectives of Taves, Luhrmann, and Asprem will influence my approach to imagination.

For this reason, this way of approaching religious imagination is quite different from the view promoted, for instance, by Douglas Hedley (2008, 2011, 2016). In his trilogy of imagination, Hedley argues for a Romantic view of imagination. His account draws on Plato and on Samuel Taylor Coleridge and Friedrich Schelling. While not holding rationality and imagination to be the opposites of each other, Hedley agrees with Romanticism that ultimate reality cannot be grasped solely by the rational mind. From this perspective, he argues that imagination – for example, in the form of symbols, art, and poetry – can serve as an indirect apprehension of transcendent reality. By approaching imagination through the framework of philosophy of mind, my strategy doesn't include theological and epiphanic associations of this kind. A resemblance between Hedley's and my own account, however, is that we both give the relation between imagination and creativity a central role in our explorations. An additional similarity is, in turn, that both consider imagination to be part – rather than an opposite – of rationality. In the latter case, this creates the point of departure for my own examination of how imagination contributes to the religious and scientific ways of making the world intelligible.

1.7.3 Scientific imagination

One of many forms that imagination can take is “fiction”: a mode of representation (for example, a story) that is made up in an authors' imagination and, for this reason, is “strikingly different from representation concerned with truth.”³⁹ A philosopher who recognized early on the importance of such representations in scientific inquiry was the Neo-Kantian philosopher Hans Vaihinger. In his *The philosophy of 'as if'* (1911/1924)⁴⁰ he argues that human cognition is unable to achieve complete knowledge of the underlying reality of the world. However, as a way practically to orientate ourselves in the world, we can construct systems of thought and then behave "as if" the world matches our models: ‘A is to be regarded as if it were B (when in fact A is not B)’⁴¹

³⁹ Kroon and Voltolini, 2019.

⁴⁰ First published in German as *Die Philosophie des Als Ob* (2011).

⁴¹ It is important to notice that Vaihinger makes a distinction between fictions and hypotheses. In the case of the latter, as he sees it, they refer to real phenomena.

In particular, Vaihinger uses examples from the physical sciences. Even if many of these phenomena cannot be observed directly, it is – as he sees it – heuristically useful to “pretend” that they exist and to use observations made on these assumptions to create new and better constructions.⁴² In the contemporary literature, Vaihinger is credited as the founder of “fictionalism” – the philosophical view according to which sentences that appear to be descriptions of the world should instead be understood as cases of “make-believe” (a fiction that is useful while being not literally true). I shall discuss this position more thoroughly in Section 5.2.3.

In the works of the chemist and philosopher Michael Polanyi, we find another way of describing the role of imagination in science. According to Polanyi, theory commitment and explanation in science is not a strictly logical matter. Rather than referring to it as a mechanical procedure, Polanyi stresses that all knowledge claims (even those that rely on rules) rely on a personal commitment that, in turn, motivates discovery and validation. In light of this characterization, Polanyi describes scientific discovery as a type of “indeterminate vision” that involves an incomplete understanding of reality that can be extended by later scientists.⁴³ As a result of this kind of indeterminacy, imagination and intuition play important roles in scientific discovery, Polanyi argues. While imagination enables scientists to have a vague vision of a problem and its possible solution, it is the skill of intuition that guides their evaluation and sensibility to coherence.⁴⁴ On this view, it is the interplay between imagination and intuition that leads to scientific discoveries. As an illustration, Polanyi draws a comparison with how deliberate and spontaneous acts are involved in muscle recognition and visual perception:

Discovery is made therefore in two moves: one deliberate, the other spontaneous, the spontaneous move being evoked in ourselves by the action of deliberate effort. The deliberate thrust is a focal act of the imagination, while the spontaneous response to it, which brings discovery, belongs to the same class as the spontaneous coordination of muscles responding to our attention to lift our arm, or the spontaneous coordination of visual clues in response to our looking at something. This spontaneous act of discovery deserves to be recognized as *creative intuition*.⁴⁵

As noticed in Section 1.7.1, Hans Reichenbach’s (1938) distinction between the context of discovery and the context of justification determined the scope of philosophy of science for many years. However, in the second half of the

⁴² Stoll, 2020.

⁴³ “The vast indeterminacy of the Copernican vision showed itself in the fact that discoveries made later, in the light of this vision, would have horrified its author. Copernicus would have rejected the elliptic planetary paths of Kepler and, likewise, the extension of terrestrial mechanics to the planets by Galileo and Newton” (Polanyi, 1966/2009: 149).

⁴⁴ According to Polanyi, intuition is a skill “for guessing with a reasonable chance of guessing right, a skill guided by an innate sensibility to coherence” (Polanyi, 1966/2009: 155).

⁴⁵ Polanyi, 1966/2009: 159.

twentieth century it lost its influential power. As a result, the cognitive processes of scientists became legitimate epistemological topics.⁴⁶ In light of this shift, philosophers now began to acknowledge the role that imagination plays in scientific procedures. In the contemporary philosophy of science, two areas in particular are associated with the employment of imagination: scientific models and thought experiments. In the former case, philosophers of science have been preoccupied with the nature of this kind of scientific representation.⁴⁷ According to one view, models are “imaginary systems – systems that only exist “in” a scientist’s imagination.”⁴⁸ In light of such a perspective, Nancy Cartwright (1983) suggests a resemblance (while not necessarily a full analogy) between models and fictions.

A model is a work of fiction. Some properties ascribed to objects in the model will be genuine properties of the objects modelled, but others will be merely properties of convenience.⁴⁹

Cartwright’s work is, in turn, antecedent to the approach taken by contemporary philosophers such as Roman Frigg (2010a,b) and Adam Toon (2010, 2012), who refer to scientific models in terms of make-believe (which I shall discuss more thoroughly in Section 3.4.1).

In the case of scientific thought experiments, they take the form of a narrated imaginary scenario that provides evidence either for or against a theory, illustrates abstract states of affairs, or fulfils specific functions within a theory. When a subject engages with this kind of narrative, s/he speculates in her mind about what might happen if the scenario occurred in reality.⁵⁰ Some examples of well-known scientific thought experiments are Schrodinger’s cat⁵¹ and Einstein’s elevator.⁵² I shall discuss scientific thought experiments more thoroughly in Section 3.6.

⁴⁶ See, for example, Darden, 1991; Nersessian, 1984, 1992a; Thagard, 1984.

⁴⁷ See, for example, Frigg and Nguyen, 2016.

⁴⁸ Levy and Godfrey-Smith, 2020: 3.

⁴⁹ Cartwright, 1983: 153.

⁵⁰ While Ernst Mach (1897) often is credited with introducing the term “thought experiment” (*Gedankenexperiment*), recent proposals hold that its conceptual history goes back to the Danish physicist and chemist Hans-Christian Ørsted (1811) and the German philosopher-scientist Georg Lichtenberg (1742-1799).

⁵¹ Erwin Schrödinger’s thought experiment that he formulated to illustrate the problems with the Copenhagen interpretation of quantum mechanics. According to this thought experiment, a hypothetical cat may (if linked to events on the subatomic levels that may or may not occur) be simultaneously dead and alive.

⁵² A thought experiment in which Albert Einstein imagines an observer inside a closed space, such as an elevator, that is equipped with a complete physics lab. Inside the closed lab one can perform any physics experiment, but one cannot communicate directly with observers or the world outside the closed laboratory. By mean of this thought experiment, Einstein realized that no experiment performed inside the closed lab could distinguish between the lab’s being in a strong gravitational field and its being accelerated rapidly upward. He concluded that a general theory of relativity, one valid for transformations between mutually accelerated frames of reference, would therefore also have to be a theory of gravity.

2 The contemporary philosophical discussion of imagination

2.1 Introduction

As mentioned earlier, a number of philosophers acknowledge the difficulty of defining what the concept of “imagination” actually contains.⁵³ Following this line of reasoning, Amy Kind (2013) suggests that imagination should be thought of as a heterogeneous rather than a homogenous phenomenon. According to her, there is no single mental faculty that can do all the work to which imagination has been assigned: for example, in mindreading, pretense, engagement with fiction, and modal epistemology. Rather than offering a substantive characterization of this/ mental capacity, philosophers typically refer to it as being perception-like⁵⁴, belief-like⁵⁵ and desire-like⁵⁶ (without being identical to perception, belief and desire).

Despite its ambiguous nature, many philosophers tend to use “imagination” as an umbrella term that covers a wide range of mental operations. In this dissertation I shall follow this common strategy while, at the same time, being attentive to various forms that imagination may take. Whether or not it is accurate to use the same term for these diversified phenomena, is a question that I shall return to in Chapter Seven (Section 7.2).

Here, as well as in the contemporary philosophical discussion of imagination, a number of different (and sometimes overlapping) distinctions are drawn between various kinds of imaginings. Thus, the categorization that I am going to apply differentiates between propositional-, sensory-, experiential-, and creative imagination. At the same time, it should be noted that imaginative episodes may combine different kinds of imagination. Neil Van Leeuwen (2013) refers to cases of “constructive imagination” that can be simultaneously characterized as (a) a constructive process, (b) an attitude, and (c) mental imagery. For example, Van Leeuwen refers to a situation where a reader imagines that the letter “g” on the page or computer screen before her is a dragon in disguise:

⁵³ Moran, 1994: 106; Strawson, 1970; Stevenson 2003; Kind, 2013.

⁵⁴ Currie and Ravenscroft, 2002; Kind, 2001.

⁵⁵ Currie and Ravenscroft, 2002; Nichols, 2006.

⁵⁶ Currie, 2010; Doggett and Egan, 2007.

...you generated the dragon representations by a constructive process; your attitude to the dragon was as of fiction; and your representations were probably imagistic – at least visual.⁵⁷

The first kind of imagination that I am going to explore is of a sensory kind. As the term *sensory imagination* will be used in this dissertation, it refers to perception-like experiences that occur in the absence of external stimuli. While it can be keyed to any of our sense modalities, the most common and frequently discussed form is mental imagery. An example of such an imagistic representation is to visualize imaginatively what it looks like when it snows on Mount Everest, or the red color of Hamlet's face as, filled with hate, he ponders the misdeeds of his stepfather Claudius.

If a subject represents to herself that something is the case (“Lisa imagines that *p*”), it is a case of *propositional imagination*. Propositional imagination can also be referred to as *attitudinal imagining*. That is, one adopts the attitude of imagining towards a certain propositional content. As an illustration of the difference between mental imagery and propositional imagination, Steven Pinker (1997) asks us to visualize a banana that lies next to a lemon, but without being on the left or the right side of it. Even if it is impossible to form a mental image that fulfills such a requirement, this is not the case with propositional imagination:

Propositions can represent cats without grins, grins without cats, or any disembodied abstraction: squares of no particular size, symmetry with no particular shape, attachment with no particular place, and so on...Spatial arrays, because they consist only of filled and unfilled patches, commit one to a concrete arrangement of matter in space. And so do mental images: forming an image of “symmetry,” without imagining a something or other that is symmetrical, can't be done.⁵⁸

If, rather, the imaginative representation has the form of an experience, it can be referred to as an *experiential imagination*. In contrast to imagining from no-one's standpoint, imagining of this sort represents what it's like for a specific person to undergo a particular experience. An example would be that I simulate what it would be like to be Hamlet and to look on the world from his perspective. This aspect, consequently, overlaps with what Gregory Currie and Ian Ravenscroft (2002) refer to as “recreative imagination”: an experiential perspective-taking in which the imagining subject is able to project herself into an imagined situation and to simulate the experiences that she would have:

Imaginative projection involves the capacity to have, and in good measure to control the having of, states that are not perceptions or beliefs or decisions or

⁵⁷ Van Leeuwen, 2013: 220.

⁵⁸ Pinker, 1997: 291.

experiences of movements of one's body, but which are in various ways like those states – like them in ways that enable the states possessed through imagination to mimic and relative to certain purposes, to substitute for perceptions, beliefs, decisions, and experiences of movements.⁵⁹

Creative imagination, according to Currie and Ravenscroft, is an imagining that “puts together ideas in a way that defies expectation or convention [and] ...leads to the creation of something valuable in art, science, or practical life.”⁶⁰ However, as will be apparent later on in this chapter, I consider this to be too limited a characterization. In Section 2.5, therefore, I shall propose an extension of the category. That is, in the case of Currie and Ravenscroft's above characterization, it fits with a basic cognitive skill that is often referred to as *conceptual blending*. In this procedure, selected conceptual material from two or more mental spaces is projected onto a new generic space and compressed into a new holistically experienced emergent structure. Analogous or metaphorical thinking are plausibly the most common forms of conceptual blending – that is, a synthesizing type of imagining that unites a manifold of disparate elements into a coherent whole. In Sections 2.5.1-2.5.4 I am going to suggest that a number of other types of imagination may contribute to creative cognition. In particular, I shall argue that *aspect perception* (“the seeing of aspects” or “seeing as”), *pretense* and *counterfactual supposition* can play such a role.

Whereas imagination is to be conceptualized as “one's state of mind,” pretense, in turn, is here understood as “one's actions in the world.”⁶¹ Peter Langland Hassan (2015) expresses a similar understanding when he writes that propositional imagination typically is “thought to be the cognitive component of pretend behavior: a person pretends that *p* partly by means of imagining that *p*.”⁶² Given this, pretense can be associated both with propositional imagination (imagination as a propositional attitude) and experiential imagination (the experiential perspective-taking that results from the enactment of this particular attitude). Following Kendell Walton (1990), pretense is often also referred to as *make-believe*.

However, in order to avoid confusion, it is necessary to point out that different kinds of imagination often cooperate and intersect with each other. For this reason, it is not always easy to make absolute distinctions between them. This is the case with counterfactual reasoning, which can be conceptualized as a case of propositional, experiential, or creative imagination, depending on the exact nature of the imagining agent's involvement. That is, even though counterfactual reasoning is often associated with propositional imagination, it can also have the phenomenology of an experience.

⁵⁹ Currie and Ravenscroft, 2002: 11.

⁶⁰ Currie and Ravenscroft, 2002: 9.

⁶¹ Liao and Gendler 2019.

⁶² Langland-Hassan, 2015: 227.

2.2 Sensory imagination

Sensory imagination is perception-like experiences that occur in the absence of external stimuli. Since these kind of imaginings often have an experiential character, it could be argued that they should be categorized as a subgroup of experiential imagination. This is a justified objection, since there is typically an overlap between experiential imagination and sensory imaginings. When, for instance, an individual, imagines from the outside that s/he is Napoleon, it may involve sensory imaginings of him/herself occupying the role of Napoleon (sitting on a horse; standing in front of an army, and so forth). If, on the other hand, this individual imagines from the inside being Napoleon, it involves instead the sensory imaginings that s/he would have if s/he occupied the perspective of Napoleon.⁶³ Furthermore, there are also instances where sensory imagination interacts with other kinds of imaginings that have different phenomenological characteristics. For this reason it should be acknowledged that sensory imaginings can appear on their own *and* as a constituent of other kinds of imagination.

Although sensory imagination can be keyed to any of our sense modalities, the most common and frequently discussed form is visual imaginings. In the presentation that follows, I shall focus primarily on mental imagery and the significant role that this phenomenon has played in the philosophical discussion on imagination.

2.2.1 Mental imagery

According to philosophers like Brann (1991), Kind (2001) and Kung (2010), imagination essentially involves mental imagery. Others claim, on the other hand, that there can also be cases of non-imagistic imagination.⁶⁴ I shall support the latter position, while suggesting that in fact many imaginative activities comprise a combination of different kinds of imagination (of which some – but not all – involve mental imagery).

In many of the classical theories of the mind, visual imagery is described as a central feature of human cognition. Aristotle, for instance, refers to it as the “eye of the soul”, and regards it as a necessary feature of all thinking.⁶⁵ Traditionally, such images have been conceived as picture-like representations in the mind: reproductions of reality and earlier sense impressions. Starting in the twentieth century, however, a variety of objections have been raised against the “picture theory”. Even though many philosophers and cognitive scientists acknowledge that visual imagining makes important contributions to our thinking, they disagree with the view that it takes the form of “pictures”

⁶³ Liao and Gendler, 2019.

⁶⁴ Chalmers, 2002; Yablo, 1993; White, 1990.

⁶⁵ Aristotle, 2011: VII.

in the mind. Jennifer Anna Gosetti-Ferencei (2018), for instance, emphasizes the indeterminacy of visual images, and the fact that they can be manipulated by will alone. There is thus no analogy with how the physical eye observes an object. In her view, it is more accurate to characterize visual imagery as a mode of intentional consciousness:

We can advance beyond the idea that the mental image is a thing, or a picture in the mind, by treating the image not as a mental substance but as a particular mode of intentional consciousness, intending an object in the mode *as imagined*. To say that consciousness is intentional means that it is conscious of, that is to say, it is directed at an object other than itself...⁶⁶

Gosetti-Ferencei's account resembles the critique that Jean-Paul Sartre (1940/2004), for example, directs towards the idea that a mental image is a "thing" in the mind. According to him, these kinds of images should rather be conceived as consciousness that, in a certain ontological mode, points to an absent object. That is, whereas perception is an encounter with a real and present object, mental imagery stems from being conscious of absence and from imagining the object "as if" it were present.⁶⁷

During the twentieth century, a number of philosophers and scientists (from various theoretical traditions) have expressed similar concerns and formulated non-pictorial accounts of mental representation. This, for example, was the focus of the so-called imagery debate⁶⁸ that began in the formative years of cognitive science in the 1970s, and continued in the decades that followed. What was disputed was the nature of the mental representations that we experience as imagery. According to the "depictionalists," they should be understood as picture-like representations of objects or events. Stephen Kosslyn (1980, 1994), an advocate of this view, proposed a model in which visual images have a "quasi-pictorial" character. That is, they are not pictures in a literal sense, but should rather be conceived of as kinds of "functional pictures."⁶⁹ According to their antagonists, the "descriptionalists," these representations should instead be conceived as linguistic descriptions (of visual scenes) without inherently spatial properties of their own.⁷⁰

As mentioned in the introduction to this chapter, mental imagery often works in tandem with other types of imaginings. In such cases, the image doesn't fully settle the content of the imagining as a whole. As an illustration, Dominic Gregory (2016) mentions a situation in which you imagine a cat while you also imagine that its owners have recently travelled to Paris:

⁶⁶ Gosetti-Ferencei, 2018: 189.

⁶⁷ "The word "image" could only indicate therefore the relation of consciousness to the object; in other words, it is a certain way in which the object appears to consciousness, or, if one prefers, a certain way in which consciousness presents to itself an object" (Sartre, 1940/2004:40).

⁶⁸ Often referred to as the picture-description debate.

⁶⁹ Tye, 1991.

⁷⁰ Pylyshyn, 1973, 1984; Dennett, 1969.

The imagery fixes the cat's visible features, but there is nothing in the image itself that determines that the cat's owners have lately departed for France. This...imagining is thus imagistic but not *purely* imagistic.⁷¹

Rather, it is more accurate to consider it to be the result of interactions between mental imagery and supposition-like elements, Gregory suggests.⁷² This is also the view of Christopher Peacock (1985) and Peter Kung (2010), who are both proponents of the additive view of sensory imagination. According to this theory, mental imagery often involves two elements: an image-like element and a non-image element. The image-like component gives the experience a phenomenal character akin to that of perception. The non-image component, on the other hand, consists of suppositions about the image's object: specifying details about the imagined situation.

2.2.2 Mental images and perception

In many respects, there is a phenomenological similarity between imagining and perceiving something. This observation is strengthened by contemporary research that suggests that perceptual experiences and mental imagery stem from the same regions of the brain.⁷³

One way to emphasize the phenomenological similarity between these two mental states is to claim that their content is similar.⁷⁴ (At the same time, it is not agreed how the content of perceptual states and mental imagery should actually be understood.) According to another suggestion, the mental states resemble each other because both are caused by the attribution of properties to the perceived or the imagined objects respectively.⁷⁵ That is, mental imagery attributes properties to an imagined object, and perceptual states attribute properties to a perceived object. Bence Nanay (2010, 2013, 2015, 2016), a supporter of this view, thus argues that the only difference between perceptual content and the content of mental imagery is where their determinacy comes from. That is, in the case of perception, the determinacy comes in a bottom-up manner (through sensory stimulus). In the case of mental imagery, on the other hand, determinacy comes in a top-down way (through background beliefs, memories, expectations, and so forth).

While philosophers such as Nanay point to the similarity between imagination and perception, the typical case has been, rather, to emphasize their differences. A common view, for example, is that forming an image is an active operation, while perception is more passive. It is also often argued that

⁷¹ Gregory, 2016: 99.

⁷² Gregory, 2016: 107.

⁷³ Kosslyn, Thompson, Ganis, 2006; Page et al., 2011.

⁷⁴ Ishiguro, 1967; Kind, 2001; Currie and Ravenscroft, 2002:27; Noordhof, 2002; Nanay, 2015.

⁷⁵ Burge, 2010; Peacocke, 1986; Nanay, 2010, 2013.

the “feeling of presence” that follows perception is typically missing in mental imagery. If, for instance, we saw a candy bar before us, it is likely that we would reach out and grab it. However, if we only had a mental image of the candy bar, we probably wouldn’t react in that way.

Another significant difference that is often pointed to is that imagining is typically under the imaginer’s own volition⁷⁶, and therefore lacks world-sensitivity. That is, it is the imaginer, rather than the world, that determines the content of his/her imaginings. According to Amy Kind (2018a), this is one of the reasons that it has often been argued that imagination, compared with perception, is unable to justify our beliefs about the external world.

According to other accounts, the difference between mental imagery and perception is a matter of degree rather than kind – that is, imagination is only a paler version of perception. This idea can be traced back to David Hume (1738/1975), who argued that percepts (“impressions”) and images differ in their degree of “vivacity.”⁷⁷ While this perspective has been criticized by a number of philosophers⁷⁸, others have defended it⁷⁹, or have argued that the “vividness” of imagery and perception lies at the end of a spectrum “stretching from veridical, highly stimulus-driven and stimulus-constrained perception at one end, to “pure” imagery... at the other.”⁸⁰ In this dissertation, I stress the last-mentioned alternative, and argue that various forms of imaginative and perceptual experiences exist on a continuous scale between pure imagery and pure perception. This approach goes all the way back to the Kantian idea that mental imagery is “a necessary ingredient of perception itself.”⁸¹

Colin McGinn (2004) makes a clear distinction between imagination and perception. He acknowledges that imaginings and percepts often cooperate with each other. He distinguishes three ways in which this kind of “imaginative seeing” may take place: the seeing of aspects, the seeing of pictures, and imagination-driven perceptual distortions.⁸² Wittgenstein’s famous duck-rabbit case would be a good illustration of *the seeing of aspects* (which can also be referred to as “aspect perception” or “seeing as”). In this case, an ambiguous image is seen *as* either a duck or a rabbit.⁸³ Nevertheless, McGinn also points out that the chosen aspect doesn’t block our visual field.

The aspect adds to what I see, it does not subtract from it. This is very different from being under the illusion that a red object is green; in this case I am not

⁷⁶ Involuntary mental imagery may, however, sometimes occur. While visualization is an active and intended act, mental imagery can also be passive (which is the case in dreams and hallucinations).

⁷⁷ Hume, 1738/1975. Book I:I, 19-21.

⁷⁸ For example, Warnock, 1976; McGinn, 2004.

⁷⁹ For example, Thomas, 1997, 2014.

⁸⁰ Thomas 2014.

⁸¹ Kant, 1788/1998: A120.

⁸² McGinn, 2004:49-55.

⁸³ McGinn, 2004:49-53.

also seeing the object as red. Here the percepts compete. But there is no competition between seeing the canvas and seeing it *as a* portrait of X. The visible features of an object are not occluded by imaginatively seeing it a certain way; they are merely supplemented.⁸⁴

McGinn's second category, *the seeing of pictures*, refers to the representative character of pictures: being a pictorial representation of some object or state of affairs. This is a kind of imaginative seeing that is triggered by a percept. However, in order for us to become conscious of what it represents, an additional exercise of imagination is required. *Imagination-driven perceptual distortions* make us see objects or states of affairs as something other than what they are: "seeing branches at night as the limbs of fearsome monsters, or a stranger in the street as someone one used to know well."⁸⁵

Beside these three kinds of imaginative seeing, there are a range of other situations where imagination and perception interact. We can, for instance, attribute properties to an object that we see. Nanay (2016) suggests that this is the case when you stand in a furniture store, looking at a sofa, and imagine how it would look in your living room⁸⁶. Another example, according to him, is *amodal perception*: the involvement of mental imagery in the perception of occluded (hidden) parts of perceived objects.

How are occluded parts of perceived objects represented? It seems that they are not represented by beliefs – they seem to have sensory phenomenology. They are not represented perceptually either in the strict sense of the term as we receive no sensory stimulation from occluded parts of perceived objects (because they are, well, occluded). I have argued on empirical and conceptual grounds that they are represented by means of mental imagery: we have mental imagery of the cat's tail, which is occluded by the tree⁸⁷

Amodal perception is, in many ways, related to what Alva Noë (2004) refers to as "the problem of perceptual presence." This is the question why perceptual experience often involves more than we actually perceive. While our experience is often fractal, perception extends to the hidden aspects of reality. This is why we are able to see an object as being three-dimensional although, in fact, we only perceive its one-dimensional surface. This capacity comes, according to Noë, from our own active participation in the perceiving process and, in particular, from our implicit, sensimotor understanding of reality. In contrast, Amy Kind (2018b) argues that this kind of perceptual presence should rather be understood as an exercise of our imaginative capacities – that is, an agent's perceptual capacities work in tandem with her imagination in order to make the unseen features of objects seem present. Such imaginings

⁸⁴ McGinn, 2004: 53.

⁸⁵ McGinn, 2004:50.

⁸⁶ Nanay, 2016:131.

⁸⁷ Nanay, 2016: 130.

are not deliberate undertakings on our part but, rather, something that happens spontaneously as we perceive things in the world, Kind argues.⁸⁸

Although there is something paradoxical in the claim that we are perceiving something unperceived, there is nothing paradoxical in the claim that we are imagining something unperceived. We can imaginatively experience something that is not seen, and it is by way of this imaginative experience that things unseen are imbued with perceptual presence.⁸⁹

2.3 Propositional imagination

Propositional imagination can also be referred to as attitudinal imagining – that is, one adopts the attitude of imagining towards a certain propositional content (“Ingrid imagines that *p*”). There are also a variety of other attitudes that a subject could take towards a proposition – for example, believe, hope, desire, and so forth. Often a distinction is made between attitudes that are cognitive (and have a mind-to-world fit) or conative (and have a world-to-mind fit). While belief is the prime example of a cognitive attitude, desire is its conative equivalent. In the first case, the attitude in question is considered successful if its content matches the world. In the latter case, the attitude is judged by the extent to which the world matches the content of the mind.

2.3.1 Supposition

The most commonly discussed case of propositional imagination is supposition. It can be characterized as the hypothetical mental representation that is the result of someone “supposing that *p*.” In contemporary discussion, however, there is a lack of consensus about the exact nature of supposition. Whereas some philosophers consider supposition to be a kind of imagining,⁹⁰ others argue that it should rather be thought of as a propositional attitude that

⁸⁸ Here, Noë and Kind are used as representatives of two different contemporary philosophical approaches to the interaction of imagination and perception. According to the first account, imagery is representational. In the imagery debate referred to earlier, this was the accepted framework of both depictivism and descriptivism. What the two opposing parties disputed was not whether or not mental imagery could be characterized as representations, but rather how this representative nature should be understood. For a long time, this has been the dominant perspective in the philosophy of mind. Only recently has it been challenged by a non-representational account that emphasizes the interaction and interdependence of perception, cognition and action. Noë, an advocate of this approach, thus argues that perceptual experience isn’t something that takes place within us, but something we do, in the world. As a result, he rejects the traditional view of perception as being a process that results in internal representations passively acquired by receiving input from an external world.

⁸⁹ Kind, 2018b: 178.

⁹⁰ For example, Currie and Ravenscroft, 2002; Nichols and Stich, 2003; Weinberg and Meskin, 2006; Arcangeli, 2014, 2018.

is distinct from imagination.⁹¹ The differentiation between imagination and supposition is typically based on either phenomenological or functional differences. In terms of the former, it is often argued that imaginings are more vivid than suppositions.⁹² White (1990) proposes that to imagine something is to exercise a power to “embroider” in thinking of a possibility, whereas to suppose something is merely to invite considerations of its implications. Gendler (2000a), in turn, claims that the phenomenology of imagination and supposition are distinct, since imagining “requires a sort of participation that mere hypothetical reasoning does not.”⁹³

Despite these remarks, I argue that supposition is indeed a specific kind of imagination. In Chapter five, in relation to J.L. Schellenberg’s account of “imaginative faith” (Sections 5.2.2.1-5.2.2.2), I shall discuss this type of imaginings more thoroughly.

2.3.1.1 Counterfactual supposition

One particular group of suppositions involve contemplation of alternative scenarios of reality. As Timothy Williamson (2005) describes it:

When we work out what would have happened if such-and-such had been the case, we frequently cannot do it without imagining such-and-such to be the case and letting things run.⁹⁴

In general, counterfactual imagination operates by altering some aspect of the facts in an agent’s mental representation of reality.⁹⁵ If, for example, the fact is that Lisa didn’t bring an umbrella even though it was raining outside, we may imagine a counterfactual alternative by thinking “If only Lisa had brought an umbrella, she wouldn’t have to have been soaked by the rain.” The capacity to think about events that go beyond those that actually occurred and to contemplate alternative possibilities is thus an important feature of human rationality.⁹⁶ By highlighting causal relationships,⁹⁷ this form of imagining enables us, for example, to learn from past mistakes, to plan, and to improve future performance.⁹⁸

One of the questions that has been raised about counterfactuals is whether they can generate knowledge. Philosophers such as Stalnaker (1968) and Lewis (1973) argue, however, that the truth of counterfactuals should rather be characterized as truth in a “possible world.” The possible world is, in turn,

⁹¹ For example, White, 1990; Gendler, 2000a, 2006a; Kind, 2001; Peacocke, 1985; Kung, 2010; Balcerak Jackson, 2016.

⁹² Liao and Gendler, 2019.

⁹³ Gendler, 2000 a: 80.

⁹⁴ Williamson, 2005: 19

⁹⁵ Kahneman and Tversky, 1982.

⁹⁶ Johnson-Laird, 1983; Byrne, 2005.

⁹⁷ Walsh and Byrne, 2007.

⁹⁸ Williamson, 2016.

dependent on the real world. As they see it, a counterfactual is thus to be considered true if it is true in the closest possible world (which is the world that departs the least from reality). According to them, counterfactuals may serve as sources of modal knowledge.⁹⁹

According to Timothy Williamson (2007, 2016), the cognitive capacity to handle counterfactual conditionals is closely related to the capacity to handle metaphysical modality.¹⁰⁰ In this case, Williamson argues, imagination enables us to rehearse different scenarios visually so that we are prepared for their possible results. This preparation can, however, take the form of propositional imagination or a more experiential and self-involving activity. For example, Williamson refers to a prehistoric hunter who finds his way obstructed by a mountain stream. The hunter is unsure whether he should attempt to jump across the stream, or whether it is a better idea to go another way (which means a loss in time and energy). Since the method of trial and error is too risky in this case, he rather *imagines* himself trying to jump. Through such an imaginative operation, the hunter is able not only to raise counterfactual possibilities but also to evaluate them, Williamson claims. In his view, the operations of imagination are not limited to the context of discovery, but also make essential contributions to the context of justification.¹⁰¹

2.3.2 Imagination and belief in pretense

When comparing imagination and belief, a common strategy is to study pretense behavior. As stated earlier in this chapter (Section 2.1), pretense can be characterized as either propositional or experiential imagination – that is, the content of the imagining can take the form of either a proposition (Ingrid imagines that she is Marie Antoinette) or an experience (Ingrid projects herself into the imagined situation of being Marie Antoinette and imagines the experiences that she would have).

Many well-known studies of pretense give a representational account of cognition. They maintain that beliefs, desires and other propositional attitudes are representational. Although differing in attitude, they have the same representational format (for example, I imagine that it rains / I believe that it rains). However, there are diverging views on which mental states enable pretense. These theoretical differences influence, to some extent, how the relationship

⁹⁹ In contrast to facts about the actual (“how things are”), facts about modality are concerned with how things could, could not, or must have been. Consequently, in modal epistemology it is our thoughts about possibilities and their epistemological status that are under examination.

¹⁰⁰ Williamson, 2007:135.

¹⁰¹ Williamson 2016: 116-118. With this proposal, Williamson thus opposes the traditional view that the voluntariness of imagination disqualifies it from being a reliable source of justification. Instead, he distinguishes between voluntary and involuntary forms of imagination, and argues that the latter include “ome sort of rational responsiveness to evidence.

between imagination and belief is understood.¹⁰² However, in this chapter I am primarily going to focus on Shaun Nichols and Stephen Stich's behaviorist theory¹⁰³ ("the cognitive theory of pretense").

2.3.2.1 Nichol's and Stich's cognitive theory of pretense

For Nichols and Stich (2000, 2003) and Nichols (2004, 2006), engagement in pretense is "behaving in a way that would be appropriate if p (the counterfactual situation) were the case."¹⁰⁴ Their cognitive theory of pretense has incorporated many of Alan Leslie's insights (see note 102) into its own framework. One of these is the idea that belief and imagination operate on a single code – that is, it is argued that isomorphic pretense and belief representations have inference patterns that resemble each other.¹⁰⁵ This aspect is often referred to as "mirroring", since imagining mirrors belief by having an imaginative content that "is taken to be governed by the same sort of restrictions that govern believed content."¹⁰⁶ What makes these two mental states dissimilar from each other, according to Nichols and Stich, is that they have different functional roles.

In order to illustrate this claim, they refer to how children at a pretend tea party¹⁰⁷ infer that a teacup that has been turned upside down is "empty" – as they would believe if the cup were actually filled with real tea. That is, the child "believes the tea-cup is empty of tea but imagines it is empty of make-believe tea."¹⁰⁸ The authors propose that four interconnected mechanisms are

¹⁰² For example, according to metarepresentational theories, the pretending agent must be able to represent his/her own representations under the innate mental-state concept "pretend." Alan Leslie (1987, 1994), a proponent of this perspective, differentiates between pretense representations and primary (genuine) representations. Whereas the former are related to the cognitive attitude of imagination, the latter are related to truth in a more critical manner. Leslie argues that the primary representational capacity is basic for the human species and is assumed to overlap with the real world. Thus what we consider to be primary representations depends on our *beliefs* about what the real world is like. Pretense representations, on the contrary, are quarantined or 'marked off' by a decoupler mechanism, Leslie argues. These metarepresentations are copies of genuine representations, but no longer have their "normal input-output relations" or their "normal computational consequences." At the same time, he stresses that genuine and pretense representations are processed by similar kinds of inference mechanisms. That is, they are in a single code.

¹⁰³ Behaviorist theories hold that engagement in pretense involve behaving "as if" a scenario obtains. When a person pretends that p , this does not require a special kind of mental state (i.e., a metarepresentation), but rather that s/he is "behaving in a way that would be appropriate if p were the case" (Nichols and Stich, 2000: 139).

¹⁰⁴ Nichols and Stich, 2000:139.

¹⁰⁵ Beside Leslie and Nichols and Stich, similar observations about resembling inference patterns have been made, for instance, by Harris (2000) and Currie and Ravenscroft (2002). The latter argue that the attitude of propositional imagination is belief-like, since it "preserves the inferential patterns of belief" (Currie and Ravenscroft, 2002:12).

¹⁰⁶ Gendler, 2003:124.

¹⁰⁷ Referring to the experiment "Leslie's tea party", executed by the psychologist Alan Leslie (Leslie, 1994). He interprets this experiment according to a metarepresentational theory of pretense.

¹⁰⁸ Matravers, 2014:40.

involved in this operation: the Possible World Box, the Belief Box, the Updater, and the Script Elaborator. Information about the tea party is drawn from the pretending agent's beliefs about tea parties (for example, that they involve sipping from teacups). In the Possible World Box, a counterfactual scenario to the belief is then created. This scenario doesn't represent the world as it is, but is "a work space in which our cognitive system builds and temporarily stores representations of one or another possible world."¹⁰⁹ The pretense behavior is, accordingly, related to both the Belief and the Possible World Box, since it is characterized as behaving in a way that would be appropriate if *p* (the counterfactual situation) were in fact the case.

Since many representations in the Belief and the Possible World Box are incompatible with each other, Nichols and Stich propose a mechanism that updates the representations in either of them. This so-called Updater modifies the beliefs or counterfactual scenarios so that they don't contradict each other. The capacity to keep pretense-episodes separate from beliefs is, in the contemporary discussion about imagination, often explained as a result of "cognitive quarantine." Through such a procedure, the imagined state of affairs is "taken to have effects only within a relevantly circumscribed domain."¹¹⁰ In the pretend tea party, this is illustrated by the fact that the children imagined that the cup was "full" (in the pretense-episode), while simultaneously believing that, in reality, it was "empty."

2.3.2.2 Action generation

Whereas propositional belief and propositional imagination seem to have similar kinds of inference pattern, many studies distinguish them in terms of their different functions. For instance, it is often argued that belief is more closely connected to action-generation than imagination is. That is, if I believe that it is raining, I probably look for an umbrella. If the same propositional content is only imagined, it is less likely that I shall do so. According to Neil Sinhababu (2016):

...one does not usually act on imagined means to ends in the way one acts on believed means to ends. Daydreaming about being Spider-Man typically doesn't result in actually trying to shoot webs, and imagining that one is Harry Potter while reading of his adventures doesn't usually result in trying to cast spells.¹¹¹

However, even if many philosophers argue that imaginings don't motivate action in a direct way, some are open to their having an indirect influence on –

¹⁰⁹ Nichols and Stich, 2000: 122.

¹¹⁰ Gendler, 2012. See also Gendler, 2003: 129-130; Liao and Gendler 2019; Nichols and Stich, 2000:120.

¹¹¹ Sinhababu 2016: 113.

or setting the stage for – various types of actions.¹¹² Neil Van Leeuwen (2009), for example, argues that imaginings can cause action in characteristic settings (for example, pretend play). At the same time, he acknowledges that the entrance into such a setting is determined by beliefs. As an illustration, he refers to a childhood game of make-believe in which he and his friend Chris went out in the rain and pretended to be two heroes in a magical kingdom, using sticks as swords to fight a threatening monster. According to Van Leeuwen, these actions appear to have the same kind of practical reasons behind them as the actions that they would perform if they actually believed that they were attacked by monsters. Later on in the play, when Chris gets stuck in a mud field, he nevertheless rejects his friend’s insistence that they should use their magical powers to release him. Instead, Chris stresses that he is “really stuck,” which, in turn, causes the pretend play to stop (while Neil helps his friend to get his boot out of the mud). Van Leeuwen argues that this episode illustrates a situation in which a belief (“Chris is stuck in a mud field”) is active and guides the action in the setting of imaginative play. By serving as the practical ground for the imaginings, this belief consequently determines when and when not to act on the imaginings in question.

The extent to which imaginings and beliefs motivate action may also be influenced by the affective response that they generate. According to Nichols (2006a), there is a crucial difference in the emotional reaction that is produced by these two mental states. In his view, this is because belief and imagination interact with desire in distinct ways. While our desires about the real world are less flexible, imaginative scenarios (owing to context and genre considerations) allow more freedom to choose the appropriate emotional response, he argues. To illustrate how desires shape our reactions to an imagery scenario, Nichols refers to the way in which Stanley Kubrick’s film *Dr. Strangelove or: How I Learned to Stop Worrying and Love the Bomb* (a satire about the cold war fears of nuclear conflict) uses the genre considerations of black comedy:

When it comes to the real world, we have powerful and consuming desires for the survival of human life. Those desires about the real world infuse our lives and, if we were led to believe that human life is about to end, the desires would compel us to draw out the ghastly inferences. When it comes to black comedy, we typically do not have such powerful desires for the preservation of human life in the imaginary scenario. Hence, we are not compelled to draw out disturbing inferences like *billions of innocent people will die horrifically painful deaths*. Rather, genre considerations make us want to focus instead on Slim Pickens’ exuberant missile ride.¹¹³

¹¹² Van Leeuwen, 2009; O’Brien, 2005; Funkhouser and Spaulding, 2009; Everson, 2007; Kind, 2011; Currie and Ravenscroft, 2002.

¹¹³ Nichols, 2006: 472.

2.3.2.3 The continuum of imaginings and beliefs

While imagination is typically said to be governed by a norm of quarantine, Susanna Schellenberg (2013) argues that, to some extent, this mechanism breaks down when we are immersed in a fictional world. Although Schellenberg agrees that beliefs and imaginings play different functional roles in our cognition, she suggests that – in cases of imaginative immersion – they exist instead on a continuum that allows intermediate states. That is, when an individual is immersed in a fiction, s/he moves seamlessly between imagination-like and belief-like states. Although Schellenberg acknowledges that there may be cases of pure imaginings and pure beliefs, she also argues that the two mental states should be viewed analogously to the continuum of shades in a tonality. Even though a game of make-believe starts with a pure imagining, its cognitive role may gradually develop into that of belief.

Shen-yi Liao and Tyler Doggett (2014) nevertheless criticize Schellenberg's continuum thesis as not being able to do the explanatory work it promises. They exemplify this by telling a story about a mother who, when playing with her daughter, is dragged into pretending that she is a cop. Gradually the mother becomes totally immersed in this imaginative scenario, and starts to develop a belief that she actually is a cop. At this stage, she is no longer consciously aware that she is taking part in a game of make-believe. According to Liao and Doggett, this is inconsistent with how most immersed pretenders actually experience their imaginative episodes. In their view, it isn't necessary that the mother's immersion lead her to "something-like belief" that she is a cop: it could instead be the case that she merely imagines it in a vivid way.

In Chapter six – in relation to the narratological concept of "transportation" – I shall return to Susanna Schellenberg's continuum thesis and discuss it more thoroughly (Section 6.3.2).

2.4 Experiential imagination

When someone is engaged in experiential imagination, s/he represents what it's like for a specific person to undergo a particular experience. This phenomenon overlaps with what Gregory Currie and Ian Ravenscroft (2002) refers to as "recreative imagination." In contemporary literature, experiential imagination is sometimes referred to as *imagining from the inside* and *imagining from the outside*.¹¹⁴ The difference between these states is explained by Liao and Gendler (2019) in the following way:

¹¹⁴ Williams, 1973.

To imagine from the outside that one is Napoleon involves imagining a scenario in which one is Napoleon. To imagine from the inside that one is Napoleon involves that plus something else: namely, that one is occupying the *perspective* of Napoleon.¹¹⁵

Instead of using the terms imagining from the inside or from the outside, some authors talk about *subjective* and *objective* imaginings. However, as will become apparent in the presentation that follows, there are certain differences in what these terms are said to contain.

In Chapters three, four, and six, experiential imagination will be associated with the narratological concept of “transportation”. Typically this term is associated with a situation in which an agent is transported into a fictional or a factual narrative and becomes immersed in it.¹¹⁶ Following Kaufman and Libby’s (2012) terminology, I shall thus distinguish between (a) experience-taking and (b) perspective-taking. Experience-taking entails “spontaneously assuming the identity of a character in a narrative and simulating that character’s thoughts, emotions, behaviors, goals, and traits as if they were one’s own.”¹¹⁷ To some extent this resembles Peter Goldie’s (2000) “empathetic imagining”: imagining ourselves being someone else who inhabits a perspective different than our own. In perspective-taking, on the other hand, the activation of the reader’s self is increased. Here, the reader uses conceptual knowledge about their own self to estimate how a protagonist might respond to or experience a situation. To some extent this resembles Peter Goldie’s “in-her-shoes imagining”: we imagine ourselves facing and responding to circumstances different than our own.

2.4.1 Subjective and objective imaginings

According to Zeno Vendler (1984), “objective” and “subjective” imagination are distinguished by the way in which the imaginer’s self is involved. As an illustration, he refers to the difference between two ways of imagining oneself eating a lemon: one could either (1) imagine its sour taste, or (2) imagine one’s own pinched face that is the result of eating the lemon. According to Vendler, subjective imagination is characterized by the self as being implicitly involved in the imagining (“S imagines doing A”). That is, while the self is not a constituent of the imagined scene, it is implicitly present (since the scene is presented from the self’s point of view). It could thus be argued that (1) is a case of subjective imagining. Objective experiential imagination, on the other hand, is characterized by the self being explicitly involved in the imagined scene (“S imagines herself/himself doing A”). This is the category to which

¹¹⁵ Liao and Gendler, 2019. Referring to Williams, 1973.

¹¹⁶ Green and Donahue (2008) refer to transportation as “a form of immersive, imaginative engagement in a story” (p. 251).

¹¹⁷ Kaufman and Libby, 2012:1.

(2) belongs. At the same time, it is necessary to acknowledge – like Vendler – that implicit and explicit self-involvement do not always exclude each other. If a subject, for example, imaginatively recreates a visual experience of him/herself sitting on a horse (an explicit involvement of the self), this imagining appears through the perspective of a “virtual self” (distinct from the self that is explicitly participating in the imagined scene), which could count as an implicitly involved self.

Dokic and Arcangeli (2015) describe subjective and objective imaginings in a slightly different way than Vendler. According to them, sensory imaginings are typically related to objective imagination. That is, it involves a recreation of *external* experiences. This could, for example, mean that the subject, in his/her imagination, visualizes him/herself with legs crossed, or imaginatively recreates the auditory experience of music. Dokic and Arcangeli argue that, generally, objective experiential imagination is “a way of gaining information about one’s immediate surroundings, whether or not one also sees oneself”¹¹⁹. According to their characterization, subjective experiential imaginings are imaginative recreations of *internal* experiences. Instead of providing information about one’s immediate surroundings, this type of imagination should rather be viewed as a way of gaining information about oneself, Dokic and Arcangeli suggest. As an example, they refer to situation when a subject imagines what it feels like to sit with his/her one’s legs crossed (rather than merely imagining the visual experience of seeing one’s crossed legs).¹²⁰

2.4.2 Imaginative identification

According to Christopher Peacock (1985), “to imagine something is always at least to imagine, from the inside, being in some conscious state.”¹²¹ However, as pointed out by Kendall Walton (1990), it is not the only form that self-imagining, or imagining *de se*, may take. It is possible, for example, to imagine *de se* that one possesses certain properties, such as being a descendant of a thirteenth-century sailor or having a rare blood type¹²² It may also be the case that the imagining person imagines seeing him/herself through the perspective of someone else. As an example we can think of an individual who imagines playing baseball and hitting a homerun. Instead of imagining this from the inside (what it feels like to be that baseball player), s/he visualizes from the perspective of a spectator what it looks like when she slams the ball over the center field.¹²³

¹¹⁹ Dokic and Arcangeli, 2015: 6.

¹²⁰ Dokic and Arcangeli acknowledge, at the same time, that experiences typically have both internal and external aspects and that the distinction, consequently, is an oversimplification.

¹²¹ Peacock, 1985:21.

¹²² Walton, 1990:31.

¹²³ Walton, 1990: 30.

Imaging from the inside – in contrast to the above example – requires a certain kind of self-reference, Walton argues. To imagine seeing a rhinoceros means imagining *oneself* seeing a rhinoceros, rather than seeing the animals from no-one’s standpoint. At the same time, Walton stresses that the invoked self is more like a “bare Cartesian I”¹²⁴ than an ordinary identifying of myself (the person who is imagining) as the object of my imagining. A reader of a fictional story is thus able to “participate” in the recounted events by imagining having the perceptual experiences that the characters of the narrative would have.

Our ability to imagine *being* someone else is, in contemporary philosophical discussion, often called “imaginative identification.” One of the often debated issues is, for example, in what way a person can *be* an imagined character without also being identical with them. There are two ideas that are prevalent in the literature dealing with imaginative identification, according to Dilip Ninan (2016). The first idea is that when I, for example, imagine being Napoleon, *I* do not figure in the content of my imaginings. It is thus argued that Napoleon – not the imaginer – is contained in the imagining.¹²⁵ Francois Recanti (2007) agrees with such a characterization, and argues that when imagining being Napoleon, the content of my imagining should be seen as properties that are ascribed to Napoleon himself rather than to me, the imaginer.

The second idea that Ninan mentions is that the relationship between imaginer and imagined subject is founded on something other than on identity. When saying, “I imagine that I am Napoleon,” I am doing something other than claiming that a false identity statement is true.

An alternative way to understand this situation is, however, to say – as Susanna Schellenberg does (Section 2.3.2.3) – that it is a result of a continuum between imaginings and beliefs. That is, when a subject becomes immersed in a game of make believe, his/her beliefs and imagining exist on a continuum that allow intermediate states. As a result, the cognitive role of pretense may gradually develop into that of belief, Schellenberg argues. However, from the perspective of Nichols and Stich (Section 2.3.2.1) it is more likely that the imaginer – as a result of cognitive quarantine – is capable of distinguish between beliefs and imaginings. For this reason, children at a pretend tea party can imagine that a tea cup is “full” (in the pretense episode) while simultaneously believing that it, in reality, is “empty.”

2.5 Creative imagination

“Creative imagination” is a term I have borrowed from Currie and Ravenscroft (2002). According to them, it is the form of imagination that is displayed when

¹²⁴ Walton, 1990:32.

¹²⁵ Similar views are expressed, for example, by Reynolds, 1989:625 and Vendler 1984: 105.

a person “puts together ideas in a way that defies expectation or convention: the kind of imaginative ‘leap’ that leads to the creation of something valuable in art, science, or practical life.”¹²⁶ While this categorization fits with the basic cognitive skill that is often referred to as *conceptual blending*, I shall suggest that a number of other types of imagination may also contribute to creative cognition. In particular, I shall argue that *aspect perception* (“the seeing of aspects” or “seeing as”), *pretense* and *counterfactual reasoning* can contribute to creativity just as well. As argued by Berys Gaut (2010):

A painter, a sculptor or composer can be highly creative in producing beautiful and original works, but they need not thereby be producing connections between disparate domains; and sometimes one can be highly creative in *disconnecting* things: philosophers can be creative in making distinctions, which separate concepts previously run together. Making connections is one way to be creative, but it’s not the only way.¹²⁷

Before we continue, it is necessary to identify the requirements for something to be considered “creative.” There are at least three conditions that need to be met. It must (1) be novel (according to some comparison class), (2) have value, and (3) be the result of a deliberate action. In terms of novelty, Boden (1992, 1994) distinguishes between historical creativity (H-creativity)¹²⁸ and personal creativity (P-creativity).¹²⁹ Historical creativity means that the product/action/idea has never occurred before (it is “new for everyone”). If something is a case of personal creativity, on the other hand, it is novel relative to some individual mind but not to the society as a whole. As noted by Dustin Stokes (2014), just because something is novel it doesn’t follow that it is valuable:

...most theorists maintain that creativity requires value. As Kant put it, “there can also be original nonsense”...and nonsense is not creative. So, creativity requires, in addition to novelty, that an x be of some value to its maker and/or its context of making.¹³⁰

Even if “creativity” and “imagination” are often used interchangeably in public discussion, Stokes argues that it is more accurate to distinguish them from each other. In his view, imagination is important even for the most minimally creative thought processes, since it allows us to think about the contents of some conceptual spaces in non-truth-bound ways.¹³¹

¹²⁶ Currie and Ravenscroft, 2002: 9.

¹²⁷ Gaut, 2010: 1044.

¹²⁸ Boden, 1994:77.

¹²⁹ Boden, 1994:77.

¹³⁰ Stokes 2016: 247. Cites Kant 1781/2000: 186.

¹³¹ Stokes, 2014:167.

Another way to explicate the concept of creativity is to, like Boden (2004), distinguish between creativity that is combinatorial, explorative or transformational.¹³² *Combinatorial creativity* is a phenomenon that also can be referred to as “conceptual blending” (Section 2.5.2). It operates by making unfamiliar combinations of familiar ideas: combining things that not normally are associated with each other but turn out to have unexpected, relevant and enlightening connections. *Explorative creativity* takes place in the context of a discipline that is governed by codified set of rules or principles. While working within these rules, individuals can still come up with creative ideas and solutions. According to Boden, this is done by exploring the possibilities available within the discipline’s own conceptual space. *Transformational creativity*, in turn, consists of going beyond the limits of a discipline’s conceptual space and to transform the set of rules that governs it. Boden refers to such instances as the deepest cases of creativity, since they enable individuals to think thoughts “which previously (within the untransformed space) were literally inconceivable.”¹³³

2.5.1 Active and passive imaginings

In my initial designation of creativity, I postulated voluntariness as one of its crucial characteristics. That is, creativity does not happen by accident, but is the result of deliberate action. It may seem that this description is challenged, to some extent, by Hills and Bird’s (2019) claim that imagination may produce novel ideas in both a deliberate and a spontaneous manner:

...the imagination may produce novel ideas deliberately (as when a scientist spends a great deal of time trying to develop a theory; or a writer edits and rewrites her work). The imagination may also generate ideas spontaneously (as when a scientist is suddenly struck by a hypothesis, or a writer by a novel image).¹³⁴

In order to clarify why I don’t consider this statement as contradicting my earlier writing on the voluntary nature of creative imagination, I shall introduce the distinction between *active* and *passive imaginings*. When a person actively uses imagination to do something (for example, deliberately figuring out the design of a scientific model), it is clearly a deliberate act of creative imagination. At other times, the imagination has the form of free association and is comparatively passive. In the latter case, the imagining agent lets his/her ideas and images “gambol” before his/her mind’s eye, rather than having them under his/her own control.¹³⁵

¹³² Boden 2004: 3-7

¹³³ Boden 2004: 6

¹³⁴ Hills and Bird, 2019: 696

¹³⁵ Stokes, 2014:177.

The chemist August Kekulé's reverie about the ouroboros biting its own tail (which, in turn, resulted in an insight into the structure of the benzene molecule) is perhaps a classic example of this kind of implicit or subconscious cognition.¹³⁶ Rather than being the product of the imagining agent's own active and deliberate thought processes, it appears as if they are given to him/her "from the outside."

In Graham Wallas's (1926) influential model of the creative process, this is referred to as the incubation stage. According to Wallis, it is part of a four-stage process (preparation, incubation, illumination, verification) that describes how people approach problems in order to come up with creative solutions. While the preparatory stage involves an investigation of the problem "in all directions,"¹³⁷ incubation requires that the investigating agent step back from the problem and let the mind unconsciously process it. This period leads, in turn, to the stage of illumination, in which ideas arise from the mind to provide flashes of insight. In the fourth and final stage ("verification"), the insights that emerged in illumination are subjected to evaluation and criticism.

Influenced by Wallas's model, many later theories of creativity have emphasized incubation as an essential part of their framework.¹³⁸ However, since the incubation stage involves an unconscious type of cognitive processing, it may be argued (a) that this contradicts the characterization of imagination as voluntary and deliberate, and (b) that incubation supports the belief that novelty is created *ex nihilo*, "out of nothing."¹³⁹ In agreement with Stokes (2014), however, I argue that neither remark (a) nor (b) causes any serious threat to the voluntary status of imagination. Rather than stating that active and passive imaginings are incompatible, Stokes stresses that it is plausible that both types cooperate with each other. A more promising approach, according to him, is to see creative breakthroughs as the result of a multifaceted cognitive *process* that occurs over time and involves both cognitive manipulation and free association. That is, even though a creative insight may come at a particular moment (for example, during the incubation stage), it is generally preceded by some conscious, deliberate thought:

Rarely does an artist or scientist gain a breakthrough by insight or free association without both some important antecedent and consequent cognitive work. Preparation must precede the breakthrough...And after the insight, the agent

¹³⁶ Kekulé, 1890. See also Section 3.2.3 in this dissertation.

¹³⁷ "accumulation of intellectual resources": research, planning, and so forth,

¹³⁸ For example, Koestler, 1964; Martindale 1995, 1999; Smith and Blankenship, 1989, 1991. Wallas's model builds on Helmholtz's (1896) introspective reports. Poincaré (1913/2012) and Hadamard (1945) have made similar observations and distinctions concerning the creative process.

¹³⁹ 2014:159.

will explore and further consider the apparent breakthrough prior to committing to it (e.g., before putting brush back to canvas or articulating a decisive scientific thesis).¹⁴⁰

2.5.2 Conceptual blending

Currie and Ravenscroft's above characterization of creative imagination corresponds with other types of combinatory models of creativity that have been suggested during the twentieth and twenty-first centuries¹⁴¹. In various ways, these models identify creativity with a basic cognitive skill, such as pattern recognition or conceptual blending. According to conceptual blending theory, for example, the underlying mechanism of creative cognition is "the general mental capacity of blending," and the human ability "to invent new concepts and to assemble new and dynamic mental patterns."¹⁴² During this process, selected conceptual material from two or more mental spaces is projected onto a new generic space and compressed into a new and holistically experienced emergent structure. Given this, conceptual blending is a "simultaneously conservative and innovative" process, Gilles Fauconnier and Mark Turner (2003) argue.¹⁴³ That is, whereas the combination of concepts and ideas results in novel products, it works from mental constructs that are anchored in an existing conceptual structure. For this reason, the conceptual blending theory is equal to Boden's (2004) category of combinatorial creativity.

Analogous or metaphorical thinking is plausibly the most common form of conceptual blending. It is a synthesizing type of imagining that unites manifold disparate elements into a coherent whole. Following Max Black's classical interaction theory (Black 1962, 1993), one may say that metaphors function like colored lenses or kaleidoscopes through which we perceive the subject indirectly and from a distance. In analogies or metaphors, selected characteristics of a well-known concept (the source analog) are compared with selected characteristics of a less familiar area (the target analog), influencing our understanding of the latter. While these two types of figurative language are often distinguished from each other, both operate by comparing relevant similarities between familiar and less well-known areas. Dedre Gentner (1983) and Wolff and Gentner (2011) describe this as mapping knowledge from one domain (the source) into another (the target), which conveys a system of relationships that they have in common. According to them – from a cognitive point of view – there is no inherent difference between analogies and metaphors. This perspective deviates from the standard semantic view, in which metaphors are considered to have a distinct way of operating. That is,

¹⁴⁰ Stokes, 2014: 178.

¹⁴¹ See, for example, Turner, 2006, 2014; Fauconnier and Turner, 1998, 2002; Novitz, 1999; Bor, 2012; Hofstadter and Sander, 2013.

¹⁴² Fauconnier and Turner, 2002: 5.

¹⁴³ Fauconnier and Turner, 2003: 85

whereas analogies employ more precise and systematic analogies, metaphors are also said to create a shift in the meanings of the linguistic expressions involved. (I shall return to the distinction/resemblance between analogies and metaphors in Sections 3.3. and 4.4).

According to some understandings of creativity, a requirement for genuine novelty is that the conceptual structure is challenged or even transformed. Henri Poincaré (1913/2012) argues that, in order to make a mathematical discovery, it often is necessary to work with analogies between facts “wrongly believed to be strangers to each other”¹⁴⁴:

...what is a mathematical creation? It does not consist in making new combinations with mathematical entities already known. Anyone could do that, but the combinations so made would be infinite in number and most of them absolutely without any interest...Among chosen combinations, the most fertile will often be those formed of elements drawn from domains which are far apart. Not that I mean as sufficing for invention the bringing together of objects as disparate as possible; most combinations so formed would be entirely sterile. But certain among them, very rare, are the most fruitful of all.¹⁴⁵

What Poincaré describes is a process in which the mathematician makes unexpected analogies within and outside of the existing conceptual framework in order to gain novel insight. If the conceptual structure is indeed transformed by this procedure, this is, I argue, an example of what Margaret Boden (2004) refers to as “transformational creativity.” According to her, this kind of creative acts transform the conceptual space that organizes and structures a particular domain of thinking.¹⁴⁶ However, this view is challenged by David Novitz (1999), who argues that “people may be radically creative even when they do not transform anything as well-defined as a conceptual space.”¹⁴⁷ Even if a process merely involves the exploration of an existing framework – by recombining already existing ideas or concepts – it may still do so in ways that turn out to be valuable and insightful. Thus, whereas some combinations transform the basic rules that define the conceptual space, others cast things in a different light even though they work according to existing rules (offering altered alignments, new emphases, and so forth).

¹⁴⁴ Poincaré, 1913/2012: 386. In a similar way, Arthur Koestler’s (1964) notion of “bisociation” prescribes a blending of previously unrelated and apparently incompatible frames of thought (referred to as “matrices”).

¹⁴⁵ Poincaré 1913/2012: 386.

¹⁴⁶ Boden, 1994:76.

¹⁴⁷ Novitz, 1999:76.

2.5.3 Aspect perception

“Aspect perception” (“the seeing of aspects” or “seeing-as”) is a phenomenon that exists between pure imagery and pure perception. In the first part of *Philosophical investigations* (1968) Wittgenstein refers to it as a visual experience when you suddenly see something (an aspect) in an object that you have not seen before.¹⁴⁸ For example, you may be struck by an aspect in an ambiguous object in which different aspects compete with each other (Wittgenstein refers here to Joseph Jastrow’s picture of the -rabbit¹⁴⁹) or the likeness of two faces. Although nothing in the object itself has changed, you see it differently because of the dawning of a new aspect. That is, it is the observer’s response to the data – rather than the data itself – that change.

In Chapters three and four (Sections 3.5, 4.3), scientific and religious forms of aspect perception will be discussed. In the former case, Thomas Kuhn (1970/1962), for instance, argues that theory change involves a conceptual disruption where “aspect changes” play a major role. The connection between religious engagement and aspect perception is, in turn, emphasized by John Hick (1969, 1985) and N.K. Verbin (2000). In the case of Hick (1969, 1985), he suggests that the category of “seeing-as” should be extended to “experiencing-as”.

2.5.4 Pretense and/or counterfactual supposition

Pretend play has a multifunctional nature, and children engage in pretend behavior for a variety of reasons.¹⁵⁰ While it may be pleasurable for its own sake, a large number of studies suggest that engaging in pretend also has positive developmental outcomes. In some of these studies, pretend play – or games of make-believe – are considered a byproduct of other aspects of development, whereas other research suggests that it facilitates or is essential to developmental consequences.¹⁵¹ It has been argued, for instance, that it is important for cognitive and emotional growth and language acquisition, and that it allows practice in social role-taking and how to understand others’ mental states (theory of mind).

Of particular interest for my own investigation are the studies that propose that children’s pretend play enhances creativity.¹⁵² In what follows I have chosen to focus on a limited number of them – those that fall within contemporary philosophical discussion on creativity and pretend play. Elisabeth Picciuto and

¹⁴⁸ During the last two decades of his life, Wittgenstein was preoccupied with the seeing of aspects. His later writings are filled with a number of remarks on this subject.

¹⁴⁹ Jastrow 1900.

¹⁵⁰ Smith, 2009:172-178.

¹⁵¹ Smith, 2009:178-194.

¹⁵² For example, Vygotsky 2014/1930; Piaget 1932; Lieberman 1977; Singer and Singer 1990; Harris 2000; Russ 2014; Gaut 2010; Carruthers 2002, 2006, 2013; Picciuto and Carruthers 2016; Walker and Gopnik 2013a; Weisberg and Gopnik 2013.

Peter Carruthers (2014, 2016), for example, emphasize the role that pretense may play in developing the capacities required for creativity:

What pretense has in common with creativity of all kinds...is that an obvious option or response is bypassed, and instead an unobvious option or response is selected. If a child looking at a banana is to pretend that the banana is a telephone, then she must bypass the obvious response: her sensory system will all be informing her that what she is looking at is a banana. Instead, she must suppress the obvious tendency to see the object as a banana, and select the option of seeing it as a telephone instead. Likewise a jazz improvisator needs to bypass the obvious -familiar or expected – continuation of a musical phrase while selecting something more surprising.¹⁵³

The authors stress, furthermore, that both pretense and creative thinking involve forms of supposition. Similar to the supposing that takes place in pretend play (supposing that the doll is alive, or that the bed is a ship), a scientist may suppose that a hypothesis is true, and an artist may suppose what his painting would look like if he made certain readjustments to it.¹⁵⁴

According to Picciuto and Carruthers, pretense behavior thus supports the Genevieve model of creativity¹⁵⁵, according to which creativity requires both the generation of novel ideas or hypotheses and then the exploration of those ideas by developing them and working out their consequences. They note two problems with their proposal: (1) not all pretense is particularly creative, and (2) not all creativity involves imagination. As a possible solution, Picciuto and Carruthers suggest that “pretense may function to develop and enhance cognitive forms of creativity specifically, rather than creativity more generally.”¹⁵⁶ They also remain open to the possibility that pretense may exercise and develop other mental capacities that are required for creativity besides this generative aspect of imagination. Carruthers (2002, 2013) adopts an evolutionary perspective, and proposes that the disposition for pretend play has served to enhance human creativity. According to him, pretend play in childhood was selected because it enhanced creativity in adulthood.¹⁵⁷

Similar to Picciuto and Carruthers, a number of other researchers claim that pretend play fosters abstract reasoning. According to them, it prompts children to attend to premises that are quarantined from prior knowledge and to make inferences from them by using their normal inference mechanisms and background knowledge.¹⁵⁸ It is suggested, for example, that pretend play shares the

¹⁵³ Piccutio and Carruthers, 2016: 323.

¹⁵⁴ See also Picciuto, 2009.

¹⁵⁵ Ward, Smith, Finke, 1999.

¹⁵⁶ Picciuto and Carruthers, 2016:323.

¹⁵⁷ See also Carruthers, 2013.

¹⁵⁸ For example Harris and Leevers 2000; Hawkins et al. 1984; Weisberg and Gopnik 2013; Walker and Gopnik 2013ab; Nichols and Stich 2003; Walton 1990.

cognitive structure of counterfactual reasoning.¹⁵⁹ Weisberg and Gopnik (2013), Walker and Gopnik (2013a,b)¹⁶⁰, and Gopnik and Walker (2013), who support this view, claim that engaging in pretense scenarios influences how children, through counterfactual reasoning, create and weigh possible causal models of the world.¹⁶¹ This includes, among other things, to set false premises (for example, that there is tea inside an empty cup) and to explore the consequences of such counterfactual premise:

From this perspective, not only does causation give pretend play its logic (young children are quite proficient at tracking the causal rules in pretend worlds...), but the very act of engaging in pretend play promotes the development of causal learning.¹⁶²

Angeline S. Lillard (2001) proposes, on the other hand, that pretend play functions in the same way that Hilary Putnam's thought experiment "Twin Earth" functions for philosophers – that is, it allows them to participate in and reason about a slightly varied alternative (but non-actual) universe.

2.6 Summary

In this chapter, I provide an overview of contemporary philosophical research on imagination. Four types of imagination were identified and conceptualized for this philosophical discourse: sensory, propositional, experiential, and creative imagination.

Sensory imagination is perception-like experiences that occur in the absence of external stimuli. Although this kind of imagination can be keyed to either of our sense modalities, the most common and frequently discussed form is mental imagery. The difference between mental imagery and perception is a matter of degree rather than kind, and it is often the case that imaginings and percepts cooperate with each other. Such interactions can take the form of "aspect perception" ("the seeing of aspects" or "seeing as") or amodal seeing (the involvement of mental imagery in the perception of hidden parts of perceived objects).

In propositional imagination, one adopts the attitude of imagining towards a certain propositional content ("Ingrid imagines that *p*"). When comparing the attitude of imagination and the attitude of belief, a common strategy is to

¹⁵⁹ Dias and Harris, 1990; Gopnik and Weisberg, 2013; Walker and Gopnik, 2013; Harris, 2000; Lillard, 2001; Walton, 1990.

¹⁶⁰ The ideas of Caren M. Walker and Alison Gopnik stem from the so-called "theory theory." According to this approach, the developing child learns about the world through a process of theory revision that resembles how scientists propose and revise causal theories to better fit the evidence observed in the world.

¹⁶¹ See also Weisberg and Gopnik 2013, Walker and Gopnik 2013a,b, Gopnik and Walker 2013

¹⁶² Walker and Gopnik 2013 b: 42.

study pretense behavior. While there are diverging views on which mental states enable pretense, this chapter primarily focuses on Nichols and Stich's cognitive theory of pretense. They argue that engagement in pretense entails simultaneously attending to the contents of one's Possible World Box and one's Belief and Desire Boxes.

In relation to this, I present the idea that imaginings seem to be governed by the same sort of restrictions that govern beliefs ("mirroring"), even though these mental states have different functional roles. For example, it is often argued that belief is more closely connected to action generation than imagination is. The capacity to keep pretense episodes separate from episodes of belief is often explained in the contemporary discussion of imagination as a result of "cognitive quarantine."

When individuals engage in experiential imagination, they represent what it is like for a specific person to undergo a particular experience. In contemporary literature, this is referred to as "objective" and "subjective" imaginings. One way of distinguishing them from each other is to say that they entail different kinds of involvement of the imaginer's self. For example, whereas imagining the sour taste of eating a lemon is a case of subjective imagination, imagining one's own pinched face when eating the lemon is an objective imagining. The ability to imagine *being* someone else is often called "imaginative identification." However, many philosophers argue that the relationship between imaginer and imagined subject is founded on something other than identity.

Creative imagination is a hybrid category involving various forms of imagination that contribute to creative cognition. In the case of "conceptual blending," selected conceptual material from two or more mental spaces is projected onto a new generic space and compressed into a new holistically experienced emergent structure (e.g., metaphors and analogies). "Aspect perception" is a phenomenon that exists between pure imagery and pure perception. It involves a visual experience when a subject suddenly sees something (an aspect) in an object that the subject has not seen before. "Counterfactual supposition" is characterized by contemplation of alternative scenarios of reality. Some philosophers and psychologist consider it to be an essential aspect of pretend play. In the case of "pretense", some argue that it fosters abstract reasoning and develops the capacities required for creativity.

Creative cognition may be a result of deliberate use of imagination (active imaginings) but can also take the form of free association where ideas and images gambol before the mind's eye (passive imaginings). Imagination is important for creative thought processes, since it allows us to think about the contents of some conceptual spaces in non-truth-bound ways.

3 Scientific imagination

3.1 Introduction

Imagination is often said to contribute to the work and research of professional scientists. In discussions about scientific discovery it is, for instance, not uncommon that imagination is brought up as an essential component. For example, Francois Jacob (2001), a Nobel Prize-winning biologist, stresses that we mustn't view the scientific process as a mere collection of facts. According to him, it is more fitting to compare it with imaginative artistry:

It was not a simple accumulation of facts that led Newton, in his mother's garden one day, suddenly to see the moon as a ball thrown far enough to fall exactly at the speed of the horizon, all around the earth. Or that led Planck to compare the radiation of heat to a hail of quanta... In each case they perceived an analogy unnoticed up till then... [D]espite the very different means of expression used by the poet and the scientist, imagination works in the same way. It is often the idea of a new metaphor that guides the scientist. An object, an event, is suddenly perceived in an unusual and revealing light, as if someone abruptly tore off a veil that, till then, had covered our eyes.¹⁶³

When forming a hypothesis, the scientist is engaged in the imaginative phase of scientific processes, and operates like an artist, Jacob argues. In his view, it is only afterwards – in the critical testing of the hypothesis – that science draws away from art. When describing the function of scientific imagination, Gerald Holton (1996, 1978/1998), professor of physics and the history of science, refers instead to imagination as a way of bridging the gap between experimental data and theories.

In the present chapter, a variety of cases of scientific imagination is going to be examined. Particular attention will be given to two kinds of imaginative device: *scientific models* and *thought experiments*. In the case of the latter, they will be presented in light of the discussion of the role that narratives may play in scientific practice. I shall also discuss the phenomenon that Wittgenstein (1968) refers to as “aspect perception,” and what role it may play in scientific practice.

¹⁶³ Jacob, 2001: 119.

Here, as well as in the rest of the dissertation, I shall employ the categorization of imagination that was offered in Chapter two. The examination thus proceeds from a distinction between four forms of imagination:

- A. *Sensory imagination*. Although the imaginings can be keyed to either of our sense modalities, I shall focus primarily on visual imaginings. These can take the form of either mental imagery or an interface between imaginings and percepts.
- B. *Propositional imagination*. These non-visual representations are constituted by a certain cognitive attitude (imagination) that is directed towards propositional content. Although propositional imagination often supplements and specifies cases of mental imagery, it is in itself typically considered to be non-imagistic
- C. *Experiential imagination*. When a subject engages in this kind of imagination, s/he recreates experiential perspectives (“what it is like to undergo a particular experience”). This operation may include visual components, but in those cases it is always combined with a broader multidimensional experiential perspective
- D. *Creative imagination*. This is a category that deviates from the other three kinds of imagination. That is, whereas sensory, propositional, and experiential forms of imagination refer to particular types of imagining that share a common format, creative imagination is a more elusive category. More exactly, it is assumed here that creative cognition can be generated by a variety of different types of imagination. As was noted in Chapter two, creative cognition can, for this reason, be associated with conceptual blending as well as aspect perception (“the seeing of aspects” or “seeing-as”) pretense, and counterfactual supposition.

It is important to notice, however, that the structure of this chapter isn't built directly upon the distinctions between categories A, B, C and D. Instead of having them as isolated headings, the intention rather is to show that it is not always evident which form of imagination is operative in certain scientific procedures.¹⁶⁴ However, in the initial part of this chapter, Lakoff and Johnson's (1980) conceptual metaphor “*knowing is seeing*” will serve as a structuring principle. Here it is acknowledged that “seeing” has a literal as well as

¹⁶⁴ Scientific modelling, for example, is a procedure about which philosophers disagree on the kind of imagination that is operative. While some argue that it involves mental imagery (where the model serves as an interpretative frame), others claim that it is instead a case of propositional imagination (where imagination functions as a propositional attitude).

a metaphorical meaning. In the first case, it concerns phenomena that are related to visualizability in some form, whether as

(1) pure perception; or as

(2) perception informed by imagination (for example, aspect perception); or as

(3) mental imagery of either a quasi-perceptual or a conceptual kind.

In the last case, conceptual operations enable us to envision and understand subjects in a certain way (for example, analogies and metaphors).

When “seeing” is used metaphorically, it refers to intelligibility. Accordingly, “seeing” is not limited to perception or sensory imagination. It may, on the contrary, rely on a variety of mental and cognitive procedures that don’t involve visual representations. For this reason, understanding (an epistemic kind of intelligibility), for example, can be generated by propositional imagination rather than by any visual counterpart. That is, whereas (1) relates to a perceptual kind of seeing, (2) and (3) are examples of imaginative forms of seeing.

3.1.1 Two levels of mediation

As an introduction to this section, it should be noticed that imaginings are typically generated within a certain framework – for example, a specific socio-cultural context or a scientific discipline. This means, in turn, that they are mediated through the conceptualizations that a particular framework offers. In some sense, therefore, one can say that imaginings of the categories A, B, C and D are always mediated and, as a result, are dependent on how this framework constructs and conceptualizes reality. At the same time, it is important to notice that this doesn’t mean that cases of imagination necessarily lead to inaccurate conclusions about the world (or aspects of the world). On the contrary, it only implies that they are filtered or mediated through a certain lens. However, rather than referring only to the mediation that takes place via a conceptual framework, I suggest that we should also consider the particular technique that moulds the imagining into a certain shape and structure. Given this, we have two – rather than just one – levels of mediation.

(1) At the first level, mediation takes place via a particular conceptual framework that constructs and conceptualizes reality in a certain way. It can be either a more general conceptual framework (for example, a socio-cultural context) or a more limited environment (for example, a scientific discipline).

(2) At the second level, in turn, the imagining is generated through a certain medium (for example, analogies, metaphors, scientific models

and thought experiments) that operates according to a specific course of action.

As a consequence of these two levels, scientific and religious imaginings can, for example, employ different conceptualizations of the world (the first level), while using the same (or at least similar) kinds of imaginative devices (the second level).

3.2 The concept of scientific “seeing”

3.2.1 Different forms of scientific visualization

In ordinary language there is a close conceptual connection between vision (“seeing”) and understanding. In everyday language, for instance, visual metaphors are often used as a way to describe a situation in which a subject grasps a topic. According to philosopher of science Henk W. de Regt (2014, 2017), this applies to scientific practice as well as daily life:

When we finally understand what someone is trying to point out to us, we exclaim: “I see!” When someone really understands a subject matter, we say that she has “insight”. There appears to be a link between visualization and understanding, and between visualizability and intelligibility.¹⁶⁵

The tendency to relate vision to understanding or knowledge originates, according to Lakoff and Johnson (1980), from the conceptual metaphor “knowing is seeing.” Through this metaphor, knowledge is conceptualized by means of the concrete accessible experience of visual perception. From this position, they argue, it serves as a dominant conceptual metaphor that structures how different cultural networks think about knowledge. As noted in Section 3.1, “seeing” can thus be used both as a literal and a metaphorical term. In the latter case, it is related to intelligibility rather than perceptual vision. In science, however, intelligibility is often closely connected to visualizability. That is, in order to explore certain phenomena, scientists make use of different forms of visualization – for example, in the form of a model or a thought experiment.

According to Marjorie Nicholson (1956), visualization has always been a crucial component in many scientists’ pursuit of science. In her view, the beginning of modern thought can be traced back to 1610, when Galileo developed the telescope, through which he could perceive new planets and new expanded worlds. After observing the puzzling motions of celestial objects through his telescope, Galileo was able to translate his findings into visual models by using ink-wash drawings. These sketches enabled him to come up with the idea that the small bright or dark areas on the moon were prominences

¹⁶⁵ de Regt, 2017: 226.

and cavities, analogues to valleys and mountains on Earth.¹⁶⁶ Galileo's case thus involves a spectrum of experiences, ranging from perception to conception. Similarly, many cases of scientific visualization may take place on various different (but often interconnected) levels of visualization. Whereas some of them appear as mental imagery in the mind of the individual scientist, others are transferred into "externalized" images such as scientific models or visual diagrams.

Some well-known scientific examples of imaginative visualization are James Watson's molecular models to describe DNA, Friedrich Kekulé's discovery of the structure of the benzene ring, Nikola Tesla's design of complex electric motors, and Albert Einstein's thought experiments leading to the special theory of relativity. However, as pointed out by Arthur Miller (1984), these cases of visual imagination differ in significant ways from each other. Whereas some of them appear as sudden solutions to problems, others are the result of a process of long and conscious preparation. Furthermore, whereas some visualizations lead to solutions to problems, other imaginings rather pose questions to be answered:

...Kekule's illumination was a visual image that occurred in a dream; Tesla's illuminations appeared to him suddenly while he was consciously thinking of something entirely different from electromagnetism (in one case a Goethe poem); Watson's mental gymnastics with complex models for DNA was prefaced by his having spent long periods manipulating molecular models constructed from apparatus that resemble a child's tinker toy; and Einstein's thought experiment did not solve any problem, but posed a paradox whose resolution required 10 years of work and, as far as we know, no more exceptional visual thinking. Thus, Einstein's thought experiment differed from Kekule's (which resulted in a sudden problem solution), Tesla's (which by degrees led to a solution), and Watson's (which was the conscious mental play prepared for by hands-on play with structural models).¹⁶⁷

Another aspect that distinguishes different forms of imaginative visualization from one another is the particular kind of imagination that they stem from. An aggravating factor in such identification, however, is that it often isn't evident to which category a particular visualization belongs. One reason for this is that scientists don't always give a precise phenomenological description of their experiences. An additional complication can be that a significant amount of time may have passed between the moment of visualization and when it is made public, which may negatively affect the accuracy of the record. It is also often difficult to make a clear-cut distinction between perceptual and conceptual "seeing," since our perception and our conceptualization of the world are often closely connected. A similar thing can be said about the distinction between mental images and propositional imaginings. While some imaginings

¹⁶⁶ Holton, 1996:186.

¹⁶⁷ Miller 1984, 262, footnote 1

are referred to as “visual,” they are not determined purely by imagery. In many cases, as Christopher Peacock (1985) and Peter Kung (2010) suggest, these images interact with suppositions that specify the details of the image’s object. Another aspect that needs to be taken into account, according to Neil van Leuween (2013), is that mental imagery is often part of a multifaceted imaginative process that includes a variety of imaginings. He refers to this as cases of “constructive imagination” that can be simultaneously characterized as (a) a constructive process, (b) an attitude, and (c) mental imagery.

3.2.2 Visualizability and intelligibility

A number of prominent scientists in the history of science have demonstrated extraordinary visual comprehension. In the case of Nikola Tesla, for example, his talent for imaginative visualization enabled him to work out mentally the design of the AC generator without using any drawings, models, or experiments. As he described it himself:

Before I put a sketch on paper, the whole idea is worked out mentally. In my mind, I change the construction, make improvements, and even operate the device. Without ever having drawn a sketch, I can give the measurement of all parts to workers, and when completed these parts will fit, just as certainly as though I had made accurate drawings.¹⁶⁸

Another example of extraordinary visual comprehension can be found in Albert Einstein, who often stressed his dependence on visualization and mental imagery. To the Gestalt psychologist Max Wertheimer, for instance, he reported that he “very rarely [thinks] in words at all...I have it in a sort of survey, in a way visually.”¹⁶⁹ And in a letter to Jacques Hadamard, Einstein confessed:

The words or language, as they are written or spoken, do not seem to play any role in my mechanism of thought. The psychical entities which seem to serve as elements in thought are certain signs or more or less clear images which can be ‘voluntarily’ reproduced and combined.¹⁷⁰

Besides Einstein, other notable physicists such as Michael Faraday, James Clerk Maxwell, Hermann von Helmholtz, Ludwig Boltzmann, Ernest Schrödinger, and Richard Feynman are also known to have had highly developed visual thinking. This can also be said of prominent chemists such as John Dalton, Jacob Berzelius, and August Kekulé.

¹⁶⁸ Tesla, 1921: 62.

¹⁶⁹ Miller, 1984:204. Einstein quoted in Wertheimer 1945:228, footnote 7.

¹⁷⁰ Einstein quoted in Hadamard 1945. Appendix II: 142-143.

In the case of Richard Feynman, he created a conceptual tool to make quantum field theory more intelligible and to facilitate calculations on the development of quantum systems.¹⁷¹ These so-called “Feynman diagrams” were at once intuitive and analytical, and could economically explain and predict the assumed patterns of physical events. One advantage of Feynman’s diagrams, as art historian Martin Kemp (2006) points out, was that they could give a visual form to sub-atomic processes without claiming to be realistic “depictions” of them:

Feynman diagrams are ways of rendering events in visualizable forms without in any sense laying claim that the events would ‘look’ much like the diagrams if we could actually see them. Indeed, to talk about ‘seeing’ them is meaningless since they inhabit dimensions of time and space which are incompatible with out tools for seeing and visualizing in three spatial dimensions.¹⁷²

Whereas the underlying theoretical content could be displayed in other ways, Henk W. de Regt (2014, 2017) emphasizes that the visualizability of the Feynman diagrams has methodological advantages. He compares it with the asset of using a map – rather than a linguistic description – when trying to find one’s way through unknown territory:

...a visual representation such as a map provides an “at a glance” overview of the situation and can be read from different directions (perspectives), so that one can continue using it when the circumstances change. Similarly, it was the visual nature of Feynman diagrams that made them suitable as tools for making quantum field theory intelligible.¹⁷³

In this regard, the cognitive advantages of visualization are not limited to individuals with exceptional visual imagination. On the contrary, visualizability is a theoretical quality that has turned out to be very effective in generating scientific understanding, de Regt argues. Since it is easier to construct models and explanations of phenomena with a visualization than with an abstract theory, the former is often regarded as more intelligible than the latter.

3.2.3 The ambiguous nature of “seeing”

During a celebration of his honor in Berlin in 1890, chemist August Kekulé tells the audience an autobiographical anecdote about how he discovered the structure of the benzene molecule after having a dream of an ouroboros biting its own tail. This is probably the most well-known episode of imaginative visualization in chemistry, and it is often referred to as a case of “sudden illumination.” In the literature we find several other scientists who tell of similar

¹⁷¹ Feynman et al., 1963-1965.

¹⁷² Kemp, 2006: 312.

¹⁷³ de Regt, 2014:391.

forms of eureka experience that occur when they are not consciously working on a problem.¹⁷⁴ Charles Darwin tells, for instance, how he suddenly arrived at the idea of natural selection while reading Thomas Malthus. In a similar way, cytogeneticist and Nobel Prize-winner Barbara McClintock (2001) refers to moments of “unconscious integration” when the subconscious sends signals about how a certain problem should be resolved: “I cannot tell you necessarily where they come from, but the whole thing is solved suddenly.”¹⁷⁵

McClintock’s remark is consistent with the way in which many contemporary psychologists and cognitive scientists explain eureka experiences. Rather than being random occurrences, they see them as the integration and reprocessing of a large amount of information to which we already have access (but now see in a new light). For this reason, cognitive psychologist Howard E. Gruber (1981) argues that cases of “sudden inspiration” usually exhibit complex histories of purposeful growth:

The thinking person goes over the same ground many times. He looks at it from varying points of view—his own, his arch-enemies, others’. He diagrams it, verbalizes it, formulates equations, constructs visual images of the whole problem, or of troublesome parts, or of what is clearly known. But he does not keep a detailed record of all this mental work, indeed could not... Deep understanding of a domain of knowledge requires knowing it in various ways. This multiplicity of perspectives grows slowly through hard work and sets the state for the recognition we experience as a new insight.¹⁷⁶

On a similar note, Alan J. Rocke (2010) suggests that Kekulé’s dream about the benzene ring should be thought of as a case of conceptual blending where “disparate elements of experience are fruitfully – though often unconsciously – combined together to arrive at a thought that only appears to be radically new.”¹⁷⁷ This, in turn, is consistent with David Gooding’s (1998) claim that “[t]he power of images consists largely in the fact that they integrate different types of knowledge and experience.”¹⁷⁸

In this dissertation, the discussion of eureka experiences thus serves as a reminder of the often ambiguous nature of mental imagery. What appears to be a random phenomenon may, in fact, be influenced by conceptual operations such as metaphors or analogies or periods of conscious work on the problem at hand. Furthermore, while some of these imaginings are being experienced

¹⁷⁴ Eureka experiences of this kind have been reported, for example, by Isaac Newton, Henri Poincaré, Sigmund Freud, Albert Einstein, Hermann von Helmholtz, James Watson, Louis de Broglie, Richard Feynman, and John Nash, among others (Gruber, 1981; Hadamard, 1945; Holmes, 2004: 172-188).

¹⁷⁵ McClintock in Comfort, 2001: 67-68. The full quotation: “I’ve had so many experiences in my life of getting these signals from my subconscious that I cannot tell you necessarily where they come from, but the whole thing it solved suddenly.”

¹⁷⁶ Gruber and Bödeker, 1978/2005: 215.

¹⁷⁷ Rocke, 2010: 318.

¹⁷⁸ Gooding, 1998: 306.

as “visual,” they are not determined purely by imagery. In many cases, the mental images are part of a multifaceted imaginative process in which supposition-like elements specify the details of the image.

3.3 The use of analogies and metaphors

Analogies and metaphors function as a conceptual kind of mental imagery. That is, by enabling certain conceptual operations, they enable us to “see” objects or subjects from new perspectives. In common for to both kinds of figurative language is that, by exploring relevant similarities between familiar and a less well-known areas, they create a premise for seeing things in novel ways.

In order to gain an understanding of a new area of investigation (that sometimes cannot be experienced with the five senses), scientists often compare it with something familiar: selected characteristics of a well-known concept (source) are compared with selected characteristics of a less familiar area (target), and they influence our understanding of the latter. This was, for instance, the case when Bohr compared an atom with the image of the solar system, or when Galileo drew parallels between the structures on the moon and those of mountains on Earth. Thus, when analogy is used in scientific problem-solving, this includes a recognition of

...some similarities between the problem situation under consideration (target) and something with which one is familiar and is better understood (retrieval of source). One then creates a mapping between the two that enables solving the original problem (mapping and transfer).¹⁷⁹

In her classic book *Models and analogies in science* (1966), Mary Hesse describes the involvement of analogies and metaphors in scientific explanation. For Hesse, scientific models are metaphorical devices that employ analogies to assimilate the source domain and the target domain. Her basic example is an analogy between billiard balls and gas molecules. Rather than saying that there is a one-to-one correspondence between the properties of the billiard balls and the gas molecules, she postulates three different kinds of analogical relationship. In the case of negative analogies, the properties can only be ascribed to one of them – for example, the rigidity and color of billiard balls. Positive analogies refer, on the other hand, to properties that belong to both billiard balls and gas molecules – for example, motion and impact. The third analogical type – to which Hesse gives most attention – is the neutral analogies: properties about which scientists don’t yet know whether they constitute

¹⁷⁹ Nersessian and Chandrasekharan, 2009: 179.

positive or negative analogies. According to Hesse, neutral analogies are specifically important for science, since they allow an extension of a new theory.

If gases are really like collections of billiard balls, except in regard to the known negative analogy, then from our knowledge of the mechanics of billiard balls we may be able to make new predictions about the expected behavior of gases. Of course, the predictions may be wrong, but then we shall be led to conclude that we have the wrong model.¹⁸⁰

While Hesse describes a cooperation between analogies and metaphors, these two forms of figurative language are often distinguished from each other. What they have in common, however, is that they operate by comparing relevant similarities between familiar and less well-known areas. Dedre Gentner (1983) and Wolff and Gentner (2011) describe this as a mapping of knowledge from one domain (the source) into another (the target), which conveys that they have a system of relations in common. According to them, there is – from a cognitive point of view – no inherent difference between how analogies and metaphors function. This perspective deviates, however, from the standard semantic view, in which metaphors are considered to have distinct ways of operating. That is, whereas analogies employ more precise and systematic analogies, metaphors are said to create a shift in the meanings of the linguistic expressions involved.

In a similar way, Helen De Cruz and Johan De Smedt (2010) argue that analogical thinking is a possible strategy for scientists to overcome conceptual constraints. However, they distinguish between “near” and “distant” analogies. In the former case the target and source are from closely related domains¹⁸¹, and in the latter case they come from diverging domains.¹⁸² Although the sciences mainly work within the bounds of their conceptual structures,¹⁸³ distant analogies can, in some cases, generate conceptual change (or “paradigm shifts”):

By presenting problems in terms of a different ontological category (e.g., the phrasing of organic functions in mechanical rather than biological terms), scientists can overcome their intuitive assumptions (e.g., vitalism) and offer solutions that are not possible in the original conceptual space.¹⁸⁴

As we have noticed, both analogies and metaphors can contribute to scientific development and conceptual change. When they do so, they are what Howard Gruber (1978/2005) refer to as “images of wide scope.”

¹⁸⁰ Hesse 1966: 8-9.

¹⁸¹ For example, an analogy from a well-understood virus to a lesser-understood virus.

¹⁸² For example, Kekulé’s analogy between a snake and a benzene ring.

¹⁸³ Dunbar, 1997; Lakatos, 1978.

¹⁸⁴ De Cruz and De Smedt 2010: 50.

An image of this kind functions as “a schema capable of assimilating to itself a wide range of perceptions, actions, and ideas.”¹⁸⁵ One example might be Charles Darwin’s “tree of life” metaphor. While Darwin uses a number of images and metaphors, the tree of life is one of the more influential ones. It represents the constantly evolving, differentiating organic world, and Darwin refers to it numerous times during his scientific career. While functioning as a didactic and communicative device, Gruber claims that the image of the irregularly branching tree also played a role in the actual generation of the theory of evolution: “Over the years, Darwin drew a number of tree diagrams, trying both to perfect it and to penetrate it – to learn what his own imagery could tell him.”¹⁸⁶ According to Gruber, it helped him, for example, to illustrate how nature could be continuous and irregular at the same time:

If evolutionary change were everywhere continuous, there should be no gaps in the natural order... In the tree diagram, Darwin saw another possibility: To be sure, there must be continuity in nature, in the sense that every living thing has a natural history. But continuity does not necessarily require completeness. Beginning from some primitive form, evolution proceeds along diverging pathways; at every branching point, some species that exist are extinguished, and the species that these might have become never can evolve. There is thus a fundamental incompleteness in nature: Not everything that might have been will be. Secondly, the tree diagram captures Darwin’s profound conviction that nature is irregular. Among all those species that might evolve, the ones that do appear arise from happenstance... This chanciness and irregularity, so much at odds with his predecessors’ (and most of his contemporaries’) search for a regular and harmonious order in nature, was explicit in Darwin’s very first drawing of the tree diagram and in the accompanying commentary.¹⁸⁷

These types of image – whether in the form of analogies or of metaphors – play an important role in hypothesis-building and the abstract expression of things that cannot be experienced with the five senses. As an example, Cameron Shelley (2003) refers to William Harvey’s discovery of the circulation of blood in 1628. At the time, most physicians followed the Galeanic system, according to which blood was created in the liver from ingested food, was carried to all the organs through the arteries, and was then consumed (not conserved) by the body. Harvey’s revolutionary conclusion was that, on the contrary, blood is pumped to the brain and body by the heart. Based on his observations, he argued that the blood that flowed through the veins was exactly the same blood, minus a few nutrients, that flowed through the arteries. Crucial to this conclusion was the analogy Harvey drew between the circulation of the two fluids – blood in the body and water in the atmosphere:

¹⁸⁵ Gruber and Bödeker, 1978/2005: 254.

¹⁸⁶ Gruber and Bödeker, 1978/2005: 181.

¹⁸⁷ Gruber and Bödeker, 1978/2005: 181-182.

I began to bethink myself whether it [the blood] might not have a kind of movement as it were in a circle. And this I afterwards found to be true... We may call this motion circular in the same way in which Aristotle says that the air and the rain imitate the circular motion of the heavens. For the earth, being wet evaporates by the heat of the sun; the vapours being drawn upwards condense and being condensed descend again in raindrops and wet the earth.¹⁸⁸

3.3.1 Conceptual “seeing” as constraint or motivation

Conceptual imagery can motivate as well as constrain scientific inquiry. During the development of quantum mechanics in the first half of the twentieth century, for instance, this aspect was given considerable attention. In these discussions, *Anschaulichkeit* – the German word for visualizability and for intelligibility – became central¹⁸⁹. Werner Heisenberg concluded, for example, that images of the atomic processes (such as Bohr’s atomic model) had become an obstacle to progress. In his view, quantum mechanics needed to free itself from the intuitive pictures of classical physics. While earlier theories drew on direct visualizability, Heisenberg now proposed that quantum mechanics should abandon the visualizing attempt all together, and instead focus on directly measurable quantities.

A contrasting view was expressed, however, by Erwin Schrödinger, who argued that *Anschaulichkeit* was necessary for the intelligibility of theories of nature. For him, intelligibility was connected with visualizability since, according to him, “we cannot really alter our manner of thinking in space and time, and what we cannot comprehend within it we cannot understand at all.”¹⁹⁰ Accordingly, since physicists needed some form of visualization to carry out their investigations, the major developments in physics between 1913 (with the rise of Niels Bohr’s atomic theory) and 1943 (with the birth of nuclear physics and quantum electrodynamics) resulted in transformations and abstractions of mental imagery.

The discussions of how to interpret quantum mechanical processes also included disputes over whether or not these could be comprehended by our general “forms of thought” (and have a space-time description) or whether, on the contrary, they totally lacked these qualities.¹⁹¹ According to Martin Kemp (2001), one recent example of a physicist who struggled with these issues was David Bohm. Dissatisfied with the view that quantum mechanics was beyond visualizability, Bohm proposed an analogy that aimed at uniting the self-contradictory images of particles and waves: a hologram and “unfolded dots”:

¹⁸⁸ Harvey, 1628. In Whitteridge. 1976: 75.

¹⁸⁹ de Regt, 2014, 2017; Miller, 1984: 125-183.

¹⁹⁰ Schrödinger, 1928: 27.

¹⁹¹ For a longer discussion on quantum mechanics and visualizability, see, for example, Miller, 1984: 125-183 and de Regt 2014, 2017.

To accept that there is an implicate order is in the final analysis an act of faith or intuition. Such acts of faith have always been part of the age-old impulse to arrive at models of observed phenomena, and I believe they always will be. At least we can now confirm, through new aspects of mathematics of complexity, above all chaos theory, Bohm's necessary contention is that there may be crucial levels of order that are wholly inaccessible to what had previously been accepted as the proper means available to us.¹⁹²

It is plausible that Bohm's dissatisfaction may have been influenced by what Gerald Holton (1996) refers to as "thematic imagination." Holton defines this term as "the often unconfessed or even unconscious basic presuppositions, preferences, and pre conceptions that scientists may choose to adopt, even if not led to do so by the data or current theory."¹⁹³ According to him, the imaginative activity of a scientist is often guided (sometimes implicitly) by one or more themata that influence what kind of strategies and attitude s/he takes towards the object of investigation. In a situation where a number of options are open, specific themata may affect which one of them the scientist chooses. As an illustration, Holton mentions a number of thema-antithema pairs in the history of science – one of them being order versus chaos:

The whole tradition in physics which was founded in Newton's time held that any evidence of chaos or uncertainty must rest on, and be explained by, an underlying layer of order and certainty even as the seemingly erratic observable motion of planets in Greek science had been understood as the complex results of many simple and orderly motions superposed on one another. This prototype for explanation (classical causal sequences account for observed accident or disorder) is a thematic commitment. It is not an experimental or logical necessity: indeed, it seemed endangered by the introduction in the mid-nineteenth century of imagery of the opposite kind, originating in kinetic theory. Now it turned out that a good way to understand cases of simple order was to imagine them to be the result of underlying chaos.¹⁹⁴

In the case of David Bohm, it is likely that a certain thema influenced his approach towards quantum mechanics. That is, rather than explaining the bizarre behavior of sub-atomic particles by quantum uncertainty, Bohm preferred to invoke an underlying order and deterministic mechanisms. Instead of rejecting visualizability altogether (and so denying that our general forms of thought could capture quantum processes), he advocated an image that was "of this world" but was still able to convey undivided wholeness without being static.

In relation to analogies and metaphors, the discussion of visualizability – and whether or not it constrains or advances scientific progress – is highly relevant. As an example, Cynthia Taylor and Brian Dewsbury (2018) point to

¹⁹² Kemp, 2006: 233.

¹⁹³ Holton, 1996:201.

¹⁹⁴ Holton, 1978/1998: 20.

the metaphorical language of biology. While helping us to conceptualize abstract phenomena, these metaphors also potentially limit the examination and uphold outdated scientific paradigms, Taylor and Dewsbury argue. As an illustration, they refer to the concept of genes as “blueprints”, and claim that it has misled research in molecular biology for a long time. Instead of a one-to-one correspondence between particular genetic “instructions” and phenotypic outcomes in organisms, they consider it to be more up-to-date to talk about variable phenotypic responses to environmental conditions. This kind of plasticity, according to Taylor and Dewsbury, has “become an increasingly important framework for understanding not only how organisms develop, but also the role of genes in initiating evolutionary change.”¹⁹⁵

Another difficulty with scientific metaphors, Taylor and Dewsbury argue, is their tendency to reflect and reinforce cultural norms, ideologies and beliefs. According to them, the imagery used in biology, for example, often has the character of being competitive, militaristic, or driven by technology: it talks about “evolutionary arm races” and “invasive species”, and refers to cells as factories and brains as computers, and to bodies that are hijacked by viruses or functioning like machines. Another problematic aspect is how popular images in biology and ecology are prone to naturalize human social institutions and unequal social relations. One example they mention is the use of slavery metaphors to describe the behavior of ants, or anthropomorphic analogies (colonies, harems, castes, etc.) to portray non-human relations.¹⁹⁶

In this section, the biological metaphors and the concept of *Anschaulichkeit* discussed earlier serve as examples of the relationship between the two levels of mediation suggested in Section 3.1.1. In the former case, the “blueprint” metaphor is a compound of concepts available at the first level of mediation (“blueprint” and “gene”) and, at the second level, a medium (a metaphor) that operates according to a specific course of action. Notice, therefore, that the first level of mediation contains concepts that come from two different contexts: the “blueprint” concept referred originally to an old way of reproducing texts (white lines on a blue background, a negative of the original) whose literal meaning, in turn, has become extended and now serves as a more general description of a guide or a pattern that can be followed. The “gene,” on the other hand, is a scientific conceptualization of the basic physical and functional unit of heredity.

Thus, when I talk about “first level mediation,” it isn’t limited to just one context, since subjects generally have access to different contextual ways of conceptualizing reality. What this example demonstrates, rather, is that the second level of mediation (in this case, the conceptual blending that a metaphor achieves) often *requires* an interaction between concepts that belong to different contexts. Furthermore, once a metaphor becomes an established way

¹⁹⁵ Taylor and Dewsbury, 2018: 2.

¹⁹⁶ Taylor and Dewsbury, 2018: 2-3.

of visualizing certain aspects of reality, it is assimilated into the operative conceptual framework/s in question. (This, for example, is what took place when the literal meaning of “blueprint” was extended into the more generalized “a guide or a pattern that can be followed.”)

To sum up, the critique raised by Taylor and Dewsbury is not directed against visualizability as such, but rather against the specific concepts that are in use. In the discussion of quantum mechanics, the situation was different, since the question under consideration was whether quantum events could be visualized at all. In this case, the critique concerns both the first and the second levels of mediation. However, since physicists need some form of visualization in order to carry out their investigations, different solutions have been offered. One way in which quantum phenomena can gain visualizability, consequently, is to use mathematical rather than physical constructs (for example, abstract diagrams that can be correlated with terms in mathematical equations). Other attempts at visualization focus more on the effects of a certain interpretation of quantum mechanics than on imaginatively capturing the quantum processes themselves. For example, in order to show that the Copenhagen interpretation leads to absurdity when applied to everyday objects, Erwin Schrödinger created a thought experiment about a cat in a box that was simultaneously dead and alive (“Schrodinger’s cat”).

3.4 Scientific models

In order to be able to study a particular aspect of the world that is too complex to be examined in detail, scientist typically construct simplified and idealized models of it. As a way to understand the real-world target, the modeler investigates a hypothetical system¹⁹⁷ and then considers its possible resemblances to the real-world system that s/he is trying to understand. While some models are concrete and material (for example, scale models and pictorial models), others make use of symbols and formal systems (such as mathematical models). So-called “theoretical models” can, in turn, be characterized as abstract systems that build on and satisfy the axioms of a particular scientific theory. In what follows, my focus will be on the latter group.

Among philosophers of science, the representational role of models has raised a number of semantic and ontological questions. In terms of the latter, one highly disputed issue concerns the ontological status of models (what their nature of being is). This, for example, is a relevant concern in relation to the so-called “missing systems” that science often deals with. The term “missing systems” was coined by Martin Thomason-Jones (2010, 2020) as a way to denote the scientific practice of “describing and imagining systems that cannot

¹⁹⁷ For example, mathematical equations, computer simulations, model organisms, and so forth.

be found in the world around us.”¹⁹⁸ Although being studied by scientists, these systems are not empirically accessible and cannot be spatiotemporally located. Some examples of missing systems are the ideal pendulum of physics or the worm-like chain of the theory of polymers. However, rather than referring to them as imaginary systems, Thomason-Jones wants to “leave open, at least initially, questions about whether such things exist, and if so, what sorts of things they are.”¹⁹⁹

In contrast to Thomason-Jones’s approach, the sections that follow will explore three accounts that, in different ways, describe scientific models as imaginative devices. In the first account, the ontological status of models is referred to as “fictional.” In the contemporary philosophical discussion, this is a view that has been advocated, for instance, by authors who compare scientific modeling with literary fiction or engaging in make-believe. In both of these cases, models are said to engage primarily a propositional kind of imagination.

The second account that I examine approaches models from a quite different direction. Rather than talking about their ontological status, it holds that models function as interpretative frames that generate (what, in this chapter, I have referred to as) conceptual forms of imagery. Since this approach gives special attention to metaphors, I call it “the metaphorical view of models.”

The third account is a combination of the two previous ones: seeing scientific modeling as a practice that includes both propositional and imagistic imagination. In the latter case – and similar to the second account – the role of metaphors is given special attention.

3.4.1 The propositional view of scientific models

In recent years, a number of philosophers have suggested that scientific modeling shares similarities with the creation of fiction or engagement in cases of make-believe. What both accounts have in common is that the kind of imagination engaged by models is taken to be propositional rather than imagistic. Fiora Salis and Roman Frigg (2020) argue, for example, that mental imagery is not something that is exclusive to imagination, since it also accompanies episodes of memory, belief, desire, and hallucination. According to them, what makes a mental image a case of imagination is, rather, the attitude that subjects take toward it. In the case of scientific models, therefore, Salis and Frigg claim that only propositional – not imagistic – imagination is required. In their view, it is this particular attitude that allows scientists to think and cognitively manipulate a model system in non-truth-bound ways.

Following Kendall Walton’s (1990) theory of representation in literature and art, Roman Frigg (2010 a, b) refers to propositional imagination in terms

¹⁹⁸ Thomason-Jones, 2020:75.

¹⁹⁹ Thomason-Jones, 2020:75.

of “make-believe.” According to Walton, representational art and works of fiction can be understood as props that prescribe specific imaginings, analogous to the way children’s toys function as props in children’s games of make-believe. Games with ad hoc rules (such as children’s games) are referred to as “unauthorized.” Their rules are less stable over time and are not shared by others in the society. Games based on public and intersubjective rules, on the other hand, are described as “authorized,” and their props are called “representations.” According to Walton, representations prompt our acts of imagination and generate fictional truths²⁰⁰ by virtue of principles of generation associated with the practice in question.

Frigg’s indirect view of modeling holds that models are descriptions of hypothetical systems. As such, they require us to pretend that there is a system with such-and-such features. While they don’t exist spatio-temporally, these hypothetical entities are nevertheless “not purely mathematical or structural in that they would be physical things if they were real.”²⁰¹ Hence, according to this view, the Newtonian model of the Earth orbiting the Sun is not viewed as a depiction of the actual Sun and the Earth, but is rather considered to be a tool to imagine a hypothetical system containing two ideal bodies

In order to explain the relationship between the hypothetical system and the target system, Frigg (2010b) makes a comparison with maps. Like maps, the model system denotes a target system and describes certain facts about it. However, in order to be able to use a map or model system, it’s necessary to know a “key of translation,” Frigg explains. The key in question explains how we are to translate facts about the map/model system into facts about a territory/target area. In scientific enterprise, the keys have the character of hypotheses:

In the case of the map, we have the target system in front of us, we explore it directly (by taking measurements, etc.) and then we construct the map. So a map is an elegant summary of what someone already knows, and its sole purpose is to effectively summarize this knowledge and communicate it to those who are not in the business of land surveying. Science is not like this; we do not first survey the hydrogen atom and then construct a model to communicate the findings to those not yet familiar with it. We typically construct models to find out something genuinely new about the target system; something that no one yet knows... [U]nlike for maps where we know the key by construction (we have used a certain projection method, certain symbols, etc. when drawing the map), in the case of models the key has the character of a hypothesis. We stipulate that we expect the model to bear this or that relation to its target, and then evaluate this claim against the best available background knowledge and by subjecting it to test using the usual methods of scientific investigation.²⁰²

²⁰⁰ True in the appropriate game of make-believe.

²⁰¹ Frigg, 2010a: 253

²⁰² Frigg 2010b: 129

In a similar way, Adam Toon (2010, 2012) sees models as props in an authorized game of make-believe whose function is to require us to imagine certain propositions. He differs, however, in the way he interprets the propositions. In contrast to Frigg, Toon has a direct view of modeling, according to which models represent the existing target system rather than a hypothetical system. That is, while theoretical models require certain imaginings about the target, Toon argues that there is no need to posit any imaginary entity over and above the target.

Something is a model-representation if it has the function of serving as a prop in games of make-believe; it is not a necessary condition for model-representation that there be any object that the model prescribe imaginings about.²⁰³

The make-believe view of scientific modeling is closely related to the idea that models share similarities with fiction.²⁰⁴ The core of this claim is that model systems are akin to places in literary fiction, involving imaginary scenarios that we are able to talk about even if they don't exist. Nancy Cartwright (1983, 2010), for example, refers to them as “works of fiction,” “fables” or “parables” that make problems tractable by simplifying.

Catherine Elgin (2004, 2010), on her part, emphasizes fiction's ability to idealize and simplify. As a result of idealization, the model highlights only those properties of the target that are considered significant in a specific scientific context. According to Elgin, the aim of models is therefore not to mirror or replicate reality, but rather to offer exemplifications of certain of its features while downplaying others. By so doing, they afford epistemic access to the exemplified properties and are, from a specific contextual perspective, “true enough.” As an illustration, Elgin refers to commercial sample cards that instantiate the colors of paint. Besides color, these cards include a number of other properties that are considered irrelevant to their function. (They consist, for example, of sequences of colored rectangles with a name or number associated with each color, have a certain size, and were manufactured at a particular date, and so forth). Accordingly, these cards are not patches of real paint, but should rather be viewed as fictions that give us access to the color they represent:

The cards are infused with inks or dyes of the same color as the paints whose colors they exemplify. It is a fiction that they are samples of paint. But since the sole function of such a card is to convey the paint color, the fiction is no lie. All that is needed is something that is the same color as the paint. A fiction

²⁰³ Toon, 2010: 94.

²⁰⁴ For example, Levy, 2015; Woods, 2010; Frigg, 2010a,b; Godfrey-Smith, 2006, 2009; Suarez, 2010.

thus conveys the property we are interested in because in the respect that matters it is no different from an actual instance. The exemplars need not themselves be paint.²⁰⁵

Elgin belongs to the group of philosophers who argue that scientific representations can be scientifically fruitful without having total representational accuracy.²⁰⁶ According to her, this kind of “felicitous falsehood” may enhance scientific understanding even if it departs from truth in certain ways. At the same time, she takes truth to be a threshold requirement for idealized representations. That is, they need to be “true enough” in order to be epistemically relevant. However, what counts as true enough depends on a variety of aspects: the purpose of the research that the representation belongs to, as well as the function it serves in a theory and/or explanation.

3.4.2 The metaphorical view of scientific models

While much of the contemporary philosophical discussion about scientific models focuses on their ontological and representational relation to reality, Elisabeth Camp (2009, 2020 a, b) approaches the topic from another direction. She is primarily interested in the cognitive structures and abilities that are generated by various types of representative devices: metaphors, analogies, just-so stories, telling details, slurs, and so forth. According to Camp, these representations serve as interpretative frames that temporarily guide us in adopting new perspectives and determine what information we notice about a subject. From this perspective, frames are

...representational vehicles—most obviously linguistic vehicles like slogans, but also non-linguistic vehicles like diagrams and caricaturing cartoons—under an intended interpretation, where that interpretation itself functions as an open-ended principle for organizing and regulating one’s intuitive overall intuitive thinking about one or more subjects. Frames crystalize perspectives into compact, explicit form.²⁰⁷

Given this, frames play a theoretical role that resembles the one we commonly ascribe to models, Camp argues. Both devices provide us with perspectives: intuitive principles for noticing, explaining, and responding to a target.

Among the representational frames that Camp explores, metaphors are given special attention. According to her (and similar to Max Black’s interaction theory)²⁰⁸, a metaphor functions like a colored lens or a kaleidoscope

²⁰⁵ Elgin 2010: 8

²⁰⁶ For example, Potochnik, 2015; Bokulich, 2011, 2016; Giere, 1988, 2004; Strevens, 2008, 2013.

²⁰⁷ Camp, 2020b: 27.

²⁰⁸ Black, 1962, 1993.

through which we see the subject indirectly and from a distance. As a clarifying example, Camp refers to the paradigmatic metaphor “Juliet is the Sun” (from the Shakespearian play *Romeo and Juliet*). Here Romeo invites us to attend to the features of Juliet that resemble relevant features of the Sun – in particular, its intense luminosity. While not saying that Juliet actually glows, the metaphor matches the Sun’s luminosity with the distinct feature of her beauty. This metaphorical procedure, according to Camp, is generated by a synthesizing kind of imagination that unites many disparate elements into a coherent whole (a cognitive Gestalt).²⁰⁹ This is in contrast with just-so stories, for example, which invite us to pretend that an agent possesses certain fictional features that are taken not to be actually present:

Just-so stories are not presented as being actually true, but rather as fictions that are so apt it’s as if they are—or should be—true at a deeper level. For instance, I might describe an acquaintance’s personality by saying...It’s as if Jane had a puppy who died when she was little, and she’s still convinced it was her fault, knowing full well that no such thing ever happened to Jane. Rather, I want you to pretend that it...did happen to her.²¹⁰

In this way, a just-so-story invites us to pretend that an agent really possesses certain fictional features, which then are treated as “imaginative keys” that unlock essential information about the agent. If the sentence “Jane is a nurse”, for instance, is deployed as a just-so story, the actual Jane serves as an imaginative prop in the construction of a fiction, Camp explains. That is, we start by pretending that Jane really is a nurse, and then transform her imaginatively by adding features to Jane that actual nurses prominently possesses (listening to various people’s symptoms, administering medicine, being on call at convenient times, and so forth.) As a result, the characterization stops being pretense and instead transforms the pretended features into being perceived as actual and authentic. If, on the other hand, “Jane is a nurse” is deployed as a metaphor, we start by a characterization of nurses and then identify the respects in which Jane satisfies these qualities. That is, “[r]ather than directly attributing actual nurse-features to an imaginatively transformed Jane, the interpreter of a metaphor construes actual-Jane in a nurse-like way.”²¹¹

According to Camp, analogies are similar to metaphors in being indirect kinds of frames that rely on abstract structures of higher order similarities between distinct-lower features. At the same time, she acknowledges that metaphors permit a looser relationship between framing and subject characterization. As a result, they have a greater flexibility than analogies when it comes to the “matches” they propose. That is, rather than systematically puzzling out

²⁰⁹ Camp 2020a: 313-315.

²¹⁰ Camp, 2009: 110.

²¹¹ Camp, 2020a: 316.

precise and consistent mappings between abstract structures, metaphors rely more on

...tacit clusters of matches involving largely inchoate features at a variety of levels, drawing on images and attitudes, and coloring and connecting those features – along with other, unmatched features that intuitively ‘fit’ with them.²¹²

3.4.3 The additive view of scientific models

According to the third account, scientific modeling involves both propositional and imagistic imagination. I have chosen to call this view “the additive view of scientific models,” as an allusion to what Nick Wiltsher (2016) refers to as “the additive view of sensory imagination” (which he rejects). According to this theory – advocated by, for instance, Christopher Peacock (1985) and Peter Kung (2010) – mental imagery often involves two elements: an image-like element and a non-image element. The image-like component gives the experience a phenomenal character akin to that of perception. The non-image component, on the other hand, consists of suppositions and stipulations about the image’s object that specify the details of the imagined situation.

What the additive view of imagination suggests, consequently, is that sensory imaginings simultaneously involve imagistic and propositional content. In the additive view of scientific models (which will be presented in what follows), both of these elements are present, while not necessarily being synchronized in exactly the same way and at exactly the same time. What is argued, on the contrary, is that scientific practice *as a whole* includes imagistic and propositional aspects. In some cases, this involves isolated forms of propositional and imagistic imagination. In other instances, these two kinds of imagination cooperate. As an example, let’s think of Ernest Rutherford’s planetary model of the atom. It is constituted by a conceptual blending between a target (the atom) and a vehicle (the planetary system in which planets revolve around the Sun). This interpretative frame is *in itself* constituted by a synthesizing kind of imagination that unites manifold disparate elements into a coherent whole.²¹³ At the same time, it may very well be the case that scientists *approach* the model through the propositional attitude of imagination. That is,

²¹² Camp, 2020a:318.

²¹³ As noted by Elisabeth Camp, modeling of this kind doesn’t start by pretending that the target actually is the vehicle. Such a procedure would require that we add features to the target that the source possesses. As a consequence, the characterization stops being pretense and instead transforms the pretended features into being perceived as actual and authentic. A more accurate approach, Camp argues, is to say that the interpretative frame first characterizes the vehicle in a certain way and then, as a second step, identifies respects in which the target satisfies these qualities. In this way, the actual target is construed in a source-like way. For this reason, it is fair to say that this kind of interpretative frame involves a synthesizing rather than a pretending kind of imagination.

by imagining (rather than believing) that the target is as the model suggests, they are able to explore the target in truth-bound ways.

Although Arnon Levy (2012, 2105, 2020) doesn't explicitly refer to his own view as "additive," his writings on scientific models will be associated here with such a perspective. Similar to Adam Toon, Levy treats models as Waltonian games of prop-oriented make-believe that are *directly* about the world. That is, rather than appealing to imaginary entities over and above the target (hypothetical systems), models provide an "imaginative description of real things."²¹⁴ However, while Walton's framework doesn't specify whether "fictionally true" propositions also should be taken to be true of the real world target, Levy's solution draws on Stephen Yablo's (2014) notion of "partial truth." Given this, he argues that idealized models allow scientists to learn about the world because they are "partly true" of their targets:

"The number of planets in the solar system is nine" equates the number of planets with the number nine. Its truth or falsity supervenes in part on facts about numbers, and in part on the composition of the solar system. Even if we assume that there are no numbers, it would still seem that this sentence says something true *about the solar system*.²¹⁵

In the literature that refers to models as games of prop-oriented make-believe, "imagination" is the standard denotation of a propositional attitude. What makes Levy's account different, however, is that he advocates "an acceptance of several modes of fiction in science."²¹⁶ Similar to Elisabeth Camp, Levy (2009, 2020 a, b) considers metaphors to be imaginative frames that can enhance scientists' ability to think about a target. However, as a supplement to the "synthesizing kind of imagination" that Camp talks about, Levy's account also appeals to pretense/make-believe (as propositional attitudes):

One can entertain a mental image and use it to highlight important propositions; one may reason through the consequences of a given proposition by appealing to corresponding imagery. At the first-person level, I can report that the two modes of imagination often seem to work jointly in my own thinking....At any rate, I will be assuming that in metaphorical thinking both propositional and imagistic imagining are present and important— and indeed that they can be mutually reinforcing.²¹⁷

In the case of metaphors, Levy doesn't see them as "unimportant heuristic devices" but suggests, to the contrary, that metaphors can serve an explanatory function and contribute to scientific understanding:

²¹⁴ Levy, 2012:741.

²¹⁵ Levy, 2015:792-793.

²¹⁶ Levy, 2012:747.

²¹⁷ Levy 2020: 293.

The understanding associated with metaphor therefore stems from the way in which it recruits pre-existing cognitive resources to new tasks and domains... Metaphors frame a target and thereby enhance our ability to think about it, including in particular to draw inferences about its behaviour. That is how they contribute to understanding— that is, explain.²¹⁸

From Levy's perspective, both metaphors and models are cases of surrogate reasoning. That is, in order to understand a real-world system (the target), the modeler investigates a surrogate system (the source) and examines in which way they resemble each other. At the same time, he notices some significant differences between these two devices. In the case of models, they are typically specified in relatively precise detail – for example, in terms of their content and how they relate to their targets in the world. Such specification – agreed upon by different researchers – is necessary if the model is going to be deployed and assessed by a larger scientific community.

In the case of metaphors, the descriptions of the secondary subject (the source) are less detailed; and it is often unclear which of its properties are most relevant and what the exact relationship with the primary subject (the target) looks like. As an illustration, Levy refers to two different ways to describe DNA. In the first case, the genome is metaphorically described as “the book of life.” While this metaphor may direct scientists' thinking in certain ways, it does involve a number of ambiguities.

What exactly follows from describing genetic material as text-like, or as a book? Does it contain analogues of words, sentences, or chapters? Does it have a beginning and an end? Should we understand the metaphor to mean that knowledge of the “language” in which the book is written is sufficient (or nearly so) for understanding the ins and outs of inheritance and development?²¹⁹

In Levy's second example, the genome is described instead as a worm-like chain model. In this case, the surrogate system has the form of a long, flexible rod, constituted by polymers such as protein and DNA. Levy points out that this model – unlike the metaphor – involves a detailed specification in terms of content, how it relates to the target and its content, and what the implications of this description are. For this reason, the worm-like chain model is often used “to assess, in quantitative terms, the extensibility of a DNA molecule, the amount of force it can withstand, and related properties.”²²⁰

In this dissertation, it is suggested that the additive view of models is the account that most accurately describes the multifaceted procedure of scientific and religious modeling. In line with this position, Chapter five will include a

²¹⁸ Levy 2020: 293.

²¹⁹ Levy, 2020:296.

²²⁰ Levy, 2020:296.

more thorough discussion of the relationship between a model system (the interpretative frame) and the propositional attitude that is directed towards it.

3.5 Scientific forms of aspect perception

In Chapter two, aspect perception was referred to as a case of creative imagination that draws on the interface between imaginings and percepts. As an example, we can think of a situation in which a subject is struck by an aspect in an ambiguous object in which different aspects compete with each other. Two of the most well-known examples of this phenomenon, perhaps, are Wittgenstein's use of Joseph Jastrow's duck-rabbit, and the Necker cube.²²¹ What these two optical illusions have in common is that they offer the possibility of observers seeing them differently because of the dawning of a new aspect.

According to some philosophers, theory change involves a conceptual disruption in which "aspect-changes" play a major role. Thomas Kuhn (1962/1970), for example, likened the paradigm shifts in science to Gestalt shifts in perception. Thus he employed Wittgenstein's duck-rabbit Gestalt shift to explain what occurred in cases where scientists abandon their commitment to one paradigm (say, Newtonian physics) for another (say, Einsteinian physics). According to Nickles (2018), Kuhn appealed to both a literal sense of visual perception and a more metaphorical sense of change of perspective.²²² In respect of the former, Kuhn was critical of the idea that everyone in the same perceptual position receives the same raw experience that they then interpret differently. His radical and contrasting proposal was that scientists who work under different paradigms live in different perceptual worlds.

In his later writings, however, Kuhn gave up the Gestalt shift metaphor and argued that paradigm shifts take place on a community level rather than in the mind of a lone individual. Nonetheless, there are, according to Nickles, a variety of reasons why Kuhn's suggested connection between scientific revolutions and individual perception is in conflict with contemporary science. For instance, what scientists nowadays take to be observable is not limited to human perception:

Observation in science amounts to detection, not human perception, even if the detection may be of proxies rather than the item itself and may involve sophisticated instrumentation, clever experimental design, and theoretically informed processing of the raw data, which themselves are typically very far removed from human perceptibility.²²³

²²¹ The Necker cube: Louis Albert Necker's optical illusion of a cube with no visual cues as to its orientation. It can, thus, be interpreted as having either the lower-left or the upper-right as its front side

²²² Nickles, 2018:153.

²²³ Nickles, 2018: 155

However, if we focus primarily on Kuhn's metaphorical use of visual perception – which, earlier in this chapter, I related to the conceptual metaphor “knowing is seeing” – the above critique misses the point. That is, if “seeing” is primarily a metaphor for intelligibility, paradigm shifts concern altered ways of making the world intelligible – with or without the involvement of visual perception in a literal sense. In this case, it is a question about an altered conceptualization and understanding of reality rather than about purely optical phenomena.

Kuhn's comparison of scientific paradigm shifts and the duck/rabbit image may, however, be subject to a more general critique. The critical remark in this case is that the suggested parallel doesn't accurately depict how these paradigm shifts typically occur. In the duck/rabbit case, we have an ambiguous image that can be interpreted in two competing but equivalent ways. The observer can go back and forth between these different perspectives without committing to either of them. In the case of scientific paradigm shifts, it is often a matter of two conceptions of the world that, during a certain time period, may have been considered comparable and credible. This kind of equilibrium ends, however, when a paradigm shift has taken place. As a result, one of the interpretations is regarded as more accurate than the other. This was, for instance, what occurred when the Earth was no longer seen as the centre of the universe but as simply one of many planets that revolve around the Sun.²²⁴

Besides Kuhn, other philosophers have also appealed to aspect perception as a source of novelty. In his writings about innovation, William Child (2018) differentiates, for example, between two different kinds of strategy. On the one hand, the innovator sees things in novel ways because s/he sees them in terms of a new concept or theory. On the other hand, the new way of seeing does not depend on his/her grasp of the new concept or theory. Here the innovator, on the contrary, observes patterns or similarities that s/he hasn't noticed before and, on these grounds, forms a novel theory or concept. According to Child, it is only in the second case that innovation can be explained by aspect perception:

For example, suppose that an experimenter suddenly sees the pulses of electromagnetic radiation emanating from a particular point in the sky in a new way; she sees them as resembling the flashes of a lighthouse. Seeing the pulses in that way suggests a particular theory about their source; the pulses, she hypothesizes, are produced by the rotation of a star that emits a constant beam of radiation, just as the flashes of a lighthouse are produced by the rotation of a

²²⁴ Nonetheless, it is not always the case that the paradigm shifts are assimilated into people's everyday consciousness or even reflected at all levels of scientific practice. One example of the latter is a physicist who hasn't assimilated the insights of quantum mechanics, relativity theory or chaos theory into his/her own research. While being aware of these theories, this scientist still operates within a Newtonian understanding of the world, both in his/her scientific practice and in everyday life.

lamp that emits a constant beam of light. But the new way in which she saw the pulses – as resembling the flashes of a lighthouse – was distinct from the theory she subsequently devised to explain the phenomenon; she saw the pulses in that way before she devised the theory. In that circumstance, the person's seeing the pulses as she did really does help to explain her formulation of the new theory.²²⁵

The above example can be seen in relation to what I referred to earlier in this chapter as the two levels of mediation (Section 3.1.1). At the first level, the imagining is mediated through a conceptual framework. At the second level, the imagining is generated through a certain medium (for example, a scientific model or metaphor) that operates according to a specific course of action. In Child's example, it is the interaction between imaginings and precepts – rather than an already established medium – that enables the experimenter to notice an analogous relationship between a target (the pulses of electromagnetic radiation) and a source (the flashes of a lighthouse). For this reason, I consider it to be a case of aspect perception that takes place within a conceptual framework (the first level of mediation) while being unmediated on the second level.

3.6 Scientific thought experiments

The typical philosophical or scientific thought experiment is constituted by a short fictional narrative that provides evidence either for or against a theory, illustrates abstract states of affairs, or fulfils specific functions within a theory. Very much like scientific models, such minimalist fictions manipulate and constrain the circumstances of an idealized scenario so that selected patterns and properties stand out. By visualizing a proposed hypothetical scenario, the thought-experimenting agent is able intuitively to draw certain conclusions about a particular target area. This activity is, nonetheless, constrained by the theoretical requirements and the underlying background assumptions that each discipline and problem area sets.

As in the case of scientific models, philosophers have different opinions about what kind of imagination is operative in thought experimenting. According to *the imagistic approach*, it is a procedure that is primarily enabled by sensory (visual) imagining. From this perspective, one of the essential characteristics of thought experimenting is that it enables us to visualize fictive idealized scenarios.

According to *the propositional approach*, on the other hand, we can imagine such episodes without the presence of any mental imagery. Philosophers such as Fiora Salis and Roman Frigg (2020) argue, for instance, that this kind of mental operation only requires propositional imagination, whether in the form of counterfactual reasoning, make-believe/pretense, or supposition.

²²⁵ Child, 2018:39.

A third way of approaching thought experimentation – *the experiential approach* – holds that thought experimenting involves a recreation of experiential perspectives. That is, while this procedure may include sensory imagining and propositional imaginings, it enables us, above all, to understand what it would be like to experience a certain situation. Consequently, according to this approach, experiential imagination plays an essential role in thought experimenting.

In this section I won't go into detail about either of these positions. A more thorough examination will, however, take place in Chapter six. In that discussion, special attention will be given to the experiential approach as a way to compare the role of experiential imagination in scientific and religious practice. Essential to this elaboration is the narratological concept of "transportation". This term is typically associated with a situation in which an agent is transported into a fictional or a factual narrative and becomes immersed in it. Before Chapter six, the concept of transportation will also be mentioned in relation to religious rituals (Section 4.6.2) and religious thought experiments (Section 4.7).

3.6.1 About thought experimentation

While there is no widely agreed-upon definition of what a thought experiment is, a common view is to see thought experiments as devices of the imagination used to investigate the nature of things. In contrast to real experiments, they are performed in "the laboratory of the mind," without the need of for a corresponding real-world experiment. That is, the thought experimenting subject visualizes or supposes a hypothetical scenario, and lets it run to see what happens. The conclusions drawn from such thought experimenting are therefore not "out in the open," but, rather, comes from intuitive judgment. This imagined scenario is, in turn, subject to certain underlying background assumptions that decide which commitments are to be retained or abandoned. Such self-imposed limitations are, in turn, crucial to the cognitive usefulness of thought experimenting.

Among philosophers, there are different opinions about the epistemic status of thought experiments. According to one position, advocated by John Norton (2004), thought experiments are nothing more than picturesque arguments. Although contributing a certain rhetorical force, they are, he argues, formed as the result of inductive and deductive inferences. Given this, they can be reconstructed as an argument without epistemic loss. According to another approach, a thought experiment doesn't so much provide novel input as it enables us to remember knowledge that hasn't yet been organized into a theoretical framework. A related position, advocated by Kuhn (1964/1977) and Gendler (2000b, 2004), for example, holds that thought experiments achieve conceptual reconfiguration. In the case of Gendler, this leads her to argue that, through thought experimenting, we can attain new justified beliefs about the

natural world or new justification for old beliefs. Kuhn, for his part, argues that the narrative structure and visual character of thought experiments may enable scientists to remember anomalies that they have seen before but have ignored. As a result, Kuhn suggests, they can play an important role in paradigm change.

One of the most striking features of thought experiments, according to a number of authors, is that they make use of intuitions.²²⁶ By combining intuitions, theoretical assumptions, and data, these hypothetical scenarios can lead to epistemic gain, it is argued. Brown (2004, 2005), for instance, identifies a set of platonic scientific thought experiments through which scientists intuitively can get *a priori* access to metaphysical realm of universals. That is, rather than appealing to new or old empirical data, experiments of this kind allow us to see the laws of nature independent of experience. However, a diverging view is expressed by Daniel Dennett (1995), who argues that thought experiments are “intuition pumps” that can lead us to uncritical and warranted conclusions.

3.6.2 Different kinds of thought experiments

According to James Brown (1991/2011), thought experiments can be divided into two general types: destructive and constructive. The role of the former is to present internal or external problems for a given framework. Brown suggests that *Galileo’s falling bodies* is an example of a destructive thought experiment, since it conveys an inconsistency in Aristotle’s account of motion. *Schrödinger’s cat* is, in turn, a thought experiment that points to external problems: namely, the conflict between the Copenhagen interpretation of quantum mechanics and our beliefs about everyday objects at the macroscopic level. So-called counter-thought experiments question, in turn, whether a phenomenon that another thought experiment has established really would obtain. Probably one of the most famous examples of this is Niels Bohr’s counter-thought experiment to Albert Einstein’s *clock-in-the box* thought experiment.

In the case of constructive thought experiments, they support a theory or framework. As Brown points out, this can be done in different ways. On the one hand, they can serve a pedagogical role by illustrating an otherwise complex and abstract position. Brown suggests that *Maxwell’s demon* belongs to this category. The aim of the thought experiment is to illustrate the possibility of violating the second law of thermodynamics.²²⁷ In order to do so, Maxwell introduces an imaginary creature (a demon) that is capable of detecting the motions of individual gas molecules. This demon controls, in turn, a small door between two compartments of gas. In one of them, there is cold gas with

²²⁶ For example, Brown, 2004, 2005; Brendel 2004; Horowitz, 1998. Mišćević, 2007.

²²⁷ According to the second law of thermodynamics the total entropy of an isolated system can never decrease over time, and is constant if and only if all processes are reversible.

fast moving molecules, and in the other chamber there is warm gas with slower moving molecules. Because the speed by which the demon opens and shuts the door, only the swifter gas molecules can flow from one chamber to the other. As a result, one of the chambers warms up while the other cools down. Since this increases entropy, this is a hypothetical illustration of how the second law of thermodynamics may be violated.

According to J.G. Lennox (1991), other examples of constructive thought experimenting can be found in Darwin's *On the origin of the species* (1859/1964). Here Darwin constructs hypothetical scenarios (which he calls "imaginary illustrations") whose aim is to support the theory of evolution by natural selection. As an example, Lennox mentions a scenario that is presented in Chapter four:

Let us take the case of a wolf, which preys on various animals, securing some by craft, some by strength, and some by fleetness; and let us suppose that the fleetest prey, a deer for instance, had from any change in the country increased in numbers, or that other prey had decreased in numbers, during that season of the year when the wolf is hardest pressed for food. I can under such circumstances see no reason to doubt that the swiftest and slimmest wolves would have the best chance of surviving, and so be preserved or selected. . . .
Now, if any slight innate change of habit or of structure benefited an individual wolf, it would have the best chance of surviving and of leaving offspring. Some of its young would probably inherit the same habits or structure, and by the repetition of this process, a new variety might be formed which would either supplant or coexist with the parent-form of wolf.²²⁸

In other cases, the thought experiment doesn't start from a given framework, but instead helps to construct a theory. This can be achieved, for example, by presenting a problem and then showing how it can be solved. According to Brown, *Newton's bucket* is a thought experiment of this kind. Here we are presented with a bucket filled with water and hung by a cord. The cord is twisted up tightly on itself; and when the bucket is released, it begins to spin rapidly – in respect to the experimenter but also in relation to the water it contains. When the relative motion is at its greatest stage, the surface of the water remains flat. As it acquires the motion of the bucket spinning relative to the experimenter, the surface assumes a concave shape. According to Newton, this shows that the water is rotating, despite the fact that the water is at rest relative to the bucket. Accordingly, it is not the relative motion of the pail and water that causes the concavity of the water. What this thought experiment was designed to demonstrate, consequently, was that true motion only can be defined by reference to absolute space.

However, it is typically the case that scientific thought experiments perform various functions at different times or for different people. That is, in one instance a specific thought experiment may function as a tool for refuting a

²²⁸ Darwin, 1859/1964: 90-91.

theory and, on another occasion, it may serve as a pedagogical device for illustrating an otherwise complex and abstract position. In addition, since a thought experiment always is in need of an interpretation, the same imaginative scenario can lead two individuals to draw different, and sometimes conflicting, conclusions

3.6.3 The epistemic gain of scientific thought experiments

In the discussion of philosophical and scientific thought experiments, a highly disputed question concerns the possible epistemic gain that they may offer. In this section I shall briefly introduce this issue.

3.6.3.1 Thought experiments, knowledge and understanding

In order to discuss the possible epistemic gain of thought experiments, it's necessary to define what we mean by "scientific progress." Whereas Alexander Bird (2007, 2008)²²⁹ refers to it as the accumulation of new propositional knowledge, philosophers such as Sorin Bangu (2015) and Finnur Dellsén (2016) talk about an increase in understanding.

Both knowledge and understanding are examples of cognitive accomplishments; but they differ from each other in various dimensions. One such dimension, for example, concerns their level of factivity. In the case of knowledge, it is typically described as a factive epistemic state that has a critical relation to truth. The standard epistemological account of knowledge, consequently, is to have justified true beliefs.²³⁰ However, when it comes to understanding, epistemologists disagree whether factivity is indeed a required condition. According to some philosophers, factivity is necessary, since understanding is to be conceptualized as a specific type of knowledge.²³¹ Other authors argue, by contrast, that understanding is a significantly different – and sometimes even more valuable – cognitive accomplishment than knowledge.²³² This aspect is illustrated, for example, by the fact that a subject may know why p without necessarily understanding why p . That is, rather than merely knowing isolated pieces of information, understanding requires that a subject "grasps" the relationships within the particular object of understanding. For example, if someone understands a subject matter, according to Wayne Riggs (2003), this involves having "a deep appreciation, grasp or awareness of how its parts fit together, what role each one plays in the context

²²⁹ See also Brown, 2004:34; Gendler, 2004:1152; Kuhn, 1977:241; Norton, 2004:44.

²³⁰ Even if philosophers such as Edmund Gettier (1963) have pointed out that justified beliefs are only one of the necessary conditions for knowledge, this conception is frequently used in contemporary epistemology. Knowing *that* something is the case is generally referred to as "knowing facts." However, this kind of knowledge differs from "knowledge by acquaintance" with individuals or things, or "performative (procedural) knowledge" where a subject knows how practically to accomplish something ("know-how").

²³¹ For example, Achinstein, 1983:23; Dellsén, 2016; Grimm, 2012; Pritchard, 2009, 2010

²³² For example, Elgin, 1996, 2004; Grimm 2010, 2012; Zagzebski, 2001.

of the whole, and of the role it plays in the larger scheme of things.”²³³ However, depending on what kind of understanding we are talking about, this accomplishment may take a variety of forms.

Because understanding is characterized by a grasping of relationships (rather than having justified true beliefs), Michael Stuart (2016, 2017, 2018) associates it with the practice of thought experimenting. According to him, thought experiments “can improve the quality of our epistemological relationships with the world without necessarily (or merely) increasing our stock of justified true beliefs.”²³⁴ While not denying that thought experiments may generate new knowledge, Stuart proposes that they also produce novel understanding by prompting scientists to explore conceptual solutions to problems or to model scenarios. By doing so, they create “a connection between some theoretical structure(s) of science and existing knowledge, skills or experience, via an exercise of the imagination.”²³⁵

Similar to Stuart, in what follows I shall refer to thought experimentation as a practice that may generate knowledge as well as understanding. At the same time, I shall suggest that the latter is an epistemic gain that fits particularly well with the thought experimenting procedure.²³⁶ One of the reasons behind this, I argue, is that it enables us to escape or look beyond the world as it is (the transcendent use of imagination) while at the same time allowing us to learn about the world as it is (the instructive use of imagination).²³⁸ As a result, they entail truth-normed as well as truth-independent aspects. This is an aspect that I will discuss more thoroughly in Chapter six.

Another reason why thought experiments promote understanding is, I argue, that they increase “cognitive control”²³⁹ – a concept that Alison Hill (2015) uses to characterize the epistemic state of understanding-why. When a subject understands why p , s/he will – according to Hill – be able to follow successfully some explanation of why p given by someone else; explain why p in his/her own words; draw the conclusion that p (or that probably p) from the information that q ; and so forth. Since thought experiments prompt us to do cognitive work of our own (rather than giving a straight answer), I argue that they encourage an epistemic procedure that transcends merely knowing isolated pieces of information.

As a preparation for the following chapters, it serves my purpose to distinguish between the concepts of “understanding” and “meaning-making”. While

²³³ Riggs, 2003: 217

²³⁴ Stuart, 2018: 527.

²³⁵ Stuart, 2017: 27.

²³⁶ Other philosophers who refer to thought experiments as a way to increase scientific understanding include Arthur 1999; Camilleri 2014; Gendler 2000b; Nersessian (1992a,b, 2007); Stuart (2016, 2017, 2018).

²³⁸ This distinction comes from Kind and Kung 2016: 1. The transcendent use of imagination enables us to escape or look beyond the world as it is. The instructive use of imagination enables us to learn about the world as it is.

²³⁹ This point is also emphasized by Stuart, 2018: 536-537.

both refer to a grasp of relevant relationships among things and events, meaning making is – in contrast to understanding – truth-independent. That is, even if a meaning making procedure results in false image of the world (for example, in the form of a conspiracy theory), it can still contribute an individual’s meaning-making. In understanding, by contrast, it is an epistemic achievement that require that one’s comprehension, in some sense, fits the facts of the world.

3.6.3.2 The explanatory role of thought experiments

In the literature on scientific thought experimentation, it has been argued that understanding can be created in variety of ways. For example, it can be achieved through the exemplification of properties and relations²⁴⁰; the illustration of theoretical claims²⁴¹ by making certain intuitions accessible²⁴²; or by providing “hypothetical explanations.”²⁴³ Stuart (2018) argues in turn that, in order to understand how thought experiments generate scientific understanding, we must find novel ways to justify the role that imagination plays in such a procedure. According to him, one way to do this is to explore how thought experiments may contribute to explanations. To do that, it’s necessary to take into account that there are a variety of characterizations of what an explanation actually is. Whereas Karl Gustav Hempel (1962, 1965) understands it as a subsumption of a phenomenon under “some general regularity”, others hold that it is a unification of disparate phenomena,²⁴⁴ an answer to a why-question given a contrast class,²⁴⁵ or an identification of causal chains, causal counterfactuals or causal networks.²⁴⁶ In his writings, Stuart (2016, 2017, 2018) gives examples of thought experiments that conform to any of these types of explanation.²⁴⁷ He emphasizes that the same thought experiments can play more than one kind of epistemic role, and so can be used to generate knowledge as well as understanding:

Thought experiments like Heisenberg’s microscope, Schrodinger’s cat, Einstein’s elevator and others, are simultaneously used by scientists to make sense of difficult new theoretical structures, which increases their scientific under-

²⁴⁰ Elgin, 2014.

²⁴¹ Brown, 1991/2011.

²⁴² Lenhard, 2018.

²⁴³ Schlaepfer and Weber, 2018.

²⁴⁴ For example, Friedman, 1974, Kitcher, 1989.

²⁴⁵ van Frassen, 1980.

²⁴⁶ Salmon, 1984; Woodward, 2003; Strevens, 2008, 2013.

²⁴⁷ As an example of a thought experiment that explains by giving answers to why-questions, Stuart (2018) mentions Galileo’s falling bodies thought experiment. What this hypothetical scenario explores is why bodies of different weight fall with the same acceleration rather than at speeds proportional to their mass (“why x happens as opposed to y”). In terms of understanding, this relates to what is typically referred to as “explanatory understanding” or “understanding-why.”

standing by helping them connect abstract theoretical structures either to experience or to previously unconnected parts of theory. In addition to serving this purpose, many of these thought experiments simultaneously or derivatively use this new understanding to attack, subvert, popularize or explain a theory or theoretical interpretation. The application of new understanding often results in new knowledge.²⁴⁸

When discussing how thought experiments may generate objectual understanding, Stuart (2018) uses Elisabeth Camp's writings on non-propositional and interpretative frames (Camp 2009, 2020 a, b).²⁴⁹ Camp's account has been explored earlier in this dissertation in relation to the metaphorical view of scientific and religious models (Section 3.4.2). An important observation is thus that a common denominator of models and thought experiments is that they can both serve as frames that prompt characterizations and perspectives that are epistemically or semantically valuable. As an illustration, Stuart (2016, 2018) mentions Darwin's thought experiment according to which the eye is the result of a series of mutations (beginning with a single nerve) rather than the product of intentional and purposeful creation.²⁵⁰ That is, whereas Darwin's opponents favored a frame that characterized the eye as a purposefully designed watch, Darwin described the eye under the framework of evolution by natural selection. This frame, in turn, enabled a whole new set of semantic and explanatory relationships that were compatible with the values of science (explanatory power, predictive accuracy, and so forth).²⁵¹

In order to understand *how* thought experiments operate, it is also illuminating to consider their narrative strategy. According to David J. Velleman (2003), stories do more than recount events. As he sees it, they present also these events in a way that makes them intelligible: "conveying not just information but also understanding."²⁵² Jerome Bruner (1986, 1991) distinguishes, in turn, between the explanatory modes of abstract, logico-deductive reasoning and narrative ways of structuring and processing information. According to Bruner, the former favors context-free abstractions and generalizations. The aim of the latter, in contrast, is to give meaning to human experience by situating individual events within a temporal or social context. Given this, Bruner argues that narrative cognition gives primacy to subjectivity and human experience, and strives to locate experiences in time and space. As a result, it leads to "good stories, gripping drama, and believable (though not necessarily "true") historical accounts."²⁵³

²⁴⁸ Stuart, 2017:20.

²⁴⁹ Stuart, 2018:534-536.

²⁵⁰ Darwin, 1859/1964, ch.5.

²⁵¹ Stuart, 2016; 29-30; 2018:532, 535.

²⁵² Velleman, 2003: 1.

²⁵³ Bruner, 1986:13.

In recent studies, however, the sharp distinction between narrative and logico-deductive has been called into question. Allirio Rosales (2017), for example, makes us aware of the fact that a scientific theory often is composed of various interacting components: models, diagrams, and mathematical formalisms, as well as narratives. In some cases, generalized narratives are even essential for the integration of the mathematical components of a theory, Rosales explains. In a similar way, Morgan and Wise (2017) point out that mathematical models and narratives often cooperate in scientific work – for example, by exploring the logical implications of a model. According to Morgan (2001), these narrative elements are therefore not “merely heuristic,” but rather an essential part of how models are used. That is, while it is the model itself that shapes and constrains the stories that the scientist can tell, narrative devices help them to apply the model’s structures to the real world.

Modelling involves a style of scientific thinking in which the argument is structured by the model, but in which the application is achieved via a narrative prompted by an external fact, an imagined event or question to be answered.²⁵⁴

At the same time, it has also been argued that some modes of scientific explanation are resistant to narrativization. As an example, H. Porter Abbott (2003) refers to Darwin’s theory of evolution by natural selection. Although Darwin’s theory involves change over time, it is narrative-resistant, since neither natural selection nor species are entities with agency:

One faces, then, the difficulty of constructing an explanatory narrative that shows agency but that has to make do with an apparent lack of entities and even an apparent lack of events, without which, of course, there can be no narrative. Yet because natural selection is a way of understanding change over time, which in turn would appear to be a kind of action, it is difficult to find other terms with which to describe it.²⁵⁵

Another way to approach thought experiments is to argue that they involve the construction and manipulation of “mental models.” Following Johnson-Laird (1983), these models are described as structural analogues of a hypothetical situation.²⁵⁶ According to Nancy Nersessian (1992 b, 2007), our manipulation of a mental model can in fact provide novel empirical data. That is, although the data may have been contained in current representations, it is not before

²⁵⁴ Morgan, 2001:361.

²⁵⁵ Abbott, 2003:144.

²⁵⁶ However, while visual imagery is considered to be essential for these kinds of operation, there are different views about whether mental models also include linguistic representations. Whereas Tamar Szabó Gendler (2004), for example, has a more pictorial view (describing mental models as quasi-spatial pictures), Nancy Nersessian (1992 b, 2007) considers mental models to be halfway between pictorial and linguistic representations. At the same time, she considers them to be non-propositional representations that involve simulation rather than purely deductive and inductive forms of reasoning.

the thought experiment is executed that we get access to it. On these grounds, she points out that “simulative reasoning” of this kind played an important role in the development of Maxwell’s electromagnetic field theory, as well as in numerous other cases of scientific problem-solving.

3.7 Summary

In this chapter, I examine the role that imagination plays in relation to scientific models, metaphors and analogies, aspect perception, and thought experiments. As a way to describe these phenomena, I suggested two levels of mediation that shape and structure the involved imaginings. At the first level, mediation takes place via a particular conceptual framework that constructs and conceptualizes reality in a certain way. At the second level, the imagining is generated through a certain imaginative device (e.g., analogies, metaphors, scientific models, and thought experiments) that operates according to a specific course of action.

In science, visualizability is a theoretical quality that has turned out to be very effective in generating scientific understanding. In light of Lakoff and Johnson’s conceptual metaphor “knowing is seeing,” I examine some examples of scientific “eureka” experiences. Even if these kinds of events typically come as sudden illuminations, I suggested that they often are the result of integration and reprocessing of a large amount of information to which the scientists already have access (but now see in a new light). Furthermore, even if imaginative visualization seems to play an important role in this type of experience, they are not determined purely by imagery.

To gain an understanding of a new area of investigation, scientists often compare it with something familiar: selected characteristics of a well-known concept (source) are compared with selected characteristics of a less familiar area (target), which influence their understanding of the latter. In the case of metaphors and analogies, they may enable scientists to “see” the investigated target from new perspectives. At the same time, there is also a danger that imagistic representations limit scientific explorations in undesirable ways, e.g., in cases of “thematic imagination” (where a certain theme guides scientists’ imagination, even if the data or the current theory does not lead them to do so).

As a way of studying aspects of the world that are too complex to be examined in detail, scientists typically construct simplified and idealized models of it. In this chapter, I examine three accounts that describe scientific models as imaginative devices. According to the propositional account, models are said to engage primarily a propositional kind of imagination. For example, this can take the form of a comparison between scientific modeling and engagement in make-believe. According to the metaphorical account, a metaphor serves as an interpretative frame that temporarily guides us in adopting new

perspectives and determines what information we notice about a subject. Instead of choosing between either of these approaches, I promote the additive account, which sees scientific modeling as a practice that includes both propositional and imagistic imagination.

Aspect perception is a phenomenon that Thomas Kuhn has associated with paradigm shifts in science. In Kuhn's case, he appeals both to a literal sense of visual perception and a more metaphorical sense of change of perspective. While taking into account the critique that has been directed against a comparison of aspect perception and paradigm shifts, I also give examples of philosophers who argue that aspect perception can be a source of creativity and novel vision.

A typical scientific thought experiment takes the form of a short fictional narrative that provides evidence either for or against a theory, illustrates abstract states of affairs, or fulfils specific functions within a theory. By visualizing a proposed hypothetical scenario, the thought experimenting agent is able to draw certain conclusions intuitively about a particular target area. According to the imagistic approach to thought experiments, this is a procedure that is primarily enabled by sensory (visual) imagining. By contrast, the propositional approach holds that we can imagine the narrated scenario without the presence of mental imagery. According to the experiential approach, thought experimenting involves a recreation of experiential perspectives. The narratological concept of "transportation" was introduced for the latter. This concept is typically associated with a situation in which an agent is transported into a fictional or a factual narrative and becomes immersed in it. In Chapter xix, I discuss the phenomenon of transportation more thoroughly.

While religious models are more closely related to narratives than their scientific counterparts are, this does not mean that certain scientific thought experiments cannot also serve interpretative frames. As an example, I refer to Darwin's thought experiment in which he describes the human eye in light of the interpretative frame of evolution by natural selection.

When discussing the epistemic role of scientific thought experiments, I argue that the epistemic state of understanding fits particularly well with the thought experimenting procedure. To have understanding of a particular subject matter requires that an individual "grasps" its relevant relationships (how its pieces fit together and what role each one plays in the context of the whole). I argue that thought experiments can enable this kind of awareness by promoting cognitive control and by encouraging us to do cognitive work of our own. This operation is, in turn, made possible by the narrative strategy itself, i.e., presenting events in such a way that they become intelligible and convey more than just isolated pieces of information.

4 Religious imagination

4.1 Introduction

In the nineteenth and twentieth centuries, authors such as Ludwig Feuerbach (1841/1969) and Sigmund Freud (1907) formulated critical views that stressed the connection between religions, imagination, illusion, and human wish fulfillment. However, even if we acknowledge the presence of imaginative elements in religion, this doesn't necessarily mean that we need to view it as *nothing but* a product of our own consciousness. On the contrary, it is more or less a general understanding among religious scholars that a significant degree of imagination is required when we form representations of the sacred or divine realm (independently of whether or not we consider that realm to be metaphysically real). Terrence W. Tilley (2020), for instance, reflects such a perspective when he refers to religious understanding as an imaginative – but not necessarily illusionary – practice:

I simply accept the claim that religious practitioners imaginatively produce concepts of God shaped by their desires. But I reject the claim that an imaginative origin for religious belief implies that 'God is just a product of our consciousness'.²⁵⁷

In this chapter, like in the previous one, I shall examine in what ways imagination enables us to visualize and hypothesize about hidden or still-unknown aspects of reality. To enable a comparison between a religious and a scientific use of imagination, I shall employ the same categorization as in Chapter three. Thus the examination proceeds from a distinction between four forms of imagination:

- A. *Sensory imagination*. Although the imaginings can be keyed to either of our sense modalities, I shall focus primarily on visual imaginings. These can take the form either of mental imagery or as an interface between imaginings and percepts.
- B. *Propositional imagination*. These non-visual representations are constituted by a certain cognitive attitude (imagination) that is directed towards a propositional content. Although propositional imaginings

²⁵⁷ Tilley, 2020:253-254.

often supplement and specify cases of mental imagery, it is in itself typically considered to be non-imagistic.

- C. *Experiential imagination*. When a subject engages in this kind of imagination, s/he recreates experiential perspectives (“what it is like to undergo a particular experience”). This operation may include visual components; but in those cases it is always combined with a broader, multidimensional experiential perspective.
- D. *Creative imagination*. This is a category that differs from the three other kinds of imagination. That is, whereas sensory, propositional, and experiential imagination refer to particular types of imagining that share a common format, creative imagination is a more elusive category. More precisely, it is assumed here that creative cognition can be generated by a variety of different types of imagination. As was noted in Chapter two, for this reason creative cognition can be associated with conceptual blending as well as aspect perception (“the seeing of aspects” or “seeing as”), pretense, and counterfactual reasoning

Like in the previous chapter, *two levels of mediation* will serve as an analytical tool for this examination. That is, I shall distinguish between:

- (1) mediation that takes place via a particular (general or specified) conceptual framework; and
- (2) the medium or imaginative device (for example, a model or a thought experiment) through which the imagining is moulded into a particular shape and function.

While the two levels of mediation serve as a point of departure for my examination, it should be noted that it will be challenged by certain features of religion. In particular, this remark concerns the section about religious models (Section 4.5.1). Here I distinguish between models that relate to selected aspects of a religious discourse (RM¹) and a situation in which an entire religion functions as a “model” of reality (RM²). However, as a consequence of the latter, the distinction between the first and second levels of mediation becomes a bit blurred. That is, the imaginative device itself (the model, related to the second level of mediation) takes on a role that is typically associated with a conceptual framework (the first level of mediation). Instead of seeing such deviation as a failure of the chosen analytical tools, I shall argue that it says something essential about religion as such. That is, while there are aspects in which religious models (of the type RM¹) can be compared with their scientific counterparts, this is not the case with the all-embracing character of RM².

In this chapter, I shall also posit one condition and one distinction that are necessary for our upcoming examination. The condition relates to an awareness that religious imagination typically takes place in relation to a specific religious tradition that has influential power over the believer's presuppositions, preferences and preconceptions. I refer to this condition as "the thematic guidance of a religious tradition" (Section 4.1.1). The distinction concerns a differentiation between kataphatic and apophatic spirituality (Section 4.1.2). This distinction – as well as my problematization of it – will be referred to in the forthcoming discussion on how St Augustine's concept of "visio dei" relates to religious intelligibility (Section 4.2.1).

In the sections that follow, special attention will be given to two kinds of imaginative devices: religious models (Section 4.5) and thought experiments (Section 4.7). I shall also discuss the role that imagination plays in religious forms of aspect-perception (Section 4.3). While these are the same themes that were explored in relation to scientific imagination, this chapter also includes a discussion that is exclusive to religion: what role imagination plays in ritual practices (Section 4.6).

4.1.1 The thematic guidance of a religious tradition

Religion and spirituality are often said to involve a special kind of "seeing" that goes beyond passive ways of receiving sensory impressions of the physical world (a mere optical event). Art historian David Morgan (2005) describes this as a "sacred gaze" that invests various areas of reality with spiritual significance. This special kind of seeing is, in turn, informed by the conceptual framework in which it is carried out (the first level of mediation) as well as by a phenomenon that I referred to earlier as "thematic imagination" (see Section 3.3.1).²⁵⁸ While Gerald Holton's (1996) initial use of the term was directed towards a scientific environment, I will use it here to describe a phenomenon that can be found in religious contexts as well: namely, the basic presuppositions, preferences and preconceptions of the religious believer him/herself. One example of such influential themata is a presupposed monotheism: a belief in the existence of only one God who created the world and intervenes in the world. This particular thema influences the religious imagination of Christianity, Judaism, and Islam (as well as other monotheistic traditions). In a Hindu or Buddhist cultural setting, in contrast, the guiding themata would be belief in multiple deities or in the universal principle of karmatic cause and effect.

My point of departure, consequently, is that thematic imagination (in religion and in science) can constrain as well as motivate an individual or a group

²⁵⁸ "...the often unconfessed or even unconscious basic presuppositions, preferences, and preconceptions that scientists may choose to adopt, even if not led to do so by the data or current theory" (Holton, 1996:201).

of individuals. In the case of religion, themata are particularly salient, since religious experiences are typically guided by the framework of a particular tradition. In meditation or prayer, a Christian believer is, for example, more likely to visualize elements or events that belong to his or her own faith, rather than to Shintoism or Confucianism. That is, while the official (while not always actualized) ideal of science is to take a neutral and objective standpoint, a similar requirement would be in fundamental conflict with the very idea of religious traditions. This said, it's necessary to remind ourselves of Mikael Stenmark's (2004) distinction between (a) religious practice as an act of faith of the religious believer, and (b) as a scientific discipline ("theology"). Consequently, when I write that the thematic imagination is more explicit in religious practice than in scientific practice, it is primarily (a) to which I refer. At the same time, it is necessary also to acknowledge that the imagination of theologians (as of any scientist) departs from the specific traditions and frameworks that guide their interpretation and conception of reality.

4.1.2 Kataphatic and apophatic spirituality

It is necessary at this point to introduce the common distinction between apophatic and kataphatic spirituality. These terms refer to two opposing strategies that can be traced back at least to Pseudo-Dionysius. In the case of the kataphatic way (*via affirmata*), practitioners approach the divine realm with affirmative statements or images of what God/The Ultimate Reality is. Given this, kataphatic practice may involve mental and physical imagery, words, emotions and music. Kataphatic mysticism, in turn, typically centers on having visions of – or conversations with – God or other spiritual beings (for example, angels).

The opposite of the kataphatic strategy is apophatic spirituality (*via negativa*). It stresses that God/The Ultimate Reality transcends human thought and language, and is therefore "best known by negation, elimination, forgetting, unknowing, without images and symbols, and in darkness."²⁵⁹ For this reason, the apophatic practice involves turning away from the senses, emptying the mind of content, and seeking the divine beyond attributes.²⁶⁰

However, even if apophacy and kataphacy are terms that are generally associated with a Christian context, the phenomena to which they refer are found in many religions and religio- metaphysical systems. As pointed out by Henny Fiskå Hägg (2006), these spiritual approaches are part of religions such as Judaism, Islam, Buddhism, and branches of Platonism²⁶¹:

²⁵⁹ Egan, 1978:403.

²⁶⁰ The fourteenth century text known as *The cloud of Unknowing* is a classic example of this strategy. Here, the anonymous author writes that those who wish to glimpse God must remove themselves from the world that they know, and fashion a cloud of unknowing.

²⁶¹ Similar observations have also been made by Michael Sells (1994) concerning the negative theology found in Christianity as well as in Neoplatonism and Islam.

[W]herever a religion or a philosophy operates with a transcendent god or a transcendent principle, it is faced with the dilemma of how to know and describe that god or that principle.²⁶²

In this chapter I shall follow Fiskå Hägg's proposal, and argue that kataphatic and apophatic strategies can be found in a variety of religious and spiritual traditions (although not necessarily under these particular names). I assume, furthermore, that religious and spiritual practices often rely on a combination of both strategies (which are not mutually exclusive). This is, for example, consistent with Harvey D. Egan's claim that "any genuine Christian mysticism must contain apophatic as well as kataphatic elements."²⁶³ In this chapter, this view in turn affects how I understand the role of imagination in religious practice. That is, since these two strategies often work in tandem, kataphatic and apophatic spirituality may be influenced by imaginative elements. As an illustration, Egan (1978) refers to *The Spiritual Exercises of St Ignatius of Loyola*. In the exercise referred to as "The application of the senses," the participant is asked to, hear, feel, touch, and taste in imagination the essential aspects of the Christian mystery:

It is profitable to use the imagination and to apply the five senses to the first and second contemplations [on the Incarnation and the Nativity], in the following manner. The first point. By the sight of my imagination I will see the persons, by meditating and contemplating in detail all the circumstances around them, and by drawing some profit from the sight. The second point. By my hearing I will listen to what they are saying or might be saying; and then, reflecting on myself, I will draw some profit from this. The third point. I will smell the fragrance and taste the infinite sweetness and charm of the Divinity, of the soul, of its virtues, and of everything there, appropriately for each of the persons who is being contemplated. Then I will reflect upon myself and draw profit from this. The fourth point. Using the sense of touch, I will, so to speak, embrace and kiss the places where the persons walk or sit. I shall always endeavor to draw some profit from this.²⁶⁴

While these exercises focus upon traditional Christian images and symbols, Egan holds that they still can "initiate a deep, silent mystical movement clearly surpassing discursive prayer."²⁶⁵ Hence, in this case the apophatic and the kataphatic strategies cooperate on different levels. That is, the visualizations are viewed as tools for catching glimpses of a supernatural reality whose true essence, nonetheless, remains beyond human comprehension and conceptualization. In the letters of the Moroccan Sufi leader Abu Abdullah Muhammad al-Arabi al-Darqawi,²⁶⁶ we can see another version of this approach. Here, al-

²⁶² Fiskå Hägg 2006: 3.

²⁶³ Egan, 1978:405.

²⁶⁴ Ignatius of Loyola. Gnass 1991: 60-61.

²⁶⁵ Egan, 1978:414.

²⁶⁶ 1760-1823.

Arabi al-Darqawi discusses the spiritual discipline of dhikr, which, among other things, includes the visualization of the letters of the Supreme Name (Allah):

It consists of visualizing the five letters of the Name while saying Allah, Allah, and Allah. Each time the letters dissolved in imagination, I re-visualized them and if they dissolved a thousand times during the day and a thousand times during the night, I continued a thousand times a day and a thousand times a night to visualize them. This method gave me moments of intense insight when I practiced it for a little more than a month at the beginning of my spiritual path. It brought me great knowledge as well as intense awe (haybah) but I paid no heed to it, occupied as I was in calling the Name and visualizing the letters until the month ended. Then a thought forced itself on my attention: God (be He exalted) says that ‘He is the first and the last, the outer and inner.’²⁶⁷

In the liturgical practice of dhikr, visualization (combined with various kinds of breathing technique) takes place within a series of spiritual levels through which the Sufi devotee must pass. The letters of Allah’s name thus serve as bridges towards an even more profound knowledge of the Divine. At the same time, it is assumed that the words of the Quran in themselves are able to give access to a transcendent dimension. Consequently, this kind of visualization involves kataphatic as well as apophatic tendencies. That is, whereas the Ultimate Reality is to some extent still hidden, the devotee is able (to some degree) to experience its essence through an intermediary form (The Supreme Name).

A similar kind of apophatic-kataphatic dialectic can also be found in the writings of Teresa de Avila, Barbara Mujica (2001) argues. Teresa, who belonged to the Carmelite tradition, sensed a need to reconcile the apophatic and kataphatic approaches. Hence, while using many exquisite metaphors,²⁶⁸ she also acknowledges their inefficiency:

Saint Teresa faces the challenge of describing in words a phenomenon that transcends language. Her struggle to express the inexpressible is in evidence in her constant self-correction...However, she stops herself, realizing that in the temporal world – the world of words and sensory stimuli – nothing can be properly understood...²⁶⁹

According to Mujica, however, Teresa of Avila did not use language as a way to convey information. For her, it served rather as a tool for eliciting the spiritual transformation of the practitioner. This perspective corresponds with the

²⁶⁷ Shaykh Mawlay al-Arabi al-Darqawi, 1981:57:2.

²⁶⁸ In *The interior castle*, for example, Teresa describes the soul as a diamond in the shape of a castle, comprising seven mansions through which the soul travels inward to be united with God.

²⁶⁹ Mujica, 2001:743.

observations of Steven T. Katz (1992), according to whom spiritual language “performs an essential mystical task, but it is not a descriptive task.”²⁷⁰

In the sections that follow, I shall return to the distinction – as well as the cooperation – between kataphatic and apophatic spirituality. The differentiation between these two strategies is relevant for my elaboration below on visualization and visionary practices.

4.1.3 The concept of religious “seeing”

In Chapter three (Section 3.2.1), the conceptual connection between vision (“seeing”) and understanding was noticed. Following Lakoff and Johnson (1980), it was suggested that the tendency to relate vision with to understanding originates with the conceptual metaphor “knowing is seeing.” This metaphor conceptualizes and structures how different cultural networks think about knowledge, Lakoff and Johnson argue. According to this approach, the term “seeing” has a literal as well as a metaphorical meaning. In the former case, it concerns phenomena that are related to visualizability in some form. But when “seeing” is used metaphorically, it refers instead to intelligibility. In religious environments, intelligibility is primarily of an existential kind – and it can be given a variety of sub-names, ranging from knowledge and understanding to wisdom and meaning-making. Note, however, that the generation of such qualities aren’t limited to perception or sensory imaginings. They may, on the contrary, rely on a variety of mental and cognitive procedures that doesn’t involve visual representations. For this reason, understanding (an epistemic kind of intelligibility) can, for example, be generated by propositional imagination rather than by any visual counterpart (which is emphasized in the propositional account of scientific models, Section 3.4.1).

When we talk about the literal sense of “seeing,” we generally refer to one of three forms:

- (a) pure perception;
- (b) perception informed by imagination (for example, aspect perception);

or

- (c) mental imagery of either a quasi-perceptual or a conceptual kind.

In the last case, conceptual operations enable us to envision and understand subjects in a certain way (for example, metaphors).

Accordingly, whereas (a) relates to a perceptual kind of seeing, (b) and (c) are examples of imaginative seeing. However, while the latter two categories are the primary subject matter of this section, my intention is to show the close and intricate relationship that often exists between perceptual and imaginative forms of seeing.

²⁷⁰ Katz, 1992:6.

As background to my elaboration on the concept of religious “seeing,” I shall use David L. McMahan’s (2002) and Victoria S. Harrison’s (2015) discussion on the influence that the “knowing is seeing” metaphor has on the thinking of entire cultural networks. According to both authors, for instance, it plays a key structuring role in how Hindu, Buddhist and Jain philosophies on the Indian subcontinent conceptualize knowledge.

McMahan focuses in particular on South Asian Mahayana Buddhist traditions,²⁷¹ and argues that the ground for its epistemic system is constituted by visual metaphors. According to him, sight is elevated as the primary image for knowledge and awakening in Buddhist discourses. For this reason, the quest for awakening is symbolized as a quest for a vision of truth, and is manifested in standard phrases such as “seeing the Dharma” (Buddhist teachings) and “seeing the dharmas” (the constituent elements of existence). These visually-based epistemological suppositions, in turn, inform philosophical discourses, visionary literature, and many meditation and devotional practices.

Victoria Harrison argues, in turn – and to an even greater extent than McMahan – that the link between knowing and seeing is deeply embedded within Indian as well as Western conceptual systems. The reason why both are structured by the same primary metaphor, according to her, is that they are derived from a common proto-European root: *vidya* (which means both to know and to see).²⁷² For Harrison, conceptual metaphors provide useful tools for our thinking about different philosophical traditions and networks of ideas. However, while she uses the “knowing is seeing” metaphor as a way to reflect on the inter-cultural philosophy of religion, my own intention instead is to use it as a strategy to examine the role that imaginative seeing may play in religion.

4.2 Vision and visualization

In this section, I shall study two forms of religious seeing; *vision* (as in “having a vision”) and *visualization*. These two phenomena can be found in a variety of religious traditions. Although both of them involve a “seeing” of a transcendent realm of reality, they do so in distinct ways. Generally, a vision is said to be spontaneous and unintended. Visualization, on the other hand, is described as a voluntary and active creation in the mind’s eye. Accordingly, it is

²⁷¹ The source material for McMahan’s investigation is a selection of Mayahana texts – for example, the Perfection of Wisdom (Prajñāpāramitā) literature and the Gajavyāha Sūtra – and various meditation manuals and Tantric texts describing visualization practices.

²⁷² “These Sanskrit words are connected to the Latin *videre* through a common Indo-European root, *weid*, meaning ‘to see, to know truly’ (the same applies to the Pāli equivalents of these Sanskrit words). The English words ‘vision’ and ‘wisdom’ are also derived from *weid*... A cognate derivation led to the Greek term *eidōs*, which came into English as ‘idea’” (Harrison 2015: 314).

often argued that visualization draws more heavily on imagination than visionary practices do. However, as I shall show in the next section, this is not necessarily a view that has always been generally held.

4.2.1 Vision and visualization in medieval Christianity

In this section, I shall introduce St Augustine of Hippo's (354-430) threefold categorization of religious vision. It is going to serve as a stepping stone for my own conceptualization.

4.2.1.1 St. Augustine's scheme of vision

In the history of Christianity, a reoccurring discussion concerns whether or not God can be perceived directly by humans on Earth. One aspect that causes much debate, for example, is how one should understand the beatific vision of Matthew 5:8: "Blessed are the pure in heart, for they will see God."

In light of this discussion, Augustine of Hippo (354-430) developed a doctrine of vision (*visio dei*) that was widely influential throughout the Middle Ages. Important to notice is, however, that he uses the term "vision" in a more general way than how it was previously defined in this dissertation. In Augustine's case, vision correlates to the more general term "seeing." As such, it includes mental imagery (either as deliberate constructions or as something that is *received* from the supernatural realm) and perception. For this reason, my earlier distinction between "vision" and "visualization" doesn't conform to Augustine's conceptualizations. Nonetheless, after presenting his scheme of vision, I shall return to my earlier distinction between these two phenomena.

Augustine's categorization is characterized, in particular, by a distinction between corporeal, spiritual, and intellectual vision.²⁷³

Corporeal vision (*visio corporalis*) refers to the physical sense of sight – what we commonly refer to as "perception." It is through this kind of vision that we are able to see objects in the material world. In his study of the theory of imagination in classical and medieval thought, M.W. Bundy (1927) explains:

Corporeal vision is clearly the capacity for receiving impressions, and is thus, in the technical language of *De Trinitate*, not imagination at all but *visio* or *sensus*; but in the treatise on vision the distinction between *visio* and *phantasia* is not maintained, and the impression, corporeal vision, is regarded as a type of imagination. Through this simplest power of vision one can see with bodily eyes heaven and earth and all that is therein.²⁷⁴

²⁷³ Augustine 1982, 1991. McGinn, 2005:228-232.

²⁷⁴ Bundy, 1927:167.

An example of a religious experience that involves this kind of vision is, for instance, St Bernadette's²⁷⁵ vision of the Virgin Mary in Lourdes in 1858.

Spiritual vision (visio spiritualis) is described as a capacity that enables us to see things that are absent but significant. In the case of Augustine, this kind of vision "would include the mental picture of Carthage, with which Augustine was acquainted, and of Alexandria, which he had never seen."²⁷⁶ From this characterization, it becomes clear that spiritual vision is not "spiritual" in the sense that we generally understand the term today. The connection with "spirit" derives, rather, from the ancient theories of perception that influenced Augustine.²⁷⁷ A better characterization would be to call it "imaginative vision," since it is dominated by mental imagery. According to Augustine, spiritual vision serves as a mediating force between corporeal and intellectual vision. An example of a religious experience that involves this kind of vision is depicted in the biblical episode where Jacob, in his mind's eye, sees a ladder to heaven ("Jacob's ladder," Gen. 28:10-22).

Intellectual vision (visio intellectualis) refers to the vision of the upper part of the soul. It enables us to see things as they really are (rather than merely seeing them as physical objects or as mental imagery). As described by Augustine himself: "What is seen not imaginatively but in its own proper essence, and not by means of the physical, is seen in a kind of vision which surpasses all other kinds."²⁷⁸ Thus it is considered to be the highest level of vision and involves, in turn, a wide range of cognitive activities (for example, what today we would call "intuition" and "immediate insight"). For instance, in order to comprehend a verse such as "Love thy neighbor as thyself," intellectual vision is required, Augustine argues. As explained by Bundy:

Intellectual vision occurs where no imaginary likeness is involved. Man, the sun, and trees may be seen in their own form by corporeal vision or as absent objects through spiritual vision; but love can never be discerned as present in a body or in some image.²⁷⁹

An example of a religious experience that involves of this kind of vision is – I argue – the experience that Julian of Norwich (1342-1416) recounts in *The revelations of divine love*. While this vision involves sensory elements (which could be of either a corporeal or a spiritual/imaginative character), the essential element is a certain kind of intellectual insight:

²⁷⁵ Bernadette of Lourdes or Bernadette Soubirous (1844-1879).

²⁷⁶ Bundy, 1927: 167.

²⁷⁷ According to these theories, perception is generated by the soul's active awareness (rather than by passive reception) of sense impressions. It was believed that sense experience involved the stimulation of a semi-material fluid (*pneuma*) that permeated the body.

²⁷⁸ Augustine, 1982: 12.14, 12.25; Bundy, 1927: 167.

²⁷⁹ Bundy, 1927: 168.

And he showed me more, a little thing, the size of a hazelnut, on the palm of my hand, round like a ball. I looked at it thoughtfully and wondered, ‘What is this?’ And the answer came, ‘It is all that is made’. I marvelled that it continued to exist and did not suddenly disintegrate it was so small. And again my mind supplied the answer, ‘It exists, both now and forever, because God loves it. In short, everything owes its existence to the love of God.’²⁸⁰

In light of Augustine’s schematization, I suggest that corporeal and spiritual seeing are akin to the literal meaning of “seeing” (a visual experience of some sort: either of a perceptual or an imaginative character), while intellectual vision has more in common with the metaphorical meaning of seeing (a certain kind of understanding or intelligibility). Augustine’s threefold categorization allows us, furthermore, to discuss *visio dei* in relation to kataphatic and apophatic spirituality (Section 4.1.2). The kataphatic strategy involves affirmative images or statements of what God/The Ultimate Reality is. This, in turn, is consistent with Augustine’s categories of corporeal and spiritual (imaginative) vision. In the case of apophatic spirituality, on the other hand – in which it is believed that God/the Ultimate Reality transcends human senses, thoughts, and language – it is akin to intellectual vision.²⁸¹

4.2.2 Vision and visualization in Christian monasteries

Over several centuries, Christian medieval monasteries developed a variety of sophisticated spiritual disciplines for facilitating visionary experiences. Even if monastic spirituality included examples of “spontaneous vision,” it was more common that such phenomena resulted from systematic cultivation.²⁸² Such training involved immersion in Scripture as well as exercises in memory, perception, and attention. As explained by Barbara Newman (2005):

Monastics developed a wide variety of meditational techniques, all of them involving some form of trained or disciplined attention. More often than not, the meditator’s gaze was directed toward some specific visual focus, whether this object was a part of the natural world, an illuminated book, a crucifix, a consecrated host, or an internal image constructed by the mind. This deliberate training of the gaze was sometimes explicitly theorized as conducive to visionary experience. Programmatic accounts of the stages of contemplation often begin with *speculatio*, the attentive and reflective study of a visual object, and end with *ecstasy*.²⁸³

²⁸⁰ Julian of Norwich, 1966: 67-68.

²⁸¹ However, as I shall note at the end of this section, it is not necessarily the case that the term “intelligibility” accurately describes the after-effect or result of a visionary experience. That is, even though visions are typically described as being “revelatory,” they do not automatically generate “knowledge” or “understanding” in the person having them. On the contrary, it may very well be that the content of some visions is enigmatic and, for this reason, results in bewilderment rather than comprehensibility.

²⁸² Newman, 2005; McGinn, 2005.

²⁸³ Newman 2005: 15.

Speculatio is a term that is derived from *speculum*, which is the Latin word for “mirror.” In medieval times, this word could mean a variety of things, ranging from sight to spectacle, spectatorship, speculation, and contemplation. Among monastic writers it was common, for instance, to refer to *speculum* – or “seeing in a mirror” – in relation to the kind of speculative “vision” that was cultivated in the monasteries. This was the case, for example, in Bernhard of Clairvaux’s reading of 1 Cor. 13:12.²⁸⁵ Whereas in this life we only see “a reflection as in a mirror,” it foreshadows our eschatological face-to-face vision of God, Bernhard argues. Furthermore, when combined with 1 Rom 20,²⁸⁶ this Bible verse was often interpreted as a reference to the monastic training of seeing the vestiges of God in all of creation. In order to develop this ability, monastic practitioners were requested to engage in exercises that involved imaginative visualization.²⁸⁷

The medieval discussion of *visio dei* gives us an opportunity to problematize the common distinction between “vision” and “visualization.” The general understanding of these terms is that vision is spontaneous and unintended, while visualization is a voluntary and active creation in the mind’s eye. However, as we can see from the above overview, such a sharp distinction does not accurately depict the actual practice in Christian medieval monasteries. Here it was rather the case that many (although not all) of the reported visions were the result of systematic cultivation. Such activities could, for example, take the form of imaginative visualization (*speculatio*) whose aim was to create the favourable conditions for subjects to have visionary experiences

4.2.3 Vision and visualization in Western esotericism and Mahayana Buddhism

In this section, I shall explore the phenomena of vision and visualization in light of two other traditions: Western esotericism and Mahayana Buddhism. That is, while acknowledging the diverse character of the existing spiritual and religious traditions of the world, I argue that there are certain practices that are shared by a number of them. This does not mean, however, that there also may be significant differences in their phenomenological content and functions.

²⁸⁵ “When I was a child, I talked like a child, I thought like a child, I reasoned like a child. When I became a man, I put the ways of childhood behind me. For now we see only a reflection as in a mirror; then we shall see face to face. Now I know in part; then I shall know fully, even as I am fully known” (1 Cor 13:11-12).

²⁸⁶ “For since the creation of the world God’s invisible qualities—his eternal power and divine nature—have been clearly seen, being understood from what has been made, so that people are without excuse” (1 Rom 20).

²⁸⁷ Newman, 2005:15-16.

4.2.3.1 Western esotericism

“Western esotericism” is an umbrella term for a wide range of ideas and movements that have emerged in Western society since antiquity. According to some scholars, the term “esotericism” refers to a perennially hidden inner tradition that has its roots in the old mystery schools Hermetic, Gnosticism, and Neoplatonism. Others argue that the word describes an enchanted world-view that stands in opposition to the disenchantment of the modern world. Prominent esoteric groups of the twentieth century include the Theosophical Society, the Hermetic Order of the Golden Dawn, and the modern Wicca movement.

In general, western esotericism (in all its variety) is conceived as being distinct from the Judeo-Christian religion, while also sharing certain aspects with it. According to Antoine Faivre (1994), one characteristic component is the belief that correspondences (symbolic or real) exist among all parts of the universe. For this reason, imagination is seen as a way to mediate between higher and lower worlds (by way of rituals, symbols, intermediate spirits, and so forth):

It is the imagination that allows the use of these intermediaries, symbols, and images to develop a gnosis, to penetrate the hieroglyphs of Nature, to put the theory of correspondences into active practice and to uncover, to see, and to know the mediating entities between Nature and the divine world...it is a kind of organ of the soul, thanks to which humanity can establish a cognitive and visionary relationship with an intermediary world.²⁸⁸

However, according to Alison Butler (2004), imagination hasn’t always been given such an active role in esoteric practices. As she sees it, this is instead the result of a modern reformulation of ancient practices that was initiated by the Hermetic Order of the Golden Dawn. One of the more significant changes that they made to western magic, for instance, was that imagination, in conjunction with the human will, was now viewed as a creative and dominant power in the magical process. This, according to Butler, was a radical shift from the Neoplatonist theurgies (“rituals”) in which, by contrast, individuals were considered to be subordinate to a divine will, and imagination was used by the divine to produce visions. An additional change that Golden Dawn made, Butler argues, was that the use of an intermediary spirit was replaced by a direct communication with the invoked forces, either by drawing down the power of the macrocosm or bringing it forth from within oneself. As a result, imagination and the will – in some ways – replaced the intermediary agent.

In opposition to Butler, some writers²⁸⁹ hold that will-directed imaginative power was also common fare in earlier centuries. It is also argued that Golden

²⁸⁸ Faivre 1994: 12.

²⁸⁹ See, for example, Plaisance 2014.

Dawn's use of imagination combines active and passive modalities (rather than being dominated only by the former) and, indeed, involves intermediaries of various kind. Since this is an extensive and complex discussion, I am not able to do it full justice here. In this context, my mentioning of it serves rather as an example of the two roles that imagination is said to play. On the one hand, it has been characterized as an active force that is directed by the practicing magician's own will. This relates, accordingly, to the phenomena that I have referred to as visualization. On the other hand, imagination can be described as a passive force that is subordinate to a divine will. In this case, it is more akin to a visionary experience.

4.2.3.2 Mahayana Buddhism

According to Chris Hatchell (2013), the terms vision and visualization can also be used to distinguish between two kinds of Buddhist meditation. The term "visualization" applies to contemplative practices in which visual scenes are deliberately created in the mind's eye. These practices are believed potentially to have real effects on the meditator's mind (internal effects) or life (external effects). In some cases, the visualizations are devotional, and aim to draw the practitioner closer to the ideal state of the deity – for example, the moral qualities and accomplishments of Buddha. In other cases, their aim is rather to cultivate the practitioner's mental focus or to transform the meditator's basic thought patterns, habits, and motivations. Within the Buddhist tradition one can also find esoteric traditions (tantric or Vajrayana) where a complex combination of meditative visualizations is used to generate certain experiences – for example, "deity yoga," which involves visualizations of oneself in the form of a Buddha.

In Buddhist practices of vision, on the other hand, the images involved are not deliberately constructed in the mind, but instead arise spontaneously before the meditator's eyes. However, while some visions occur with no intentional cultivation, others are evoked through meditative practice. One example of the latter is given in the Mahayana text *Sutra of samadhi of direct encounter with the Buddhas of the present*. Here the visionary experience is preceded by the practitioner's recollection and visualization of the physical and mental qualities of Buddha. This is followed by additional exercises such as retreat meditations, philosophical speculation, and long periods of wakefulness. This is supposed to lead in turn to a visionary encounter with the real Buddha.

Bhadrapāla, it is like this: If a man who has eyes turns his face upwards to look in the space of the clear, cloudless, midnight sky, he will see the forms of many stars there. It is the same, Bhadrapāla, for *bodhisattva-mahāsattvas* who are supported by the buddhas and abide in this *samādhi*: because they are immersed in this cognition of space and are blessed with a cognition of the buddhas, due to the power of the buddhas and the cultivation of this *samādhi*, if

they gaze to the east, to another world system, then many buddhas will appear to their eye sense-power, with little effort.²⁹⁰

A typical feature of the Buddhist approach towards visions of this kind, however, is to expose them to critical philosophical speculation, Hatchell explains. This is related, in particular, to the Buddhist view that the nature of appearances is that they are empty and/or projections of the mind. That is, while visions are believed to have a potentially transformative power, they should – at the same time – be treated as being empty and devoid of any solid nature. One way to meet this tension, however – as Hatchell points out – is to use visionary experiences as stepping stones towards a deeper understanding of what emptiness in fact is. As an illustration, he refers to practices of “direct transcendence.”²⁹¹ These involve meditation in a completely dark room. The deprivation of light, leads in turn to spontaneous experiences of luminosity that the yogi sees through perception rather than imagination. Gradually, these spots of light transform into appearances of Buddhas and mandalas that, ultimately, are nothing but projections of the meditator’s own inherent “light of awareness”:

The key idea here is that the body contains a pure luminous “awareness” locked away at the heart region, like a lamp concealed in a vase. A special set of channels connects the heart to the eyes, so that when the appropriate physical postures and yogic practices are performed, the light of awareness is projected out of the eyes and seen in vision. These visions provide an opportunity for a key moment of recognition: The external visions “over there” are recognized as simply being the lighting up or presenting of one’s own awareness, a realization that can end the illusion of duality and lead to enlightenment.²⁹²

4.2.3.3 Concluding remarks in relation to Sections 4.2.1-4.2.3

Influenced by Augustine’s schema of vision, I suggest that direct sight and perception (corporeal vision) are often intricately influenced by imaginative forms of seeing (spiritual vision). These two categories, in turn, are closely related to a metaphorical form of seeing that enables intelligibility of various kinds (knowledge, understanding, etc.). That is, even if Augustine’s concept of “intellectual vision” plausibly goes far beyond our contemporary epistemic categories, it still refers to the experience of “grasping” the ultimate reality in a certain way. Sometimes the experience of “seeing things as they are” may be compatible with our everyday way of making sense of reality. On other occasions, it challenges how, until then, we have conceptualized reality.

²⁹⁰ The Dergé edition of the Tibetan Buddhist Kangyur and Tengyur: D0133, ch. 3, p. 15a.2. Hatchell’s translation. Quoted in Hatchell 2013: 353

²⁹¹ This set of practices can be found in a Tibetan tradition called The Great Perfection.

²⁹² Hatchell, 2013:354-355.

While the terms “vision” and “visualization” are colored by the context in which they are situated, I argue that some similarities can also be noticed. One of these, for example, is that there is often a close relationship (rather than a strict distinction) between visions and visualizations.

4.2.4 Visualization as an experience of enhanced “realness” and transformation

As already has been mentioned, religious seeing can be understood in a literal as well as a metaphorical way. In the first case, the term “seeing” refers to a sensory experience (which can come in either a perceptual or a quasi-perceptual form). In the latter case, the term aims at an existential form of “intelligibility” (knowledge, understanding, wisdom, meaning-making, and so forth). In the present section, my intention is to connect these two aspects with each other. In order to do that, I will examine research by anthropologist Tanya M. Luhrmann and philosopher John Cottingham respectively. Notice, however, that their studies relate to different kinds of scientific frameworks and methodologies. In the case of Luhrmann, she makes use of anthropological field work and empirical studies. The work of Cottingham in contrast, is characterized by philosophical reasoning. However, while recognizing these disciplinary differences, I’ve chosen to use their studies as illustrations of two potential qualities of imaginative visualization – namely, as a way (a) to enhance the “realness” of a certain situation, and (b) to transform the vision of a religious believer.

In the case of Luhrmann, her work gives us an opportunity to return to two features discussed earlier: kataphatic spirituality and visualization. She has studied how these phenomena are used in a Western esoteric and in a Christian environment. Kataphatic spirituality refers, in this case, to practices that involve the cultivation of mental imagery. During the 1980s, Luhrmann (1989, 2010) participated in, and studied, small magical groups in England. In all of these groups, it was recognized that the manipulation of magical forces required training. This concerned the skills of meditation and visualization in particular. The aim of many exercises was thus to teach the practitioner how to quiet the mind so that s/he could see mental images clearly. One thing that stood out, according to Luhrmann, was that this kind of training seemed to alter how individuals experienced mental imagery as well as their surrounding world:

At those times, when I was trying so hard to see with my mind’s eye and to be completely relaxed but mentally alert, it seemed as if there was something altered about the way I experienced the world – in my sense of self, sense of time, sense of focus, but also, and less metaphorically, in what I sensed: in the way I saw, heard and felt, even when I knew that what I sensed was internal

and imagined. This was not true for all ritual gatherings, but in those rituals I felt fully absorbed, the difference from the everyday was striking.²⁹³

By enhancing their ability to sink into an absorbed state, the participants gradually became more and more accomplished in pursuing magical journeys to other worlds. Luhrmann refers to this learning process as “interpretative drift”: “the slow shift in someone’s manner of interpreting events, making sense of experiences, and responding to the world.”²⁹⁴ Such transformation can be achieved through a variety of activities, ranging from ritual practices to “path working” (concentration on narrative and paying attention to the mental imagery and sensory experiences that it evokes). Luhrmann noticed, furthermore, that subjects who had developed their ability to be absorbed in internal imaginative worlds were more likely to have spiritual experiences of a certain kind.

In later work, Luhrmann and colleagues have continued to explore the relationship between absorption, mental imagery, and spiritual experiences. In the Spiritual Discipline Project²⁹⁵ (taking place between 2007 and 2008), the aim was to examine how Charismatic Christians developed an ability to hear the voice of God. The recruited subjects were assigned to different practices, but primarily to kataphatic prayer and the study of the Bible. When analyzing the results of this study, Luhrmann et al. specifically noticed two effects. First, by using sensory imagery, what was imagined seemed to become more “real” to the participants:

Imagination-rich prayer invests scriptural passages and conversations with God with sensory I-was-there detail. Someone who has vividly imagined the nativity remembers the shadow cast when the light of the angel fell on the listening shepherds. Someone who imagined talking to God over coffee remembers the bitter scent lingering in the air. And someone who is praying in this imagination-rich way around the scriptures for 30 minutes each day will be someone to whom scriptural stories come effortlessly, the way scenes of Hogwarts spring easily into the mind of an avid Harry Potter fan. Motivated attention to the inner senses should heighten the reality of imagined experience.²⁹⁶

Second, they noticed that inner sense cultivation seemed to soften people’s distinction between inner and outer, self and other. That is, when engaging in deliberate, repeated use of inner visual representation, the boundary between what was attributed to the mind (self-generated, private) and the external world was altered: “prayer asks the person praying to treat those thoughts not as private internal musings, but as in some sense public and external speech: they are conversations with God.”²⁹⁷ At the same time, Luhrmann points out

²⁹³ Luhrmann, 2010: 216-217.

²⁹⁴ Luhrmann, 1989: 12.

²⁹⁵ Luhrmann, 2010; Luhrmann and Morgain, 2012; Luhrmann, Nusbaum and Thisted, 2010, 2013.

²⁹⁶ Luhrmann and Morgain 2012: 381.

²⁹⁷ Luhrmann, 2013: 711.

that one should be careful not to draw far-reaching conclusions from the observation that inner sense cultivation may lead to sharper mental imagery and sensory overrides. None of this, for instance, implies that “the experience of God is no more than the experience of the trained imagination.”²⁹⁸ A more accurate approach, according to her, is to see prayer as a spiritual technology that changes the way a person attends to his or her own mind.

The point of religious conviction is that the everyday world is not all there is to reality; to see beyond, one must change the way one pays attention...Religion is not just about propositional belief, although the way we talk about it now sometimes suggests that to believe is to hold an opinion...It is about minds that are trained to experience the world differently. People who pray actually have different sensory evidence with which to interpret claims they make about reality.²⁹⁹

Similarly to Luhmann, philosopher John Cottingham (2017a,b) argues that imagination influences the experiential world of a religious believer. He makes a distinction between truths that can be accessed from a detached and impersonal standpoint, and truths that requires a personal engagement and commitment. According to Cottingham, religious truths are of the latter kind. For this reason, he points out that religious belief includes much more radical psychological changes than in other belief formations. Such a procedure leads, in turn, to a comprehensive “vision” of the world (reflecting the structure of reality, the meaning of life, and so forth) that requires active engagement on the individual’s part. That is, instead of being a passive bystander, s/he creatively interprets and transforms what s/he encounters in the world. Given this, Cottingham proposes that we look upon believers’ relation to reality as a kind of poetry³⁰⁰ in which they cooperate with reality through “transformative vision”:

What the poet deals with...is the real world: he has a ‘vision of *reality*’. It is a vision that sharply embraces and delineates what is there in view, disclosing its significance. Poetry is thus not fiction, but *truth*, truth in the sense Martin Heidegger famously referred to when he harked back to the etymology of the Greek word for truth, *alētheia*, literally an ‘unconcealment’ (in German *Unverborgenheit*), a disclosing of what is (partly) hidden.³⁰¹

For Cottingham, transformative vision is a particular way of dealing with reality that can never be a neutral thing. At the same time, it is this quality that

²⁹⁸ Luhmann and Morgain, 2012: 385.

²⁹⁹ Luhmann and Morgain, 2012: 386

³⁰⁰ *Poesis*, a “making”

³⁰¹ Cottingham, 2017a: 93.

enables it to disclose features of the world that would otherwise remain unknown, he argues. Through such a dual process, not only the world, but also the experiencing subject herself, is transfigured.

4.3 Religious aspect perception

The seeing of aspects is a phenomenon that exists between pure imagery and pure perception. I referred to it in Chapter two as a case of creative imagination, enabling a subject to be struck by an aspect in an ambiguous object (where different aspects compete with each other). Although nothing in the object itself has changed, s/he sees it differently because of the dawning of a new aspect. That is, it is the observer's response to data – rather than the data itself – that has changed.

In this section I shall critically examine the view that aspect seeing has significance for religion. This idea was explored by John Hick (1969, 1985), for example, who extends the category of “seeing as” to “experiencing as.” When someone has a religious belief, s/he experiences the world differently than if s/he were non-religious, Hick argues. He emphasizes, furthermore, that there are different kinds of religious “experiencing-as”: while Christians, Jews, and Muslims experience the world as God's handiwork, Hindus may experience it as the cosmic dance of Shiva.

In the contemporary discussion, the conceptual connection between religious beliefs and aspect perception has been emphasized, for example, by N.K. Verbin (2000). As background, she refers to passages where Wittgenstein himself argues that religious belief influences how subjects perceive the world. When we describe something as a “miracle” (rather than in terms of natural causes), this is, according to Wittgenstein, an example of religious forms of aspect perception:

Take the case that one of you suddenly grew a lion's head and began to roar. Certainly that would be as extraordinary a thing as I can imagine. Now whenever we should have recovered from our surprise, what I would suggest would be to fetch a doctor and have the case scientifically investigated and if it were not for hurting him I would have him vivisected. And where would the miracle have got to? For it is clear that when we look at it in this way everything miraculous has disappeared; unless what we mean by this term is merely that a fact has not yet been explained by science which again means that we have hitherto failed to group this fact in a scientific system. This shows that it is absurd to say “Science has proved that there are no miracles.” The truth is that the scientific way of looking at a fact is not a way to look at it as a miracle.³⁰²

³⁰² Wittgenstein, 1929/2014: 49-50

To see an event as a miracle, or a text as the Word of God, is an experience of aspect perception, Verbin argues. According to her, something similar can, be said about certain objects or buildings that, for a believer, manifest God's presence. As an example, she refers to the relationship that a religious Jew has with the Wailing Wall in Jerusalem: it is a holy site where God's presence is seen in the stone.

Similar to the duck-rabbit picture, aspect perception, according to Verbin, requires that the viewer is familiar with the presupposed concepts. This means, in turn, that seeing aspects is a phenomenon that – like religious belief – has “genuine duration.” That is, rather than lasting merely one minute or two (“episodic aspect perception”), the religious aspect has a more enduring nature. Thus, even though the religious aspect may disappear at certain moments (for example, in situations of religious doubt), the concept does not have to be brought to the object, since it already is part of the believer's all-encompassing conceptualization of reality. In the philosophical discussion, this is referred to as “continuous aspect-perception,” but it is debated whether, in fact, it should be called “aspect perception” at all.

In contrast to Verbin, Stanislaw Ruczaj (2018) doesn't think that aspect perception is a continuous phenomenon. While the episodic seeing of aspects merely contains the possibility of a certain conceptualisation, continuous aspect perception presupposes that such a conceptualization has already been made. For this reason, Ruczaj objects to identifying a perception of religious aspects with having a religious belief. While one may perceive a religious aspect without agreeing that this is the correct way of making sense of the situation, religious belief – he argues – requires a certain commitment. That is, in the former case this experience does not contain an element of taking it to be true or real. As an illustration, Ruczaj refers to a situation in which a professional singer, in preparing for a performance of Bach's St Matthew Passion, feels God's presence. However, as the singer reflects on this episode, she is content to be an atheist. If we accept Verbin's claim (“to have a religious belief is to see reality religiously”), we are forced, Ruczaj argues, to conclude “that you can be an atheist and still have religious beliefs.”³⁰³ A more accurate way to describe (episodic) aspect perception, according to Ruczaj, is to emphasize the “preparatory function” that such phenomena may have. That is, they show us different ways of conceptualize things, but do so from an uncommitted standpoint.³⁰⁴

The discussion about aspect perception is relevant for how, in this dissertation, I understand “religious seeing.” In particular, this discussion gives us reason to reflect and elaborate on John Cottingham's term “transformative vision.” While this kind of vision – as Cottingham describes it – takes place

³⁰³ Ruczaj, 2018: 798.

³⁰⁴ See also Baz, 2000 and Agam-Segal, 2012: 103.

within a conceptual framework, it does not mean that we automatically interpret the world in exactly the way that this “lens” or “model” suggests. For this reason, one may argue that transformative vision shares certain similarities with both continuous and episodic aspect perception. However, since I agree with Ruczaj’s position (according to which aspect perception doesn’t have a continuous quality), I argue that it is clearer to posit that religious belief typically involves an interplay between models (which are continuous) and aspect perception (which is episodic).

4.4 Religious analogies and metaphors

At the beginning of this chapter a distinction was made between kataphatic and apophatic spirituality. In the former case, practitioners approach the divine realm by affirmative statements or images of what God/The Ultimate Reality is. The apophatic strategy, on the other hand, stresses that God/the Ultimate Reality transcends human thought and language, and therefore is “best known by negation, elimination, forgetting, unknowing, without images and symbols, and in darkness.”³⁰⁵

While it may seem that religious language is more closely related to the kataphatic way, it is important to notice that there are different opinions on how language of this kind should be interpreted. According to one position, words that belong to a non-religious discourse can be used univocally (literally) of God. An opposite view, however, is that God is so radically different from all other beings that religious language is equivocal – that is, words that are used in a non-religious discourse mean something different when they are used to refer to God. In the latter case, one possible way to respond is to adopt an apophatic strategy and to argue that we only can talk about God in negative statements (“what God is not”).³⁰⁶

Another strategy, however, is to emphasize that religious language is characterized by analogies and metaphors that point to God rather than giving a literal definition of God. This was the position of Thomas Aquinas (1948), for example. Rather than promoting the univocal or equivocal view of religious language, he argued that our references to God should be understood as analogies. That is, despite God’s incomprehensibility, mundane predicates such as “good,” “powerful” and “wise” can be used in a different but yet related way. Aquinas explains the analogical strategy by arguing that the properties of

³⁰⁵ Egan, 1978:403.

³⁰⁶ Among those who advocate an apophatic perspective, however, there are different attitudes to what role positive statements about God (“what God is”) play in religious practice. Whereas some understand them as illegitimate and illusive ways to refer to a world-transcendent God, others would argue that – while not giving an explicit description of God – they still can evoke certain experiences that are valuable.

worldly things (for example, “goodness”) are, to some extent, also present in God (since God is the cause of all things).³⁰⁷

While Aquinas’s analogical view has been influential in Western Christianity, contemporary research on religious language has paid more attention to metaphors than to analogies.³⁰⁸ Both types of figurative language enable us to explore relevant similarities between a well-known concept (source analog) and a less familiar area (target analog). However, according to the standard semantic view, analogies and metaphors have distinct ways of operating. That is, whereas analogies employ more precise and systematic comparisons, metaphors are said also to create a shift in the meanings of the linguistic expressions involved. Janet M. Soskice (1985) describes the difference in the following way: an analogy is a “legitimate extension of the word’s domain of application... that fits the situation without any imaginative strain.”³⁰⁹ A metaphor, by contrast, is “that figure of speech whereby we speak about one thing in terms which are seen to be suggestive of another.”³¹⁰ Elisabeth Camp (2020a) argues, in turn, that metaphors have a greater permissiveness than analogies when it comes to the “matches” they propose. That is, rather than systematically puzzling out precise and consistent mappings between abstract structures, metaphors rely more on

...tacit clusters of matches involving largely inchoate features at a variety of levels, drawing on images and attitudes, and coloring and connecting those features – along with other, unmatched features that intuitively ‘fit’ with them.³¹¹

By prompting a variety of associations with a particular area, metaphors expand our ability to describe a phenomenon. As an illustration, Soskice refers to the metaphorical description of a camel as “the ship of the desert”. Rather than giving a one-dimensional description of a camel, this conceptual image suggests associations (“swaying motion, a heavy and precious cargo, a broad wilderness, and a route mapped by stars, distant ports of call”) that enrich our understanding of the phenomenon.³¹² Consequently, one way in which metaphors are useful for religious discourse is that they can be used to refer to (and even facilitate) experiences that escape a literal description. They also enable subjects to refer to something “real” without defining it or claiming to have complete knowledge of it. In this way, metaphors allow a merging of the kataphatic and apophatic approaches, Soskice argues:

³⁰⁷ Aquinas, 1948: 1a. 13:1, 12:8

³⁰⁸ For example, McFague, 1987, 1993; Soskice, 1985, 2007; Kenney, 2005; Jünger, 1974; Swinburne, 1992.

³⁰⁹ Soskice, 1985:65-66.

³¹⁰ Soskice, 1985:15.

³¹¹ Camp, 2020a: 318.

³¹² Soskice, 1985: 95.

This is the fine edge at which negative theology and positive theology meet, for the apophatic insight that we say nothing of God, but only point towards Him, is the basis for the tentative and avowedly inadequate stammerings by which we attempt to speak of God and His acts. And...this separation of referring and defining is at the very heart of metaphorical speaking and is what makes it not only possible but necessary that in our stammering after a transcendent God we must speak, for the most part, metaphorically or not at all.³¹³

The fact that metaphors induce affective or spiritual responses in subjects does not, according to Soskice, exclude them from also having cognitive and explanatory functions.

Similar to their scientific counterparts, religious analogies and metaphors can both constrain and motivate religious inquiry. This perspective is advocated, for example, by Sallie McFague (1987), who argues that theology should be perceived as an imaginative construal of the God–world relationship that remythologizes Christian faith by using metaphors and models that are appropriate for our time. For McFague, a model is a metaphor with “staying power” that has reached a certain degree of stability. While she regards the “monarch” model of God as constraining modern theology, there are other models that are more promising. A more motivating approach, according to her, is to experiment with models of the world as God’s body, and of God as Mother, Lover, and Friend.

4.5 Religious models

4.5.1 Two kinds of religious models

There are multiple characterizations of what the term “religious models” refers to. Whereas some models relate to selected aspects of a religious discourse (for example, “models of God”), it may also be the case that entire religions function as “models” of reality. In what follows, I shall refer to the former as RM^1 and the latter as RM^2 . Models that belong to the RM^2 category provide their practitioners with both symbolic conceptions of “the very nature of reality” and narratives that function as interpretative frameworks through which individuals perceive their own lives.

However, as a consequence of the latter, the distinction between the first and second levels of mediation becomes a bit blurred. In this case, the imaginative device itself (related to the second level of mediation) takes on a role that is typically associated with a conceptual framework (the first level of mediation). That is, similar to a conceptual framework, RM^2 has influential power over a whole area of concepts that, in turn, stand in close relation to certain experiences and ideas. However, instead of seeing such deviation as a

³¹³ Soskice 1985: 140.

failure of the chosen analytical tools, I argue that it says something essential about religion as such. That is, whereas religious models of type RM^1 may correspond to scientific equivalents, RM^2 instead reflects certain holistic aspects of lived religion that defy paralleling of such a kind. For this reason, it serves the purpose of this dissertation to give special attention to the kind of modeling that doesn't conform to the given pattern of scientific modeling. Besides the holistic character of RM^2 , this also relates to the close relationship between religious models and narratives (Section 4.5.2)

One of the first scholars to associate religion with modeling was the cultural anthropologist Clifford Geertz (1973). According to him, religions can be described as models of reality that provide their practitioners with symbolic conceptions of the general order of existence. Geertz refers to them as cultural systems that are composed of beliefs and practices, all of which enable humans to make sense of life. Religious models can tell us both how things are ("models of") and how something ought to be ("models for"), he argues. In the first case, religion is attributed a descriptive dimension: it provides a reference to "the very nature of reality."³¹⁴ In the second case, religion endows its practitioners with an "ethos": a model for future behavior. Although distinguishing between "model of" and "model for", Geertz emphasizes that the relationship between these two types should be viewed as circular. That is, while metaphysical claims motivate certain values and actions, the ethos reinforces the depiction of reality by offering a living embodiment of it:

[R]eligion, by fusing ethos and world view, gives to a set of social values what they perhaps most need to be coercive: an appearance of objectivity. In sacred rituals and myths values are portrayed not as subjective human preferences but as the imposed conditions for life implicit in a world with a particular structure.³¹⁵

Whereas scientific models are subordinate to theories and are altered as knowledge increases, religious models are, according to Frederick Ferré (1967/2013) discarded more rarely. Instead it is more common that religious imagery becomes object for alternative interpretations. As an example Ferré mentions the theistic model, and how different metaphysical theories (for example, those of Plato, Aristotle and Whitehead) have been used as conceptual schemes that emphasize different of its features.³¹⁶

³¹⁴ Geertz, 1973:128-127.

³¹⁵ Geertz, 1973: 131.

³¹⁶ Ferré 1967/2013: 381-383.

4.5.2 Religious models and narratives

Similar to Geertz, Ian Barbour (1997) acknowledges the modeling character of religion. The primary functions of religious models, he argues, are to interpret experiences, evoke certain attitudes, and construct metaphysical systems. In accordance with scientific models, religious modeling uses analogical language (metaphors, symbols, parables, and so forth). At the same time, Barbour observes a significant difference, owing to the close relationship between religious models and stories:

In science, models are always ancillary to theories. In religion, however, the models themselves are as important as conceptual beliefs partly because of their close association with the stories prominent in religious life... The individual participates in communal ritual and liturgy that reenact and refer to portions of these stories. Narratives in dramatic form are more personally involving and evocative than models, which are relatively static, though models are less abstract than concepts.³¹⁷

According to Barbour, certain narratives can, thus, function as interpretative frameworks³¹⁸ through which individuals interpret diverse areas of experience and become motivated to behave in certain ways.

As an illustration of how certain religious narratives may function as models, I turn to Brian Rennie's (2009) discussion of the biblical parable of the sower (Mk.4:3-8). In this parable, the sowing itself serves as a metaphor for God's communication with human beings, while the fate of the seed illustrates different ways to respond. On the one hand, it may fall on rocky ground with no soil and, for this reason, fail to produce a crop. On the other hand, the seed may fall on good soil that yields a hundredfold. In a Christian context, this is considered to be analogous to a situation in which the potential outcome (faith) isn't supported by the environment. In light of this, the parable may serve as a model of future behavior that is supposed to motivate the followers of Jesus to create an environment in which potentials are fully realized, Rennie argues.³¹⁹

Other models/narratives suggest positive as well as neutral analogies between source and target. According to Rennie, this is the case, for example, with the legendary account of Siddhartha Gautama Buddha's "four sights." Here it is described how Siddhartha – after having been confined to his palace by his father, King Suddhodana – encounters a sick man, an old man, a corpse, and a religious mendicant. These four events lead him, in turn, to recognize

³¹⁷ Barbour 1997:120-121.

³¹⁸ This is an aspect that, in what follows, I shall relate to Elisabeth Camp's writings on non-propositional and interpretative frames. Camp's account was explored earlier in this dissertation, in relation to the metaphorical view of scientific models (Section 3.4.2) and scientific thought experiments (Section 3.6.).

³¹⁹ Rennie, 2009:345.

the sufferings of all living beings. As a result the Indian prince begins a spiritual journey as a wandering ascetic, which eventually leads to enlightenment. According to Rennie, this narrative shares some relational properties with human development. For example, similar to the fate of Siddhartha Gautama, human life generally starts in a sheltered situation and proceeds towards recognizing limitations such as old age, sickness, and mortality. However, in terms of the similarity of relationships, the legend also contains properties of which we yet don't know whether they constitute positive or negative analogies for the individual human being. For example, it remains to be seen whether s/he begins to practice meditation and – like Siddhartha Gautama – becomes enlightened. In light of Mary Hesse's terminology, we may consequently refer to such yet unknown similarity relations as "neutral analogies."³²⁰

4.5.3 The propositional/metaphorical/additive view of religious models

Similar to their scientific counterparts, one may refer to a propositional, a metaphorical, and an additive view of religious models.

In the case of *the propositional view*, propositional imagination is involved in the modelling procedure. That is, by directing the attitude of imagination towards a certain model system, a religious believer is allowed to think about it in non-truth-bound ways. As a result, the model itself serves as a prop in an authorized game of make-believe that prompts his/her acts of imagination and generates fictional truths. Another possibility, however, is to argue that models are imaginative representations of an existing target system (the direct view of representation). In that case, it is "fictional" while, in some sense, also saying something that may be, at least "partly true" of the target. According to an indirect view of representation, on the other hand, models represent hypothetical systems.

According to *the metaphorical view*, religious models are representations that serve as interpretative frames that temporarily guide us in adopting new perspectives and that determine what information we notice about a subject. While such frames can be of various kinds, I have given most of my attention to the metaphorical ones. These function like colored lenses, or a kaleidoscope, through which we see the subject indirectly and from a distance. Operative in such a procedure is a synthesizing kind of imagination that unites manifold disparate elements into a coherent whole.

As an example of how interpretative frames can promote existential intelligibility, Elisabeth Camp (2009) refers to Shakespeare's Sonnet 73.³²¹ By

³²⁰ Rennie, 2009:344.

³²¹ That time of year thou mayst in me behold
When yellow leaves, or none, or few, do hang

using winter, twilight, and a dying fire as metaphors for aging and death, this work of poetry helps us to cope with such harsh realities, Camp explains:

Aging, like the coming of winter, the twilight of the day, and the burning down of a fire, is a natural and inevitable moment following on from more abundant, energetic ones. Crucially, we also transfer onto aging and death many of the experiential and emotional responses that we associate with those framing situations: the feeling of being cold and surrounded by darkness; quiescence, sadness and nostalgia; but also acceptance and awareness of what lies ahead. Taken as a whole, the poem's metaphors help to focus our attention on a fact which is at once too enormous, too obvious, and too painful to confront outright, by providing us with cognitive and emotional structures associated with situations that are more concrete, imagistic, and experiential.³²²

The additive view, in turn, is an intermediary position that holds that religious modeling may involve both propositional and imagistic imagination. In some cases, this involves isolated forms of propositional and imagistic imagination; in other instances, these two kinds of imagination cooperate. That is, while the interpretative frame itself is constituted by a synthesizing and imagistic kind of imagination, it is approached through a certain propositional attitude.

In this dissertation, it is argued that the additive view of models most accurately describes the multifaceted procedure of scientific and religious modeling. In line with this position, Chapter five will include a more thorough discussion of the relationship between a model system (the interpretative frame) and the propositional attitude that is directed towards it. In that context, whether a fictionalistic or a non-doxastic attitude is sufficient to generate religious faith will be critically examined. As preparation for this discussion, I now present some contemporary perspectives on the possible explanatory and descriptive roles of religious models.

Upon those boughs which shake against the cold,
Bare ruin'd choirs, where late the sweet birds sang.

In me thou see'st the twilight of such day
As after sunset fadeth in the west,
Which by and by black night doth take away,
Death's second self, that seals up all in rest.

In me thou see'st the glowing of such fire
That on the ashes of his youth doth lie,
As the death-bed whereon it must expire
Consumed with that which it was nourish'd by.

This thou perceivest, which makes thy love more strong,
To love that well which thou must leave ere long.

– William Shakespeare, Sonnet 73 (1997). Cited in Camp, 2009:118-119.

³²² Camp 2009: 118.

4.5.4 Models and the notion of truth

In this section I distinguish between three different approaches to religious models. Two of them involve conceptions of truth: truth in a general sense (T-Gen) and existential truth (T-Ex). I also introduce a function, existential meaning making (Ex-M). As I argue in Section 3.6.3.1 (on scientific thought experiments), meaning-making refer to a truth-independent way of making sense of the relevant relationships among things and events. That is, even if a meaning making procedure results in false image of the world (for example, in the form of a conspiracy theory), it can still contribute to an individual's meaning making. However, if the result of the meaning-making procedure, in some sense, fits the facts of the world, it becomes a case of understanding (which is an epistemic state).

Let us first consider the category of *T-Gen*. While there are various ways to understand what this position refers to, it is typically associated with some kind of objectivity. That is, instead of being the result of a subject's own desires, presuppositions, and particular perspective, truth of this general kind is not limited to a certain context or circumstance. From this minimal common ground, different philosophical theories have developed the concept of truth in different directions.³²³ Since each of these theories is complex and multifaceted, I am not able to give a comprehensive presentation of them in this dissertation. Instead, I must limit myself to the minimal common ground that I have sketched above. Furthermore, while not limiting myself to the correspondence theory of truth (see note 323), my understanding is influenced by the view that something is true if it accurately depicts "how things actually are."

T-Ex, in turn, is a notion of truth that is colored by the particular context of a truth claim. In this case, as being part of an individual's ambition to make the world existentially intelligible. This view is reflected in the following quote by Vincent Brümmer (1993):

...religious truth claims are made with reference to factual presuppositions which are constitutive for the way of life. For this reason they are "existential" in a way that the truth claims of science are not.³²⁴

³²³ According to one approach, a proposition or a belief is true if it corresponds to the way things actually are (the correspondence theory). Other theories hold, instead, that it has to do with being part of a coherent system of propositions or beliefs (the coherence theory) or of having a practical value such as being "the end of inquiry" (the pragmatist theory). In the case of epistemology, there are, in turn, a number of conceptualizations of what it means to have knowledge (or "justified true beliefs") of something. Whereas some epistemic theories hold that truth is reducible to a process of verification (verificationism) other theories emphasize that something is true in relation to a particular perspective (relativism, perspectivism) or because it, in the long run, will be accepted by a group of inquirers (pragmatism).

³²⁴ Brümmer 1993: 18

That is, even if religious truth claims are existential (and are related to a particular way of life), they do not exist in isolation from T-Gen, according to Brümmer. Through religious models (and the existential truth claims that they make), believers attain understanding of how to relate to a supernatural reality and what actions and attitudes to commit themselves to. For Brümmer, this presupposes a belief that the models, in some sense, are true, rather than being merely useful fictions. At the same time, in contrast to the justification procedure of scientific truth claims, we do not have intersubjectively agreeable means by which we can test if our T-Ex claims are justified.

The concept of *Ex-M*, in turn, does not refer to a particular notion of truth. Instead, I use this term as it refers to the function of existential meaning making that is independent of truth. In case an individual's search for existential intelligibility is truth-normed (T-Ex.), I refer to it, instead, as religious knowledge or religious understanding.

In the case of Brümmer, I suggest that his account can be seen as an example of T-Ex. When it comes to *Ex-M*, such a perspective is found in R.N. Braithwaite's (1955) view on religion. According to Braithwaite, "it is not necessary...for the asserter of a religious assertion to believe in the truth of the story involved in the assertions."³²⁵ Instead, religious statements should be seen as moral assertions with the primary use to express the intention of the asserter to act in a particular way specified by the assertion. That is, in the case of a Christian, the intention to follow an agapeistic way of life. In Chapter five (Section 5.2.3), I refer to this kind of non-realism as fictionalism.

4.6 Rituals as imaginative practices

When comparing scientific and religious practices, it is also important to acknowledge those features that belong to only one of them. This is the case, for example, with engagement in rituals, which are associated with religious – but not scientific – environments. In this section, I shall argue that this form of activity typically involves experiential imagination. That is, even if rituals include certain propositional attitudes and sensory imaginings, they are particularly characterized by an experiential dimension. This overlaps, to some extent, with the phenomenon that Currie and Ravenscroft (2002) refer to as "recreative imagination": an ability to recreate experiential perspectives. When a subject takes part of this type of imagining, s/he is able to project him/herself into an imagined situation and to simulate the experiences that s/he would have. As an illustration, we can consider the following scenarios described by Richard Schechner (2013):

³²⁵ Braithwaite, 1955: 25

At the Institutional Church of God in Christ in Brooklyn, New York, I have seen women go into trance and dance, speak in tongues, and tremble with the Spirit at 11 o'clock in the morning, while by 1 in the afternoon they are chatting and joking in the church kitchen as they prepare the "fellowship lunch." In a suburb of Rio de Janeiro I witnessed a young Brazilian man being seized by an orixa (god) of Candomble, sing, speak in an African language, dance, and yank others into trance with him. After four hours of intense performing, the orixa left his body, he came back to himself, and he served supper to the many neighbors assembled in his mother's home...³²⁶

What these situations have in common is that both require that the ritual practitioner temporarily take on a certain ritual identity. In what follows, I shall propose that this phenomenon is related to what, in the contemporary philosophical discussion, is referred to as "imaginative identification" (Section 2.4.2). That is, even though an individual is motivated by beliefs (for example, concerning the existence of orixas), it is through experiential imagination that the believed content becomes a lived reality for him/her. It is important to notice, however, that philosophers disagree on whether, metaphysically, a person can *be* an imagined character without also being identical with him/her.

The view advocated in this dissertation is, however, that the relationship between imaginer and the imagined subject is founded on something other than identity. This, in turn, raises the question of what then the actual foundation of experiential imagination is, in fact. In what follows, I shall thus suggest that ritual engagement – and the experiential imagination it involves – should be seen in the light of two things: (a) the persuasion of "truth" (in the form of T-Ex) and (b) the concept of "transportation". I shall give a brief overview of these categories. A longer discussion of how they relate to each other, however, will take place in Chapter six, where experiential imagination will be given special attention.

4.6.1 Rituals as truth-pursuing activities

According to Kevin Schilbrack (2004, 2014), analytic philosophers of religion have often considered rituals to be instinctual or mechanical rather than cognitive. In order to get away from such an assumption, he urges philosophers to conceive of rituals as sites of creativity, exploration, and discovery in their own right. They are, he argues, "truth-pursuing activities... [that] manipulate objects and, like scientific theories, develop over time in order to test hypotheses."³²⁷ Schilbrack is in agreement here with, for example, anthropologist Theodore Jennings (1982), who claims that "ritual action is not only the product but is also the means of a noetic quest, an exploration which seeks to discover the right action or sequence of actions."³²⁸ From Jennings's point of

³²⁶ Schechner, 2013: 72.

³²⁷ Schilbrack, 2004:140.

³²⁸ Jennings, 1982:114.

view, ritual inquiry is carried out through engagement and action rather than through detached observation.

As a way to explicate the truth-pursing character of rituals, Schilbrack (2014) suggests two theoretical tools that – according to him – can lessen the proclaimed dichotomy between practice and belief, body and mind. The first of these tools is the theory of conceptual metaphor (claiming that a person’s ability to reason develops from her bodily engagement with the physical world). The second tool is the theory of cognitive prosthetics, according to which processes of cognition are extended into the physical, linguistic, or social environment. As an illustration, Schilbrack mentions the use of religious icons as a way to facilitate the cognition of invisible spiritual beings.³²⁹

In order to show how ritual practice may qualify as a kind of inquiry, Schilbrack refers to a scenario in which two people are cutting down a tree with a two-person saw. By engaging in such a practice, the involved individuals may gain knowledge of themselves (for example, receiving an answer to the question, “How strong am I?”), the other wood-cutter (“Is s/he cooperative or lazy?”), or the world (concerning the sharpness of the blade, the hardness of the wood of the tree, and so forth). Even though these questions aren’t explicitly stated, they are answered by the practice itself, Schilbrack explains.³³⁰ According to him, similar kinds of inquiry are carried out in religious practice. In initiation rites, for instance, the participants learn about adulthood, responsibility, and gender; the teachings of funerals include knowledge about body, detachment, and morality; pilgrimage enables insights into land, memory, and persistence (and so forth).

The cognitive contributions of imagination are acknowledged (although implicitly) in Schilbrack’s reference to two examples of ritual cognition: the Christian Stations of the Cross³³¹ and a mural depicting the scenes from the Hindu epic Ramayana. When meditating on either of these scenarios, different kinds of imagination are brought into play: visual imagery, simulation, and pretense. To make sense of this experience, the practitioner must be able both to decode visually the depicted event and to transport him/herself into the experiences of the central characters, Schilbrack explains. And, in order for this experience to be cognitively valuable, it is also required that s/he manages to synthesize it with other essential aspects of her ordinary life.

4.6.2 Rituals as transportation

Religious rituals often reenact the central stories of a particular tradition or community. They may, for example, symbolize and manifest the character of the cosmic order, endorse particular ways of ordering experience, or provide

³²⁹ Schilbrack 2014: 36-51

³³⁰ Schilbrack, 2014:44-45.

³³¹ Fourteen images that depict the events in the crucifixion and death of Jesus.

exemplary patterns for human actions. Given the narrative core of rituals, in what follows I shall relate them to the narratological concept of “transportation.” Typically, this term is associated with a situation in which an agent is transported into a fictional or a factual narrative and becomes immersed in it. When used in relation to ritual activity, it is thus presupposed that rituals have a narrative substance that the participants of the ritual are “transported” into. This is, in turn, an activity in which the self is both reduced and increased.³³² That is, it allows a subject (a) to try on alternative selves while, simultaneously, (b) staying within the experiential categories that are provided by his/her religious tradition. By being transported into this kind of fictive world, ritual participants are able to exist “in a kind of liminal space, at the edge of, or in the cracks between, the mapped regions of what we like to call “the real” world.”³³³ Because of this “in between” character, rituals make it possible for individuals and societies to undergo temporary transformations of various kinds. As a result, the so-called sacred space and sacred time are imaginative constructions that are performed in an “as if” mode, Tom Driver (1998) argues.

4.7 Religious thought experiments

As was suggested in the discussion of scientific thought experiments (Section 3.6), there are three different ways to answer the question about what kind of imagination is operative in thought experimentation. According to *the imagistic approach*, it is a procedure that is primarily enabled by sensory (visual) imagining. From this perspective, one of the essential characteristics of thought experimenting is that it enables us to visualize fictive idealized scenarios. According to *the propositional approach*, this kind of mental operation only requires propositional imagination (counterfactual reasoning, make-believe/pretense, or supposition, and so forth). A third way of approaching thought experimentation – *the experiential approach* – holds that thought experimenting involves a recreation of experiential perspectives. That is, while this procedure may include sensory imagining and propositional imagining, it enables us, above all, to understand what it would be like to experience a certain situation. Consequently, according to this approach, experiential imagination plays an essential role in thought experimenting.

³³² Using Kaufman and Libby’s (2012) terminology, I shall distinguish between (a) *experience-taking* and (b) *perspective-taking*. In the case of experience-taking, it entails “spontaneously assuming the identity of a character in a narrative and simulating that character’s thoughts, emotions, behaviors, goals, and traits as if they were one’s own” (Kaufman and Libby, 2012:1). In perspective-taking, in contrast, the activation of the reader’s self is increased. Here, the reader instead uses conceptual knowledge about his/her own self to estimate how a protagonist might experience or respond to a situation

³³³ Driver, 1998:80.

In the present section, I won't go into detail about either of these positions. However, a more thorough examination will take place in Chapter six, where special attention will be given to the experiential approach as a way to compare the role of experiential imagination in scientific and religious practices. Essential to that discussion is the narratological concept of "transportation." Previously, this term was used in relation to both scientific thought experimentation (Section 3.6) and religious rituals (Section 4.6.2).

4.7.1 Narratives, models and thought experimentation

In Section 4.5.2 I presented Ian Barbour's (1997) remarks on the close relationship between models and narratives – that is, the idea that certain narratives can function as interpretative frameworks through which individuals perceive their own lives.³³⁴ In the present section I shall argue that some religious narratives also may function as "thought experiments." As an example, we can think of stories that allow us, for example, to relive, identify with, or merely reflect upon the experiences of significant figures of our own spiritual tradition. That is, by projecting him/herself into the exemplar's life (which is typically recounted in a narrative of some sort), a person is able to imagine how s/he would act if s/he had the exemplar's values and commitments. I suggest that this kind of imaginative engagement can be understood as a specific kind of thought experimentation. That is, while a narrative may function as a model for a certain way of life, it transforms into a thought experiment when individuals imaginatively explore it in relation to their own lives. The difference between a narrative that functions as a model and one that functions as a thought experiment is, consequently, merely a question of one's own attitude towards it.

I suggest, furthermore, that something similar can be said about practices such as The Spiritual Exercises of St Ignatius. When engaging in the Exercises, the attendant is asked to place him/herself imaginatively in a setting from the Gospels or in a scene proposed by Ignatius: to hear, feel, touch, and taste the essential aspects of the Christian mystery. Another way of putting it is to say that this procedure entails recreating the experiential perspectives of the characters present in the Gospel setting. That is, while Jesus, Lazarus, or Mary Magdalene (or some other character) serve as scriptural models for the attendant, they don't function as thought experiments until s/he imaginatively and spiritually engages in and is challenged by these new identifications.

³³⁴ "In science, models are always ancillary to theories. In religion, however, the models themselves are as important as conceptual beliefs partly because of their close association with the stories prominent in religious life... The individual participates in communal ritual and liturgy that reenact and refer to portions of these stories. Narratives in dramatic form are more personally involving and evocative than models, which are relatively static, though models are less abstract than concepts" (Barbour, 1997:120-121).

4.7.2 Different kinds of religious thought experiments

In the present section, I am going to distinguish between a variety of religious thought experiments. In the contemporary discussion on thought experiments, Yiftach Fehige (2014) refers to theological thought experimentation that employs “intuitions that depend on revelation.”³³⁵ In my own conceptualization I have – in contrast to Fehige – chosen to refer to them as “religious” rather than “theological.” The reason behind this choice is that the former, in my understanding, is a broader term. Whereas theology typically is associated with what people believe about God/ The Ultimate Reality, the term religion also includes the practical application of such beliefs. This is an important distinction in the light of my earlier claim that The Spiritual Exercises may function as religious thought experiments. That is, even though these exercises are founded on certain beliefs, they also have the form of religious *practices*. This kind of thought experiments are therefore closely related to rituals in which subjects use imagination to recreate the experiential perspectives of the characters in religious narratives. . In Chapter six, this is an aspect on which I shall elaborate more thoroughly.

4.7.2.1 Two categories of thought experimentation

In this section I shall distinguish between narratives that were given their thought-experimenting function in retrospect (RTE¹) and those that, on the contrary, were designed to have “thought experimenting qualities” (RTE²). In the latter group, for instance, we find thought experiments that are characterized by their argumentative and critical use of reason (being embedded in a philosophical framework) in combination with a content that has religious relevancy.

By referring to certain religious narratives as “thought experiments,” it is here assumed that the phenomenon of thought experimenting is older than the actual term itself is. This relates, for example, to a situation in which a scriptural narrative is said to function in a thought experimenting way. As an example, Fehige (2019) proposes that the Book of Job be seen as a thought experiment about divine providence. According to him, there are many similarities between this narrative and the scenarios featured in, for example, ethical thought experiments such as the “trolley experiment.” Similar to the discussions evoked by this well-known example, the Hebrew canon favors individuals who scrutinize God’s decrees and actions, Fehige argues. Consequently, the Book of Job doesn’t demand belief in a fixed body of propositions, but

³³⁵ Fehige 2014: 388. Revealed theology occupies itself with the special divine acts of communication that have been given to particular persons at a specific time and place. At the same time, there are two different ways of doing revealed theology. In the first case, the philosophical method is used to demonstrate the truth of religious claims by appealing to evidence apart from divine revelation. In the second case, a philosophical method is used to understand theological convictions derived from divine revelation.

instead highlights one man's critical search for the truth. However, this kind of existential "reasoning" is very different from the kind of reasoning that takes place in regular scientific thought experimentation.

Furthermore, Menachem Fisch (2019) argues that the reinterpretation of *halakah* (the Jewish law) requires that the debate be open to the imagined critique of the surrounding civilized gentile world. According to Fisch, such an imaginary counterfactual perspective is incorporated in a number of "thought experimenting" narratives to which the halakhic texts refer.

But narratives with such thought-experimenting qualities are not found only in a Judeo-Christian context. Niels Henrik Gregersen (2014) mentions that the following story about the philosopher Zhuangzi indeed has the character of a thought experiment:

Zhuangzi and Huizi were walking on the dam over the river Hao, when Zhuangzi said, "Look at the ease of the play of the fishes – that is their enjoyment." Huizi responded: "You are not a fish, how do you know about what constitutes the enjoyment of fishes?" Yet Zhuangzi replied: "You are not I. How do you know that I do not know what constitutes the enjoyment of fishes?"... "Well I know about their enjoyment from our enjoying ourselves together over the river of Hao"³³⁷

As explained by Gregersen, this story serves as a thought experiment about the metaphysical supposition that Dao permeates everything that exists. That is, as a first step, Zhuangzi challenges Huizi's common-sense assumption that human beings are separated from other creatures. Thus, while humans and other creatures cannot understand each other, neither can humans understand their fellow human beings. As a second step, Zhuangzi argues that it is through the human experience of enjoyment that we also can grasp what the enjoyment of fish is like. This argumentation, in turn, is influenced – and constrained – by the theoretical framework of Daoism. Given this, Gregersen points out that it builds on the wider metaphysical assumption that "inner bonds exist beneath the perspectival skills between individual organisms. Dao is at work in everything."³³⁸

The term "thought experiment" has also been applied in retrospect to the argumentation of some ancient or medieval thinkers. According to Iribarren and Lenz (2008), for example, medieval philosophers and theologians often used angels as protagonists of thought experimentation. Angels could be used, for instance, as a way to explain the specific status of humanity and to serve as a strategy to bridge the gap between heaven and earth.

³³⁷ *The Texts of Taoism*, Part I. Dover Publications, 1962 (1891). Trans. James Legge. Quoted in Gregersen, 2014:132.

³³⁸ Gregersen 2014: 133.

Jon McGinnis (2018) and Taneli Kuukkonen (2014) argue, in turn, that many thinkers in the medieval Islamic world³³⁹ appreciated the role of thought experiments in philosophy and the sciences. Kuukkonen claims, for instance, that Ibn Sina/Avicenna was the first philosopher in the Aristotelian tradition that recognized the value of postulating hypothetical scenarios when studying nature. Among Ibn Sina's/Avicenna's thought experiments, the best known is probably the so-called "floating man", which argues for the existence of an immaterial and substantial soul. In the thought experiment, a man falls freely in the air – a state in which he attains the concept of having no assistance from sensory experience.³⁴⁰

While the "floating man" is a metaphysical thought experiment that has religious relevance (for example, in relation to beliefs about an afterlife), it is situated within a philosophical framework. Something similar can be said about many contemporary thought experiments in the analytical philosophy of religion. As an illustration, we can think of Peter van Inwagen's (1978) and Dean Zimmerman's (1999, 2010) metaphysical thought experiments about the possibility of a material (bodily) resurrection after death. According to van Inwagen, individual existence is guaranteed as a result of God's reanimation of the corpse. As a way to explicate his position, he creates a scenario in which God plays the role of a "body snatcher":

Perhaps at the moment of each man's death, God removes his corpse and replaces it with a simulacrum which is what is burned or rots. Or perhaps God is not quite so wholesale as this: perhaps He removes for "safekeeping" only the "core person" – the brain and central nervous system – or even some special part of it.³⁴¹

In response to van Inwagen's proposal, Zimmerman (1999) provides a thought experiment in which bodily resurrection is described as the result of body-splitting rather than of body-snatching. This approach, which he refers to as

³³⁹ For example, Ibn Sina/Avicenna (980-1037), Ibn al-Haytham (965-1040), Abu Hamid al-Ghazali (1058-1111). In a similar way, Marilyn McCord (2010) argues that many medieval texts functioned as theological thought experiments. She emphasizes, in particular, that the immaculate conception of the Blessed Virgin Mary was used as a controversial thought experiment by theologians such as Anselm, Bernard of Clairvaux, and Bonaventure

³⁴⁰ "One of us must suppose that he was just created at a stroke, fully developed and perfectly formed but with his vision shrouded from perceiving all external objects – created floating in the air or in the space, not buffeted by any perceptible current of the air that supports him, his limbs separated and kept out of contact with one another, so that they do not feel each other. Then let the subject consider whether he would affirm the existence of his self. There is no doubt that he would affirm his own existence, although not affirming the reality of any of his limbs or inner organs, his bowels, or heart or brain or any external thing. Indeed he would affirm the existence of this self of his while not affirming that it had any length, breadth or depth. And if it were possible for him in such a state to imagine a hand or any other organ, he would not imagine it to be a part of himself or a condition of his existence" (Ibn Sina/Avicenna, quoted in Goodman, 2013: 155-156).

³⁴¹ van Inwagen, 1978:114-122.

the “falling elevator model,” draws on the idea that, according to the “physics” of cartoons, it is possible to avoid death in a plummeting elevator simply by jumping out the split second before it hits the basement floor. In a similar way, the body of a dying person escapes dissolution – according to Zimmerman – by jumping into the resurrection world. What this approach suggests, consequently, is a split between two identically structured sets of simples that then are located in different “worlds.”³⁴²

As was briefly mentioned in Section 4.8.1, there are certain types of religious thought experiment that are more concerned with the imaginative recreation of experiential perspectives than with a purely philosophical argumentation. In this chapter I have exemplified this form of unorthodox thought experimentation with the Spiritual Exercises of St Ignatius. Here the focus is primarily on “what it would be like” to have the experiences and commitments of certain biblical characters

4.7.3 The epistemic gain of religious thought experiments

As we have seen, a wide variety of narratives can be said to display thought-experimenting qualities. Whereas some make use of philosophical reflection, others are more concerned with the recreation of certain experiential perspectives that are of spiritual significance. However, in order to define the character of religious thought experimentation, it is necessary to relate it to the overall aim of religious practice, which is to make the world existentially intelligible. This, in turn, is related to both epistemic and practical goals. While the former aims at truth and the avoidance of falsehood, the aim of the latter is to attain other values, such as peace of mind, happiness, the meaning of life, and so forth. That is, whereas some cases of religious engagement aim at increasing the number of true beliefs, other cases are more related to the achievement of practical goals.³⁴³

In the section on scientific thought experimentation, I referred to it as a practice that may generate knowledge as well as understanding. At the same time, I also suggested that the latter is an epistemic gain that fits particularly well with the thought-experimenting procedure. One of the reasons behind this

³⁴² “The Falling Elevator Model is a way to allow the Life of a dying organism to go one way, while the dead matter goes another way. The trick is to posit immanent-causal connections that “jump” from the matter as it is dying, connecting the Life to some other location where the crucial organic structure of the organism is preserved... So every portion of the matter in my body undergoes something like fission at the time of my death. Consider just the atoms in my body; and pretend that my body consists entirely of atoms (and the parts of atoms). The Falling Elevator Model affirms that, at the moment of my death, God allows each atom to continue to immanently-cause later stages in the “life” or history of an atom, right where it is then located, as it normally would do; but that God also gives each atom the miraculous power to produce an exact duplicate at a certain distance in space or time (or both), at an unspecified location I shall call “the next world” (Zimmerman 2010: 36-37).

³⁴³ Stenmark, 2004: 28-29.

is that thought experiments prompt us to do cognitive work of our own (rather than giving a straight answer). Thus they encourage an epistemic procedure that enables a multifaceted grasping rather than merely knowing isolated pieces of information. This characterization applies to scientific as well as religious thought experiments, I argue. However, what needs to be examined further is how to characterize the term “religious understanding.”

Even if it understanding is considered to be an epistemic state, it involves something much more wide-reaching than matching one’s beliefs to reality in the right sort of way. For this reason, the state of understanding often overlaps with goals that I have referred to as “practical.” As argued by D.Z. Phillips (1970), for example, religious engagement is not merely an extension of our list of justified true beliefs:

Coming to see that there is a God is not like coming to see that an additional being exists. If it were, there would be an extension of one’s knowledge of facts, but no extension of one’s understanding. Coming to see that there is a God involves seeing a new meaning in one’s life, and being given a new understanding.³⁴⁴

In a similar way, John Cottingham (2017b) suggests that religious understanding should be conceptualized as a “certain mode or manner of understanding the world”³⁴⁵ that cannot be achieved by the critical scrutiny of the intellect alone. That is, he argues, it should be thought of as a mode of engagement with and attunement to reality as a whole: “a moral and spiritual opening of the self to the presence of the divine.”³⁴⁶ A similar perspective is given by Kyle Scott (2017), who emphasizes that understanding is manifested in “the way you act, the things you say, where you go, and the people you spend time with.”³⁴⁷ When a subject has understanding, her beliefs are situated in a broader context, Scott argues:

For example, because of her belief that the world is created by God she may come to view her environment differently: as sacred or worthy of respect. It may also change her behavior because she believes that she now has a duty of care for the world. In this case, these beliefs manifest understanding because the religious believer does not simply give assent to a certain proposition, but recognizes and grasps the connections between things and sees the implications of her beliefs.³⁴⁸

³⁴⁴ Phillips 1970: 17-18

³⁴⁵ Cottingham, 2017 b: 29.

³⁴⁶ Cottingham, 2017 b :31

³⁴⁷ Scott, 2017:144.

³⁴⁸ Scott, 2017:136

4.8 Summary

In this chapter, I examine the role that imagination plays in relation to scientific models, metaphors and analogies, aspect perception, religious rituals, and thought experiments. Like in the previous chapters, two levels of mediation serve as an analytical tool for my examination. At the first level, mediation takes place via a particular conceptual framework that constructs and conceptualizes reality in a certain way. At the second level, the imagining is generated through a certain imaginative device (e.g., a model or a ritual). In addition, I argue that religious imagination is thematically guided by a religious tradition (“thematic imagination”) and can involve apophatic as well as kataphatic strategies (which are not mutually exclusive).

In light of Lakoff and Johnson's conceptual metaphor “knowing is seeing”, I studied two forms of religious “seeing”: vision and visualization. Generally, a vision is said to be spontaneous and unintended. Visualization, on the other hand, is described as a voluntary and active creation in the mind's eye. As a stepping stone to my own conceptualization, I made use of St Augustine's distinctions between corporeal, spiritual, and intellectual vision. These categories served as background to an exploration of experiences of visualization and vision in Christian medieval monasteries, contemporary Western esotericism, and Mahayana Buddhism. While the received view is that visualization draws more heavily on imagination than visionary practices do, I suggest a much closer relationships between these two visual strategies.

In my examination of “religious seeing,” I also present Tanya Luhrmann's proposal that sensory imaginings seem to influence how religious practitioners experience the world, for example, by prompting them to experience the objects of prayer as more “real” than they would otherwise. In relation to this discussion, John Cottingham's concept of “transformative vision” was introduced. Instead of seeing belief as a lens (or interpretative frame) that leads to automatic and predictable interpretations of the world, Cottingham argues that it requires the involved individual to creatively interpret and transform what is encountered in the world.

Another way in which I explore the concept of “religious seeing” is by examining the proposal that there exists a conceptual connection between religious beliefs and aspect perception. In this case, the suggestion is that aspect perception, like religious belief, has genuine duration. However, in contrast to this view, I argue that seeing of aspect is episodic rather than continual. The discussion about aspect perception gave me reason to reflect and elaborate on John Cottingham's term “transformative vision.” My interpretation of this phenomenon is that it involves a dynamic between an interpretative frame/model and the seeing of aspects. That is, whereas models contribute a certain continuity, aspect perception is an episodic phenomenon that enables the religious individual to spot novel aspects within the framework in which the person is situated.

In relation to religious metaphors and analogies, I present different perspectives on how this kind of language should be interpreted. When discussing religious models, a distinction is made between two categories: RM¹ (models that relate to selected aspects of a religious discourse) and RM² (where entire religions function as “models” of reality). In addition, I acknowledge a close relationship between models and narratives and argue that certain narratives can function as interpretative frameworks in themselves.

Similar to their scientific counterparts, one may refer to a propositional, a metaphorical, and an additive view of religious models. In this discussion, I differentiate between two notions of truth (T-Gen and T-Ex) and existential meaning-making (Ex-M).

In the case of religious rituals, I suggest that they typically involve experiential imagination. For this, I present the idea that rituals may be truth-pursuing and that they can be associated with the narratological concept of “transportation.” These two aspects are discussed more thoroughly in Chapter Six.

Regarding the religious equivalent to scientific thought experiments, I have chosen to refer to them as “religious” rather than as “theological.” I chose this kind of conceptualization since it allows a broader spectrum of narratives to be associated with thought experimenting qualities.

In addition, I distinguish between narratives that are given thought-experimenting function in retrospect (RTE¹) and narratives that, in contrast, were designed to have “thought experimenting qualities” (RTE²). Similar to their scientific counterparts, one may refer to an imagistic, a propositional, and an experiential approach to religious thought experimentation. To the group of thought experiments that involve experiential imagination, I count stories that allow us to relive, identify with, or merely reflect upon the experiences of significant figures of our own spiritual tradition.

When considering the role of religious thought experimentation, I propose, in turn, that the epistemic state of “understanding” best describes their contribution. Rather than merely knowing isolated pieces of information, these kinds of narratives encourage a multifaceted grasping of the relevant relationships of a subject matter.

5 Interactivism

5.1 Introduction

In Chapters three and four, it was argued that we can identify theoretical models in both science and religion. Such models typically consist of a set of assumptions about some object or system, and are developed to explain or forecast a situation or a phenomenon. The billiard ball model of gases, for example, is founded on the assumption that the behavior of gas molecules resembles that of billiard balls (i.e., they don't exert force on each other except in instances of collision, and so forth).

In the area of religion, models make presuppositions about central aspects in the teaching of a particular religious community. We can think, for example, of different versions of the theist model, which assumes that God – or a pantheon of different gods – have certain features. Typically, these aspects are derived from a variety of sources: the Holy Scriptures (and its literal as well as metaphorical characterizations of the divine realm), oral tradition, philosophical developments that becomes influential in a religious tradition, the present historical and political situation, and so forth.

In the previous discussions of scientific and religious models, I presented the view that the modeling procedure involves a propositional attitude that is directed towards a model system (“the propositional view of models”). In the present chapter, I shall examine accounts according to which this attitude is that of belief (doxasticism) or imagination (J.L. Schellenberg’s non-doxastic stance of “imaginative faith” and the fictionalist position of Andrew Eshleman/Robin Le Poidevin/Peter Lipton). While doxasticism is given a brief presentation, the positions of non-doxasticism and fictionalism will be examined more thoroughly. The motivation behind this is that the latter two involve different forms of imagination (and therefore are particularly relevant for this dissertation).

The chapter will proceed according to the following scheme. First I present the positions of doxasticism, non-doxasticism, and fictionalism. Thereafter I give an example of a specific kind of religious phenomenon – so called “fiction-based religion” – that embodies the relationship between imagination and belief in a multifaceted and complex way. My discussion of these positions will in turn serve as a springboard for my own formulation of the position of interactivism. Here I shall argue that interactivism is the view that most accu-

rately describes the cooperative and distinct character of the attitudes of imagination, belief, and the mental state of perception. That is, instead of referring to one governing attitude, I consider it to be more correct to talk about an interplay between various attitudes and mental states.

In the second half of the chapter, I shall focus on the interactive dynamic between imagination and perception in particular. Here I shall primarily investigate how such an interface is carried out in aspect perception and models respectively.

5.2 Doxasticism, non-doxasticism and fictionalism

5.2.1 Doxasticism

Typically the term “doxasticism” is a position that is associated with the area of religion – in particular, as a contrast to the position of “non-doxasticism”. In what follows I shall nonetheless use it in relation to both religion and science. In my use of the term, it refers to a position according to which the cognitive component of a particular discourse is that of belief. That is, if a subject adopts the attitude of belief towards a proposition, this includes a commitment to the truth of that proposition.

According to the received view of religious faith, one cannot have faith without belief in the relevant propositions. That is, a subject can only have faith that p (for example, that God exists) if s/he also believes that p (that God exists).³⁴⁹ One important distinction should be made, however, between *belief-that* and *belief-in*.³⁵⁰ When a subject believes-that God exists, this means that s/he regards this proposition to be true, that s/he affirms the factual claim that the proposition makes, and is of the opinion that there is such a person (or entity) as God. To have belief-in God, in contrast, can mean a variety of things. On the one hand, it can serve as an alternative way of expressing belief-that. As an illustration, we can think of a situation in which a subject says that s/he believes-in God, and with this statement primarily means that s/he believes-that God exists. Another way of understanding belief-in is, however, that it designates a number of personal responses towards the object of one’s belief – for example, love or trust. In this case, belief-in God is closely related to faith-in God.³⁵¹

³⁴⁹ See, for example, Augustine, 1998; Aquinas, 1948: II.II; Evans, 1998; Malcolm and Scott, 2018; Plantinga, 2000, chs. 8 and 9; and Swinburne, 1981/2005: 138-148.

³⁵⁰ Buchak, 2012; Plantinga, 1983; Price, 1965; Swinburne, 1981/2005.

³⁵¹ In its most general sense, “faith” refers to a certain kind of trust. According to the “trust” model of faith, faith is the same as believing in (in the sense of trusting in) God. There are, nonetheless, different models of faith. Whereas some emphasize the affective component of faith, other models accentuate its cognitive aspects: for example, by describing faith as a special

At the same time, it should be noticed that there are different opinions about what the category “belief-in” actually contains, and to what extent it can be replaced by belief-that. Some philosophers of religion argue, furthermore, that belief-in presupposes belief-that.³⁵² As Alvin Plantinga (1983), for example, puts it:

One cannot sensibly believe in God and thank him for the mountains without believing that there is such a person to be thanked and that he is in some way responsible for the mountains. Nor can one trust in God and commit oneself to him without believing that he exists.³⁵³

However, while acknowledging that religious faith (according to a doxastic view) often involves an interface between believe-that and believe-in, in what follows I shall focus primarily on the former.

When the term “doxasticism” is employed in a scientific context, it refers to a situation in which an individual scientist or a scientific community adopts the attitude of belief towards a theory or hypothesis. However, since scientific knowledge claims are vulnerable and can be rejected as false, scientists typically use the term belief “with a certain vagueness.”³⁵⁴ Instead of believing a theory, therefore, it is more common that scientists accept it in relation to a particular context of reasoning. We can think, for example, of Newtonian mechanics, which – although it gives a false representation of reality – still is accepted within a limited domain (for example, in the construction of bridges and buildings).

5.2.2 Non-doxasticism

According to the position of non-doxasticism, a weaker cognitive attitude (such as acceptance or assumption) can play the cognitive role that is typically assigned to belief. In the case of religion, this means that faith that p doesn't require belief that p . Instead, it is argued that the attitude of belief can be substituted by non-doxastic attitudes such as propositional hope,³⁵⁵ acceptance,³⁵⁶ trust,³⁵⁷ imagination,³⁵⁸ assumption,³⁵⁹ and so forth. In the case of science, “non-doxasticism” refers to situations in which scientists adopt an attitude

form of knowledge. Yet other accounts stress the relationship between faith and hope, or describe faith as a practical commitment that goes beyond one's belief that God exists (Bishop, 2016).

³⁵² Kenny, 1992; Plantinga, 1983; Price, 1965 are examples of philosophers who argue that faith-in requires propositional faith.

³⁵³ Plantinga 1983: 18 .

³⁵⁴ Sperber, 1982:174-175.

³⁵⁵ Pojman, 1986; MacKaughan, 2013.

³⁵⁶ Alston, 1996, 2007.

³⁵⁷ Audi, 2011; MacKaughan, 2013, 2017.

³⁵⁸ Schellenberg, 2005, 2007, 2009, 2013a.

³⁵⁹ Golding, 1990; Howard Snyder, 2013, 2019.

other than belief towards a theory or hypothesis. That is, while not having a doxastic commitment to these theoretical entities, they still use them as a basis for their predictions and explanations.

As the term “non-doxastic attitudes” will be used in this chapter, it serves as a collective name for a group of cognitive attitudes that have at least three characteristic features:

- (1) incompatibility with both belief and disbelief;
- (2) truth-normativity, since the truth of p is considered to be an epistemic possibility;
- (3) a positive evaluation of the object of the attitude.

In what follows, J.L. Schellenberg’s non-doxastic account of “imaginative faith” will be examined. As Schellenberg argues, the attitude of belief should be supplemented by the attitude of imagination in relation to religious matters. His approach will also be compared with examples of scientific non-doxasticism in which propositional imagination (primarily in the form of supposition) is displayed as the proper attitude towards the object or area of investigation.

5.2.2.1 J.L. Schellenberg’s “imaginative faith”

J.L. Schellenberg’s concept of “imaginative faith” is part of a far more comprehensive philosophical position that he refers to as “ultimism.”³⁶⁰ Its dominating idea is that there is a metaphysically, axiologically, and soteriologically ultimate reality. The concept of the ultimate can, in turn, be found in the world’s great religious traditions, Schellenberg argues. However, instead of taking the attitude of belief towards the content of ultimism, he promotes a non-doxastic and sceptical approach to it:

No agnostic in the traditional sense, I am nonetheless a religious sceptic in a much broader sense, one that requires distinguishing traditional theism from a deeper, more basic religious proposition I call ultimism, which invites no more than doubt. I am a defender of faith but not a believer.³⁶¹

Whereas sceptical religion and religious non-doxasticism can be exemplified in various way, Schellenberg himself argues for an imagination-based faith. This, in turn, involves two interrelated procedures. First of all, (a) purposely to adopt a policy of imagining the world in a particular way, but without believing it to be that way; and second, (b) to assent voluntarily to the imagined state of affairs in the relevant context. In order to illustrate how such imaginative faith operates, Schellenberg gives the example of an exhausted marathon runner who is unsure whether he can reach the finishing line:

³⁶⁰ Schellenberg, 2005, 2007, 2009, 2013a.

³⁶¹ Schellenberg 2013b: 144.

When he keeps going in imaginative faith, repeatedly thinking to himself “Yes, I will make it. Yes, I will make it,” he isn’t rightly seen as making some kind of inner *claim* suggesting belief or else an attempt to incite belief. No. Rather the inner declarative sentences amount to a *method* of keeping the picture of himself completing the race before his mind. They also express an intention to longingly direct his mind accordingly.³⁶³

When approaching religious matters in this way, according to Schellenberg, we train our mind to the idea that “what is deepest in the nature of things is also unsurpassably the greatest and that its wonders are in some way transformatively accessible to me and the world.”³⁶⁴ As he sees it, humanity as a whole would benefit from embracing this kind of faith. To motivate this claim, Schellenberg points out that religion, in comparison with the age of the planet Earth, is a rather recent innovation. Given this, the human species is religiously immature, and in need of an alternative that is appropriate to evolution. This new kind of religiosity, according to Schellenberg, should help us to evolve into greater religious maturity and to open our minds to future discoveries in relation to ultimate things. As he sees it, therefore, one of its characteristic features is cognitive modesty:

It may occur to us that the *beginning* of religion pretty obviously *should* be cognitively modest... Belief tells us that we’ve arrived at the end of the investigative road. We should rather think of ourselves as just setting out, as humans, on the journey of inquiry.³⁶⁵

In terms of imagination, it is important to notice Schellenberg’s own insistence that imaginative faith is not to be equated with pretense, which he associates with falseness: “imaginative faith is not a matter of pretense or ‘make believe’, which implies thinking the relevant proposition *false*, but rather a response to uncertainty.”³⁶⁶ Neither is it the case, he argues, that imaginative faith entails “pretending to believe that *p*”³⁶⁷ or anything else designed to produce beliefs. When a subject keeps the imagined state (the one reported by *p*) before his/her mind, it might seem that she pretends to believe it. But, as emphasized by Schellenberg, that kind of self-deception is not consistent with the imagination-based type of non-doxasticism that he advocates. When a subject engages in imaginative faith, it is instead the case – according to Schellenberg – that s/he entertains the possibility of *p*, while holding the truth and falsehood of *p* before her and giving them equal weight.

The kind of imagination that Schellenberg focuses on is of a propositional kind. While mostly referring to propositional imagination in a general sense,

³⁶³ Schellenberg 2014: 83.

³⁶⁴ Schellenberg, 2013a:106.

³⁶⁵ Schellenberg 2013a: 79.

³⁶⁶ Schellenberg, 2013a:102.

³⁶⁷ Schellenberg, 2014:83.

he also mentions supposition (a specific kind of propositional imagination) as an important element in imaginative faith.³⁶⁸ Furthermore, even if Schellenberg doesn't explicitly say so, it may be the case that his conceptualization of imaginative faith also includes instances of sensory imagination. If so, Schellenberg's example of the marathon runner could, for instance, be expanded so that it also involves the runner's own mental images of seeing him/herself running over the finishing line.

5.2.2.2 Imaginative supposition in science and religion

In this section I shall compare Schellenberg's religious and imagination-based non-doxasticism with its possible scientific counterparts. In order to do so, I shall give special attention to supposition ("suppose that *p*") since, according to Schellenberg, this is a kind of imagination that plays an important role in imaginative faith. In science it is, in turn, often the case that suppositions are used as a way to imagine states of affairs without any commitments to their truth. However, as a way to explicate what this particular mental attitude entails, I shall also compare it with doxastic and pragmatic forms of acceptance.

In Section 2.3.1 I gave a brief presentation of the propositional attitude of supposition. Whereas some philosophers don't consider it as belonging to the imaginative realm, I argue, in contrast, that it does. In addition, I suggest that it is likely that its particular characteristics – being a more minimalistic and less embellished mental representation than many other forms of imagination – have made it more epistemically acceptable in scientific contexts. That is, in contrast to experiential imagination (which requires a specific kind of subjectivity and self-involvement on the part of the imaginer) it is characterized by a certain detachment to the propositional object in question. In science, supposition is used when, for example, a hypothesis is put forward ("suppose that *A* is the case") or in cases of counterfactual reasoning ("suppose that *A* would be the case instead of *B*"). Fiora Salis and Roman Frigg (2020) argue, in turn, that supposition is the kind of imagination that is operative when scientists make use of thought experiments and scientific models.³⁶⁹

Often scientists introduce TEs and SMs by explicitly inviting us to suppose that some (real or non-actual) objects are endowed with certain properties and that they behave in certain ways. To perform a TE or use an SM would then amount to supposing a number of things and deriving consequences from them with the aim of gaining knowledge.³⁷⁰

³⁶⁸ See, for example, Schellenberg, 2009, note 2, page 81.

³⁶⁹ This therefore corresponds with the propositional view of scientific models (Section 3.4.1) and the propositional approach to thought experiments (Section 3.6).

³⁷⁰ Salis and Frigg 2020: 41.

As a way to explicate the characteristic features of supposition, I shall now compare it with the propositional attitude of acceptance. As was briefly mentioned in the section on doxasticism, scientists typically use the term belief “with a certain vagueness.”³⁷¹ Instead of believing a theory, they accept it in relation to a particular context of reasoning (independent of whether or not they consider it to be true).

According to Margherita Arcangeli (2018), however, one should distinguish between a doxastic and a pragmatic form of acceptance. When a subject’s acceptance is of a doxastic kind, it is truth-directed and evidence-dependent. She gives the example of a defence lawyer who has reason to believe that the client is guilty, but cannot actually believe it because of insufficient or contradictory evidence. For this reason, he chooses to accept doxastically that the client is innocent. Pragmatic acceptance, on the other hand, is a mental state that is independent of evidence and doesn’t have the aim of capturing reality. That is, in this case the lawyer believes that his client is guilty but accepts, for practical and professional reasons, that his client is innocent.

Pragmatic acceptance, according to Arcangeli, shares the essential features of supposition – for example, being truth-independent and being tied to a particular context or discourse.³⁷² At the same time, she acknowledges that supposition can be diachronically related to doxastic acceptance. It can be the case, for example, that a subject starts with “a supposition constrained by external factors and used for epistemic purposes, though not really based on evidence.”³⁷³ Motivated by this case of supposition, s/he then starts looking for further evidence to ground it. If such evidence is found, the subject’s mental state may shift into that of doxastic acceptance or even belief, Arcangeli argues. As an example, she refers to the kind of reasoning that, she says, influenced Albert Einstein to formulate the thought experiment known as EPR (Einstein-Podolsky-Rosen³⁷⁴):

In the case of Einstein, for instance, it could be that in his reasoning he supposed that Quantum Mechanics was incomplete, driven by the suspicion or even the belief that this was the case, while hoping to be wrong. This train of thought might have led him to conceive his thought experiment known as EPR (Einstein-Podolsky-Rosen), which, in the end, entitled him to accept that Quantum Mechanics is incomplete, since from the supposition that it is complete he derived a contradiction.³⁷⁵

I consider Arcangeli’s account of supposition – and how it is related to acceptance – to be relevant to our investigation of how imagination is used in

³⁷¹ Sperber, 1982: 174-175.

³⁷² Arcangeli, 2018: 98-101

³⁷³ Arcangeli, 2018: 126.

³⁷⁴ In this thought experiment, Albert Einstein, Boris Podolsky and Nathan Rosen argue that quantum mechanics is not a complete physical theory (“the EPR paradox”).

³⁷⁵ Arcangeli, 2018: 126.

science and religion. However, if we refer to imagination as a non-doxastic attitude (as Schellenberg does), it follows that it should display at least three characteristic features: (1) incompatibility with both belief and disbelief; (2) truth normativity (truth that p is an epistemic possibility); and (3) having a positive valuation of the object of the attitude. In terms of pragmatic acceptance, we can see that it deviates from feature (2) by not having the aim of capturing reality. If this, in turn, is the same as not holding the truth of p to be an epistemic possibility, it follows that pragmatic acceptance and supposition doesn't fall into the category of non-doxasticism. Instead, it resembles the position of fictionalism (which I shall describe more thoroughly in Section 5.2.3).

However, while acknowledging that supposition is an important component in imaginative faith, Schellenberg seems to be less willing to reduce it to an act of acceptance. According to him, one can accept things (for example, a scientific hypothesis) without having a positive attitude towards the idea that it is true. Faith, in contrast, entails a positive-attitude, Schellenberg argues. Nonetheless, while rejecting the view that supposition is "nothing but" a case of acceptance, Schellenberg argues that imaginative faith does entail voluntary assent to the imagined state of affairs. In contrast to doxastic acceptance, this is a procedure that doesn't involve an explicit move *towards* the attitude of belief. At the same time, it doesn't entirely fit within the category of pragmatic acceptance either. The aspect that sets imaginative faith apart, I suggest therefore, is that it is able to have an evolutionary perspective on the aim of religious discourse. That is, by distinguishing between the present (when belief is not the proper attitude to take towards ultimate things) and the future (when true belief in ultimate things is an epistemic possibility), it deviates from the full-blown truth-independence that pragmatic acceptance (and fictionalism) entails.

5.2.3 Fictionalism

Since the 1980s, fictionalism has also been proposed for a variety of discourses: mathematics, science, religion, moral, possible worlds, and so forth. While there are various (and sometimes incompatible) characterizations of the fictionalist position, certain features are more frequently mentioned. To begin with, fictionalism is typically said to incorporate or be related to some aspect or feature of fiction or pretense. For this reason, the fictionalist approach to a discourse is that the claims that are made in that discourse are fictional claims that, in certain contexts, still can serve a useful function. In some (but not all) cases, it is also argued that engagement in the discourse involves acts of pretense as "means for conveying, pragmatically, something different from what

is (or should be) expressed by assertoric utterances of some of the sentences of [the discourse].”³⁷⁶

Another characteristic feature of fictionalism is that it is composed of an ontological and a linguistic thesis that often – but not always – run together. That is, as a way to avoid commitment to problematic entities in a discourse (for example, God or abstract mathematical objects), a fictionalist chooses to treat them as useful fictional entities. This ontological concern, in turn, motivates a strategy of not believing “what would be expressed of by a face-value reading of the (positive) sentences of [the discourse],”³⁷⁷ while simulating that one, in fact, does. A fictionalist motivates such a procedure in either of two ways. On the one hand, s/he may argue that all talk about the entities is false (since the entities doesn’t exist). In what follows I shall refer to this kind of fictionalism as Fic.¹. On the other hand, s/he can also be agnostic about the existence of these entities – a type of fictionalism that I shall refer to as Fic.².

It is important to notice, however, that Fic.² and the position of non-doxasticism (since the latter is typically associated with agnosticism) resemble each other. In both cases, we have a position of uncertainty and a suspension of judgment about the truth of *p*. What distinguishes them, however, is that the non-doxastic view maintains the epistemic possibility of *p*, whereas Fic.² remains silent on that matter.

Thus, when the term “fictionalism” is used in this chapter, it refers to a position that

- (1) rejects belief as the appropriate attitude to take towards the sentences of the discourse, because either (a) they are false (Fic.¹) or (b) one remains agnostic about their truth (Fic.²); and
- (2) incorporates or is related to some aspect or feature of fiction or pretense;
- (3) has a positive evaluation of the discourse, since it offers utilities of some kind.

One should also distinguish between a hermeneutic and a revolutionary (or revisionary) kind of fictionalism. *Hermeneutic fictionalism* is a description of the current linguistic practice in a discourse. *Revolutionary* (or *revisionary*) *fictionalism*, by contrast, is a prescription to revise or reform the aims of the domain of inquiry and its original discourse. Religious fictionalism often belongs to this group. That is, whereas the convention is to believe religious utterances, fictionalists rather “defend the legitimacy of sustained engagement with the discourse by quasi-asserting without belief.”³⁷⁸

In the sections that follow, I shall give some examples of scientific and religious fictionalism. While the religious version of this position will be given

³⁷⁶ Armour-Garb and Kroon, 2020: 15.

³⁷⁷ Armour-Garb and Kroon, 2020: 16.

³⁷⁸ Scott and Malcolm, 2018: 4.

most space, it is going to be contrasted with examples from a scientific context. Translated into the terminology that surrounds religion, Fic.¹ is represented by an atheistic approach, while Fic.² is embodied by a religious agnostic.

First up in my presentation are Andrew Eshleman's and Robin Poidevin's accounts of atheistic religious fictionalism (Fic.¹). Thereafter I shall turn to Peter Lipton's theory of "imaginative immersion," which involves science as well as religion. I shall argue that Lipton's account can be viewed as an agnostic form of fictionalism (Fic.²). As the last component of my examination, I shall take a look at new forms of religion that incorporate popular fiction into their beliefs and practices ("fiction-based religion").

5.2.3.1 Andrew Eshleman and Robin Le Poidevin: Atheistic religious fictionalism (Fic.¹)

As a brief introduction to this form of fictionalism, it serves our purpose to situate the fictionalism in its original mathematical and scientific context. In the literature, philosopher Hartry Field (1980) is often mentioned as one of the authors that who set the stage for contemporary fictionalism. In his view, it is possible to explain successful applications of mathematics with no commitment to mathematical objects. Speaking from an antirealist perspective, he argues that abstract mathematical objects (such as numbers) don't actually exist. Instead, Field refers to them as useful – but untrue – descriptive aids. That is, while mathematical sentences are truth-apt and should be understood literally (at face value), they are not truth-normed. As a result, one shouldn't "believe" sentences such as "3 is a prime" but, rather, see it as a useful sentence in the standard story of mathematics. That is, whereas "3 is a prime" and "3 is composite" are strictly untrue, it is only the former that belongs to the agreed upon mathematical story. In the case of Field, he clearly represents the kind of fictionalism that I refer to as Fic.¹

A scientific example of a similar kind of fictionalism is given by Chris Daly (2020). He asks us to consider a physicist who exploits Newtonian mechanics when s/he computes satellite paths in NASA's mission control room. That is, although this theory gives a false representation of reality, the physicist still accepts it in limited domains and for certain purposes. However, when attending scientific conferences or research seminars, s/he make claims that s/he knows entail the falsehood of Newtonian theory.

Perhaps she publishes in physics journals, teasing out the consequences of general relativity. But again she is exploiting rather than believing general relativity since she entertains serious doubts about it due to its incompatibility with quantum theory.³⁷⁹

³⁷⁹ Daly 2020: 69.

With this as background, let us now turn to the kind of religious fictionalism that belongs to the category of Fic.¹ According to Andrew Eshleman (2005, 2010), an atheist can indeed be fruitfully involved in religious practice. When doing so, the participation could be described as participation in a religious game of make-believe. By reinterpreting religious language and belief in an anti-realist manner, the phrase “believe in” stops assenting to a metaphysical proposition about a supernatural entity, and signals instead a “commitment to an ideal and way of life shaped in some important way by religious language and practice.”³⁸⁰

To engage in religious discourse and practice as if they were true, according to Eshleman, is instrumentally useful for two reasons. First of all, it provides an opportunity to structure one’s life around a conception of the good. Activity of this kind may also stimulate personal growth and ethical self-transformation. As Eshleman sees it, it is not an act of self-deception to be transformed or emotionally moved by scenarios that one knows to be fictional. The only thing that is required of the fictionalist, he argues, is that s/he imagines what it would be like were the fiction true, and then acts in accordance to that imaginative construction. However, since there are a wide variety of available fictions that could foster personal growth, it is not a given that an atheist would necessarily choose a religious one. Eshleman responds to this objection by stating that religion is a special kind of symbolic fiction that is seldom found in non-religious environments.

Similar to Eshleman, Robin Le Poidevin (2003, 2016) parallels engagement in religious ritual with engagement in games of make-believe. Le Poidevin’s motivation to adopt fictionalism lies primarily in “the need to avoid inconsistencies in theistic discourse as conceived by the realist.”³⁸¹ When it comes to external inconsistencies (for example, the problem of evil), he acknowledges, nonetheless, that not even fictionalism is immune to that kind of inconsistency. That is, even though theistic discourse is understood as a game of make-believe, it cannot exist in total isolation from the surrounding world. A more accurate description, according to Le Poidevin, is that religious fictionalism is informed by how things are in the real world and, for this reason, incorporates some real features into its own religious fiction.³⁸²

What is required by the fictionalist when s/he engages with religions, however, is that s/he is able to suppress his/her own awareness of their “as if” character. Such cognitive dissonance become particularly obvious when a fictionalist wrestles with doubt in private prayer, Le Poidevin argues. He also points out that it is important that the subject chooses a fiction that is clearly

³⁸⁰ Eshleman, 2005: 184.

³⁸¹ Le Poidevin, 2003: 29.

³⁸² Le Poidevin, 2016: 281-282.

defined and that enables him/her to engage on a deeper level (rather than jumping superficially from one fiction to another).³⁸³

Whereas theistic statements can provide reasons for a realist to act in a certain way, Le Poidevin argues that fictional truths don't shape behavior in a similar way.³⁸⁴ One reason why this is the case, according to him, is that a fictionalist and a realist ascribe meaning to their utterances. If, for example, the word "Fire!" is uttered in a burning building, it has a different meaning than if it is uttered by an actor on stage."³⁸⁵ Le Poidevin points out that the general rule, nonetheless, is that the fictional meaning is parasitic of the meaning ascribed to in the realist context.

5.2.3.2 Peter Lipton's "immersion solution": Agnostic fictionalism (Fig.²)

As a brief introduction to philosopher of science Peter Lipton's account, it serves our purpose to become acquainted with Bas van Fraassen's (1980) formulation of constructive empiricism. As we shall soon see, Lipton is, in many ways, influenced by this framework. According to van Fraassen, acceptance of a scientific theory should be based on a restricted (partial) belief that it is empirically adequate in regard to the observable parts of the world. However, in relation to the unobservable aspects of reality, one should remain agnostic. Acceptance of a theory also entails, as van Fraassen sees it, taking on a certain practical commitment. – that is, to immerse oneself in the world of that theory, and to use it for one's predictions, explanations, and other forms of theorizing.

With this as background, let us now turn to Peter Lipton's (2009) account. He formulates a strategy ("the immersion solution") that, according to him, can be employed in both science and religion. The aim of this approach is to restore the consistency and tension within belief systems, Lipton explains. What he opts for is an adjustment of the epistemic attitude that one directs towards the belief system in question, but leaving its literal content untouched.

When applying the view of constructive empiricism to religion, Lipton specifically explores the ideas of literal interpretation, immersion, and acceptance.

Immersion in a religion, he argues, entails a procedure in which one imaginatively enters into the world of the theory and is committed to deploy it as a whole (that is, he favors a literal interpretation of the content). Lipton notices at the same time that this stands in sharp contrast to van Fraassen's conception of acceptance, in which the governing idea is instead that of partial belief (and remaining agnostic about the rest). In relation to religion, Lipton refers to this

³⁸³ Le Poidevin, 2016: 183-187.

³⁸⁴ Le Poidevin, 2016: 187-188. However, in cases when fiction *does* in fact influence a subject's behavior, it does so on a more immediate level, Le Poidevin argues (for example, when s/he is emotionally involved with fictional characters). In such situations, therefore, according to Le Poidevin, it is the result of causal influence rather than of reason-giving.

³⁸⁵ Le Poidevin, 2016: 183.

position as “committed agnosticism,” since it entails belief in some but not all of the religious claims. At the same time, he points out that it is not self-evident how observable and unobservable states of affairs should be understood in a religious context. If van Frassen’s policy were to be deployed unreservedly in religious discourse, this would, for example, require belief in observable phenomena (such as miracles) that might contradict scientific claims about the world.

For this reason, Lipton argues for a more flexible norm for acceptance. On this account, the warrant for religious claims should not be limited to neither empirical adequacy (in regard to observable aspects of the world) nor an unreserved literal understanding of the religious text itself. According to him, the warrant for religious beliefs instead comes from various places – from religious texts as well as from scientific claims and moral considerations. At the same time, his account is consistent with the policy of partial belief that constructive empiricism advocates (although he operationalizes this rule differently).

One important aspect of Lipton’s notion of acceptance, however, is that it entails much more than partial belief. As he sees it, it also involves a commitment to use the resources of a religious discourse as a tool for thinking of one’s life. This should, for this reason, be understood as a two-level strategy: on the one hand, (a) to preserve the literal meaning of the authoritative texts of the religious discourse that one is immersed in; and on the other, (b) to engage in an active wrestling with the tradition in which one is immersed:

On this view, acceptance and immersion are not passive activities, nor are they matters of all or nothing. In my view one sometimes has to struggle with one’s religious text, not just in order to understand it but in order to come to terms with its moral content. In some cases we may find this content morally unacceptable. As a progressive Jew this will sometimes lead me to reject clear moral content present in my religious text, but here too I would continue to preserve its literal meaning. Nor is rejection to be taken lightly if we are to preserve the constructive attitude of immersion in the text, but in my view the difficult material is there to be struggled with, not to be bowdlerized or ignored.³⁸⁶

As noted by Lipton himself, this is not an attitude that is to be equated with an orthodox case of agnosticism. What he argues for, rather, is the position of “committed agnosticism,” and a notion of acceptance that entails pragmatic as well as doxastic features (see Margeritha Arcangeli’s distinction in Section 5.2.2.2.). That is, in relation to the concept of immersion, Lipton promotes a form of pragmatic acceptance that is truth-independent and is tied to a partic-

³⁸⁶ Lipton, 2009: 17.

ular context. He refers to this procedure as entailing the attitude of imagination: “to imaginatively enter into” the religious discourse and to act as if it is true.³⁸⁷

At the same time, because of the “active wrestling” that Lipton advocates, it seems as if there are certain limits to his acceptance of the literal content of a religious text. That is, even if the governing norm isn’t limited to “empirical adequacy,” he posits certain constraints on such a literal reading. For this reason, a possible interpretation of his approach is that it also refers to doxastic acceptance. Acceptance of this kind has a certain sense of truth-normativity (although not in the same full-blown way that the attitude of full belief has). This observation, in turn, gives us reason to take into account that Lipton may consider the truth of p (in this case, the religious claims) to be epistemically possible. In this regard, it seems as if his account leans toward the position of non-doxasticism. Even so, I argue that “the immersion solution” – taken as a whole – is a case of agnostic fictionalism (Fic.²). The motivation behind this categorization stems from Lipton’s strong emphasis on immersion: to enter imaginatively into the world of the religious tradition and deploy it as a whole. While this is the over-arching attitude that Lipton advocates, partial belief allows him to escape those claims that he finds inconsistent with a contemporary scientific worldview.

To some extent, this resembles a situation in which a reader of a literary fiction is indulgent towards a fictive scenario that unsuccessfully represents a real world phenomena – for example, claiming that the planet Earth is shaped as a triangle. However, while such misrepresentations may cause the reader to be thrown out of his/her immersed state, it could also be the case that s/he finds his/her way back into the story world, I argue. Plausibly, Lipton considers immersion to involve a similar kind of dynamic.

5.2.4 Fiction-based religion: An ambiguous case

“Fiction-based religions”³⁸⁹ is a label that typically used to refer to new religions that incorporate popular fiction into their beliefs and practices. Such fictional texts serve, in turn, as the main authoritative sources of this particular kind of engagement. In the contemporary discussion, this phenomenon is also

³⁸⁷ This aspect is consistent with Gideon Rosen’s (1994) interpretation of Bas van Fraassen’s constructive empiricism. Acceptance (in van Fraassen’s sense) involves, according to Rosen, a speech act of pretend-asserting (“quasi-asserting”) that something is the case. To accept a theory means, in this case, to be immersed in its world “first by pretending to believe it and then by pretending to express this belief directly by declarative utterance *ex cathedra*” (Rosen 1994:151).

³⁸⁹ Davidsen, 2012, 2013, 2016a,b,c.

referred to as invented³⁹⁰ or hyperreal³⁹¹, and includes, for example, Matrix-ism³⁹², Jediism³⁹³, the Church of All Worlds³⁹⁴, and Tolkien spirituality.³⁹⁵

In the sections that follow, fiction-based religion will be presented as a phenomenon whose categorization is more complicated than it first may seem. That is, even if it consists of religious engagement in fictional narratives, it doesn't necessarily involve the attitude of fictionalism

As a first step I shall give a brief introduction to the fiction-based religion of Jediism (Section 5.2.4.1). Next I shall present Markus Altena Davidsen's analysis of how fiction and reality are combined in this belief system (Section 5.2.4.2). Thereafter I shall investigate whether fiction-based religion of this kind is consistent with the position of doxasticism, non-doxasticism, or fictionalism (Section 5.2.4.3). This discussion, in turn, will serve as background to my own formulation of the position that I refer to as "interactivism."

5.2.4.1 Jediism: Background

Jediism is a twentieth-century phenomenon that is inspired by certain elements of George Lucas' epic film *Star Wars*.³⁹⁶ Whereas some refers to it as a religion³⁹⁷, other rather sees it a philosophy. What followers of Jediism have in common, however, is that they try to live according to the fictional religion/philosophy of the Jedi warriors-monks. A central theme of this framework is the opposition between the Light Side and the Dark Side of "The Force." The latter is described as an energy field (or a telekinetic power) that binds the galaxy – and all living beings – together. Around this core, followers of Jediism have developed a philosophy and/or theology that blends Star Wars material with beliefs and practices from, for example, Christianity, Buddhism, and Taoism.

³⁹⁰ Cusack, 2010.

³⁹¹ Possamai, 2005.

³⁹² Morehead, 2012.

³⁹³ Possamai, 2005; Davidsen 2016c.

³⁹⁴ Cusack, 2010.

³⁹⁵ Davidsen, 2012.

³⁹⁶ For a general overview of Jediism, see Chryssides 2011; Davidsen, 2016c; McCormick, 2012.

³⁹⁷ In relation to the official government census (a decennial survey that many countries use to count the membership of religious organizations), it has been a matter of dispute whether "Jediism" should count as a religious affiliation. In 2001 more than 500,000 individuals in Great Britain, Australia, New Zealand and Canada claimed to belong to the Jedi religion. It's plausible that many of those who referred to themselves as Jediists used the campaign as a way to protest against the connection between religious denominations and the state (Possamai, 2005: 71-73). At the same time, as argued for example by Bainbridge (2017), "within these larger number[s] there were smaller groups that seriously proclaimed themselves adherents to the new Jedi religion" (Bainbridge, 2017:121). In 2009, the *Washington Post* reported that Jedi was the tenth most common religious self-identification on Facebook globally (William Wan's article "Soul-searching on Internet." 30 Aug 2009).

Instead of being a distinct community, Jediism is an umbrella term for a variety of groups or loose associations of like-minded individuals on the Internet.³⁹⁸ Whereas some identify themselves as “churches,” others see the Jedi path as an active life of philosophy.³⁹⁹ A common feature of all of these groups, however, is that they encourage their participants to live spiritual and ethical lives according to the Jedi Code. In addition, the practice of Jediism generally involves meditation as a way to come into contact with and/or to learn more about “The Force.”

Another characteristic trait of religious Jediism is that its adherents don’t see a conflict in practising Jedi beliefs in parallel with traditional religion. Instead, it is the case that they consider “The Force” to be present in many of the established faiths of the world: “Some refer to it as their deity, some refer to it as a life force, but the one thing nearly all religions agree with, is that there exists a single unifying force.”⁴⁰⁰ For this reason, it has been argued that Jediism is more of a mythological phenomenon than a clear-cut religion. This is consistent in many ways with how director George Lucas describes his own intention with *Star Wars*:

I’m telling an old myth in a new way. Each society takes that myth and retells it in a different way, which relates to the particular environment they live in. The motif is the same.⁴⁰¹

5.2.4.2 Reality and fiction in Jediism

A conventional religious narrative, according to Markus Altena Davidsen (2013, 2016a,b), is a narrative whose author has an ambition to tell about “superhuman beings who really exist in the actual world and who intervene in this world for the benefit (or detriment) of humans.”⁴⁰² In the case of a supernatural fiction, by contrast, the author tells of supernatural agents and processes that belong to a made-up fictional world. However, despite the acknowledged fictional nature of these kinds of story, some individuals and groups still see them as authoritative for religious belief. This is, for example, the case with the fiction-based religion of Jediism, Davidsen argues.

According to him, religious Jediism should be distinguished from *Star Wars* fandom, where individuals “engage with the authoritative text solely in the mode of play.”⁴⁰³ He points out that fiction-based religious activity – even if it may look like play from the perspective of an outsider – is governed by a

³⁹⁸ Jedi Church, The Temple of the Jedi Order, The Church of Jediism, among others.

³⁹⁹ This is, for example, the approach that the Institute for Jedi Realist Studies promotes: <https://instituteforjedirealiststudies.org>.

⁴⁰⁰ From the Jedi doctrine of Jedi Church: <https://www.jedichurch.org/jedi-doctrine.html>.

⁴⁰¹ George Lucas in Moyers, 1999.

⁴⁰² Davidsen, 2016b: 491-492.

⁴⁰³ Davidsen, 2013: 390.

“reality contract.” This commitment can, however, be implemented in a variety of ways. In the case of Jediism, followers typically admit that *Star Wars* is fiction, even though they still use it as an authoritative source for religiosity. Thus a characteristic feature of how Jediists relate to this narrative, according to Davidsen, is that they read it in a “cosmological mode.” That is, while seeing it as a made-up religious fiction, they do believe that some of the supernatural powers of the story-world (for example, “The Force”) exist in the actual world.

Most Jediists will admit that *Star Wars* is fiction, but they nevertheless use it as their main authoritative text when they speak about the cosmic power as ‘the Force’, quote Master Yoda’s teachings and identify as Jedi Knights.⁴⁰⁴

In order to explain this complex dynamic, Davidsen (2016a) distinguishes between a variety of textual “veracity mechanisms” that supernatural fictions use to construct “an aura of factuality” around the supernatural agents. He distinguishes, in particular, between the categories of “evidence mechanisms” and “anchor mechanisms.” The function of evidence mechanisms is to assert the reality of the supernatural agents within the story-world, Davidsen explains. That is, to demonstrate that “the textual world” (produced by the author) accurately depicts the “textual reference world” (the story world) that the authors refers to. One way to do this is, for example, to use a so called “matter-of fact effect,” Davidsen explains. If the author makes use of this strategy s/he presents the supernatural agents as “straightforwardly real within the story-world.”⁴⁰⁵

The function of anchor mechanisms, in turn, is to undermine the fictional status of a narrative by implying that it ultimately refers to the actual world rather than a fictional world. This can be achieved, Davidsen argues, by creating a conflation between author and narrator, for example – that is, to use a narratological strategy by which one is able to convince the reader that the author and the first-person narrator of a story are one and the same.⁴⁰⁶

In the case of the authoritative narrative of Jediism, Davidsen sees it as primarily deploying evidence mechanisms. At the same time, he recognizes a lack of anchor mechanisms, given that most Jediists admit that *Star Wars* is a fiction and don’t believe in its historicity. Nonetheless, an additional aspect to

⁴⁰⁴ Davidsen 2013: 387.

⁴⁰⁵ “Think, for example, of Yahweh in the Bible, the Elves in *The Lord of the Rings*, and The Force in *Star Wars*. All these agents are extraordinary within their respective story-worlds, but they are clearly real: they act within the narrative, are addressed by other characters, and – with the exception of The Force – themselves address other characters directly” (Davidsen 2016a:530-531).

⁴⁰⁶ One example of this is the narrator in *The Lord of the Rings* who is said to be “very much like the author” (while they are never explicitly identified with each other). As a result, the reader gets the impression that the narrated events are facts disguised as fiction (Davidsen, 2016a: 535).

take into account, I argue, is that many Jediist (despite the fictional nature of their founding narrative) still believe that some of the supernatural beings/powers in the narrative (for example, “The Force”) are real. While this may seem like a contradictory approach, it becomes less so if we consider that it’s common among followers of Jediism to see the story world of Star Wars in a mythological mode – that is, as a myth that incorporates essential aspects of a true spiritual core that is shared by many religious and spiritual traditions. Such an attitude is reflected, for example, in the doctrines published by the website-based The Temple of the Jedi Order:

The Jedi religion is an inspiration and a way of life for many people throughout the world who take on the mantle of Jedi. Jedi apply the principles, ideals, philosophies and teachings of Jediism in a practical manner within their lives. Real Jedi do not worship George Lucas or Star Wars or anything of the sort. Jediism is not based in fiction, but we accept myth as a sometimes more practical means of conveying philosophies applicable to real life.⁴⁰⁷

However, a contrasting perspective on Jediism is given by sociologist of religion Adam Possamai (2012). He refers to Jediism as a hyper-real expression of religion that incorporates popular culture to enrich existing spiritualities. According to Possamai, such phenomena have no foundation in any reality except their own. The source behind the term “hyper-religion” is Jean Baudrillard’s concept of hyper-reality. In Baudrillard’s philosophy, this term is used to describe a condition in postmodern society in which reality and fiction are blended to the extent that it is difficult (even impossible) to distinguish the real from the unreal. What we have instead is a social world constructed out of models (or “simulacra”) that have no foundation in reality but become truth in their own right. When Possamai refers to Jediism as a hyper-real religion, he therefore means “a simulacrum of a religion, created out of, or in symbiosis with, popular culture, which provides inspiration for believers/consumers.”⁴⁰⁸

As we can see, Possamai approaches Jediism in a somewhat different way than Davidsen does. Davidsen is more concerned with the narratological aspects that enable fiction-based religion, rather than judging them as entirely lacking any relation to the actual world.

5.2.5 Jediism in the light of doxasticism, non-doxasticism and fictionalism

In the previous sections, I have presented three positions on religious and scientific claims: doxasticism, non-doxasticism, and fictionalism. In the case of

⁴⁰⁷ The Temple of the Jedi Order. Doctrine of the order: <https://www.templeofthejediorder.org> [Accessed: 25.02.21]

⁴⁰⁸ Possamai, 2012: 20.

the doxastic position, I argued that it was the received view of religious discourse, but less so in relation to a scientific discourse (where beliefs are used “with a certain vagueness”⁴⁰⁹). In both non-doxasticism and fictionalism it is argued, in turn, that a weaker cognitive attitude can play the cognitive role that is typically assigned to belief.

In what follows, I shall reflect on some of the features of the accounts of non-doxasticism and fictionalism that have been presented in this chapter. These reflections will, in turn, serve as background to my discussion about whether Jediism is to be categorized as a case of doxasticism, non-doxasticism, or fictionalism. (It should be noted, therefore, that the focus of this section – while making some comparisons with scientific discourse – pays more attention to the area of religion.) The conclusions drawn from this section will then serve as a bridge to my own formulation of the position of interactivism.

5.2.5.1 Non-doxasticism and supposition

In relation to J.L. Schellenberg’s account of “imaginative faith”, I focused primarily on suppositions as well as on doxastic and pragmatic acceptance. With regard to imaginative supposition, Schellenberg argues that voluntary assent to imagined states of affairs doesn’t involve a judgment of their truth condition. Instead, it is a strategy of merely entertaining the mental state as an inspirational possibility. However, because of his evolutionary perspective on religion, Schellenberg is able to distinguish between the present state (in which belief is not the proper attitude to take towards ultimate things) and a future state (in which true belief about ultimate things is indeed an epistemic possibility).

As a way to compare Schellenberg’s “imaginative faith” with a scientific context, I gave special attention to the epistemic attitude of supposition. I speculated that this kind of imagination, given its minimalistic and less embellished form, is epistemically more acceptable in a scientific environment than are many other types of imagination. This hypothetical mental state – as pointed out by Arcangeli (2018) – is often the starting point for scientists to look for evidence to ground it. When Schellenberg refers to evolutionary religion as a “journey of inquiry,”⁴¹⁰ this resembles a scientific approach to an unknown (for the time being – or, at least, an insufficiently known) “object” of investigation.

At the same time, and contrary to the explicit criteria that govern the scientific procedure, it is less evident how to judge whether a (future) religious claim is “mature enough” to give rise to doxastic acceptance or even belief. That is, whereas supposition enables the entertainment of scientific and religious “possibilities,” they have different ways to justify which supposition qualifies to become doxastically accepted or believed. Furthermore, it could

⁴⁰⁹ Sperber, 1982:174-175.

⁴¹⁰ Schellenberg, 2013a:79.

be argued that this approach deviates more substantially from how most participants in a religious – rather than a scientific – community would describe their own attitude towards it. That is, whereas doxasticism is considered to be the received view of religion, it is part of common scientific practice instead to entertain (rather than believe) certain theoretical claims in order to examine their accuracy critically.

An additional aspect to take into account concerns the extent to which imaginative faith is able to fulfill the functions that religion is often said to have. One typical example is the consolidating role that religion is alleged to have when individuals are struck by sorrow or tragedy. In all fairness, it should be noticed that – by suggesting a skeptical approach towards religion – Schellenberg is sensitive to the fact that such situations often include a dynamic movement between faith and doubt. At the same time, I argue, it is less likely that imaginative faith is able to function as a “firm rock” that offers sufficient guidance in such challenging times. More precisely, an existential wrestling of this kind typically requires something more than suppositions and hypothetical reasoning about possible states of affairs. Whereas entertaining possibilities indeed *is* an essential part of this procedure, it is not to be equated with the procedure as a whole, I argue.

5.2.5.2 Fictionalism and pretense

The above remarks can also be directed, in turn, to religious fictionalism. That is, to what extent can immersion into a religious game of make-believe fulfill the existential needs of its participants?

To begin with, it is necessary to differentiate between existential truth (T-Ex) and existential meaning making (Ex-M). In the case of the religious fictionalist, s/he either rejects (Fic.¹) or remains agnostic (Fic.²) about the truth claims of a particular discourse. At the same time, this does not mean the same as saying that a fictionalist approach cannot contribute to existential meaning-making.

As we can tell from Eshleman’s/Le Poidevin’s and Lipton’s cases of fictionalism, this is an approach that can serve separate functions and be motivated in different ways. What their approaches have in common, however, is that fictionalism is put forward as a strategy for both (a) avoiding inconsistencies and tensions in a belief system and (b) getting access to the utilities of a religious tradition while not believing in its claims. In this regard, their approach resembles Hartry Field’s mathematical fictionalism (a strategy to avoid commitment to mathematical objects) as well as that of the physicist who considers Newtonian mechanics to be false while still exploiting them when s/he computes satellite paths. In the case of religious fictionalism, one utility of engaging in a certain tradition, for example, is to have a guiding framework (an authoritative story) that fosters personal and moral growth. Another benefit of this kind of engagement is that the fictionalist is given access to a set of

rituals by which s/he can anchor him/herself in – as well as experience that s/he transcends – the actual world.

In the given examples, we saw that immersion of this kind can require either a consistent literal interpretation of the religious claims (Eshleman/ Le Poidevin) or a dynamic struggle between literal interpretation and partial belief (Lipton). In the former case, Le Poidevin acknowledges, nonetheless, that the fictionalist must be able to suppress his/her own awareness that s/he only engages in a religion “as if” it were true. This becomes particularly difficult when, for instance, s/he wrestles with doubt in private prayer. Furthermore, Le Poidevin points out that fictionalist games of make-believe cannot exist in total isolation from the more obvious facts of existence – such as the presence of suffering. That is, if real suffering were excluded from the religious fiction, this would severely weaken its authority to speak to the real tribulations that individuals face. Another challenge to this kind of approach is related to how a fictionalist motivates why (as a result of his/her religious engagement) s/he should to act in a particular way or make certain moral decisions. For example, to what extent can a discourse that lacks truth-normativity motivate an individual to take part in activities that require personal sacrifices, or make moral decisions with which, deep down, s/he doesn’t agree?

Given the above remarks, I argue that there are certain limitations to the existential guidance that a wholesale deployment of religious fictionalism can offer. At the same time, this doesn’t exclude the possibility that fictionalism may be one of a number of stances that a subject takes towards different parts of the same religion. As noted by Carl Johan Palmqvist (2019), for example

A Christian who believes in the existence of God might still lack outright belief that Jesus is God incarnate, only seeing it as an epistemic possibility and therefore taking a non-doxastic attitude towards the divinity of Christ. Presumably, she might also view the more mythological parts of her tradition, like the existence of angels or hell, as useful fictions.⁴¹¹

In addition, it is possible that, during the course of his/her life, a subject switches between different attitudes towards religious discourse. For example, it could be the case that the “as if” behavior of a fictionalist serves as a stepping stone to doxasticism. A similar scenario is depicted in Pascal’s wager. In this famous theological argument, Blaise Pascal presents the religious agnostic with a decision matrix that displays the possible utilities that come from either wagering for God or refraining from doing so. According to Pascal, wagering for God is the alternative that – whether or not God exists – is associated with most utility values. Therefore, in situations where an agnostic has difficulty in believing in God’s existence, it is better that s/he act as if s/he, in fact, did:

⁴¹¹ Palmqvist, 2019: 63.

You would like to attain faith, and do not know the way; you would like to cure yourself of unbelief, and ask the remedy for it. Learn of those who have been bound like you, and who now stake all their possessions. These are people who know the way which you would follow, and who are cured of an ill of which you would be cured. Follow the way by which they began; by acting as if they believed, taking the holy water, having masses said, etc.⁴¹²

Stuart Brock (2020) recognizes that this sequence can be interpreted as a flirtation with religious fictionalism. This, however, is a conclusion that Brock rejects (as do I). As he sees it, it is instead the case that Pascal advocates engagement in pretense as a way to inculcate genuine religious beliefs:

...the infinite benefits associated with such beliefs arise only if the beliefs are true. For Pascal, the mere acceptance of religious claims is at best *instrumentally* valuable. Acceptance might be one way to achieve belief in the long run. But if we can find alternative ways to believe, so much the better. When accepting religious claims is what is required to get us over the line, that's okay according to Pascal, but once we become believers, we can abandon our fictionalism altogether.⁴¹³

5.2.5.3 Jediism and the interaction between belief and imagination

The thing that sets Jediism apart from many other religious communities is that it so explicitly acknowledges that it is founded on a pure fiction. This protocol, in turn, is enabled – according to Davidsen – by the lack of anchor mechanisms in the story world of Star Wars (by which the fictional narrative is anchored in the actual world). This aspect is contrasted, nonetheless, by the fact that Jediists are said actually to believe that some supernatural beings/powers of Star Wars – “The Force” in particular – are real.

One way to interpret this phenomenon, consequently, is to argue that the followers of Jediism takes part in a fictionalist game of make-believe. That is, even though they refer to “The Force” as a real and operational power, this actually means that, in the story of Star Wars, it is true that there is such a power. One challenge that this position entails, accordingly, is that the participant has to be able to suppress his/her own awareness the pretense character of his/her worldview. Furthermore, and depending on how individual Jediists understand the phenomenology of “The Force,” there may (but don't have to) be some difficulties connected to the kind of meditation exercises that the community encourages.

As a way to distinguish between these different conceptualizations of “The Force,” I shall now sketch three scenarios. In each of them, we find different

⁴¹² Pascal, 1670/1910. As cited in Hájek, 2018.

⁴¹³ Brock 2020: 218.

suggestions of how a subject may come to terms with the dual character (real vs fictional) of “The Force”:

SCENARIO A: “THE FORCE” AS AN IMAGINED POSSIBILITY

If talk about “The Force” is considered to be hypothetical – for example, a metaphysical entity/power that may exist in a possible world – this isn’t necessarily in conflict with the fictional nature of the narrative. In a way, this resembles the kind of religious approach that J.L. Schellenberg advocates in the light of human beings’ present state of religious immaturity – that is, imaginatively to entertain the possibility of ultimate things, and to let it inspire one’s daily life. If we relate such an approach to the chapter on religious imagination (Chapter four), we may say that, in this case, the Jediist visualizes a possible state of affairs. (This approach can, in turn, easily be combined with the ethical ideal that is encouraged by all forms of Jediism.) Consequently, since visualization of this kind entails seeing the imagined state of affairs as possible but not yet realized, I argue that this is not a pure case of fictionalism.

SCENARIO B: “THE FORCE” AS AN INNER SELF

Another way to conceptualize “The Force”, in contrast, is to say that it primarily refers to the participant’s inner self (an inner force) rather than to an external power. Such an understanding is consistent with the narrative’s own characterization of it: an energy field that binds the galaxy – and all living entities – together. That is, from such a perspective, there is no external supernatural entity with which the individual Jediist tries to come into contact. In meditation s/he rather explores his/her own inner self and how it is interconnected (via “The Force”) with the rest of the galaxy. For this reason, the Jediist doesn’t have to deal with the same kind of difficulties that a Christian fictionalist faces when s/he wrestles with doubt in private prayer. However, what a Jediist still has to come to terms with is the fictional nature of the founding narrative itself. One common strategy, therefore, is to refer to it as a mythological narrative that hides a core of eternal truth beneath its fictional garment. Accordingly, this can be seen as a doxastic strategy. This position, in turn, shares some features with a third scenario:

SCENARIO C: “THE FORCE” AS A PARALLEL PHENOMENON

As was noted in Section 5.2.4.1, many Jediists don’t see a conflict in practising Jediism in parallel with traditional religion. Instead, they consider “The Force” to be present in many of the established faiths of the world. For this reason, a Christian Jediist may compare “The Force” with the Holy Spirit, while a Buddhist Jediist can argue that it is connected to interdependent co-arising and the interconnectedness of all life forms (and so forth). According to one version of this approach, “The Force” is a power that is present in all religions (although being conceptualized differently). An alternative approach

is to argue that “The Force” is exclusively related to phenomena in one particular religion. In either case, the fictional surface of “The Force” is not to be equated with its underlying true core. Accordingly, this is a similar strategy as referring to Star Wars as a mythological narrative that – beneath its fictional form – hides an essence of eternal truth. For this reason, the third scenario is to be seen as a doxastic strategy.

When reviewing these scenarios, we see that they deviate from how Adam Possamai (2012) describes the phenomenon of “hyper-religion.” According to Possamai, such religions have no foundation in any reality except their own. This kind of approach is similar, in many ways, to the position of fictionalism, according to which truth is a quality that is created within a system (“truth within a story”). However, if we return to scenarios A to C, we can see that Possamai’s conceptualization doesn’t accurately describe how (according to my characterization) a Jediist relates to the concept of truth. In all of the presented scenarios, the participant refers to “truth” in a general (objective) sense: either as an epistemic possibility (scenario A) or as an underlying true core beneath the fictional story world (scenarios B and C). Furthermore, we can notice a doxastic tendency in all three scenarios (but most clearly in scenarios B and C). In scenario A, the dynamic is similar to that of Schellenberg’s imaginative faith: pragmatic acceptance/supposition that points towards (a future) doxastic acceptance or belief. In scenarios B and C, in contrast, the participants do believe in (or doxastically accept) the underlying true core of “The Force.”

At the same time, it’s necessary to take into account that Jediism – like religions of all kinds – inevitably serves as a vehicle for existential meaning-making. That is, independent of whether a subject approaches religion in a truth-normed way or not, it can contribute to an individual’s existential meaning-making. Furthermore, as was noticed in Section 5.2.5.2, it can also be the case that a subject takes separate stances towards different parts of the same religion, or – during the course of his/her life – switches his/her attitudes to the religious discourse.

As we can tell from the above discussion, Jediism is a religious phenomenon that isn’t as easy to categorize as may first appear. Even if Jediists themselves acknowledge that *Star Wars* is a purely fictional narrative, their attitude to certain of its supernatural entities/powers is that of belief, doxastic acceptance or, at least (as in scenario A), a recognition that they are epistemically possible. For this reason, I argue that religious Jediism doesn’t qualify as a case of fictionalism (since this position lacks truth-normativity). In addition, I suggest that Jediism is a good example of a situation in which the interaction between the attitudes of belief and imagination influence how individuals orientate themselves in the world. That is, it is not so much a matter of either-or (where one attitude alone governs human behavior) as a constant interplay and negotiation between different mental states.

As I see it, this is not a dynamic that is limited to fiction-based religion but is, on the contrary, an essential characteristic of human cognition overall. As mentioned in the section on doxasticism, scientists use the term “belief” “with a certain vagueness,”⁴¹⁴ and often consider acceptance (in relation to a particular context of reasoning) as a more appropriate scientific attitude. However, as emphasized by Margeritha Arcangeli (2018), acceptance can be of either a pragmatic or a doxastic kind. In the latter case, we have an attitude that is truth-normed while not qualifying (because of insufficient or contradictive evidence) as full belief. I argue that such a position belongs to the same family as belief, even if it isn’t founded on the same level of certainty. For this reason, it is justifiable, as I see it, to say that scientific practice also entails an interaction between imagination and belief. At the same time, it’s necessary to notice that both science and religion involve activities in which it’s more accurate to say that they make use of pragmatic acceptance. As examples, we can think of the physicist who pragmatically accepts Newton’s mechanics because it helps him/her to compute satellite paths, or a Christian who pragmatically accepts parts of the content of his/her tradition (for example, the existence of angels or hell) even though, deep down, s/he does not believe it.

With this as background, I shall now formulate a position that I refer to as “interactivism”.

5.3 Interactivism

Interactivism is a position that emphasizes that human cognition is governed by a constant interaction and negotiation between different mental states. In contemporary philosophy of mind and cognitive science, this is not a revolutionary claim. In these disciplines, there’s an overwhelming consensus that human cognition is constituted by a constant interplay between different mental conditions, and that some of them, in fact, are a combination of different mental states and propositional attitudes. Interestingly enough, such a view is not sufficiently reflected in the discussion about non-doxastic attitudes that has engaged philosophers of religion in recent years. In this discourse, it is often the case that one particular propositional attitude is said to govern a subject’s approach toward religion.

In the previous sections of this chapter, I gave an overview of some of the common positions: doxasticism (governed by belief), Schellenberg’s version of non-doxasticism (governed by imagination), and fictionalism (governed by imagination). The overarching aim of these sections – and, in particular, my examination of Jediism – was, nonetheless, to show that it’s far too reductionistic to say that a subject’s engagement in religion is governed by one mental state alone. Something similar can also be said about science, I argue. That is,

⁴¹⁴ Sperber, 1982:174-175.

even though scientists are reluctant to speak about beliefs, their practices – similar to religious practices – involve a dynamic between a transcendent and an instructive use of imagination (see Section 3.6.3.1).⁴¹⁵ Whereas the transcendent use enables us to escape the actual world, the instructive use allows us to learn about the world as it is. In this procedure, there's a complex movement between mental states that are truth-normed and mental states that are not.

In the sections that follow I shall examine this dynamic in the context of science as well as religion. By advocating the position of interactivism, my intention is to emphasize that propositional imaginings (which are the kind of imagination on which this chapter has focused) often cooperate with other forms of imagination (for example, sensory and experiential imaginings) and mental states (for example, belief and perception). For this reason, the interactive view includes a distinction between two forms of interaction: on the one hand, between imagination and belief and, on the other hand, between imagination and perception.

However, since the former interplay has already been given much attention in this chapter, hereafter I shall primarily focus on the interface between imaginings and perceptions. This emphasis reflects, in turn, the conceptual metaphor “knowing is seeing” that has been influential in my previous presentation of scientific and religious imagination. There it was acknowledged that the term “seeing” has a literal as well as a metaphorical meaning. When we talk about the literal sense of “seeing”, we generally refer to one of three forms: (a) pure perception, (b) perception informed by imagination (for example, aspect perception), or (c) mental imagery of either a quasi-perceptual or a conceptual kind. Thus, whereas (a) relates to a perceptual kind of seeing, (b) and (c) are examples of imaginative forms of seeing. Nonetheless, when “seeing” is used metaphorically, it refers rather to intelligibility.

5.3.1 The interaction between imagination and perception

In Section 2.2.2, it was pointed out that perceptual experience often comprehends more than what we actually perceive. On an individual level, for example, this can take place when a subject – through imagination – attributes properties to objects that s/he sees⁴¹⁶ or that s/he uses mental imagery in the perception of occluded (hidden) parts of perceived objects.⁴¹⁷ In the latter case, there are different ways to explain such cases of non-stimulus-driven perception. The view advocated by this dissertation, however, is that it is the result of a cooperation between perception and mental imagery. That is, the reason

⁴¹⁵ This distinction comes from Kind and Kung 2016: 1.

⁴¹⁶ For example, standing in a furniture store, looking at a sofa, and imagining how it would look in your living room.

⁴¹⁷ For example, to have mental imagery of the cat's tail while it is occluded by a fence.

why we are able to “perceive” the hidden parts of a cat behind a fence, is a mixture of stimulus-driven perception (of the unoccluded parts of the cat) and mental imagery (of the hidden parts of the cat).⁴¹⁸

If we apply these phenomena to a religious situation, this could mean, for example, that an individual attributes certain imaginings related to a religious or spiritual discourse to his/her perception of the world. At the same time, it is important to notice that imagination can just as well be used as a way to relate perception to something that is *believed*. That is, imagination is used here as a way to envision something hidden or transcendent in which the person believes. That is, just because his/her perception is influenced by imagination, it doesn't follow that s/he considers the perceived object as a whole to be imaginary. As Amy Kind (2018a) expresses it,

[a]lthough imagining may not have truth as its *constitutive* aim that does not mean it never has truth as its aim at all – that it is somehow constitutively divorced from truth. Rather, an act of imagining can have truth as a non-constitutive aim.⁴¹⁹

In the light of this statement, I argue that truth normativity needs to be taken into account when discussing the interaction between perception and imagination. Consequently, this is an issue to which I shall return in the upcoming sections

5.3.1.1 The governing attitude to – and overall aim of – a practice

When discussing how the interaction between perception and imagination takes place in a scientific context, it is necessary to distinguish between different kinds of disciplines and practices. That is, we should differentiate between scientific practices that (a) focus on entities and/or processes that can be seen by “the naked eye,” and practices that (b) make use of technological instruments or theoretical abstraction to investigate phenomena that are beyond immediate perception. One should also take into account what the aim of a certain perceptual strategy is. In a religious setting, the interaction between percepts and imaginings is related to an all-embracing project of making the world existentially intelligible. In the case of science, in contrast, the overall aim is to make the world technologically and predictively intelligible.⁴²⁰ The particular aim of each discourse influences, in turn, which range and scope a certain kind of seeing is given.

As a scientific example, we can think of a model in which billiard balls serve as a model for gas molecules (Mary Hesse's basic example). The comparison between these two entities enables, in turn, a type of seeing that is limited to the idealized world. That is, it is only within a restricted area that

⁴¹⁸ Nanay 2016: 130.

⁴¹⁹ Kind, 2018a: 241.

⁴²⁰ Stenmark, 2004: 28-29.

the target (gas molecules) is seen in the light of the source (billiard balls).⁴²¹ At the same time, it is typically the case that such investigations indirectly influence how we see aspects of the real world. That is, rather than equating the model with its target, it points to qualities of billiard balls that either resonate with or deviate from the qualities of gas molecules. As a result, the model helps scientists to predict how real-world gas molecules behave under certain circumstances.

Similar to scientific models, religious modeling (of both the RM¹ and the RM² categories⁴²²) should be seen in the light of their over-arching aim – namely, to make the world existentially intelligible. A general consequence of such a goal, however, is that religious models have a wider scope than their scientific counterparts. That is, it is life as a whole – rather than a restricted area of it – that is seen in the light of such models. It is important to notice, however, that this primarily relates to the perspective of the religious practitioner rather than the scientific discipline of “theology.” Whereas theologians and natural scientists relate to models in the light of a scientific methodology and framework, the religious practitioner’s approach is colored by his/her desire to deal with the overall existential conditions of life (including suffering and anxiety, as well as prosperity, happiness, and beauty). As noticed by Mikael Stenmark (2004), this is one of the reasons why religious beliefs do not necessarily function as scientific hypotheses. Here God/The Ultimate Reality is taken to be an experienced reality (rather than a derived entity) that gives life existential meaning. For this reason, belief in God, according to Stenmark, is “probably more closely related to belief in other persons than to belief in the existence of genes, electrons, planets, or any other scientific stuff.”⁴²³

Because of such qualitative differences between the target areas of science and religion, they relate to modeling in distinct ways. In the case of scientific models, it is not required (nor even desirable) that the scientist approach the model systems with the attitude of belief. Religious models, however, have a more critical relation to truth than their scientific equivalents, I argue. While not necessarily being a pure case of doxasticism, religious engagement often requires that subjects consider the religious discourse to be true in some sense (even if this only includes holding the religious content to be a possibility). This is something that Vincent Brümmer (1993) intends to capture with the term “existential truth” – namely, truth claims that are “made with reference to factual presuppositions which are constitutive for the way of life.”⁴²⁴ At the same time – as emphasized in the discussion about Jediism – the fact that a

⁴²¹ Such an operation can take the form of either a non-doxastic or a fictionalist approach to the model.

⁴²² See Section 4.5.1. Models that relate to selected aspects of a discourse are referred to as RM¹. When an entire cultural system functions as a “model” of reality, it goes under the label RM².

⁴²³ Stenmark, 2004:76.

⁴²⁴ Brümmer, 1993: 18

practice is truth-normed does not mean that mental states that aren't critically related to truth (such as imagination) often play important roles in individuals' truth quests.

5.3.1.2 The interaction between imaginings and precepts in models and aspect perception

In Chapters three and four, scientific and religious models have been described as conceptual forms of mental imagery (a sub-category of sensory imagination) – that is, conceptual images that serve as interpretative frames that guide the scientist or religious believer to adopt certain perspectives. This phenomenon, in turn, was compared with aspect perception (of both a scientific and a religious kind) that, in contrast, was characterized as “perception informed by imagination.”

I suggested, furthermore, that models and aspect perceptions generate different forms of “seeing.” This deviation should, I argue, be seen in the light of the two levels of mediation that were introduced in Section 3.1.1.⁴²⁵ What both models and cases of aspect perception have in common is that they are mediated through a particular conceptual framework (the first level of mediation).⁴²⁶ Such dependence affects, in turn, the kind of “seeing” that either of these phenomena is able to generate. As an illustration, we can use Wittgenstein's duck-rabbit image. The reason that we perceive the image as either of these animals is that both of them are included in our cultural repertoire of conceptualizations. In a similar way, scientific and religious models build on already established conceptualizations (which, at times, are creatively blended with each other).

However, while both aspect perception and modeling involve an interaction between imagination and perception, they do so in different ways, I argue. In the case of aspect perception, it involves a *direct* interaction between these two mental states. Because of such immediate contact (and cooperation) between mental imagery and percepts, the dawning of a new aspect is made possible. This strategy differs, in turn, from the *indirect* interaction that characterizes models. In this case, we have a conceptual image that serves as a frame through which reality is interpreted and filtered. The influential power that models may have over perception is, for this reason, a result of “framing” rather than a direct interface between percepts and mental imagery.

⁴²⁵ At the first level, mediation takes place via a particular conceptual framework that constructs and conceptualizes reality in a certain way. At the second level, in contrast, mediation is generated through a certain medium (for example, analogies, metaphors, or models) that operates according to a specific course of action.

⁴²⁶ That is, both aspect perception and models (of both type RM¹ and RM²) are influenced by the particular conceptual framework within which it is situated – or (as in RM²) of which it is an expression.

Consequently, essential to the interactive view that I am suggesting is a recognition of the various ways in which imaginings and percepts may interact. At the same time, it is not argued that aspect perception and models are strategies that operate in total isolation. The proposal, on the contrary, is that models and the seeing of aspects often intersect with each other. That is, even though someone perceives reality through a certain interpretative frame, it doesn't exclude him/her from also having experiences of aspect perception.

The above remark resembles something that John Cottingham (2017a,b) discusses in relation to religious belief and “transformative vision” (Section 4.2.4) According to him, religious belief formation is not a static procedure but, on the contrary, creatively cooperates with the world and the worldview within which one is situated. For this reason, he rejects the view that a belief functions as a lens, since this would imply that that one automatically interprets the world in exactly the way that the lens suggests. In the light of Cottingham's discussion, therefore, I suggest that transformative vision requires an interplay between a continuous and an episodic element. I argue, furthermore, that scientific practice (while having a different aim than religion) involves a similar kind of dynamic. That is, whereas models contribute with a certain continuity, aspect perception is an episodic phenomenon that enables the religious believer/scientist to spot novel aspects within the framework in which s/he is situated. On other occasions, the dawning of an aspect may result in a movement between two different models/frameworks – for example, in cases of religious conversion or scientific paradigm shifts. In sum, both scientific and religious practices involve a continuous dynamic between models and aspect perception.

Even so, there is indeed a significant difference between Cottingham's “transformative vision” and the detached and objective standpoint that science typically favours. Cottingham (2017a) himself refers to this as the difference between an “epistemology of control” and an “epistemology of reception.” Whereas the former is associated with impersonal “spectator evidence,” he refers to the latter as a “more humane” religious epistemology that requires personal commitment and receptive involvement

Instead of being fixated on scientific models, and on impersonal, spectator evidence, we should be prepared to allow that there are many areas of human life, including the domain of religion, but by no means confined to this, where we have to give up the fantasy of being lofty, detached evaluators, surveying the data and pronouncing our verdict. Whether we like it or not, we have to be involved, to be receptive. This does not mean being gullible, or blindly accepting the first idea that comes into our minds. But it does mean that we have to be prepared to listen, to be porous, to be permeable, to allow the possibility that there are parts of reality that have a transformative effect on us, and that,

if we allow ourselves to be transformed, we may be taken to new levels of awareness and understanding.⁴²⁷

The perspective taken in this dissertation, however, is that Cottingham's remark can be combined with a recognition of certain resemblances between religious and scientific practice. The similarity that I have been emphasizing in this section is that both discourses include a dynamic between interpretative frames and aspect perception. Both of these phenomena, in turn, are characterized by a distinct kind of interaction between imagination and perception.

Despite the above statement, at the same time I have given extra attention to how perception and imagination cooperate in religious engagement. In what follows, I shall give a brief overview of this examination, and then – as a second step – propose how this relates to how imaginings and percepts interplay in a scientific environment. In the latter case, this includes an identification of shared features as well as individual characteristics.

5.3.1.3 Vision and visualization

When discussing the interaction between imaginings in relation to religious environments, my investigation started with St Augustine's threefold categorization of vision (Section 4.2.1.1). As Augustine uses the term, "vision" correlates with the more general term "seeing." As such, it includes mental imagery (either as deliberate constructions or as something that is *received* from the supernatural realm) as well as perception. For this reason, I pointed out that the distinction between "vision" and "visualization," as it is used elsewhere in the dissertation, doesn't fully conform to Augustine's conceptualization. Given this, I use Augustine's categorization primarily as a springboard to my own elaboration on these phenomena (rather than applying it unreservedly to my own discussion)

According to my understanding, visions and visualization differ from each other because they require different kinds of involvement (active/passive) on the experiencing subject's part. In the case of visualization, it is the result of a deliberate construction in the mind's eye in which the subject him/herself takes part. Following Augustine's categorization, visualization thus belongs to the group of "spiritual vision" (which, in this case, should be interpreted as a capacity to have mental imagery of things that are absent). But, most importantly, it requires that an individual actively take part in the construction of the imagined object or episode. When it comes to visionary experiences, in contrast, I understand it as something that is received, rather than being deliberately created by the experiencing subject him/herself. Such experience can take the form of either mental imagery or perceptual impressions (spiritual/imaginative vision and corporeal vision, if we follow Augustine's scheme).

⁴²⁷ Cottingham 2017a: 100.

However, as became evident in the examples from medieval and contemporary Christianity, the distinction between vision and visualization is not necessarily a clear-cut one. For medieval monastics, imaginative visualization (*Speculatio*) was used, for instance, as a strategy to create favourable prerequisites for having visionary experiences (Section 4.2.2). In a similar way, Tanya Luhrmann and colleagues notice that contemporary charismatic Christians – as a result of sensory imagery – experience biblical passages and conversations with God as more “real” (Section 4.2.4). Another effect of this kind of kataphatic practice, according to Luhrmann, was that the boundary between what was attributed to the mind and the external world was altered. Given this, it seems as if visualization, to some extent, melts into a vision-like experience.

It could also be the case – as in the example from Western esotericism – that the distinction between real and imaginative seeing in itself is somewhat problematic. That is, in this context, imaginative visualization is used as an active way to come in contact with a spiritual reality and to mediate between higher and lower worlds. Furthermore, it was noticed that the Western esoteric tradition recognizes that imagination also can be used by the divine to produce visions. This more passive use of imagination, according to Alison Butler (2004), is downplayed in contemporary esoteric groups such as The Hermetic Order of the Golden Dawn. Other authors argue, in contrast, that the dynamic between active and passive imagination is also in play in contemporary esotericism. By mentioning this debate, my intention was to present a situation in which there are different opinions on what kind of imagination is operative in a contemporary spiritual setting (Section 4.2.3.1).

The third area of investigation was how practices of visualisation and vision are used in Mahayana Buddhism. While the Buddhist tradition maintains a clear distinction between visualization and vision, there are also exercises that combines these two modes. In some cases, for instance, visions are preceded by preparatory recollection and visualization of the physical and mental qualities of Buddha. It should also be noticed that the Buddhist approach advocates an attitude of suspicion towards appearances of any kind. That is, even if visionary practices may indeed lead to encounters with True Reality, they should generally be treated as being empty and devoid of any solid nature. As a result, the Buddhist tradition treats both kinds of “seeing” (vision and visualization) with suspicion, rather than just one of them (Section 4.2.3.2).

In this dissertation, the above examples serve as illustrations of the complexity that a distinction between visions and visualizations often involves. One problem, for example, is related to the fact that these two forms of seeing often cooperate with each other. It could be the case, for instance, that visualization is used as a method to facilitate visionary experiences. Second – as in the case of Western esotericism – there may be different opinions about which one of them is operative in spiritual practice. An additional concern relates, in turn, to the tendency to understand religious seeing as *either* a case of imagination *or* as pure perception. This kind of polarization stands in opposition to

contemporary research that, in contrast, emphasizes that percepts often interact with imaginings. If this is the case, it may imply that perception-governed experiences (for example, St Bernadette's vision of the Virgin Mary at Lourdes) make use of imaginative aspects as well.

If we relate the phenomena of visions and visualizations to fictionalism and non-doxastic imaginative faith, it seems as if the former is positively correlated with visualization but not with vision (since the latter requires a real supernatural realm). That is, it is not part of the fictionalist's own strategy to receive a genuine visionary experience, even though his/her game of make-believe could involve imitation of all kinds of religious experience. It is important to notice that this is not the same as saying that a fictionalist is disqualified from actually receiving visions from a supernatural realm. It only implies that s/he is less motivated to do so. In the case of a person with non-doxastic imaginative faith, the situation is quite different, since s/he consider it possible that the ultimate things that she supposes/visualizes actually exist. At the same time, it doesn't follow that a non-doxastic approach leads to a disposition of actually having visions. It may be argued, for example, that visionary experiences require a certain degree of personal commitment that the attitude of imaginative faith is unable to induce in individuals.

With regard to doxasticism, I suggest that we posit a doxastic approach that is characterized by an interplay between various mental states – belief, imagination, and perception included. This position, as I see it, has many similarities with Cottingham's doxastic account of transformative vision. One aspect that it shares with Cottingham's view, for example, is the emphasis that religious beliefs influence our perception of the world in a certain way. However, whereas the role of imagination is explicitly shown in my account, Cottingham uses the term "transformative vision" to describe the nature of such influence. According to him, it is inaccurate to refer to this phenomenon as "mere imagination," since it involves far more than that. For this reason, he refers to it as a "poetical" approach that creates "out of the raw data of perception a whole rich "lifeworld", a world full of meaning and value."⁴²⁸

While the interactive view is consistent with such a characterization of religious belief, it talks more explicitly about an interplay between belief and imagination. That is, instead of arguing that religion involves a "seeing" that cannot be found in any other human area, it posits three mental capacities (belief, imagination, and perception) that operate in other environments as well. As a result of such a strategy, it's possible to make a more detailed comparison between how the two forms of interaction (between belief and imagination, and between belief and perception) operate in a religious and in a scientific setting.

⁴²⁸ Cottingham 2017a: 92.

5.3.1.4 Visions and eureka-experiences

One way to carry out such a comparison is to relate religious phenomena such as “visualization” and “visionary experience” to a scientific context. In the case of the former, both scientific and religious practices make use of deliberate imaginative constructions of entities, powers, or processes that transcend our immediate sensory perception. A more complicated situation arises in relation to visions, since these kinds of experience presuppose a content that is attributed to something else (a supernatural dimension) than one’s own creative mind. However, if we drain the term “vision” of its religious content, it can also be used in reference to situations where a person is struck by sudden insight without knowing where the solution came from. In Chapter three, such experiences were for instance illustrated by the eureka-moments reported by scientists such as August Kekulé, Albert Einstein, Richard Feynman, Barbara McClintock, John Nash, Henri Poincaré, and many others (Section 3.2.3; see also Section 2.5.1).

While experiences of this kind may be given a religious interpretation (for example, in terms of divine inspiration), this is not the most common way to explain them in a contemporary scientific setting. The aspect that has triggered most discussion, rather, is the reported “suddenness” of instances of this kind. Instead of seeing them as random occurrences, it is argued by many psychologists and cognitive scientists that it is more accurate to understand them as the integration and reprocessing of a large amount information to which the individual already has access (but now sees in a new light). That is, what appears to be a random phenomenon may, in fact, be influenced by conceptual operations such as metaphors, analogies, and/or periods of conscious work on the problem at hand. In relation to my previous discussion on aspect perception and models, this is an interesting point to consider. That is, since eureka experiences are associated with sudden insight, they are often compared with a seeing of novel aspects. At the same time, as argued by William Child (2018), for example, creativity of this form can be the result of aspect perception as well as a new model or a theory that enables us to look upon an area or phenomenon in a certain way (Section 3.3.5).

Yet another thing that needs to be taken into account is that eureka experiences are not always determined by images (although, in this dissertation, I have given much attention to visual experiences of that kind). On the contrary, in many cases, mental imagery is part of a multifaceted imaginative process in which supposition-like elements specify the details of an image. In some instances, it may even be the case that this kind of insight doesn’t include a visual experience at all.⁴²⁹

⁴²⁹ For this reason, it may very well be that – of Augustine’s scheme – “intellectual vision” is the category that most resembles scientific insight of this kind – that is, a capacity to understand things “as they really are” (but in the light of the particular aims and objects of knowledge that characterize science).

5.4 Summary

In this chapter, I distinguish between doxastic, non-doxastic, and fictionalist approaches to religious and scientific models and practices. According to religious forms of doxasticism, a subject can only have faith that p (for example, that God exists) if s/he also believes that p (that God exists). When the term doxasticism is employed in a scientific context, it refers to a situation in which an individual scientist or a scientific community adopts the attitude of belief towards a theory or hypothesis. At the same time, I argue that the term "belief" is more controversial in a scientific than in a religious environment.

Non-doxasticism and fictionalism are positions according to which a weaker attitude (for example, acceptance or imagination) can play the cognitive role that is typically assigned to belief. While non-doxasticism is incompatible with both belief and disbelief, it holds the truth of p to be epistemically possible. As an example of a non-doxastic attitude towards religion, I refer to J.L. Schellenberg's philosophical position of ultimism and his use of the concept of "imaginative faith." According to Schellenberg, when a subject engages in imaginative faith, s/he entertains the possibility of p , while holding the truth and falsehood of p up and giving them equal weight. In many ways, his non-doxastic use of imagination resembles a scientific approach towards a (currently) unknown, or at least insufficiently known, "object" of investigation. When applied to religion, this is an approach that challenges the received view of religious doxasticism. Even so, I argue that existential wrestling generally requires something more than suppositions and hypothetical reasoning about a possible state of affairs. Even if entertaining possibilities is indeed an essential part of this procedure, it is not to be equated with the procedure as a whole.

Fictionalism involves a rejection of belief as the appropriate attitude towards the sentences of the discourse, either because they are false (Fic.¹) or because the fictionalist remains agnostic about their truth (Fic.²). In addition, fictionalist accounts incorporate some aspect or feature of fiction or pretense and can either be of a hermeneutic or revolutionary kind. As examples of religious fictionalism, I refer to the accounts of Andrew Eshleman, Robin Le Poidevin (Fic.¹), and Peter Lipton (Fic.²). A common feature of both scientific and religious versions of the fictionalist stance is that they are put forward as strategies (a) to avoid inconsistencies and tensions in a belief system and (b) to access the utilities of a certain framework while not believing in its claims. However, in my analysis I argue that fictionalism is better suited to a scientific than to a religious context. That is, even if religious engagement may involve episodes of fictionalism and/or non-doxasticism, there are certain challenges in life (such as suffering) that may require something more than just "imaginative faith" or engaging in religion as a game of make-believe. For this reason, I distinguish between existential truth (T-Ex) and existential meaning making (Ex-M). While religious fictionalism rejects the truth-claims of the

religious discourse, it can still contribute to an individual's existential meaning making.

In light of this discussion, I suggest that a more fruitful approach is to acknowledge a constant interaction between different positions. In the case of religion, I propose that it is plausible that subjects take a number of stances towards different parts of the same religion. As a way of illustrating the complex interplay between imagination and belief, I use the example of the fiction-based religion Jediism. Whereas Jediists acknowledge that their founding narrative (*Star Wars*) is a purely fictional narrative, they approach certain of its supernatural entities with the attitude of belief, doxastic acceptance, or, at least, a recognition that they are epistemically possible.

The examination of doxasticism, non-doxasticism, and fictionalism serve as a bridge towards my formulation of the position of interactivism. According to this position, human cognition is governed by a constant interaction and negotiation between different mental states. While the first part of the chapter focuses on the relationship between imaginings and belief, the second part pays more attention to the interplay between imagination and perception.

As a result of this investigation, I argue that both scientific and religious aspect perception and models involve an interaction between imaginings and percepts. In addition, I propose that both scientific and religious discourses include a dynamic between interpretative frames and aspect perception. That is, whereas models contribute with a certain continuity, aspect perception is an episodic phenomenon that enables the religious person/scientist to spot novel aspects within the framework in which they are situated. However, since science and religion aim for different kinds of intelligibility, they operationalize this dynamic in distinct ways. One aspect to consider is Cottingham's distinction between "an epistemology of control" (which he associates with science) and an "epistemology of reception" (which he connects with religion).

In light of this discussion, I suggest that some scientific "eureka" experiences can be understood as a cooperation between interpretative frames and aspect perception. By relating such experiences with my examination of religious visions and visualizations (which is done in Chapter four), I argue that they can be viewed as the scientific and secular "version" of visionary experience.

6 Transportation and experiential imagination

6.1 Introduction

In the present chapter, the focus will be on the possible role that experiential imagination may play when subjects engage in scientific or religious practices. Although such engagement can take various forms, most attention will be given to thought experimentation and (in the religious case) ritual involvement.

Earlier in this dissertation, “experiential imagination” was described as imagining what it’s like for a specific person to undergo a particular experience. It was also stated that, to some extent, this overlaps with the phenomenon that Currie and Ravenscroft (2002) refer to as “recreative imagination”: an ability to recreate experiential perspectives. That is, the subject is able to project herself into an imagined situation and simulate the experiences that s/he would have.

An essential aspect to take into account, however, is that experiential imaginings can appear in relation to both real-world situations and engagement with fictional worlds. An example of the former is a situation where a subject recreates the mental states and experiences of a real person or entity. An illustration of the latter, by contrast, is someone recreating the existential perspective of a fictional character (for instance, when reading a novel). A key difference between these two scenarios, consequently, is that a person who is being transported into a fictional or a factual narrative follows “along the narrative trails blazed by an author”⁴³⁰, while in real-world situations of experiential imagination, the imaginer creates the simulated world by him/ herself.⁴³¹

In Chapters three and four, I referred to experiential imagination in relation to scientific and religious thought experiments (Sections 3.6 and 4.7) and religious rituals (Section 4.6). In connection with these sections, the narratological concept of “transportation” was introduced. It describes a situation in which an agent is transported into a fictional or factual narrative and becomes immersed in it. Following Kaufman and Libby’s (2012) terminology, the distinction between “experience-taking” and “perspective-taking” was mentioned. In the case of experience-taking, it entails spontaneously assuming the

⁴³⁰ Green and Donahue 2008: 251.

⁴³¹ This may also be the case when a subject engages in fictional worlds that don’t depend on an already existing narrative – for example, in some types of pretense play where the fictive scenario is created by the participants while playing.

identity of a character in a narrative and simulating that character's thoughts, emotions, behaviors, goals, and traits as if they were one's own. By contrast, in perspective-taking the activation of the reader's self is increased. Here, the reader uses conceptual knowledge about his/her own self to estimate how a protagonist might respond to or experience a situation.⁴³²

In the next chapter these concepts (transportation, experience-taking, and perspective-taking) will serve as analytical tools for my examination of the role that experiential imagination may play in science and religion. This discussion, in turn, will be related to the possible epistemic, creative, and meaning-making functions that imagination may have.

6.2 An elaboration on the concept of “transportation”

As has already been mentioned, transportation may involve different levels of self-involvement on the reader's part. However, in the case of experience-taking (where the reader “assumes the identity of a character in narrative”) it is not to be equated with a metaphysical state in which the reader becomes identical with the narrated character. At the same time, it does involve a process in which the activation of his/her self-concept is reduced. According to Kaufman and Libby, this, in turn, enables the reader to expand his/her scope of experiences:

To live different lives and to experience novel personas through narratives require that we go beyond positioning ourselves as mere spectators of the events and connect to characters to such an extent that we instead step into their proverbial shoes and experience the story from their perspective, in essence imagining ourselves becoming those characters while we remain immersed in the world of the narrative.⁴³³

In perspective-taking, by contrast, the activation of the reader's self is increased. Here, the reader uses conceptual knowledge about his/her own self to estimate how a protagonist might respond to or experience a situation. (“How would I react if a similar thing happened to me?”).⁴³⁴

⁴³² Kaufman and Libby, 2012: 2

⁴³³ Kaufman and Libby 2012: 2

⁴³⁴ Not everyone agrees about the distinction between experience- and perspective-taking. This is particularly the case with a number of psychological studies that examine how agents in general (in real-world situations, and not only in relation to narratives) are able to estimate the point of view of other individuals. Here it is perspective-taking that is the prime focus. Rather than referring to experience-taking, Davis et al. (1996), for example, argue that the merging of self and other is due, at least in part, to self-related information. That is, in order to be able to imagine another's point of view, it is likely that agents estimate what their own thoughts and feelings would be in a similar situation (by, for instance, recalling relevant experiences from the past). Through this process, the thoughts and feelings about a person become, in some sense, more “self-like”.

In contrast to Kaufman and Libby, I would like to problematize a too-strict distinction between experience- and perspective-taking. In particular, I argue that self-involvement is a necessary element in both of them. That is, when a subject recreates the experience of a narrated character, his/her experiential imagination is informed – but not limited – by his/her own self. This argument, consequently, goes against the idea that imagination is an absolutely “free” mental capacity. Instead, it correlates positively with Thomas Ward’s (1994) hypothesis about “structured imagination.”⁴³⁵ In his experimental and theoretical work, Ward proposes that our imagination is often constrained by our existing conceptual structures. Imagination, in this case, is used in a restricted sense, and refers to the mental generation of some novel entity. Thus, when subjects create “a new member of an already known category for an imaginary setting,” it entails – according to Ward – that “their imagination is structured by a particular set of properties that are characteristic of that category.”⁴³⁶

As an illustration, Ward refers to a study in which college students were asked to imagine extra-terrestrial animals. When creating these imaginary creatures, the participants of the study were guided by their existing conceptual knowledge. As a result, their creatures possessed attributes that were characteristic of earth animals (for example, having legs and sense organs) rather than having more deviant and original designs. I argue that our self-concept, in a similar way, puts some constraints on our ability to recreate the experiential perspective of narrated characters as well as real-world subjects. That is, in order to accomplish this task, it is necessary that a subject at least have some idea of what that experience is like. It is not required that s/he has experienced it in person, or that his/her own experiences exactly correspond to those of the narrated character. Nevertheless, if the subject totally lacks an experiential category for the mental states and emotions that s/he is supposed to recreate, it will be difficult for him/her to be transported into that kind of experience.

At the same time, I agree with Kaufman and Libby (2012) that experience-taking, in some sense, enables us to transcend the limitations of our experience. This conforms, for example, to Martha Nussbaum’s (1997) view that, by reading literature, we can train our ability to imagine what it might be like to be in the shoes of a person different from ourselves. A subject who combines his/her imaginative ability with factual knowledge thus – according to Nussbaum – becomes “an intelligent reader” of another person’s story.⁴³⁷

⁴³⁵ See also De Cruz and De Smedt 2010; De Cruz 2013.

⁴³⁶ Ward 1994: 1.

⁴³⁷ According to Nussbaum, this kind of “narrative imagination” is an essential aspect in the education for democratic citizens:

“Becoming an educated citizen means learning a lot of facts and mastering techniques of reasoning. But it means something more. It means how to be a human being capable of love and imagination. We may continue to produce narrow citizens who have difficulty understanding people different from themselves, whose imaginations rarely venture beyond their local setting. It is all too easy for the moral imagination to become narrow in this way” (Nussbaum 1997:14).

In my own approach, therefore, I want to acknowledge that our experiential imagination has a dual character: it is both constrained (by our already existing experiential categories) and, simultaneously, it has the capacity to transcend this limitation. Helen De Cruz and Johan De Smedt (2010) venture in a similar direction when they apply Ward’s concept of “structured imagination” to scientific creativity. According to them, a possible strategy for scientists to overcome conceptual constraints is to engage in analogical thinking. Analogies have a capacity to alter or widen our conceptual space, they argue. De Cruz and De Smedt distinguish, however, between “near” and “distant” analogies. In the former case, the target and source are from closely related domains⁴³⁸; in the latter case, they come from diverging domains.⁴³⁹ Although science mainly works within the bounds of its conceptual structures,⁴⁴⁰ distant analogies can, in some cases, generate conceptual change (or “paradigm shifts”):

By presenting problems in terms of a different ontological category (e.g., the phrasing of organic functions in mechanical rather than biological terms), scientists can overcome their intuitive assumptions (e.g., vitalism) and offer solutions that are not possible in the original conceptual space.⁴⁴¹

On this basis, I argue that narrated scenarios may function in ways that resemble both near and distant analogies to the reader’s own experiences. That is, whereas the former can be compared with perspective-taking (invoking the reader’s own experiential categories), the latter is related to experience-taking (where the reader’s self-concept is reduced). In most cases, however, narratives are constituted by a combination of familiar as well as unknown features. When narratives contribute to belief-change, it is, for example – according to Green and Donahue (2008) – often because readers are able to “integrate the lessons from story events into their own belief systems.”⁴⁴² That is, even if the narrated events transcend the reader’s experiences, s/he must be able to “translate” these events so that they make sense in his/her own world. Thus, if the happenings of the story seem like personal experiences, it is more likely that they will effect belief-change, Green and Donahue argue.

6.2.1 Transportation, propositional attitudes, and attention

In order to characterize the phenomenon of transportation, Samuel Kampa (2018) formulates an extension of Nichols’s and Stich’s conceptualization of what goes on in episodes of pretense (Section 2.3.2). According to them, engagement in pretense entails simultaneously attending to the contents of one’s

⁴³⁸ For example, an analogy between a well-understood virus to a lesser-understood virus.

⁴³⁹ For example, Kekulé’s analogy between a snake and a benzene ring.

⁴⁴⁰ Dunbar 1997; Lakatos, 1978.

⁴⁴¹ De Cruz and De Smedt 2010: 50.

⁴⁴² Green and Donahue 2008:251.

Possible World Box and one's Belief- and Desire Boxes. In Kampa's extended version of their account, by contrast, transportation attends, "exclusively to the contents of one's Possible World Box."⁴⁴³ That is, similar to Nichols and Stich, he understands transportation to involve a process in which tokens are filtered from the Belief-Box into the Possible World-Box. However, what distinguishes Kampa's proposal is that he argues that the filtering occurs outside one's cognitive attention.⁴⁴⁴ For this reason, according to Kampa, this process can be likened to a sort of forgetting:

...one does not *literally* forget one's beliefs during episodes of imaginative transportation; the contents of one's Belief Box remain unchanged. But it is like forgetting, in that one's attention turns away from one's actual beliefs and towards the beliefs, thoughts, and desires of one's character.⁴⁴⁵

In a similar way, Shen-yi Lao (2017) compares imaginative immersion with a shift in attention. As an illustration, he compares it with a spotlight that, while shining on one thing, loses sight of another. Rather than referring to an intermediate state between belief and imagination,⁴⁴⁶ it is – according to Lao – more accurate to say that people experience immersion when they don't attend to the mental states that ordinarily they would.

My own approach resembles Samuel Kampa's account, in particular. In agreement with him, I propose that imaginative transportation involves a cooperation between (a) propositional attitudes (imagination, belief, and desire) and (b) the mental capacity of attention. Although attention makes us "turn away" from our beliefs during imaginative transportation, we do not literally "forget" them, as Kampa puts it. Thus one may say that, in this case, attention is a constitutive part of "cognitive quarantine."⁴⁴⁷ Given this, I suggest that a shift in attention constitutes an essential part of the quarantine procedure through which an imagined state of affairs is "taken to have effects only within a relevantly circumscribed domain."⁴⁴⁸

⁴⁴³ Kampa 2018: 692

⁴⁴⁴ *Attention* refers to an ability to focus on one of many possible objects, thoughts, and actions. According to Waltz (2011), it is a selective and contrastive aspect of the mind that structures consciousness into foreground and background: "when you are attending to something you are contrasting what you pick out with what remains in the background" (Waltz, 2011: 843).

In the contemporary discussion, attention has, for example, been described as a broadcasting of information to working memory (Prinz 2005, 2011), or as a bias-and-competition process (Desimone and Duncan 1995). Thus it serves as "the selective filtering and processing of sensory information, although attention is not restricted to perceptual processes" (Montemayor and Haladjian 2015:2).

⁴⁴⁵ Kampa 2018: 692

⁴⁴⁶ See, for example, S. Schellenberg 2013.

⁴⁴⁷ See Section 2.3.2. Cognitive quarantine is mental mechanism by which the mental states of belief and imagination are kept apart.

⁴⁴⁸ Gendler 2012.

6.3 Experiential imagination and religious rituals

6.3.1 Ritual experience-taking and perspective-taking

My examination of the relationship between religious ritual and experiential imagination starts in with anthropologist Maurice Bloch's (2008) distinction between transactional and transcendental social behavior. According to him, religious phenomena can be explained by a capacity – unique to humans – to imagine other worlds and to transcend imaginatively the immediate local situation. This adaption is also the very foundation of the sociality of modern human society, Bloch argues. As transactional beings, we base our experiences on the interactions between individuals and groups, whose status is the product of continual manipulation in complex and dynamic social networks. The transcendental sociality consists, by contrast, of essentialized roles that exist separately from the individuals or groups who hold them.

What Bloch's hypothesis states, consequently, is that our view of individuals and groups is often influenced by a transcendent component that we add to material reality or immediate experience. As a result, we (as social beings) often "act...towards visible people in terms of their invisible halo."⁴⁴⁹ A person who, for example, upholds a certain role in a society (e.g., a village elder, a priest, a police officer, or a professor) is expected to act according to that role, and not as the individual person he or she is at any particular stage of the transactional social game. As an illustration, Bloch refers to the example of a Malagasy village elder whom he has known for a long time:

By now, he is old, physically weak and a little bit senile. He has difficulty in recognizing people. He spends most of his days in a foetal position wrapped up in a blanket. Yet he is treated with continual deference, consideration, respect and even fear. Whenever there is a ritual to be performed, he has to be put in charge so that he can bless the participants. When he is treated with great respect he is being behaved to, and he accordingly behaves towards others as a transcendental elder. This does not mean, however, that he is not also within the transactional social system. While as a transcendental elder he is little different to what he was when he was in his prime several years ago, as a transactional player he has lost out completely in the machiavellian game of influence, and nobody takes much note of him anymore or of his opinions since in the continual power play of daily life he has become insignificant.⁴⁵⁰

According to Bloch, this is an example of the essential role that ritual enactment plays in social environments that are both actual and imaginary, immanent as well as transcendent. In particular, it allows its participants to exist in what Driver (1998) refers to as "a kind of liminal space, at the edge of, or in the cracks between, the mapped regions of what we like to call "the real

⁴⁴⁹ Bloch 2008: 2060.

⁴⁵⁰ Bloch 2008: 2056.

world.”⁴⁵¹ Given this, I suggest that transcendental social behavior of this kind should be seen in light of what Kind and Kung (2016) refer to as “the transcendent” and “the instructive” use of imagination. While the former enables us to escape or look beyond the real world, the latter allows us to learn about the world as it is.⁴⁵² However, it is important to notice that there may be many different layers to a multifaceted concept such as “the world” – that is, it can concern a socially constructed universe as well as the material reality in which subjects live. Some would probably argue that the example of the Malagasy elder is primarily an illustration of the transcendent use of imagination. My own suggestion, nonetheless, is that transcendental social behaviour also serves an instructive purpose – although in a slightly different way than when imagination is used merely to instruct us about the physical world.

Owing to the “in between” character of rituals, individuals and societies can temporarily distance themselves from the usual social structure and undergo transformations of various kinds. As a result, ritual enactment enables participants to be transported into a fictive (while simultaneously “real”) universe. Richard Schechner (2013) points out that a similar thing can also be said about many other kinds of performances:

Actors, athletes, dancers, shamans, entertainers, classical musicians – all train, practice, and/or rehearse in order to temporarily “leave themselves” and be fully “in” whatever they are performing. In theatre, actors on stage do more than pretend. The actors live a double negative. While performing, actors are not themselves, nor are they the characters. Theatrical role-playing takes place between “not me ... not not me.”⁴⁵³

In the case of religious rituals, they often re-enact the central stories of a particular tradition or community. They consequently have a narrative substance into which the participants of the ritual are “transported.” Thus this kind of transportation is an activity in which the self is both reduced and increased, I argue; that is, it allows a subject to try on alternative selves (experience-taking) while simultaneously staying within the experiential categories that are provided by his/her religious tradition (perspective-taking).

As we have seen, Bloch (2008) mainly refers to the transactional roles that human beings play within certain socio-cultural contexts and communities. Nevertheless, there are many spiritual traditions in which material objects and non-human creatures are given transactional roles and to which transcendental components are added. For this reason, I propose that it is more accurate to use Bloch’s categories in a more extended way: allowing other types of transactional roles than those that are primarily limited to human beings. Furthermore, whereas Bloch focuses on the clearly defined socio-cultural roles of a

⁴⁵¹ Driver 1998:80.

⁴⁵² Kind and Kung 2016:1.

⁴⁵³ Schechner 2013: 72.

community (priest, police officer, and so forth), there are also ritual enactments in which it is privatized individual agents – rather than those who execute certain social functions – that are transcendently transported. This is the case, for instance, in many forms of New Age religion in which spiritual individualism is promoted.⁴⁵⁴

6.3.2 Ritual transportation in light of interactivism

In agreement with, for instance, Tom F. Driver (1998) and Victor Turner (1969), I propose that ritual enactment contains imaginative constructions that are performed in an “as if” mode. However, while such a procedure involves pretense behavior, the participants experience it as engagement in a real (but alternative) world. Consequently, this kind of ritual transportation makes use of a complex interaction between the attitudes of belief and imagination. Similar to Kampa (2018) and Liao (2017), I consider cognitive attention to play an essential role in such operations. Similar ideas have also been expressed by, for example, Jonathan Z. Smith (1987), and Richard Schechner (1988). Smith describes ritual practice as “a mode of paying attention”⁴⁵⁵: directing our attention in a special way, so that very ordinary objects are perceived as significant. Schechner, in turn, says about rituals that they are “not simply a doing but a showing of a doing.”⁴⁵⁶ The activity of “showing” can, in this case, be seen in light of Liao’s (2017) comparison between attention and a spotlight that, while shining on one thing, loses sight of another. Rather than making us to actually “forget” our actual beliefs, ritual enactment temporarily directs our attention away from them. At the same time, this is not an absolute escape, since our general beliefs about the real world still influence and inform the simulated scenario into which we are transported.

In light of the position of interactivism, I argue that religious rituals should be thought of as entailing a constant interplay between a variety of mental states and attitudes. This view draws upon earlier philosophical studies of the cooperation of beliefs and imaginings – in particular, Nichol’s and Stich’s cognitive theory of pretense (2000, 2003) and related work that their research has inspired. As a result, I am also influenced by Samuel Kampa’s (2018) advancement of Nichol’s and Stich’s theory, and its emphasis the role of cognitive attention in transportation.

⁴⁵⁴ Here it is the subject’s individual/private self – rather than the socially enforced self – that is transformed via transcendental transportation. The “central stories” that the religious ritual participant re-enacts may, in these cases, either be (a) privatized versions of an existing communal worldview, or (b) narratives that, from the beginning, have a specific individualistic character.

⁴⁵⁵ Smith, 1987: 103.

⁴⁵⁶ Schechner, 2013: 28.

On this basis, I propose that attention is a constitutive part of cognitive quarantine. This, in turn, makes my approach distinct from Susanna Schellenberg's (2013) claim that the norm of quarantine breaks down when subjects are immersed in fiction (Section 2.3.2.3). On the contrary: in my view, the process of quarantine is preserved. Nevertheless, I consider this cognitive mechanism to have a more subtle character than what is usually argued. Similar to Schellenberg I thus argue (a) that beliefs and imaginings play different functional roles in our cognition, and (b) that immersion in fiction is enabled by a seamless movement between imagination-like and belief-like states. This transition, in my understanding, is the result of a shift in attention. However, in contrast to Schellenberg, I argue that the mechanism of quarantine is maintained rather than dissolved. That is, whereas attention enables the transition between beliefs and imaginings, it also constitutes an essential aspect of the process by which they are distinguished from each other. As a result, a subject does not literally "forget" about his/her actual beliefs, but temporarily directs attention away from them. Thus this characterization is compatible with the position of interactivism, which stresses both the cooperation of and the distinction between the attitudes of belief and imagination.

6.3.3 Rituals, truth and understanding

In this section I shall return to Kevin Schilbrack's (2004) characterization of religious rituals as "truth-pursuing activities."⁴⁵⁷ Previously in this dissertation, the concept of truth has been used in a variety of ways. In Chapter four (Section 4.5.4), therefore, I suggested a distinction between two notions of truth: truth in a general sense (T-Gen) and existential truth (T-Ex). While both terms entail truth in a general sense, the latter is colored by the particular context of the truth claim in question – in this case, as being part of an individual's ambition to make the world existentially intelligible. Furthermore, I also introduced existential meaning-making (Ex-M), which is truth-independent. In the following, I shall relate T-Ex and Ex-M to Schilbrack's characterization of rituals as truth-pursuing.

As a first step in this procedure, it serves our purpose to discuss the notion of truth in light of the position of interactivism. According to this view, rituals (as well as human cognition overall) are characterized by a complex interaction between beliefs and imaginings. Whereas the attitude of belief has a critical relation to truth, the attitude of imagination does not. At the same time, the latter can be used in an instructive way by giving us access to certain aspects of reality that otherwise would be beyond our reach. This notion is, in turn, related to Catherine Elgin's concept of "true enough" (Section 3.4.1), I argue. In Elgin's case, she formulates these terms in relation to scientific models. Because of their ability to idealize and simplify, models of this kind do

⁴⁵⁷ Schilbrack, 2004: 140.

not mirror or replicate reality; instead, they offer exemplifications of certain features of the investigated target while downplaying others. However, even if models are merely “true enough,” they are essential for the scientific aim of making the world technologically and predictively intelligible, Elgin argues. As we can see, this approach deviates from a purely doxastic as well as a purely fictionalist view of models.

If we relate the concept of “true enough” to the area of religion, it can be combined with either a doxastic or a non-doxastic account (since both of these positions are truth-normed). In this case, the notion of truth that we are talking about is T-Ex. When applied to rituals, in turn, the true-enough characterization allows us to see them as truth-pursuing, even if, at the same time, they entail truth-independent mental states such as imagination. As an illustration, we can think of a subject who has a doxastic attitude towards a religious model and utilizes experiential imagination when s/he ritualizes the believed content. Something similar can also be said about a subject who has a non-doxastic view of models. In his/her case, the modeled content is considered to be an epistemic possibility, and – by utilizing experiential imagination – s/he is able to explore this possible world a bit further.

However, given that fictionalism lacks truth-normativity, the true-enough concept does not apply to a fictionalist’s engagement in religious rituals. At the same time, it may be the case that this individual engages in rituals as part of his/her (truth independent) existential meaning-making. This can, in turn, take two forms that either exist on their own or are combined with each other. On the one hand, the fictionalist (a) merely pretends to believe the religious framework that s/he ritualizes. This resembles the kind of involvement that we typically associate with games of make-believe. In this case, immersion may involve pretense and experiential imagination, but not truth-normed beliefs. On the other hand, the fictionalist (b) can consider the ritual to involve aspects that say something essential about the human condition. As an illustration, we can think of a person who takes part in a religious rite de passage. While s/he considers this ritual to be accurate in relation to the general human circumstance (the borderline state between two distinct life situations), she considers the interpretative frame of the ritual to be false.

If we return to Elgin’s concept of “true enough,” I interpret it as being consistent with interactivism. According to this position, religious engagement is not necessarily defined by one particular position or propositional attitude alone. Instead, a variety of mental states and attitudes interact, and a subject may take different stances towards separate aspects of a religious framework. In the latter case, this can mean, for example, that s/he has a doxastic attitude towards certain parts of a religious framework, and a fictionalist or non-doxastic approach towards others. However, in order for rituals to count as truth-pursuing – as Kevin Schilbrack suggests – it’s necessary that they are, in some sense, related to T-Ex.

In this regard, it is important to notice that the term “T-Ex” isn’t limited to the category of truth-normed beliefs. In accordance with this line of reasoning, Schilbrack gives an example of two persons who cut down trees with a two-person saw. Through this practice they can, according to Schilbrack, gain knowledge of themselves (for example, receiving an answer to the question “How strong am I?”) or the world (concerning the sharpness of the blade, the hardness of the wood of the tree, and so forth). In a similar way, ritual engagement can involve epistemic gain of various kinds, Schilbrack argues. I suggest, in turn, that “religious understanding” is the proper epistemic term to use in relation to religious rituals. In Chapter four I referred to this epistemic state in relation to religious thought experiments (Section 4.7.3). I suggested that understanding entails a multifaceted grasping of a state of affairs, rather than knowing isolated pieces of information. For this reason, the state of understanding includes both doxastic and practical elements.

While there are different views on the truth-normativity of understanding, I have previously argued (in Sections 3.6.3.1, 4.7.3) that it is an epistemic state that can entail truth-normed as well as truth-independent aspects. For this reason, it is an epistemic term that fits particularly well with the interactive view of rituals. I suggest, furthermore, that the state of understanding is positively correlated with the phenomenon of transportation. Through this imaginative procedure, the ritual participant is transported into a transformed reality. In some cases, this involves a simulation of what it would be like to be another person or living being (for example, a prominent character in the ritualized religious narrative). At other instances, it entails the ritualization of everyday life – for example, as a way to practice attentive awareness and prayer. As an example of the latter, we can think of Benedict of Nursia’s rule of *ora et labora*, in which prayer and work are combined in a contemplative and repetitive daily rhythm. The aim of this practice, as Benedict describes it, is to encourage “prayer without ceasing.” As a result, that practitioner’s everyday occurrences are colored by a transformative vision (to use John Cottingham’s term) and an embodied grasping of how the religious framework relates to his/her own daily life. This aspect corresponds, in turn, to Schilbrack’s characterization of rituals as sites of inquiry and exploration that can give rise to a variety of epistemic gains:

Some of the things that one learns by participating in ritual will be about oneself. When I engage in this practice, what about me is changed? My original desires? My will? My habits? What in me resists this change and needs to be surrendered?...And some of the things one learns will be about the world as the context of one’s action: about storms and diseases and about food and music—and ultimately practices can serve as opportunities for inquiry about the super-empirical resources that make the practice successful.⁴⁵⁸

⁴⁵⁸ Schilbrack 2014: 46.

In contrast to most forms of knowledge, understanding of this kind is not directly conveyed by the testimony of someone else. Even if testimonies can give the basis for this epistemic state, understanding, according to Michael Patrick Lynch (2017), is “something you must do for yourself.”⁴⁵⁹ In line with this way of reasoning, Cynthia Bourgeault (Episcopal priest, writer, and modern-day mystic) explains the importance of embodied understanding in religion:

You can’t learn to ride a bike by thinking about it or reading about it or talking about it; you have to do it to understand. The knowledge is in the body. The body carries affirming force to comprehend what the mind does not.⁴⁶⁰

In a similar way, Paulina Sliwa (2018) emphasizes the relationship between faith and ritualized action. According to her, faith is a complex mental state that goes beyond doxastic states in relation to particular propositions. What is often lacking in the philosophical discussion about faith, as Sliwa sees it, is that it also entails conative states and know-how. In relation to the latter, she argues, faith is a practical knowledge that echoes the structure of moral virtue. In order to become virtuous we do virtuous deeds. Acquiring faith is, in a similar way, a matter of performing acts of faith. These acts – according to Sliwa – require that the involved agent has the right kinds of desires and the relevant know-how. In light of this perspective, Sliwa offers an alternative interpretation of Blaise Pascal’s advice to the religious agnostic (Section 5.2.5.2). If such a person would like to have faith, Pascal argues, s/he should take part in religious practices as if s/he believes in God. Typically this passage is interpreted as advice to pretend that one has belief. Sliwa finds such a reading suspect, and questions whether a subject really can acquire a belief that *p* simply by pretending to believe that *p*. According to her, Pascal’s advice is not primarily concerned with the doxastic element of faith but, on the contrary, with the relevant know-how:

Of course, this practical knowledge alone is not sufficient for having religious faith. Nevertheless, it’s a necessary component. And so, following [Pascal’s] advice, we can come to acquire a component that’s a necessary condition for having religious faith.⁴⁶¹

Religious engagement, from this perspective, is not necessarily the same as having warranted beliefs about God. Instead, it involves a variety of other elements – for example, ritual practices – and an ability to “navigate and inhabit a certain life-world of which these [practices] are a part.”⁴⁶² In this regard, it

⁴⁵⁹ Lynch, 2017:206.

⁴⁶⁰ Bourgeault, in Pryce 2018:170.

⁴⁶¹ Sliwa, 2018: 262.

⁴⁶² Cueno, 2014: 374.

relates to Wayne Riggs's characterization of understanding as a deep appreciation or grasp of how the parts of a subject matter "fit together, what role each one plays in the context of the whole, and of the role it plays in the larger scheme of thing."⁴⁶³ It also relates to Linda Zagzebski's linking between understanding and *techne*(skill).

Understanding makes its bearer reliable in carrying out the goals of the *techne*, some of which are not epistemic goals. It enables him to produce a flakey pastry, repair an automobile, design a bridge that will not collapse, or figure out why the vintner failed this year. This means that understanding is a property of persons. It is not carried by propositions or states of belief.⁴⁶⁴

6.4 Thought experiments and experiential imagination

In the sections on scientific and religious thought experiments (Sections 3.6, 4.8) I presented three different views on the kind of imagination that is operative in thought experimenting. According to *the imagistic approach*, it is a procedure that is primarily enabled by sensory (visual) imagining. *The propositional approach* holds, by contrast, that thought experimenting can occur without the presence of any mental imagery. According to this view, mental operations of this kind only require propositional imagination, whether as cases of counterfactual reasoning, make-believe/pretense, or supposition.⁴⁶⁵ A third way of approaching thought experimentation – *the experiential approach* – holds, in turn, that this includes a recreation of experiential perspectives. That is, while such procedure may include sensory imagining and propositional imaginings, it allows us, above all, to understand what it would be like to experience a certain situation. For this reason, experiential imagination is said to play an essential role in thought experimenting.

However, the view that is promoted in this dissertation is that these categories don't preclude one another. By contrast, it is more accurate to say that they apply to different kinds of thought experiments. That is, while some cases of thought experimentation only make use of a propositional kind of imagination, others are characterized instead by their use of mental imagery or experiential imaginings. One way to compare scientific and religious thought experimentation, consequently, is to examine whether either of them has a closer connection to one of these categories. In this case, I am particularly interested in their relation to experiential imagination.

⁴⁶³ Riggs, 2003:217.

⁴⁶⁴ Zagzebski, 2001: 245.

⁴⁶⁵ In the latter case, however, there is a lack of consensus among philosophers concerning the exact nature of supposition (Section 2.3.1). While some argue that it is a kind of imagining, others hold that it should be thought of as a propositional attitude that is distinct from imagination. The position taken in this dissertation is in line with the former group.

In ritual engagement, imagination of this kind is associated with a multifaceted and embodied type of transportation through which the interpretative framework of a tradition/community becomes a lived existential reality for the ritual performer. However, since rituals belong to a religious rather than scientific context, it gives us reason to explore whether experiential imagination can be found elsewhere in scientific practice. That is, are there other activities in which scientists take part that require them to recreate experiential perspectives? In the present section, I explore and problematize whether thought experimentation may be one such activity. Common to both rituals and thought experiments is their relation to narratives – either as enacting central narratives (rituals) or as having a narrative structure themselves (thought experiments). Of particular interest, however, is whether they relate to the phenomenon of “transportation” in similar or distinct ways. Furthermore, it serves our purpose also to compare the possible role that transportation may play in scientific and religious thought experimentation respectively.

In addition to the imagistic, propositional, and experiential approaches, some authors describe thought experiments as cases of literary fiction.⁴⁶⁶ However, even if some cases of literary fiction may function in a thought experimenting way,⁴⁶⁷ there are also aspects on which thought experiments and literary fiction differ from each other. For example, whereas the purpose of a thought experiment is typically exhausted by the role it plays in theoretical argumentation, literary works seem to have a variety of functions. As pointed out by David Egan (2016):

We read literature with a degree of openness: we remain alert and attentive to the ways the text might surprise us, provoke unexpected thoughts, insights, feelings, and so on. None of this is required, or even expected, when we read thought experiments. Reading a thought experiment might provoke thoughts, insights, or feelings beyond what is needed for the argument at hand, but these additional responses are accidental outcomes rather than central to the experience of reading a thought experiment.⁴⁶⁸

Given this, it looks as if transportation into literary fiction entails a more all-embracing and multifaceted experience than engagement with scientific thought experiments does. In many cases, the latter has more to do with instrumentally “accepting” the reality claims of the thought experiment (in order to be able to experiment with the proposed scenario) than with a full-blown transportation into these experiences. In the sections that follow I shall argue nonetheless that some cases of thought experimentation do indeed require experiential imagination and transportation of a more extensive kind.

⁴⁶⁶ For example, Davenport, 1983; Walton 1990; Swirski, 2007; Davies, 2007, 2010; Elgin 2014.

⁴⁶⁷ For example Malm Lindberg, 2019.

⁴⁶⁸ Egan, 2016: 143.

6.4.1 Scientific thought experiments

In this section I shall investigate to what extent scientific thought experimenting may entail experiential imagination. That is, does it include the re-creation of experiential perspectives, and – if so – how should we understand this kind of transportation? However, as we can tell from the overview in Section 3.6.2, there are many different kinds of thought experiment. According to James Brown (1991/2011), for example, we can distinguish between two general types – namely, destructive⁴⁶⁹ and constructive⁴⁷⁰ ones. Furthermore, it is typically the case that scientific thought experiments perform various functions at different times or for different people. That is, in one instance a specific thought experiment may function as a tool for refuting a theory and, on another occasion, it may serve as a pedagogical device for illustrating an otherwise complex and abstract position.

For this reason, it's difficult to say something about experiential imagination that applies to all types of scientific thought experiments. The chosen strategy of this section, therefore, is to focus on one well-known thought experiment from the discipline of physics (Albert Einstein's thought experiment of how he pursues a beam of light) and to discuss it in light of the category of experiential imagination. Because of this limited scope, such an investigation cannot lead to conclusions about scientific thought experimentation as a whole. The aim, rather, and in a more modest way, is to explore and problematize the concept of transportation in relation to scientific research on natural phenomena.

6.4.1.1 What it is like to be a bat?

In section 1.6.1, the distinction between *a priori* knowledge and *a posteriori* knowledge was presented. In the former case, justification is independent of empirical experience. In the latter case, justification – on the contrary – depends on empirical experience and evidence. Since thought experiments takes place in the laboratory of the mind, they clearly belongs to the *a priori* category. Accordingly, when we talk about “experiential imagination” in relation to thought experimentation, it is not empirical experiences to which we refer but, rather, operations that only take place in the experimenter's own mind.

⁴⁶⁹ Destructive thought experiments present internal or external problems for a given framework. Among them we find so-called counter-thought experiments that question whether a phenomenon that another thought experiment has established really would obtain. One example of the latter is Niels Bohr's counter-thought experiment relating to Albert Einstein's *clock-in-the-box* thought experiment (Brown, 1991/2011:33-35, 48-66, 2007).

⁴⁷⁰ Constructive thought experiments offer support to a theory or framework. This can, however, be done in a variety of ways. In some cases this kind of thought experiment serves a pedagogical or rhetorical role; in other instances it constructs theories on its own. An example of the latter is *Newton's bucket*, which was designed to demonstrate that true motion can only be defined by reference to absolute space (Brown 1991/2011: 35-38).

As mentioned earlier, such involvements may take the form of visual imagery, non-imagistic suppositions, or recreations of experiential perspectives. In the case of the last category, however, it is important to notice that experiential imaginings can take two different forms. On the one hand, they may involve (a) a recreation of the experiences of a character in a factual or fictive scenario. In the case of thought experiments, we have a situation where the narrated scenario is fictive while – at the same time – it aims to have relevance for a real-world state. This can, for instance, take the form of a thought experiment that imaginatively recreates the experiences of a certain entity in the natural world.

On the other hand, it could mean that the imaginer (b) recreates the experience of him/herself observing the narrated entity in question. An example of this is a thought experiment such as Schrödinger's cat, in which the thought experimenter recreates the experience of seeing the box in which the (dead or alive) cat is situated, rather than imagining the experiences of the cat itself. In this case, the cat only serves as a pedagogical and rhetorical feature that illuminates certain aspects of the Copenhagen interpretation of quantum mechanics.

When discussing category (a),⁴⁷¹ it's necessary to problematize whether, in fact, it is possible to recreate the experiential perspectives of all forms of entity that the natural world contains. This difficulty is emphasized, for example, by Rachel Carson (1937) in an essay in which the author denies – while simultaneously pursuing – the possibility of imagining the experiential worlds of underwater animals:

Who has known the ocean? Neither you nor I, with our earth-bound senses, know the foam and surge of the tide that beats over the crab hiding under the seaweed of his tide pool home; or the lilt of the long, slow swells of mid-ocean, where shoals of wandering fish prey and are preyed upon, and the dolphin breaks the waves to breathe the upper atmosphere. Nor can we know the vicissitudes of life on the ocean floor, where the sunlight, filtering through a hundred feet of water, makes but a fleeting, bluish twilight, in which dwell sponge and mollusk and starfish and coral, where swarms of diminutive fish twinkle through the dusk like a silver rain of meteors, and eels lie in wait among the rocks. Even less is it given to man to descend those six incomprehensible miles into the recesses of the abyss, where reign utter silence and unvarying cold and eternal night.⁴⁷²

Scientific studies of living things (human as well as non-human entities) typically involve attempts to understand the conditions that regulate the existence of these entities. However, in order to recreate their experiential perspectives, a necessary requirement is that the object of our study is a life form that is

⁴⁷¹ A thought experiment that recreates the experiences of a character in a factual or fictive scenario.

⁴⁷² Carson, 1937: 55.

capable of having physical and/or mental experiences. In the latter case, this may in turn entail cognitive processes such as consciousness, intellect, perception, emotion, agency, will, and so forth. Whereas it can be difficult enough (or even impossible) to recreate the experiential perspectives of other fellow human beings, it is undoubtedly even more challenging to get access to the experiences of entities that have other physical and mental constitutions than ourselves.

This aspect is emphasized, for example, in Thomas Nagel's (1974) paper, "What is it like to be a bat?" It was written as part of a broader claim about the nature of consciousness and the inaccessibility of other minds. As an illustration, Nagel refers to an encounter between humans and microbats that use echolocation (sonar) to navigate their environments. According to Nagel, "[e]ven if I could by gradual degrees be transformed into a bat, nothing in my present constitution enables me to imagine what the experiences of such a future stage of myself thus metamorphosed would be like."⁴⁷³ That is, even knowing all the objective facts about bats, we cannot know what their subjective experience is really like.

In contrast to Nagel's account, narratologist David Herman (2018) explores how storytelling practices accommodate to nonhuman subjects and their modalities of experience. By suggesting a "narratology beyond the human," his aim is to underscore the interconnectedness between humans and other creatures. Given this, Herman investigates how different strategies for portraying nonhuman agents can contribute to a broader attitude towards animal life. At the same time, he acknowledges the severe risk of anthropomorphism in such a project. In light of Libby and Kaufman's (2012) account, I argue that it may, for instance, be asked whether it can result in anything else than "perspective-taking." That is, if a person uses conceptual knowledge about his/her own self to estimate how another entity might respond to a situation, it is plausible that s/he creates an anthropomorphized version of such experiences.

In this dissertation, Nagel's and Herman's claims serve as a background to my discussion of scientific thought experiments whose aim is to recreate the experience of a narrated character (in this case, a non-human subject). However, while the aim of many cases of fictive literature is to recreate the experiences of non-human creatures, this is not typically the aspiration of most scientific thought experiments. Instead, a more common strategy is that the thought-experimenting scientist imaginatively positions him/herself as an experiencing subject in order to simulate the possible behavior pattern (but not the experiential perspective) of the investigated targets. However, since this is a more distanced and neutral kind of approach, it can be carried out by propositional imagination (that may or may not include mental imagery) just as

⁴⁷³ Nagel, 1974: 439.

well as experiential imaginings. It could, for example, be the case that a scientist merely supposes that something is the case, and then hypothesizes about how relevant aspects of this state of affairs may develop.

Thought experiments of type (b)⁴⁷⁴ are particularly relevant for scientific branches whose objects of investigation lack the physical and mental requirements of having what we, in general, refer to as “experiences.” This is the case in physics, for instance, where the objects of study are those of matter, its motion through space and time, and related entities of energy and force. In chemistry, it is rather the composition, structure, properties, and behavior of atoms, molecules, and ions that are of prime interest. This is the case, for example, in the thought experiment of Newton’s bucket, in which the thought experimenter recreates the experience of seeing how a bucket filled with water and hung by a cord behaves under certain circumstances (Section 3.6.2). According to Nancy Nersessian (1992b, 2007), such a procedure involves the manipulation of a mental model. By engaging in such “simulative reasoning,” Nersessian argues, scientists such as Tesla, Maxwell, and Einstein have been able to provide novel empirical data.

In what follows, I shall take a closer look at one thought experiment that contains experiential imaginings of this kind: Albert Einstein’s simulation of what it would be like to pursue a light beam.

6.4.1.2 Einstein’s light beam-experience

In *Autobiographical notes* (1949), Albert Einstein recounts in retrospect how, as a sixteen-year-old boy, he imagined himself pursuing a light beam:

...a paradox upon which I had already hit at the age of sixteen: If I pursue a beam of light with the velocity c (velocity of light in a vacuum), I should observe such a beam of light as an electromagnetic field at rest though spatially oscillating. There seems to be no such thing, however, neither on the basis of experience nor according to Maxwell's equations. From the very beginning it appeared to me intuitively clear that, judged from the standpoint of such an observer, everything would have to happen according to the same laws as for an observer who, relative to the earth, was at rest. For how should the first observer know or be able to determine, that he is in a state of fast uniform motion? One sees in this paradox the germ of the special relativity theory is already contained.⁴⁷⁵

As we can see, Einstein himself writes that this imagining was influenced by two essential factors. One the one hand, (a) in his imagination he recreated the experiential perspective of what it would be like to travel so fast that he caught up with a light beam; and on the other hand, (b) this experience in turn presented serious problems for the theoretical framework available at the time

⁴⁷⁴ A thought experiment in which the thought-experimenting agent recreates the experience of him/herself observing the narrated entity/entities in question.

⁴⁷⁵ Einstein, 1949: 52-53.

(Maxwell's equations). In terms of (a), however, it should be noticed that this characterization goes beyond having purely mental imagery of the imagined scenario. That is, although Einstein's thought experiment clearly involves visual elements, it is above all its experiential character that lends it a certain persuasive force.

A relevant distinction can be made, nevertheless, between the original thought process of young Einstein (in which he imaginatively simulated the experience of travelling on a light beam), and the narrated thought experiment that he later made public. That is, of which of them can we accurately say that the actual "experimentation" is carried out? The question doesn't become any easier if we also consider the fact that the theoretical "breakthrough" to which Einstein's thought eventually contributed, came years after his initial experience.

Consequently, I suggest that the light-beam experiment was generated through a two-stage-process: at the primary level of thought experimentation, a problem is identified in Einstein's own imagination. However, it is not until the second level (taking place after a period of reflection) that the experience turns into a narrated illustration of a certain theoretical framework. Therefore, even though second-level thought experimenting might generate understanding in a wider audience, it now has the form of a "guided experience" rather than the first-hand experience the initial "imager" had. Thus, even if both primary- and second-level thought experimentation recreated the experiences of a person travelling on a light beam, the former would assimilate our own imagination into the narrative trails blazed by the author.

In second-level thought experimenting of this kind, consequently, we have a scientific practice that incorporates both narrative elements and the re-creation of experiential perspectives. This obviously contradicts the argument that science only involves abstract, logico-deductive reasoning. Rather, it is consistent with David Herman's (2008) proposal that we should also explore the possible role of stories in shaping putatively non-narrative modes of explanation. As an example, Herman compares the role of the observer in quantum theoretical experiments with the impossibility of narration without a viewpoint. Given this, he proposes that explanations based on qualia need to be construed as intrinsic to the work of science:

Such qualia based explanations involve the impact of events on the real or imagined consciousnesses that register them; they can thus be argued to share with stories the core feature of experientiality. At the very least, this example again suggests the importance of dovetailing microstructural with macrostructural accounts of the relations between narrative and science. At issue here is how the ineliminability of the observer's role in theoretical experiments—a structural requirement that invites comparison with the impossibility of narration without a viewpoint—bears on strategies for constructing scientific

knowledge claims as detached from particular perspectives and their attendant biases.⁴⁷⁶

6.4.2 Religious thought experiments

In Chapter four (Section 4.7.2.1) I distinguished between two categories of thought experimentation. In the first group, we find narratives that are given their thought experimenting function in retrospect (RTE¹). The second category, in contrast, consists of narratives that were intentionally designed to have “thought experimenting qualities” (RTE²). In the latter group, for instance, we find thought experiments that are characterized by their argumentative and critical use of reason in combination with a content that has religious relevance.

Furthermore, it was argued that the category “religious thought experimentation” is somewhat elusive, and thus is able to take various forms and/or combine characteristic features of different kinds of narration and reasoning. As a way to broaden the conceptualization of religious thought experiments even further, I suggested that there are specific kinds of religious thought experiment that are more concerned with the imaginative recreation of experiential perspectives than with purely philosophical argumentation. As an example I referred to *The Spiritual Exercises of St. Ignatius*. Here the attendant is asked to place him/herself imaginatively in a Gospel setting and to recreate the experiential perspectives of the characters present. That is, while Jesus, Lazarus, or Mary Magdalene (or some other character) serve as scriptural models for the involved agent, they don’t function as a thought experiment until s/he imaginatively and spiritually engages in – and is challenged by – this new identification.

In the next section, I shall focus specifically on narratives that belong to the category RTE¹. By doing so, I am able to examine thought experimenting behavior that is already part of a certain religious environment (while not necessarily being referred to as “thought experiments” in these contexts). That is, while such narratives don’t have exactly the same features and functions as their scientific counterparts, they do invite the participant into a specific kind of “imaginative experimentation.” This procedure, in turn, is constrained by the theoretical requirements, aims, and underlying background assumptions that each religious tradition sets. This means, in particular, that they are connected to the thought-experimenting agent’s life situation as a whole and to his/her aim for existential intelligibility.

⁴⁷⁶ Herman, 2008: 466-467.

6.4.2.1 Religious thought experiments and understanding

In Section 4.7.3, religious thought experimentation was associated with religious understanding. Instead of merely knowing isolated pieces of information, understanding requires that a subject “grasps” the relationships within the particular object of understanding. According to Wayne Riggs’s definition, it is an epistemic state that “requires a deep appreciation, grasp, or awareness of how its parts fit together, what role each one plays in the context of the whole, and of the role it plays in the larger scheme of things.”⁴⁷⁷

Something similar can also be said about meaning-making (Ex-M), I argue. That is, it is a procedure that “connects things” and enables an awareness of the possible relationships among things, events, and relationships.⁴⁷⁹ At the same time, the discussions about understanding are typically more concerned with factivity than what discussions about meaning-making are usually are. In the latter case, the primary focus is on how “meaning” functions in people’s lives rather than its possible truth status. What religious understanding and meaning-making have in common, however, is that both relates to the overall aim of religious practice – namely, to make the world existentially intelligible.

In what follows, I shall return to The Spiritual Exercises of St. Ignatius and discuss them in light of the concept of religious understanding. I shall also examine what role that experiential imagination may play in this process.

As a way to broaden the conceptualization of religious thought experiments, I suggested – in Section 6.4.2 – that The Spiritual Exercises enable a thought-experimenting procedure that is more concerned with the imaginative recreation of experiential perspectives than with purely philosophical argumentation. That is, they are concerned with “what it would be like” to have the experiences and commitments of certain biblical characters. If a religious narrative is to function in this kind of thought-experimenting manner, it is necessary that the reader be able to see his/her own life in continuity with the narrative. . In order for this to take place, I propose that experiential imagination is an essential component.

As a way to illustrate this claim, I shall now take a quick detour to the historical debate about the analogous relationship between sensory, imaginative, and spiritual senses. This debate arose from the fact that, throughout history, many authors have used sensory language in order to express encounters with the divine.⁴⁸⁰ For this reason, some theologian argued that our corporeal senses of sight, hearing, taste, and touch have analogical spiritual counterparts. That is, while the corporeal senses are said to apprehend physical objects, the

⁴⁷⁷ Riggs 2003: 217.

⁴⁷⁹ Baumeister 1991: 15.

⁴⁸⁰ Church Father Origen of Alexandria (c.184-c. 253) talks, for example, about “the divine senses of the inner man” (drawing on Rom 7:22, 2 Cor. 4:16), and in his writings he employs a number of sensory terms. Among other things, Origen asks the reader to see God with “the eyes of the mind,” speak with “bodiless voice,” to “smell with no sensible organs of perception,” and so forth (Gavrilyuk and Coakley 2012).

spiritual senses are said to perceive spiritual and extra-corporeal entities. Thus, according to authors such as Augustin Poulain (1950), Karl Rahner (1979 a, b), and Hans Urs von Balthasar (1982), the descriptions of mystical encounters with God should be understood as analogical rather than metaphorical. From their perspective, the operation of the spiritual senses is akin to the operation of physical sensation. That is, when we see, touch, taste, or hear God, we are engaged in a sensory relationship, although a spiritual one.

Of special interest for this dissertation is the differentiation between the spiritual and the imaginative senses that some of these theologians in this debate have made. When applied to religious practices such as The Spiritual Exercises, it has become a matter of dispute. In particular, this concerned the passage where Ignatius of Loyola speaks about “the application of the senses” and “the sight of imagination” (Section 4.1.2). What theologians such as Achilles Gagliardi (1882) and Juan Polanco (1955) disagreed on, consequently, was whether these exercises were supposed to involve the spiritual *or* the imaginative senses. According to Gagliardi, it is plausible that Ignatius spoke about the spiritual senses – particularly since the application of “senses” occurs in the context of prayer. Polanco’s contrary opinion was that it is possible to interpret the passage as referring to both options. For him, the choice of interpretation depends rather on how experienced in prayer the practitioner is. For someone with little experience, “the application of the senses” refers to the imaginative senses. By contrast, someone who is more practiced makes use of the spiritual senses.⁴⁸¹

The view that most clearly resembles the interactive view (which this dissertation promotes), however, is the one expressed by Hans Urs von Balthasar. In contrast to both Gagliardi and Polanco, he didn’t see it a choice of either imaginative or spiritual senses. Instead, he acknowledged that “attunement” to the mysteries of salvation requires a continuity between the two of them. The application of imagination to the mysteries of faith in turn results – according to von Balthasar – in a specific kind of spiritual prayer:

The ‘attunement’ of man to the mysteries of salvation plays the greatest roles in the Spiritual Exercises: man’s disposition is to ‘correspond’ and be harmonized, and this correspondence must be prayed for; however, as far as possible it must be created and acquired by man himself so that, in his spiritual-sensual totality, man may come to experience and realize the contemplated mysteries by ‘applying his five senses’ to it.⁴⁸²

The continuity between the spiritual and the imaginative senses, I argue, relates in turn to an interaction between religious beliefs and imaginings. That is, whereas beliefs provide the starting point for the thought-experimenting agent, experiential imagination transforms the doxastic content into sources

⁴⁸¹ McInroy 2012: 21; Gavriilyuk and Coakley 2012.

⁴⁸² Balthasar, 1982: 298.

of religious understanding and/or meaning-making. By imaginatively experiencing what it would be like to have certain experiences, The Spiritual Exercises thereby enable a multifaceted grasp of, rather than merely knowing, isolated pieces of information.

One way to describe this thought-experimenting procedure, therefore, is to say that it functions as an “interpretative frame” that enables us to make sense of reality in a certain manner (either as understanding or as meaning-making). However, within the constraints that the narrative sets, the thought-experimenting agent is able to try different perspectives on – and responses to – the narrated content. Depending on how s/he approaches this procedure, it can entail a varied number of imaginative and spiritual elements. In this case, I interpret the concept of “spiritual senses” as having a critical relation to T-Ex. For this reason, a purely fictionalist engagement in thought experiments can be part of an individual’s existential meaning-making (for example, as a way to explore the human condition) but not of a genuine spiritual quest. At the same time, it is a procedure that – as von Balthasar argues, for example – requires an interaction between spiritual senses (which I interpret as being truth-normed) and imagination (which doesn’t have truth as its constitutive aim).

Similar to my discussion of religious rituals (Section 6.3.3), I therefore argue that this operation can be seen in light of Catherine Elgin’s concept of “true enough” and Amy Kind’s and Peter Kung’s distinction between the transcendent and the instructive use of imagination. In Chapter four, I associated these phenomena with “religious seeing” (which, in turn, entails a dynamic between interpretative frames and aspect perception). Influenced by Zagzebski’s suggested link between understanding and *techne* (skill) I also argued that religious understanding entails a specific kind ritual know-how (Section 6.3.3). One of the necessary skills that religious understanding involves, consequently, is an ability to be transported into the narrative content of a ritual. In the case of religious thought experiments (belonging to the category of RTE¹), I propose that they require transportation of a similar kind.

It is important to notice, however, that the concepts of true enough, the transcendent/instructive use of imagination, interpretative models, and aspect perception can be accurately applied to a scientific setting as well. In Chapter seven I shall return to this issue and discuss the possible resemblances and/or differences between how these phenomena occur in scientific and in religious environments. However, before doing so, it is necessary to return to the question that was posed in Section 6.4 – that is, do scientific and religious thought experiments relate to the phenomenon of “transportation” in similar or distinct ways?

6.4.3 Experiential imagination in science and religion

In this chapter, I have given special attention to the use of experiential imagination in religious rituals and in scientific and religious thought experiments. However, it has not been argued that experiential imagination is operative in all kinds of thought experimentation. For this reason, I mentioned in Chapters three and four that one can distinguish between an imagistic, a propositional, and an experiential approach to thought experiments. According to the imagistic approach (which for a long time has been the common view) the thought-experimenting procedure entails sensory (primarily visual) imagination. In recent years, nonetheless, an alternative view has been proposed by Fiona Salis and Roman Frigg (2020). As they see it, mental imagery is unnecessary for the performance of thought experiments. The only form of imagination that is operative in these processes is of a propositional character, Salis and Frigg argue. According to the third account (the experiential approach), in turn, thought experiments invite subjects to make use of experiential imagination. This is a relatively unexplored perspective in relation to thought experiments (but not in relation to narratives in general).

A proposal that comes close to my own account, however, is Alice Murphy's (2020) pluralist account of imagination in relation to scientific thought experiments. According to her, "different thought experiments invite different types of cognitive activity."⁴⁸³ As an example of a thought experiment that only requires propositional imagination, Murphy mentions Darwin's "imaginary illustration" of the wolf that preys on various animals (which was quoted in Section 3.6.2). Here we are asked to imagine a situation in which the prey has decreased in numbers and – because of the lack of food – only "the swiftest and slimmest wolves would have the best chance of surviving, and so be preserved or selected."⁴⁸⁴ In this case, according to Murphy, it is enough that the thought-experimenting agent grasps the propositional content of the thought experiment. That is, it's not necessary that we also have mental imagery of a wolf or recreate the experiences that such an animal may have. Nonetheless, in other thought experiments it is necessary that we also engage in imagistic or experiential imagining. In the case of the latter, Murphy doesn't explicitly refer to it as "experiential imagination." At the same time, it seems as if her reasoning (at least implicitly) acknowledges the involvement of such imaginings:

What other candidates are there for thought experiments that ask us to do more than to consider a set of propositions (i.e., those that ask us to put ourselves in a particular situation, visualize a state of affairs, or imagine what we would observe)? An example is Einstein's elevator. Here, we have a shift in perspective between two different people, and we think about what they would see.

⁴⁸³ Murphy 2020: 964.

⁴⁸⁴ Darwin 1895/1964: 90-91.

Yet another case from Einstein, the chasing a beam of light thought experiment, is similar: Maxwell's electromagnetism and Newtonian mechanics give different predictions as to what one would observe, and the thought experiment allows us to grasp the force of this tension.⁴⁸⁵

In a similar way, it appears as if Michael Stuart (2016) refers to an experiential kind of imagination when he discusses the thought experiment of Maxwell's demon (Section 3.6.2). The aim of the thought experiment is to illustrate the possibility of violating the second law of thermodynamics.⁴⁸⁶ In order to do so, Maxwell introduces an imaginary creature (a demon) that is capable of detecting the motions of individual gas molecules. This demon controls, in turn, a small door between two compartments of gas. In one of them, there is cold gas with fast-moving molecules, and in the other chamber there is warm gas with slower-moving molecules. Because of the speed with which the demon opens and shuts the door, only the swifter gas molecules can flow from one chamber to the other. As a result, one of the chambers warms up while the other cools down. Since this increases entropy, Maxwell's demon is a hypothetical illustration of how the second law of thermodynamics may be violated.

One aspect of this thought experiment on which Stuart comments is the fact that we are asked to visualize the molecules from the perspective of the demon. The only way we can succeed with such a project, according to Stuart, is to use analogous reasoning as a way to imagine what such a visual experience would be like:

We may have trouble imagining a being that can see molecules, but if we imagine ourselves in an analogous position, say, in control of a sliding door, surrounded by molecules which act like medium sized rubber balls, we understand the scenario perfectly.⁴⁸⁷

I suggest that analogous reasoning of this kind involves experiential imagination and transportation. In the latter case, the mental "travel" is achieved by a combination of experience-taking and perspective-taking. That is, while I imagine the perspective of the demon (experience-taking), I do so by consulting the conceptual knowledge that I already have (perspective-taking).

⁴⁸⁵ Murphy 2020: 965.

Einstein's elevator – a thought experiment in which Einstein imagines an observer inside a closed space, like an elevator, that is equipped with a complete physics lab. Inside the closed lab one can perform any physics experiment, but one cannot communicate directly with observers or the world outside the closed laboratory. By mean of this thought experiment, Einstein realized that no experiment performed inside the closed lab could distinguish between the lab's being in a strong gravitational field and its being accelerated rapidly upward. He concluded that a general theory of relativity, one valid for transformations between mutually accelerated frames of reference, would therefore also have to be a theory of gravity

⁴⁸⁶ According to the second law of thermodynamics, the total entropy of an isolated system can never decrease over time, and is constant if and only if all processes are reversible.

⁴⁸⁷ Stuart 2016: 27.

While different thought experiments make use of different types of imagination, I have chosen to give special attention to those that involve experiential imagination. The motivation behind this strategy is that it enables us to take into account a subjective dimension that is typically associated with religion, but not necessarily with science. This aspect was briefly touched upon earlier in this chapter, in David Herman's (2008) quote about qualia-based explanations (Section 6.4.1.2). Such explanations involve "the impact of events on the real or imagined consciousnesses that register them,"⁴⁸⁸ Herman argues. That is, even if science aims at knowledge claims that are detached from particular perspectives and their attendant biases, there are still certain parts of the scientific project that contains qualia-based experientiality (for example, the role of the observer in quantum theoretical experiments). Furthermore, it can also be the case (for example, in some forms of thought experimentation) that the road to scientific understanding goes *through* qualia-based experiences and "true enough" idealizations that, at a later stage, are subject to methods of justification.

While science and religion aim at different forms of intelligibility, I argue that both of them entail practices that make use of experiential imagination and transportation. In the case of religious understanding, it is associated with a way of life in which experiences are essential for making the world existentially intelligible. For this reason, religious practices and claims cannot be justified by the same methods that we use to warrant scientific hypotheses. However, this is not same as saying that religion lacks truth-normativity altogether. What it does imply, nonetheless, is that there are many (and often inaccessible) dimensions to the concept of truth (T-Ex) in a religious setting. For this reason, I consider "religious understanding" to be a more accurate term than "religious knowledge" (since knowledge is often associated with justified true beliefs). It is important to notice, however, that understanding is an epistemic gain that fits particularly well with scientific intelligibility as well. Furthermore, I argue that, in order to explicate what scientific and religious understanding entail, the role of imagination is of specific value. In the seventh and last Chapter of this dissertation, therefore, this is an aspect to which I shall give further attention.

6.5 Summary

In this chapter, I focus on the possible role that experiential imagination may play when subjects engage in scientific or religious practices. Although such engagement can take various forms, most attention is given to scientific and religious thought experimentation and (in the religious case) ritual involvement.

⁴⁸⁸ Herman, 2008:466-467.

In this examination, I use the narratological concept of “transportation” as an analytical tool. It describes a situation in which an agent is transported into a fictional or factual narrative and becomes immersed in it. This can, on the one hand, take the form of experience-taking: assuming the identity of a character in a narrative and simulates the character’s thoughts, emotions, and behavior as if were one’s own. On the other hand, it can take the form of perspective-taking: using conceptual knowledge about one’s own self to estimate how a protagonist might respond to or experience a situation. In my elaboration, I reject an overly narrow distinction between these two categories and argue that self-involvement is a necessary element in both. That is, when a subject recreates the experience of a narrated character, their experiential imagination is informed by, but not limited by, their own self.

Transportation entails, in my usage, a preservation of cognitive quarantine by which the imagined state of affairs only effects a restricted domain. In addition, I argue that this cognitive mechanism involves a shift of cognitive attention. That is, whereas attention enables the transition between beliefs and imaginings, it also constitutes an essential aspect of the process by which they are distinguished from each other. As a result, a subject does not literally “forget” about their actual beliefs but temporarily directs attention away from them.

In the case of religious rituals, it is assumed that they have a narrative substance into which the ritual participant is transported. By doing so, (a) the individual is able to try on alternative selves while, simultaneously, (b) staying within the experiential categories that are provided by their religious tradition. Through such a journey, the participant is able to exist in a liminal space between the ritual world and the outside world. This in-between character, in turn, enables various kinds of transformations. Instead of seeing this phenomenon as a case of “imaginative identification” (in which the imager meta-physically becomes their imagined alternative self), I saw this as the result of a constant interaction between imaginings and beliefs. That is, even if experiential imagination allows us to explore alternative ritual identities, we are generally well aware of the distinction between what is “real” in the outside world (according to our beliefs) and what is imagined. This is, in turn, consistent with the position of interactivism, which was formulated in Chapter five.

To attain religious knowledge or understanding, religious rituals must be, in some sense, related to T-Ex (existential truth). That is, even if rituals entail imaginative elements, they must at least have truth as a non-constitutive aim. If they lack any reference to truth whatsoever, they can only give rise to truth-independent meaning-making. All the same, I suggest that ritual engagement generates various kinds of epistemic gains. Given the multifaceted and often self-involving character of this type of procedure, “religious understanding” seems to be the term that most accurately describes the epistemic contribution of rituals.

For scientific thought experiments, I focus on those with operational power that requires that the hypothetical scenario be approached from a certain experiential perspective. It is argued that such a strategy can take either of two forms: (a) to recreate the experiences of the protagonist of the fictional scenario or (b) to recreate the experience of oneself observing the protagonist. While there are some scientific thought experiments that make use of the former strategy, I argue that it is necessary to problematize whether, in fact, it is possible to recreate the experiential perspectives of all forms of entity that the natural world contains. For this reason, it is more common that scientific thought experiments recreate the experience of a thought experimenting agent observing the protagonist. This, for example, is the case in Albert Einstein's thought experiment of how he pursues a light beam.

When discussing religious thought experiments and experiential imagination, I give special attention to those that involve recreating the experiential perspective of prominent spiritual figures. As my prime example of this category, I use *The Spiritual Exercises of St. Ignatius*. In these practices, the attendant is provided with existentially and religiously significant situations to explore and in relation to which s/he is to position her/himself. That is, by allowing the attendant to imaginatively examine what it would be like to have certain experiences, the practices enable a multifaceted form of religious understanding.

7 The role of imagination in science and religion

7.1 Introduction

In this chapter I shall return to – and suggest answers to – the research questions that were formulated in Chapter one. These are the following:

- (1) How should we philosophically conceptualize the mental capacity of imagination?
- (2) What forms and functions does imagination have in scientific and religious practices?
- (3) In what ways, if any, do these imaginative forms and functions in science and religion (primarily Christianity) distinguish themselves from each other?
- (4) Do the answers to questions 1-3 in any way influence the understanding that we (as scientists and human individuals in general) should have of what science and religion is or ought to be?

While the second and third questions have been at the center of attention in the previous chapters, the first and the fourth questions have only surfaced indirectly as background to my discussion. This, however, has been an intentional neglect, since my answers to the first and the fourth research questions depend on the observations that I make in relation to them. That is, the aim is to let my examination of the use of imagination in science and religion to influence (a) how I philosophically conceptualize this mental state and (b) how I understand the phenomena of science and religion.

In what follows, I shall discuss the first and the fourth research question in their own right, whereas the second and third questions will be put in relation to each other. The choice to approach them in this manner – instead of treating them separately – has to do with their overlapping tendencies. That is, even though they emphasize different issues, they open up discussions that intersect with each other. For this reason, it is beneficial to tie them to each other.

7.2 The conceptualization of imagination

In the present section, I shall – in light of previous chapters – discuss how the mental state of imagination should be philosophically conceptualized. This is done as an answer to the first research questions that were posed in Chapter one.

- (1) How should we philosophically conceptualize the mental capacity of imagination?

As the section proceeds, I shall suggest that the phenomenon of imagination is characterized by heterogeneity, truth-independence, irreducibility, interactivity, and meaning-making. From my examination in Sections 7.2.1-7.2.5, in turn, I shall identify three functions that imagination has in science and religion

7.2.1 Heterogeneity

As noticed in the previous chapters, the concept “imagination” is associated with a number of different mental activities. As a result, an individual’s enjoyment of fiction, deliberate hypothetical reasoning, unbidden day-dreaming, or consideration of someone else’s perspective are all described as imaginative activities. Given this heterogeneity, there is a tendency among contemporary philosophers to shy away from all-embracing definitions of this mental state.

One way to avoid the task of defining imagination is to restrict one’s focus to one specific form of this mental capacity. Another strategy is to abstain from giving a substantive characterization of it while, at the same time, making comparisons with other mental states. In line with this way of reasoning, it has been argued, for example, that imagination is belief-like,⁴⁸⁹ desire-like⁴⁹⁰, and perception-like⁴⁹¹, while not being reducible to any of these states.

The most common way to approach the heterogeneous nature of imagination, however, is to distinguish between different *types* of imaginings. It has been proposed, for example, that distinctions should be made between propositional and sensory imagining,⁴⁹² creative and recreative imagining,⁴⁹³ imagining “from the inside” and imagining “from the outside”,⁴⁹⁴ and so forth. In this dissertation, I have used a similar strategy, and have differentiated between propositional, sensory, experiential, and creative imagination.

⁴⁸⁹ Arcangeli 2018; Currie and Ravenscroft, 2002; Nichols 2006 a; Van Leuween 2014.

⁴⁹⁰ Currie, 2010; Doggett and Egan 2007.

⁴⁹¹ Currie and Ravenscroft, 2002; Kind 2001.

⁴⁹² For example, Stock, 2017.

⁴⁹³ Currie and Ravenscroft 2002.

⁴⁹⁴ For example, Williams 1973; Wollheim 1973; Peacock 1985.

At the same time, I think it is justified to question whether one and the same mental phenomenon can in fact do all the work that has been assigned to imagination – that is, whether one and the same mental state can actually satisfy the various roles attributed to imagination.⁴⁹⁵ Even so, in the present study I have chosen to use imagination as an umbrella term for different types of imaginings. While displaying a variety of phenomenological differences, they have a common denominator namely, their ability to represent a state of affairs without any requirement on the imagining agent’s part that s/he must consider, wish, or expect that the imagined state of affairs is indeed the case.

7.2.2 Truth-independence

In contrast to mental states like such as belief and perception, imagination doesn’t have a direct relationship to truth. By allowing us to think about concepts in non-truth-bound way, imagination can therefore enable discovery or invention of alternative perspectives of the present state of affairs. For this reason, imagination has a close association with creativity, which can either be historical-, personal-, combinatorial-, explorative-, or transformational (Section 2.5).⁴⁹⁶

As a way to explicate the role that imagination plays in creativity, I argued in Chapter two that “creative imagination” is a hybrid category. That is, it consists of a variety of imaginings that contribute to ideas and creations that defy expectation and convention, are considered valuable, and are the result of agency and deliberate action. As examples, I referred to conceptual blending, pretense, counterfactual supposition, and aspect perception. What kinds of ideas or actions that count as “creative,” however, is dependent on the particular context in which they take place. That is, imagination can enable creativity in situations of pure fantasy and play as well as in truth-normed explorations and the search for knowledge/understanding. In order to be epistemically relevant, however, it is required that imaginings operate within “the constraints of Reality.”⁴⁹⁷ That is, even if imagination isn’t world-sensitive by nature, it can have truth as a non-constitutive aim.

⁴⁹⁵ For a discussion of this question, see Kind 2013.

⁴⁹⁶ Margaret Boden 1994, 2004.

Historical creativity: the product/action/idea may never have occurred before.

Personal creativity: the product/action/idea is novel relative to some individual mind.

Combinatorial creativity: a capacity to combine things that are not normally associated with each other, but that turn out to have an unexpected, relevant, and enlightening connection.

Explorative creativity: takes place in the context of a discipline that is governed by a codified set of rules or principles. While working within these rules, individuals can still come up with creative ideas and solutions.

Transformational creativity: individuals go beyond the limits of a discipline’s conceptual space and transform the set of rules that governs it.

⁴⁹⁷ “All imaginings arise from the subject’s mind in such a way that the constraint of Reality is necessarily inoperative, whether through substituting one’s will for Reality or through confus-

As a result, while an innovative discovery may arise from unconstrained thought processes, it is necessary that it – in order to be justified – fits the facts of the world (as we know it).⁴⁹⁸ This ambiguous relation towards truth – being truth-independent while, on certain occasions, having truth as a non-constitutive aim – is reflected in the transcendent and the instructive uses of imagination.⁴⁹⁹ While the former enables us to escape or look beyond the present realities, the latter allows us to learn about the world as it is.

7.2.3 Irreducibility

Another aspect that deserves further investigation is, I argue, the extent to which imagination is distinct from – and irreducible to – mental states such as remembering, believing, and desiring.

In the case of memory, a number of recent neuroscientific and psychological studies indicate that the distinction between remembering and imagining is more obscured than what is typically assumed. For instance, an important discovery is that the cognitive and neural processes that support past and future thinking have striking similarities.⁵⁰⁰ In light of such findings, several current papers have sought to explicate the neurocognitive machinery that underlies the human ability to (re)construct past and future representations. In many of these studies it is argued, in turn, that episodic memory⁵⁰¹ is particularly well-suited to supporting acts of imagination.⁵⁰² That is, in the case of imagination, it can enable us to envisage alternate outcomes to events that have already occurred (counterfactual thinking) as well as possible future events.

In this context, the proposed link between remembrance and imagining serves as an example of the complexity of the mental state of imagination. For this reason, the view promoted in this dissertation is that it is likely that imaginative operations typically entail interactions between various mental states and activities. This is not the same, however, as saying that imagination is reducible to any of these states or attitudes. Thus I advocate a view that has differences from – as well as similarities with – Peter Langland-Hassan's (2020) account. According to him, imagination can be broken down into more

ing 'subjective Reality' with Reality itself. The fact that the mind acts here, not as a representative of Reality but in direct opposition, guarantees that imaginings must be cognitively void." (O'Shaughnessy 2000: 359). Kind 2018a: 240-241, 243.

⁴⁹⁸ It is important to notice, nonetheless, that certain epistemic states – understanding, in particular – involve more dimensions than merely an increase in justified true beliefs.

⁴⁹⁹ Kind and Kung 2016: 1.

⁵⁰⁰ For example, Tulving 1985; Klein, Loftus and Kihlstrom 2002; Okuda et al. 2003; D'Argembeau and Van der Linden 2006.

⁵⁰¹ The capacity to recollect past experiences.

⁵⁰² For example, Addis, Wong and Schacter 2007; Schacter, Addis and Buckner 2007; Buckner and Carroll, 2007; Klein 2013; Michelian, 2016; Mullally and Maguire 2014; Schacter, Benoit and Szpunar, 2017; Ward 2016.

basic folk psychological states and processes (such as belief, desire, intention, and so forth). That is, when a subject imagines, s/he doesn't make use of a distinct faculty of the mind that is quarantined from other mental states. Rather, as Langland-Hassan sees it, complex attitudes (such as imagination) are constituted by combinations of simple attitudes. Thus, while rejecting the view that imagining that *p* is the same as believing or desiring that *p*, he argues that "some uses of beliefs, desires, judgments, memories...constitute cases of imagining that *p*."⁵⁰³

Since Langland-Hassan explains imagination by way of reduction, his view is at odds with the perspective of most contemporary philosophers. Here, the consensus instead is that imagination is a distinct mental state/ attitude (while, at the same time, being belief-like, desire-like, and so forth).⁵⁰⁴ In a similar way, I argue that it is accurate to conceptualize imagination as a separate state. Even if the acts that we call "imagining" are a heterogeneous lot, they share an ability to represent without aiming at things as they actually and presently are. Furthermore, they do so without any requirement on the imagining agent's part that s/he consider, wish, or expect that the imagined state of affairs is actually the case. In this way it is different, for instance, from episodic memory, where the aim, on the contrary, is to recollect past experiences accurately. That is, even if the act of remembering is a (re)constructive procedure that entails imaginative elements, its goal is to recall the past as truth-fully as possible. A functional argument against reducing imaginings to other mental capacities is therefore that imagination is able to do certain operations that truth-normed mental states are incapable of doing.

7.2.4 Interactivity and cognitive attention

At the same time, I think that Langland-Hassan points to an important aspect – namely, the close relationship between different mental states. However, instead of seeing imaginings as combinations of various states and attitudes, I argue that it is more accurate to talk about a constant interaction between them and imagination. Furthermore, even if this interplay is governed by the norm of quarantine, I consider this cognitive mechanism to have a more subtle character than is usually assumed. In Section 6.3.2 – in relation to religious rituals – I therefore assigned cognitive attention a two-fold function: to be actively involved in the transition, and in the distinction, between beliefs and imaginings.⁵⁰⁷ That is, whereas a shift in attention enables the transition between beliefs and imaginings, it also constitutes an essential aspect of the process by which they are distinguished from each other.

⁵⁰³ Langland-Hassan, 2020:11.

⁵⁰⁴ For example, Currie and Ravenscroft, 2002, ch.2; Friedman and Leslie 2007: 115; Gendler, 2006b:183-185; Nichols and Stich 2003; Nichols 2008; Schellenberg 2013; Spaulding, 2015; Stokes, 2014; Weinberg and Meskin 2006; Doggett and Egan 2007; Liao and Doggett 2014.

⁵⁰⁷ Liao 2017; Kampa 2018.

From my perspective, this description fits well with how acts of pretense and imaginative transportation are carried out. The same can be said about some of the other situations in which we make deliberate use of imagination: whether in the form of the intentional use of mental imagery (for example, visualization), an engagement in counterfactual reasoning, or consideration of possibilities. That is, in all of these instances we direct our attention towards an imaginary alternative to the present state of affairs. During such episodes, we do not literally “forget” our beliefs about the actual and present situation – we only temporarily shift our attention away from it. However, since these processes are governed by a very delicate norm of quarantine, our mind is able to move swiftly and effortlessly between the present and the imagined “world.”

In the case of aspect perception, in turn, this process looks a bit different. Here, a shift in attention lights up an aspect that we haven’t noticed before. In an ambiguous picture such as the duck-rabbit, our initial awareness of one of the figures (the duck or the rabbit) then develops into an ability to go back and forth between these perspectives without committing to either of them. For this reason, it is not so much a question in this case of moving between an actual and an imaginary state of affairs. Instead, it is an example of how our perception wanders between two possibilities that are inherent in the visual data. While perception plays the leading role in this procedure, imagination enable us to detect alternative ways to respond to the available visual material.

To some extent, this characterization can also be applied to conceptual forms of imagination – in particular, the form of representations that I (following Elisabeth Camp) refer to as “interpretative frames.” Frames of this kind – for example, metaphors – temporarily guide us in adopting new perspectives and determine what information we notice about a subject. Thus the creation of a metaphor involves a formalized guidance of our attention. While the phenomenology of this synthesizing procedure deviates from pretense, both kinds of imagination enable a shift in attention – that is, a capacity to discover or invent an alternative perspective to the present state of affairs.

7.2.5 Meaning-making

Meaning-making takes place at all levels of human conduct and has, in many cases, a critical relationship with the operations of imagination. As a way to display this aspect, I have made use of Lakoff and Johnsons’ (1980) conceptual metaphor “knowing is seeing” (Sections 3.2.1; 4.1.3). Here, as we have noted, the word “seeing” has a literal as well as a metaphorical meaning. In the first case, it concerns phenomena that are related to visualizability in some form – whether as (a) as pure perception; (b) as perception informed by imagination (for example, aspect perception); or as (c) as mental imagery of either a quasi-perceptual (mental imagery) or a conceptual kind (for example, figurative language). However, when “seeing” is used metaphorically, it refers

instead to intelligibility – either as meaning-making or as epistemic ways of making the world comprehensible.

Whereas meaning-making is independent of truth, epistemic gains (such as knowledge and understanding), as I have conceptualized them, are truth-dependent (either as T-Gen or as T-Ex). It is important to notice, however, that the states of knowledge and understanding *originate* as meaning-making procedures that acquire their epistemic status relative to their relationship to truth. That is, even if the processes that result in knowledge and understanding involve components that are truth-independent (such as imaginings), they refer, in some way or another, to actual states of affairs

Thus, as I have utilized the metaphor “knowing is seeing” in this dissertation, it refers to two levels of meaning-making in which imagination is involved: (1) a rudimentary cognitive level, where imaginings operate and affect our everyday cognition; and (2) a specialized level, where imagination is directed towards specified disciplinary tasks.

In relation to (1), we can consider, for example, the role that imagination plays when we interpret and make sense of our sensory experiences. While we can perceive them in a conventional way, our perception can also be informed by imagination, enabling us to go beyond the confines of the present perceptual reality. As a result, whereas imagination is at work in the meaning-making that occurs through our ordinary perception of the world, it can also be used to distance ourselves from the present realities (Section 7.2.2). In fact, in many cases our adaption to the world requires that we distance ourselves from the current state of affairs, or supplement it with imagined alternative possibilities. As an illustration, we can think about episodes of amodal perception (Section 2.2.2) in which mental imagery represents the hidden parts of a perceived object. This procedure allows us, in turn, to envision the cat’s tail even if it is occluded by the tree. Given that the cat is endowed with a tail, this is an example of meaning-making that fits the facts of the world. However, if the cat lacked a tail, the amodal perception would give a false image of the cat’s physical appearance.

Another example of a situation in which the cooperation between imagination and perception leads to a misinterpretation of reality is when it leads us to see objects or states of affairs as something other than what they are (the tree branches are seen as the limbs of a monster, and so forth). However, even if such episodes give rise to perceptual distortion, they are still examples of meaning-making. Independent of their level of accuracy, such episodes can also be seen in light of the literal and the metaphorical senses of “seeing.” That is, in all of these cases, perception informed by imagination is in the service of making reality comprehensible.

In the case of (2) – specialized levels on which imagination is directed towards specified disciplinary tasks – meaning-making occurs in relation to more advanced meaning systems, such as science and religion. In Section 7.3

I shall discuss the ways in which imagination contributes to their respective ways of making the world intelligible.

However, before doing so, and as a summary of Sections 7.2.1-7.2.5, I shall propose a conceptualization of imagination as an answer to the first research question. Furthermore, as a bridge to Section 7.3, I shall identify three functions that imagination has in scientific and religious practices.

7.2.6 Summary of Section 7.2

As one of the results of my investigation, I propose that we conceptualize imagination in the following manner:

Imagination is a heterogeneous mental capacity that involves a variety of imaginings that display certain phenomenological variations. The common denominator, however, is their truth-independence. That is, they represent a state of affairs without any requirement on the imaging agent's part that s/he consider, wish, or expect that the imagined state of affairs is actually the case.

While being involved in constant interaction with other mental states – such as belief, perception, and episodic memory – imagination is not reducible to any of these states. In contrast to truth-normed cognitive operations such as believing, perceiving, and/or remembering, imagining does not have truth as a constitutive aim. A functional argument against reducing imaginings to other mental capacities is that imagination is able to do certain operations that truth-normed mental states are incapable of doing. The interplay between imaginings and other mental states, in turn, is enabled by a shift in cognitive attention.

By allowing us to go beyond the confines of present realities, imagination enables creative cognition and the consideration of alternative possibilities. In different ways, it is also an essential component in a number of rudimentary and advanced forms of meaning-making. However, whereas imagination can contribute to meaning-making despite its lack of truth-dependence, there are situations in which it has truth as a non-constitutive aim. In such cases, imagination becomes epistemically relevant (generating knowledge and/or understanding) by being constrained by reality.

In light of this conceptualization – and as a bridge to Section 7.3 – I assert that imagination fulfils a meaning-making, epistemic, and creative function in scientific and religious practices. These functions are, in turn, understood in the following ways:

The meaning-making function:

This function is executed on two levels: (a) a rudimentary cognitive level on which imaginings affect our interpretation of everyday life, and (b) a more advanced cognitive level on which imagination is directed towards specified disciplinary tasks. While the result of the meaning-making procedure can be true or false, the former type is referred to here as an epistemic state (either as knowledge or as understanding). However – since meaning-making typically

requires a grasp of the possible relationships among things, events, and relationships – it resembles the epistemic state of understanding. Nonetheless, unlike understanding, the procedure of meaning-making is truth-independent.

The epistemic function:

In order to fulfil this function, imaginings must have truth (either as T-Gen or as T-Ex) as a non-constitutive aim. While epistemic states such as knowledge and understanding originate as forms of meaning-making, they become epistemically in proportion to their ability to generate information that fit the facts of the world. As a result, a transcendent use of imagination can serve as a springboard to some epistemic gain. While this applies to the attainment of both knowledge and understanding, the latter state refers to a broader comprehension, and involves more epistemic dimensions than simply an increase in justified true beliefs. For this reason, this state has been said to involve (a) a “grasping” of the relationships within the particular object of understanding, (b) an increase of “cognitive control,” and (c) know-how.

The creative function:

The creative function is fulfilled when imaginative operations contribute to ideas and creations that (a) defy expectation and convention, (b) are considered valuable, and (c) are the result of agency and deliberate action. Depending on the context of the creative acts or ideas, they can be either truth-normed or truth-independent – that is, the creative function can be fulfilled in situations of pure fantasy and play as well as in truth-normed explorations and searches for knowledge/understanding. In either of these cases, the standard for what counts as “valuable” is different – except for the obligatory status of criteria a-c.

How these functions are executed – and in what way they influence the areas of science and religion as such – is a question that I shall discuss more thoroughly in Section 7.3.

7.3 The role of imagination in science and religion

In this section, the second and third research questions will be discussed. The choice to approach them in this manner – instead of treating them separately – has to do with their overlapping tendencies. That is, even though they emphasize different issues, they open up discussions that intersect with each other. For this reason, it is beneficial to tie them to each other while, at the same time, acknowledging their separate focuses. The two questions on which that I am going to shall focus on are, consequently, are the following two:

- (2) What forms and functions does imagination have in scientific and religious practices?
- (3) In what ways, if any, do these imaginative forms and functions in science and religion (primarily Christianity) distinguish themselves from each other?

7.3.1 The aim of intelligibility

Both science and religion have as their aim to make the world intelligible. In the case of science, the goal is to make the world technologically and predictably intelligible. What counts as an intelligible theory, however, is dependent on the kinds of qualities that scientists in different disciplines value (for example, explanatory power, simplicity, accuracy of prediction, visualizability, and so forth). In religion, the objective is, rather, to make the world existentially intelligible – that is, to provide individuals with a framework that offers existential guidance in a theoretical as well as an embodied and ritualized form.

In different ways, the distinct aims of science and religion influence how they make use of the epistemic, creative, and meaning-making functions of imagination. In relation to the epistemic function, one significant deviation, for example, is that the notion of truth has different connotations in the scientific and religious contexts. As a way of explaining this aspect, I have distinguished between T-Gen⁵⁰⁸, which I associate with science, and T-Ex⁵⁰⁹, which has a closer relation to religion.

While there are various ways to understand what the position T-Gen refers to, it is typically associated with some kind of objectivity. That is, instead of being the result of a subject's own desires, presuppositions, and particular perspectives, truth of this general kind is not limited to a certain context or circumstance. T-Ex, in turn, is part of an individual's ambition to make the world existentially intelligible. In the case of religion, such a procedure is colored by the particular way of life within which the respective truth-claims are situated. At the same time, it should be noted that T-Ex doesn't exist in isolation from T-Gen. That is, in contrast to truth-independent existential meaning-making (Ex-M), it is truth-normed. However, in contrast to the justification procedure of scientific truth claims, we do not have intersubjectively agreeable means by which we can test whether or not our T-Ex claims are justified.

⁵⁰⁸ Truth in a general sense.

⁵⁰⁹ Existential truth.

7.3.2 Interpretative frames

In this dissertation, I have given most attention to the interpretative frames⁵¹⁰ that are constituted by models, metaphors, and analogies. In common to such framing devices is their ability to guide us temporarily in adopting new perspectives and determining what information we notice about a subject. While such operations can take various forms, I have focused on frames that operate by comparing a well-known concept (source) to selected characteristics of a less familiar area (target), so that the former influences our understanding of the latter.

In the case of figurative language, analogies employ a more precise and systematic comparison, whereas metaphors also create a shift in the meanings of the linguistic expressions involved. Since this type of imagining entails imagistic representation (although in a conceptual, not a quasi-perceptual form), it belongs primarily to the category of sensory imagination.

When models are described as operating in a similar kind of metaphorical manner, I refer to this as “the metaphorical view of models” (Sections 3.4.2; 4.5.3). However, according to “the propositional view of models” (Sections 3.4.1, 4.5.3), the kind of imagination associated with models is taken to be propositional rather than imagistic. Following Kendall Walton, models are described here as representations that prompt our acts of imagination and that generate fictional truths⁵¹¹ (by virtue of principles of generation associated with the practice in question). The operating kind of imagination is of a propositional kind in this case, and is typically referred to as “make-believe” or “pretense”.

Instead of choosing between either of these approaches, I promote the view that scientific and religious models involve both propositional and imagistic imagination (“the additive view of models,” Sections 3.4.3; 4.5.3). Occasionally, this entails isolated forms of propositional and imagistic imagination; at other times, these two kinds of imagination cooperate. In such cases, the model itself is created by conceptual blending, but we approach it with the propositional attitude of imagination. By taking this attitude towards the model system, we are able to explore it in non-truth-bound ways.

7.3.2.1 The use of metaphors and models in science

In science, visualizability is a theoretical quality that has turned out to be very effective in generating scientific understanding. In order to explore certain phenomena, scientists make use of visual aids: models, conceptual images (metaphors, analogies), thought experiments, and so forth. As mentioned in

⁵¹⁰ Elisabeth Camp

⁵¹¹ True in the appropriate game of make-believe.

Chapter three, the history of science includes a number of well-known episodes of imaginative visualization (Section 3.2.1) and scientists with extraordinary visual comprehension⁵¹² (Section 3.2.2).

When a scientific interpretative frame is successful, it enhances scientists' capacity to describe, predict, and understand the target of investigation. As an example, we can think of Charles Darwin's use of the "tree of life" metaphor, which functions as a schema that assimilates a wide range of ideas associated with a constantly evolving organic world. Thus, when imagination is successfully used in scientific practice, its operations can be associated with both its epistemic and its creative functions.

At the same time, it should be noted that not all scientific endeavors are necessarily creative. Furthermore, in case a scientific metaphor or analogy indeed generates creative cognition, there's a difference in degree as to how much it can enhance scientists' ability to "think outside the box." In the case of "near analogies" (where the target and source are from closely related domains), they are, for example, constrained by existing conceptual structures. While this kind of "structured imagination"⁵¹³ can give rise to creative cognition, it is primarily of an explorative kind: taking place within the conceptual structure and the codified set of rules of a certain discipline. In this way, they are different from "distant analogies" (where the target and source are from diverging domains), which have a capacity to go beyond the limits of a discipline's conceptual space and to transform the set of rules that governs it.⁵¹⁴

To some extent, one may say that these different types of analogies illustrate the constraints as well as the creative possibilities of imagination. As illustrated by the first level of mediation (Section 3.1.1), imaginings are always mediated via a particular conceptual framework that constructs and conceptualizes reality in a certain way. For this reason, our use of imagination is not as free and unconstrained as is often assumed. Nonetheless, as we can tell from the history of science, there are also examples of when imaginative operations have been able to transform received scientific conceptualizations.

One aspect that needs to be taken into account, however, is that analogies and metaphors sometimes limit scientific explorations in unwelcome ways. During the development of quantum mechanics, for example, this became a matter of discussion. One of the things that was disputed was whether or not quantum mechanical processes could be comprehended by our general "forms of thought" (and have a space-time description), or whether they entirely lacked these qualities (Section 3.3.1).

Another potential danger with imagistic representations is that they may be influenced by scientists' unconscious or unconfessed presuppositions and

⁵¹² At the same time, it should be noted that visualizability is only one of many preferred qualities that a theory can have.

⁵¹³ Ward 1994.

⁵¹⁴ De Cruz and De Smedt, 2010.

preferences. In such circumstances, a certain *thema* guides their imagination, even if the data or the current theory doesn't lead them to do so. This kind of "thematic imagination" may, in turn, influence what kind of strategies and attitude s/he adopts towards the object of investigation.⁵¹⁵ An additional risk with scientific metaphors, furthermore, is that they sometimes uphold outdated scientific paradigms and, as a result of extensive or repetitive usage, lose their metaphorical quality (so called "dead" metaphors). It may also be the case that scientific conceptual imagery – by leading scientists' attention in a certain direction – rules out alternative, but just as promising, ways of looking at a phenomenon.

It is important to notice, however, that scientific representations can be scientifically fruitful without having total representational accuracy. In the case of idealizations, for instance, they only exemplify the features that we are interested in while neglecting other features. Despite the fact that such representations aren't entirely true, they can still facilitate scientific understanding. For this reason, some philosophers of science refer to models as games of make-believe,⁵¹⁶ fictional narratives,⁵¹⁷ parables,⁵¹⁸ or felicitous falsehoods.⁵¹⁹ However, just because idealizations (as well as other imaginative components that science entails) aren't literally true, this doesn't mean that they can't have truth as a non-constitutive aim. For this reason, I consider the concept of "true enough" to be particularly useful. In this case, truth is a threshold requirement for the epistemic relevance of idealized representations. However, what counts as "true enough" depends on a variety of aspects: the purpose of the research to which the representation belongs, as well as the function it serves in a theory and/or explanation.

7.3.2.2 The use of religious metaphors and models

While visualizability is typically seen as a desirable theoretical quality in science, this is definitely not the case in apophatic spirituality. Quite the opposite: here, the strategy is to stress that God/the Ultimate Reality transcends human thought and language, and therefore is best known by elimination, unknowing, and a dismissal of images and symbols.

The situation is radically different in kataphatic spirituality, however, in which affirmative statements or imagistic representations of the supernatural are used. Even so, there are different opinions on how language of this kind should be interpreted. According to one position, words that belong to a non-religious discourse can be used univocally (literally) of God. An opposite view, however, is that God is so radically different from all other beings that religious language is equivocal – that is, words that are used in a non-religious

⁵¹⁵ Holton 1996: 201.

⁵¹⁶ For example, Frigg 2010a,b; Toon, 2010, 2012; Levy, 2012, 2020.

⁵¹⁷ Davies, 2010.

⁵¹⁸ Cartwright, 2010.

⁵¹⁹ Elgin, 2004.

discourse mean something different when they are used to refer to God. In the latter case, one possible way to respond is to adopt an apophatic strategy and to argue that we only can talk about God in negative statements (“what God is not”).⁵²⁰ Yet another strategy is to emphasize that religious language is characterized by analogies and metaphors that point to, rather than give a literal description of, God.

In the latter case, modern research on religious language has given more attention to metaphors than to analogies.⁵²¹ One way to interpret this tendency is that metaphors are considered to reflect the way in which many people in contemporary westernized societies approach religion. By prompting a variety of associations, metaphors allow us to go beyond precise and systematic analogies. This, in turn, creates a certain freedom in how the divine realm should be perceived.

However, while religious metaphors and analogies can serve a creative function, they are – in a way that is similar to that of their scientific counterparts – constrained by the conceptual framework within which they are formulated. That is, they are influenced by the prominent theme of a distinct religious tradition (“thematic imagination”). In contrast to science, where the official (while not always actualized) ideal is to take a neutral and objective standpoint, a similar requirement would be in conflict with the very idea of a religious tradition. This said, it’s necessary to keep in mind the distinction between religious practice as (a) an act of faith of the religious believer, and (b) a scientific discipline (“theology”). Consequently, when I write that the thematic imagination is more explicit in religious than in scientific practice, it is primarily (a) to which I refer.

As a result of the constraints that a religious tradition sets, novel concepts and figures of speech must reflect the content of a religion’s earlier conceptualizations of important elements and entities. Thus, when Sallie McFague, for example, refers to the Christian God as Mother, Lover, and Friend, it is a re-mythologization – rather than a total renewal – of the tradition’s established image. As I see it, this is a case of explorative rather than transformational creativity. At the same time, it’s necessary to distinguish between what is considered to be novel to an individual mind and to a religious tradition as a whole. That is, while a re-mythologized concept may be constrained by the religious framework in which it is situated (the first level of mediation), it can still be perceived as groundbreaking for an individual believer.

⁵²⁰ Among those who advocate an apophatic perspective, however, there are different attitudes to the role that positive statements about God (“what God is”) have in religious practice. Whereas some understand them as illegitimate and illusive ways to refer to a world-transcendent God, others would argue that – while not giving an explicit description of God – they can still evoke certain experiences that are valuable.

⁵²¹ For example, McFague, 1987, 1993; Soskice, 1985, 2007; Kenney, 2005; Jüngel, 1974; Swinburne, 1992.

In fact, one of the reasons that religions are able to survive, I argue, is that they offer traditional methods that can have transformational power for individuals living in different historical ages. The transformation occurs, in such cases, in the life of the individual practitioner. This dynamic between traditional methods and self-involving novelty is, for this reason, something that distinguishes religious creativity from scientific creativity.

Whereas both science and religion involve the use of interpretative frames, the reference to “models” is more familiar in a scientific than in a religious context. For this reason, I have distinguished between two kinds of religious models: RM1 and RM2. Whereas the former relates to selected aspects of religious discourse (and therefore is more like scientific models), the latter refers to a situation in which an entire religion functions as a “model” of reality. Accordingly, in the case of RM2, it provides the practitioner with both symbolic conceptions of “the very nature of reality” and narratives that function as interpretative frameworks through which individuals perceive their own lives. For this reason, it is the category of RM2 that most accurately reflects the holistic and all-encompassing nature that typically characterizes engagement with religious traditions. That is, while such an engagement may include models of selected aspects of religious discourse, its signature feature is rather that it involves a certain way of life.

While it is more common to talk about scientific than about religious idealization, both discourses make use of simplifications of this kind. In the case of religious metaphors and analogies, religious traditions typically contain a number of different images of the supernatural realm. Since all of them exemplify different aspects of the subject matter, it is less controversial to say that they are simplifications and idealizations of a profound and multifaceted target. However, if either of these images turns into a standardized model that is understood as an all-embracing description of the divine, it is less likely that followers would understand it as a case of simplification or idealization.

7.3.3 Propositional imagination and the interactive position

In Chapter five, I distinguished between doxastic, non-doxastic, and fictionalist approaches to religious and scientific models and practices. In the case of religion, I argued that doxasticism (Section 5.2.1) is the most common view. That is, according to this position, one cannot have faith that p (for example that God exists) without also believing that this is the case. When this stance is employed to in science, it refers to a situation in which an individual scientist or a scientific community adopts the attitude of belief towards a theory or a hypothesis. I argued, at the same time, that it is more commonplace that scientists epistemically accept (rather than believe) a theory in relation to a particular and limited context of reasoning.

In the cases of non-doxasticism and fictionalism (Sections 5.2.2; 5.2.3), these are positions according to which a weaker cognitive attitude (for example, acceptance, assumption, or imagination) can play the cognitive role that is typically assigned to belief.

As an example of a non-doxastic attitude towards religion, I referred to J.L. Schellenberg's philosophical position of ultimism and his use of the concept of "imaginative faith." What I bring with me from this discussion, for instance, is an awareness of the different connotations that distinct types of imagination may have. In the case of pretense – which is associated with fictionalism – it is typically equated with falsity. However, this is not necessarily the case with other kinds of propositional imagination, such as supposition. When used in a non-doxastic account, imagination, in contrast, is related to "the entertainment of the possibility of *p*" (without neither believing nor disbelieving it). While this is a weaker form of truth-normativity than "belief that *p*", it moves in the direction of doxastic acceptance.

The non-doxastic use of imagination resembles, in many ways, a scientific approach towards a (currently) unknown, or at least insufficiently known, "object" of investigation. When applied to religion, this is an approach that challenges the received view of religious doxasticism. Even so, I emphasize that existential wrestling (for example, in relation to sorrow or tragedies) generally requires something more than suppositions and hypothetical reasoning about a possible state of affairs. That is, even if entertaining possibilities is indeed an essential part of this procedure, it is not to be equated with the procedure as a whole.

With regard to religious fictionalism, I exemplified this position with the accounts of R.N. Braithwaite (Section 4.5.4), Andrew Eshleman, Robin Le Poidevin (Section 5.2.3.1), and Peter Lipton (Section 5.2.3.2).⁵²² From this discussion, I learned that fictionalism is a position that can serve separate functions and be motivated in different ways. A common feature of both scientific and religious versions of the fictionalist stance, however, is that they are put forward as strategies (a) to avoid inconsistencies and tensions in a belief system, and (b) to access the utilities of a certain framework while not believing in its claims.

In my analysis, nonetheless, I argued that fictionalism is better suited to a scientific than to a religious context. As an illustration, I compared a religious fictionalist with a physicist who, in a fictionalist manner, considers Newtonian mechanics to be false while still exploiting it when s/he computes satellite paths. Whereas "acceptance that *p*" rather than "belief that *p*" is a common strategy in science, I argued that the attitude of belief plays a more important role in religion. That is, even if religious engagement may involve episodes of fictionalism and/or non-doxasticism, there are certain challenges in life (for

⁵²² Whereas Braithwaite, Eshleman, and Le Poidevin belong to the category of fictionalism that I refer to as Fic.¹, Lipton is better understood as Fic.²

example, suffering) that may require something more than just “imaginative faith” or acting “as if” something is the case.

In light of my investigation, I suggest that a more fruitful approach is to acknowledge a constant interaction between different positions. In the case of religion, therefore, my proposal is that it is plausible that subjects take a number of stances towards different parts of the same religion. Another possible scenario is that, during the course of their lives, individuals switch between different attitudes towards religious discourse. This observation, in turn, is consistent with the position of interactivism, which I formulated in Chapter five (Section 5.3). According to the interactive stance, propositional imaginings often cooperate with other forms of imagination (for example, sensory and experiential imaginings) and mental states (for example, belief and perception).

As a way to illustrate the complex interplay between imagination and belief, I made use of the example of the fiction-based religion Jediism (Sections 5.2.4-5.2.5). Whereas Jediists acknowledge that their founding narrative (Star Wars) is a purely fictional narrative, they approach certain of its supernatural entities with the attitude of belief, doxastic acceptance or, at least, a recognition that they are epistemically possible.

7.3.4 Aspect perception and creative vision

While interpretative frames can guide us in adopting new perspectives, novel vision can also be generated by aspect perception. In such an experience, a subject suddenly sees something (an aspect) in an object that s/he hasn't seen before. It is important to notice, however, that the word “seeing,” in this case, can have a literal as well as a metaphorical connotation – that is, it can refer to both a perceptual and a meaning-making/epistemic experience.

7.3.4.1 Scientific aspect and active/passive imagination

One type of aspect perception takes place in relation to an ambiguous image that can be interpreted in two competing but equivalent ways (for example, the duck-rabbit). Because of the dawning of an aspect, we temporarily see the image as either a duck or a rabbit. As observers, we can then go back and forth between these different perspectives without committing to either of them. Consequently, this is one of the features that conflict with Thomas Kuhn's (1970/1962) claim that scientific paradigm shifts resembles aspect perception – that is, that when a shift of paradigm has taken place, the equilibrium between the competing conceptions ends (since one of them is considered to be more accurate than the other). In addition, it is likely that paradigm shifts don't generally take place within an individual mind, but have a more multifaceted and communal character (Section 3.5).

Even so, I consider aspect perception to be a relevant concept in relation to scientific creativity. However, instead of referring to it as a purely perceptual

phenomenon, it is more accurate to see it in light of the two interpretations of “seeing” – namely, as both a perceptual and an epistemic phenomenon. That is, when a subject suddenly “sees” something in a novel way, it may entail a perceptual experience and/or the epistemic state of understanding. For this reason, I argue that the concept of aspect perception can be used in relation to some of the “eureka” moments when a scientist attains a sudden insight. In previous chapters, I have related such experiences to active and passive imaginings (Section 2.5.1) and the scientific and secular “version” of visionary experiences (Section 5.3.1.4) – that is, an episode in which a scientist is struck by the solution to a complicated problem without knowing where this illumination came from.

One way to understand such “aha” moments is to see them as a cooperation between interpretative frames and aspect perception. That is, even if a scientist perceives the target of investigation through a certain interpretative frame, it doesn’t exclude him/her from also having experiences of aspect perception. While models contribute a certain continuity, the seeing of aspects, by contrast, is an episodic phenomenon that enables the scientist to spot novel aspects within the framework in which s/he is situated. At other times, the dawning of an aspect may necessitate the creation of an entirely novel interpretative frame. Such a dynamic, in turn, is consistent with the view that creative ideas and behaviors are typically the result of agency and voluntariness, rather than taking place “by accident.”

7.3.4.2 Religious aspect perception and transformative vision

In the case of religious aspect perception (Section 4.3), some authors suggest a conceptual connection between religious beliefs and the seeing of aspects. That is, when a subject suddenly sees and experiences an event as a miracle – or a site as holy – it is a case of aspect perception. Even if the religious aspect momentarily disappears, it does not have to be brought to the object, since it already is part of the religious believer’s all-encompassing conceptualization of reality. In contrast to this view, I argue nonetheless that the seeing of aspect merely contains the possibility of a certain conceptualization.⁵²³ For this reason, even if an individual perceives a religious aspect, it doesn’t necessarily lead him/her to commit to a religious belief. In this regard, I consider aspect perception to have a close relation to J. L. Schellenberg’s concept of “imaginative faith”: to entertain the possibility of *p*, while holding the truth and falsehood of *p* before one’s mind and giving them equal weight.

All the same, it is plausible that religious beliefs make individuals more prone to perceive the spiritual aspects of a state of affairs. That is, since a religious person is already familiar with the conceptualizations of certain spiritual features, s/he is more likely to detect them in the surrounding world.

⁵²³ Ruczaj, 2018.

However, the tendency to see the world in light of our earlier conceptualizations of it is not a phenomenon that is exclusive to religion.

As a way to explicate the relationship between religious aspect perception and interpretative frames, I examined John Cottingham's concept of "transformative vision" (Section 4.2.4). What I bring with me from this discussion is an awareness of the active character of religious belief formation. That is, instead of seeing belief as a lens (or interpretative frame) that leads to automatic and predictable interpretations of the world, it requires an active engagement on the believing individual's part. Through such a procedure, s/he creatively interprets and transforms what s/he encounters in the world. The phenomenon of transformative vision, as I see it, requires an interplay between a continuous and an episodic element. Thus, while scientific practice has a different aim than religion, both areas share a similar kind of dynamic. That is, whereas models contribute a certain continuity, aspect perception is an episodic phenomenon that enables the religious believer/scientist to spot novel aspects within the framework in which s/he is situated. At other times, the dawning of an aspect may result in a movement between two different models/frameworks – for example, in the cases of religious conversion or scientific paradigm shifts.

In common to both scientific and religious aspect perceptions are interactions between imagination and perception. In the religious case, anthropological studies of kataphatic prayer and visualization provide valuable clues to how such an interplay may take place. One of the things that they suggest concerns the great influence that sensory imagination seems to have on how religious practitioners experience the world. That is, as a result of the repeated use of inner visual representations, it appears as if individuals experience the objects of prayer or meditation as more "real" than they would otherwise⁵²⁴ (Section 4.2.4). In relation to science, I haven't yet come across any study that explores a similar connection

The interaction between imaginings and percepts creates, in turn, a bridge to the phenomena of religious vision and visualization. As a stepping stone to my own conceptualization, I made use of St Augustine's distinctions between corporeal, spiritual, and intellectual vision.⁵²⁵ These categories served as background to an exploration of experiences of visualization and vision in Christian medieval monasteries (Section 4.2.2), contemporary Western esotericism, and Mahayana Buddhism (Section 4.2.3). The received view is that visualiza-

⁵²⁴ Luhrmann, 1989, 2010, 2012; Luhrmann and Morgain, 2012; Luhrmann, Nusbaum, Thisted, 2010.

⁵²⁵ *Corporeal vision* refers to the physical sense of sight – what we commonly refer to as "perception." *Spiritual vision* is the capacity that enables us to see things that are absent but significant. Since it entails mental imagery, I suggest that "imaginative vision" is a more accurate characterization. *Intellectual vision* enables us to see things as they really are (rather than merely seeing them as physical objects or as mental imagery).

tion draws more heavily on imagination than visionary practices do. In contrast to this assumption, I suggest a much closer relationship (rather than a strict distinction) between these two visual strategies. That is, even if visionary experiences are generally described as spontaneous and unintended, they are often influenced by imaginative forms of seeing (such as visualization).

As we can see, this resembles my earlier remark about the active and passive use of scientific imagination (Sections 2.5.1; 3.2.3). There it was suggested that a scientist's sudden illumination plausibly isn't as "accidental" as it may first appear. Instead, such experiences often entail the scientist's own unconscious processing of the problem at hand. In the case of visionary experiences, it seems likely that they entail operations that are just as complex and multifaceted as scientific eureka experiences. That is, while religious visions may indeed entail actual supernatural involvement, they also require the experiencing subject's own receptiveness and imaginative contribution.

7.3.5 Transportation and experiential imagination

As a way to examine religious rituals and scientific and religious thought experiments, I made use of the narratological concept of "transportation."

This concept was also associated with experiential imagination – that is, an imaginative capacity to recreate the experiences that that are entailed in an imagined scenario

I distinguish, in turn, between two forms of transportation. In experience-taking we use experiential imagination as a way to assume the identity of a narrated character and to simulate his/her thoughts, emotions, and behaviors. Perspective-taking, by contrast, requires that – as a strategy to estimate how the narrated character would experience and respond to a situation – we use conceptual knowledge about our own selves.⁵²⁶ At the same time, I reject a too-strict distinction between these two categories. Instead, I argue that it is the case that self-involvement is a necessary element in both of them. That is, when a subject recreates the experience of a narrated character (experience-taking), his/her experiential imagination is informed by his/her own self (perspective-taking). Even so, I emphasize that an individual also has a capacity – at least, to some degree – to transcend this limitation and to imagine "what it would be like" to be someone else. As we can see, this conclusion resonates with my earlier discussion of near and distant analogies, and how these are related to explorative and transformational creativity.

7.3.5.1 Religious rituals

The ritual strategy of transportation can take a variety of forms: simulation of what it would be like to be someone else (for example, a prominent character in the ritualized religious narrative), or a "transformed vision" of the practices

⁵²⁶ Kaufman and Libby, 2012.

of everyday life. While both kinds of interaction are essential in religious practice, in this dissertation I have given most attention to rituals of the former – and more explicit – kind. In this case, the ritual participant is transported into the ritual’s narrative substance. By doing so, (a) s/he is able to try on alternative selves while, simultaneously, (b) staying within the experiential categories that are provided by his/her religious tradition. Through such a journey, the participant is able to exist in a liminal space between the ritual world and the outside world. This in-between character, in turn, enables transformations of various kinds.

Instead of seeing this phenomenon as a case of “imaginative identification” (in which the imaginer metaphysically becomes his/her imagined alternative self; Section 2.4.2), I understand it as a result of a constant interaction between imaginings and beliefs. That is, even if experiential imagination allows us to explore alternative ritual identities, we are generally well aware of the distinction between what is “real” in the outside world (according to our beliefs) and what is imagined. Nonetheless, it is important to notice that the ritual universe isn’t considered to be an illusion by the ritual participant. All the same, it is experiential imagination that allows him/her to succeed with this kind of shift of perceptive.

Transportation entails, on my account, a preservation of cognitive quarantine (by which the mental states of belief and imagination are kept apart). Furthermore, I consider this cognitive mechanism to involve a shift of cognitive attention.⁵²⁷ That is, whereas attention enables the transition between beliefs and imaginings, it also constitutes an essential aspect of the process by which they are distinguished from each other. As a result, a subject does not literally “forget” about his/her actual beliefs, but temporarily directs attention away from them. For this reason, this characterization is consistent with the view that rituals are “a mode of paying attention”, directing our attention in a special way, so that very ordinary objects are perceived as significant.⁵²⁸ As a supplement to such a characterization, I would like to add that, by alternately directing our attention to our beliefs and our imaginings, we are able to be transported back and forth between an outside world and a ritual world.

In order to discuss rituals in light of the epistemic and meaning-making functions, it is necessary to examine the claim that rituals are “truth-pursuing.”⁵²⁹ If ritual practices are truth-pursuing, they must, in some sense, be related to T-Ex. That is, even if rituals entail imaginative elements, they must – at least – have truth as a non-constitutive aim. If they lack any reference to truth whatsoever, this can only give rise to truth-independent meaning-making. As an illustration, we can think of a subject who engages in rituals as

⁵²⁷ Kampa, 2018; Liao, 2017.

⁵²⁸ Smith, 1987: 130.

⁵²⁹ Schillbrack 2004:140.

meaning-making games of make-believe (the fictionalist stance). It is important to notice, however, that the notion of T-Ex is colored by the particular context in which it is situated. As a consequence, a religious practice cannot be warranted by the same methods of justification that are used in relation to science.

All the same, I argue that ritual engagement generates epistemic gains of various kinds. Given the multifaceted and often self-involving character of such a procedure, “religious understanding” seems to be the term that most accurately describes the epistemic contribution of rituals. In contrast to most forms of knowledge, understanding of this kind is not directly conveyed by the testimony of someone else. Even if testimonies can give the basis for this epistemic state, understanding is something that the subject must achieve for him/herself. In this procedure, experiential imagination plays an important role. By giving cognitive access to the experiential perspective presented in a religious narrative, a certain degree of self-involvement is required on the participant’s part. As a result, s/he is able to experience the religious framework as a lived reality. This can also be described as a particular kind of “know-how”: an embodied awareness of how ritual elements fit together and what role each of them plays in the larger scheme of things.

7.3.5.2 Scientific and religious thought experiments

In the case of scientific thought experiments (Section 3.6), they can be used for a variety of epistemic reasons: as a way to present internal or external problems for a given framework, to illustrate an otherwise complex and abstract position, to support a theory or framework, and so forth. However, it is often the case that one and the same thought experiment can perform diverse epistemic functions for different people, or can be interpreted in a number of different ways. In common to both scientific and religious thought experiments, however, is that they are performed in the laboratory of the mind, and rely on intuitive judgment. In this procedure, imagination enables the thought experimenting agent to elaborate on the proposed hypothetical scenario.

When discussing the epistemic role of scientific thought experiments, I argue that the epistemic state of understanding fits particularly well with the thought experimenting procedure.⁵³⁰ One reason why this is the case is that they promote cognitive control⁵³¹ by prompting us to do cognitive work of our own rather than giving us isolated pieces of information. By doing so, they enable an awareness of the relevant relationships involved in the hypothetical scenario, and of how these reflect a real-world situation.

⁵³⁰ Other philosophers who refer to thought experiments as a way to increase scientific understanding include Arthur 1999; Camilleri 2014; Gendler 1998, 2000; Gooding 1994; Nersessian 1992 a, b; 2007; Stuart 2016, 2017, 2018.

⁵³¹ Hills, 2016.

This operation is enabled, in turn, by the narrative strategy itself – that is, presenting events in such a way that they become intelligible, and convey not just isolated pieces of information, but also (if the thought experiment is successful) generating understanding. Thought experimentation, for this reason, is an example of a scientific use of narratives, and how these can enable the exploration of the implications of theories and models. In this way, it is a counter example to the view that scientific reasoning consists primarily of context-free, abstract, logico-deductive reasoning that is independent of narrative ways of processing information.⁵³² The involvement of both subjective and narrative elements, in turn, is something that scientific thought experiments have in common with religious thought experiments (which is an aspect to which I shall return in Section 7.3.5.3). In addition, there are certain scientific thought experiments that also function as interpretative frames, and that prompt characterizations and perspectives that are epistemically or semantically valuable. As an example, we can think of Darwin’s thought experiment in which he describes the human eye in light of the interpretative frame of evolution by natural selection.⁵³³ That is, even if religious models are more closely related to narratives than their scientific counterparts are, it doesn’t mean that certain scientific thought experiments cannot also serve as models.

Regarding the religious equivalent to scientific thought experiments, I’ve chosen to refer to them as “religious” rather than as “theological”⁵³⁴ (Section 4.7). The reason why I’ve chosen this kind of conceptualization is that it allows a broader spectrum of narratives to be associated with thought experimenting qualities. Whereas theology is typically associated with what people believe about the supernatural realm, the concept of religion also includes the practical application of such beliefs. For this reason, one of the advantages of my approach is that religious thought experimenting isn’t limited to philosophical or theological reasoning that is distinct from the practical employment of the religious framework in question.

In my conceptualization of religious thought experiments, a distinction is made between the categories of RTE¹ and RTE² (Section 4.7.2). In the case of RTE¹, it consists of narratives that are given a thought-experimenting function in retrospect. As examples, we can think of recent proposals that certain biblical narratives can be read in a thought-experimenting way.⁵³⁶ In this category I also count those narratives or practices that involve recreating the experiential perspective of prominent spiritual figures, or that allow transportation into recounted and significant events of a religious tradition. As my prime example of this category, I have used *The Spiritual Exercises of St. Ignatius*. In these exercises, the attendant is provided with existentially and religiously

⁵³² Bruner, 1986, 1991.

⁵³³ Stuart, 2016; 2018.

⁵³⁴ Fehige, 2009, 2012, 2014, 2018, 2019.

⁵³⁶ Fehige, 2019; Gregersen, 2014.

significant situations (related to biblical characters and events) that s/he is to explore and in relation to which s/he is to position her/himself. However, as soon as s/he imaginatively engages with, and is challenged by, these model situations, the narrated episodes of the exercises turn into thought experimentation.

The category of RTE², in turn, consists of narratives that were designed to have thought experimenting qualities. As a result, they make explicit use of argumentative and philosophical reasoning. As contemporary examples, we can think of Peter van Inwagen's (1978) and Dean Zimmerman's (1999, 2010) metaphysical thought experiments about the possibility of a material (bodily) resurrection after death.⁵³⁷ In this group, however, we should also count the philosophical reasoning of some ancient or medieval thinkers who used thought-experimenting strategies long before this term was even invented.⁵³⁸ Similar to the narratives that belong to the RTE¹ category, they are given the label "thought experiment" in retrospect. At the same time, since these ancient and medieval texts make a more explicit use of philosophical reasoning than do narratives that are purely religious, they should be placed in the RTE² group. As an example, we can consider Ibn Sina's/Avicenna's thought experiment, "the floating man" (which argues for the existence of an immaterial and substantial soul).⁵³⁹ In a way similar to van Inwagen's and Zimmerman's account, this is a metaphysical experiment that – while being situated within a philosophical framework – has religious relevance (for example, in relation to beliefs about an afterlife).

7.3.5.3 The recreation of experiential perspectives

There is no consensus among philosophers about what kind of imagination that is operative in scientific thought experiments. In this dissertation, a distinction has therefore been made between the imagistic, the propositional, and the experiential approaches. Instead of promoting either of these views, I consider it more accurate to say that these categories apply to different types of thought experiments. Even so, I have chosen to give particular attention to scientific thought experiments that make use of experiential imagination. While imagination as a whole is typically associated with the operations of a subjective mind, this aspect becomes even more explicit in experiential imagination. That is, since this kind of imagination is constituted by the recreation of a certain subjective standpoint, it contradicts the idea of an objective "view

⁵³⁷ According to van Inwagen, individual existence is guaranteed as a result of God's reanimation of the corpse. As a way to explicate his position, he creates a scenario in which God plays the role of a "body snatcher." In Zimmerman's thought experiment, the image of a falling elevator illustrates an argument about the possibility of a material (bodily) resurrection after death.

⁵³⁸ Ibn Sina/Avicenna (980-1037), Ibn al-Haytham (965-1040), Abu Hamid al-Ghazali (1058-1111). See, for example, Iribarren and Lenz, 2008, McGinnis 2018; Kuukkonen 2014.

⁵³⁹ In the thought experiment, a man falls freely through the air – a state in which he attains the sense of having no assistance from sensory experiences.

from nowhere.” This is, in turn, is an interesting point of departure if we are to compare scientific and religious thought experiments.

For this reason, in Chapter six I examined scientific thought experiments whose operational power indeed requires that the hypothetical scenario is approached from a certain experiential perspective. It was argued that such a strategy can take either of two forms: (a) to recreate the experiences of the protagonist of the fictional scenario, or (b) to recreate the experience of oneself observing the protagonist.

While there are some scientific thought experiments that make use of the former strategy, it is questionable whether, in fact, it is possible to know the subjective experiences of entities that have other physical and mental constitutions than ourselves. That is, even if we are able to imagine such experiential states, it is plausible that we end up creating anthropomorphized versions of them. In some thought experiments, such misrepresentation doesn’t challenge their explanatory value. For example, in the case of Maxwell’s demon (Section 3.6.2), a fictional entity is created as a way to illustrate the possibility of violating the second law of thermodynamics. That is, it is not the demon itself (as a particular kind of creature that perceives the world in a distinct demon-like way) that is the object of investigation. Given its fictional nature, we are free to think about this creature in an anthropomorphic way (since this serves the purpose of the thought experiment). In other cases – for example, in thought experiments about what it’s like to be a bat or any other life form that lacks a human type of cognition – such a misinterpretation severely weakens its explanatory value.

For this reason, it is more common that scientific thought experiments recreate the thought-experimenting agent’s own observation of the object of investigation. In light of Zeno Vendler’s (1984) concept of subjective imagination (Section 2.4.1), one can describe this as a situation in which the imaginer’s self is implicitly present (since the scene is presented from the self’s point of view). In the thought experiment of Schrodinger’s cat, for instance, it is the role of the observer – rather than the cat’s own experience of the situation – that is at the center of attention. At the same time, by referring to the consequences of a certain interpretation of quantum mechanics, this thought experiment refers indirectly to the behavior (but not the experience) of physical entities at a sub-atomic level. Another example is Albert Einstein’s thought experiment of how he pursues a light beam (Section 6.4.1.2). Here the focus is on what it would be like to travel at such a speed, and in what way this experience contravenes Maxwell’s equations. Even if the episode says something relevant about the properties of a physical phenomenon, it does so through the experiential perspective of a human observer.

Experiential imagination can be used in relation to both RTE¹ and RTE². At the same time, it seems as if the RTE² category has a weaker connection to experience-taking. Similar to many scientific thought experiments, these

kinds of narrative often only require that we instrumentally “accept” their reality claims, not that we engage in a full-blown transportation. We can think, for example, of Dean Zimmerman’s “falling elevator” model, in which the image of the falling elevator illustrates an argument about the possibility of a material (bodily) resurrection after death. While it is possible to make use of experiential imagination in relation to this hypothetical scenario (for example, recreating the experience of being inside the elevator), it isn’t likely that it increases the explanatory power of the thought experiment.

At the same time, it is important to notice that there may be other cases of RTE² that, by contrast, entail – and are strengthened by – experiential imagination. This, for example, is the case when a RTE² concerns ethical dilemmas in which the thought experimenting procedure could benefit from having access to “what it would be like” to be in a certain situation.

One of the reasons why RTE¹ is more likely to require experience-taking, I argue, is that (in many cases) they stem directly from a religious way of making the world intelligible. In this type of context, subjective experiences and self-involvement are considered to be essential.⁵⁴⁰ Another important aspect, as I see it, is that they often have more resemblances with literary fiction than the category of RTE² has. That is, whereas the purpose of typical philosophical thought experiments (a group in which I count RTE²) is exhausted by the role they play in a theoretical argumentation, literary fictions are more multifaceted and provoke various thoughts, insights, emotions, and so forth. As I see it, it may even be the case that this kind of versatility is a contributing factor to why certain cases of RTE¹ are able to survive in a religious tradition for centuries or even millennia.

Whereas rituals involve a similar kind of transportation as the one to which RTE¹ gives rise, thought experiments of this kind are – as the name indicates – primarily performed in the mind of the subject.⁵⁴¹ In the case of rituals, they also require – in addition to mental transportation – embodied involvement. However, in contrast to most philosophical and theological thought experiments, the category of RTE¹ entails a much higher degree of self-involvement.

Nonetheless, while successful ritual transportation requires that the participant take on a certain ritual identity (and, by doing so, experience the events from a certain perspective), the thought-experimenting agent can take part in the imagined scenario on different levels of self-involvement and duration. For example, while some narratives invite him/her to be more fully absorbed (for instance, imaginatively and emotionally taking the perspective of Mary

⁵⁴⁰ While the category of RTE¹ also entails literary fictions that are given a thought-experimenting function in retrospect, I am primarily concerned here with narratives that already belong to a religious tradition.

⁵⁴¹ At the same time, it should be noted that thought experimentation can have a physical influence on the subject – for example, by causing him/her to have a physical experience of certain emotions. Nonetheless, this phenomenon is quite different from the formalized physical enactment that rituals entail.

standing beneath the cross of crucifixion), other thought experiments can be performed by using a more distanced form of experience-taking. In the latter case, the procedure does include experiential imagination while at the same time having the character of hypothetical reasoning: “Suppose that I am Mary standing beneath the cross: this, plausibly, is what I would experience.” Even if a subject were to take part in a ritual in a similar, less self-involved way (for example, by merely seeing it as an authorized game of make-believe), ritual participation is, in general, more critically related to a deeper level of self-involvement.

7.4 Our understanding of science and religion

In this section, I shall discuss the fourth research question. It deviates from the other three questions by taking a broader perspective on the areas of science and religion. In particular, it focuses on the impact that this dissertation – and its investigation of imagination – might have on our understanding of science and religion.

- (4) Do the answers to questions 1-3 in any way influence the understanding that we (as scientists and human individuals in general) should have of what science and religion is or ought to be?

In relation to this question, I’d like to return to John Cottingham’s distinction between the “epistemology of reception” and the “epistemology of control” (Section 5.3.1.2). Whereas Cottingham connects the former with religious beliefs and transformative vision, he relates the latter to the detached and objective standpoint that science typically favours. These distinct epistemologies can, in turn, be seen in light of the different aims of science and religion. That is, even if both have it as their goal to make the world intelligible, the kind of comprehension they strive for is quite different. In the case of science, the goal is to make the world technologically and predicatively intelligible. In religion, the aim, rather, is to make the world existentially intelligible.

Even if Cottingham points to important differences between science and religion, this dissertation argues that one can acknowledge the different aims of science and religion while, at the same time, recognizing certain resemblances in how imagination is used in both areas. However, as a first step, it is necessary to acknowledge that, in fact, imagination *is* operative and influential in religion as well as science. That is, while the received view has been that religious practices are more “imaginative” than scientific ones, the suggestion of this dissertation is that imagination is an essential component in both endeavors.

This remark, in turn, is consistent with my earlier claim that the meaning-making function of imagination is executed on two levels: (a) a rudimentary

cognitive level on which imaginings affect our interpretation of everyday life, and (b) a more advanced cognitive level on which imagination is directed towards specified disciplinary tasks. However, while a comparison between science and religion typically focuses on level (b), we should take into account that participants in scientific and religious discourses share, as human beings, the conditions (the constraints as well as the possibilities) that accompany this position. This is, so to speak, a human common ground that influences how imaginings shape our basic processes of meaning-making (for example, perception). At the same time, I argue that they also constitute a foundation for the operations that take place at level (b). That is, even if the imagination, at this level, is directed towards distinct disciplinary tasks, we mustn't overlook the fact that these procedures are conducted by human beings who – at a fundamental level – have certain mental capacities and limitations in common. As a result, even if the distinct purposes and ideals of science and religion shape imaginings in certain ways, we can still assert that they display features that can be traced back to the shared cognitive disposition of human beings.

As an example, I have argued that both scientific and religious discourses include a dynamic between interpretative frames and aspect perception. (The phrase “seeing of aspects” refers, in this case, to a perceptual experience as well as an episode of sudden insight.) That is, participants in scientific and religious practices – on an individual as well as a communal level – are able to move between the interpretations that a certain framework offers and discover novel aspects within it. Sometimes this results in a development of the existing interpretative frame (explorative creativity); at other times the move is, instead, to acknowledge that the discovery in question necessitates a move beyond the interpretative frame (transformative creativity).

Nonetheless, the extent to which the latter strategy is used depends on the characteristic features and circumstances of the framework in question. For example, when a religion as a whole functions as a model for reality (RM²), it involves a higher personal cost to abandon the particular way of life that has shaped one's life until the present moment. At the same time, it is important to notice that subjects can experience transformational experiences on an individual level while, on a communal level, remaining within the same interpretative framework. As an example, we can think of a person who remains within one and the same religious tradition while, as the result of a transformational insight, s/he sees it in a novel light. We can, for instance, consider the well-known Zen-koan, “Before enlightenment: chop wood, carry water. After enlightenment: chop wood, carry water.” This quotation is often interpreted in the following way: Even if the visible actions of the Zen novice are the same as before enlightenment (satori), his/her experience and understanding of them has been transformed as a result of an enlightened “inner eye.” In this context, I use the above quote as an illustration of the religious as well as scientific insights that lead to a combination of radical transformation and loyalty to the framework as such. That is, even though nothing has changed in the

interpretative frame, we experience it as completely different by seeing it in a novel light.

Consequently, one way in which this dissertation might influence our understanding of science and religion is to identify similarities in how these areas make use of imagination. In the above discussion, the dynamic between interpretative frames and aspect perception – and its connection to explorative and transformational creativity – was used as an example of such a resemblance. Instead of connecting it to the distinct aims of either discourse, I argued that this kind of flexibility, at its deepest level, is founded on a shared human disposition that transcends disciplinary boundaries. In line with this way of reasoning, for example, a comparison between scientific eureka experiences and religious visions was suggested in Chapter five (Section 5.3.1.4). While this proposal requires a more extensive elaboration than I have been able to offer in this dissertation, it points to a promising way for future research on scientific and religious discourse – that is, to identify how, as a result of a rudimentary level of meaning-making, imagination gives rise to similar cognitive phenomena in both discourses.

In light of this perspective, I have advocated an interactive view of scientific and religious activities – that is, a position according to which both science and religion involve interactions between different mental attitudes rather than being dominated by one single attitude (as in pure cases of fictionalism or doxasticism, for example). However, rather than proclaiming an absolute resemblance, I have also pointed out that the attitude of belief seems to play a more important role in religion than it does in science. By combining the consequences of the first and second levels of meaning-making in this way (identifying similarities as well as differences), this dissertation provides a multifaceted view of the relation between science and religion.

As a way to discover further differences and similarities in scientific and religious uses of imagination, I have suggested that we see them in relation to the respective aim of each discourse. In such an approach, the distinction between T-Gen and T-Ex becomes important. That is, even if both scientific and religious practices are truth-normed, existential truth-claims are colored by a particular way of life, and cannot be warranted by the same methods of justification as one uses in relation to science. Furthermore, in the case of science, it should be noticed that the notion of truth is often overshadowed by how useful a particular component of inquiry is. That is, products of imaginative reasoning are only epistemically relevant for the scientist if they meet the constraints that s/he sets up. Such constraints, in turn, are always relative to the purpose of the scientific project in question. That is, even if the aim of science as a whole is to develop our knowledge and understanding of the natural world, each component doesn't have to have truth as its constitutive aim. As a result – and in light of the complexity and the multitude that the natural world contains – some models are useful for certain purposes but not for others. For example, whereas Newtonian physics are true enough (and therefore

useful) to compute satellite paths, they are false in relation to the laws of relativity. In this regard, it may serve the scientist's purpose to approach a model with the attitude of imagination rather than a stronger doxastic commitment.

In the case of religion, the quality of "usefulness" is not as explicit as in science. At the same time, it is likely that usefulness is implicitly involved in religious engagement as well – although in a slightly different way. That is, irrespective of the truth-normativity of a subject's religious beliefs, it might be useful for his/her overall purpose (to make the world existentially intelligible) to approach certain religious components with the attitude of imagination. In relation to the phenomenon of transformative vision, imagination, for instance, is indispensable for the religious believer's creative cooperation with the world. In this way, we can see that the religious believer – in a similar way to that of the scientist – approaches imaginings with certain constraints in their operational power. For this reason, and in light of the interactions between the truth-normed and truth-independent mental states that both science and religion entail, I suggest that the multi-layered concept of understanding best describes these epistemic procedures. Even so, it is important to notice that the concept of "usefulness" is context-dependent and therefore means different things in relation to an "epistemology of receptiveness" and an "epistemology of control."

The final dimension that I'd like to emphasize concerns our understanding of how science and religion make use of experiential imagination. That is, whereas imagination in itself is associated with subjectivity, this quality becomes even more accentuated in relation to experiential imaginings. In the case of religion and science, the received view is that subjective experiences belong to the former — but not to the latter – discourse. By formulating the experiential view of scientific and religious thought experimentation, my intention has been to challenge this common assumption. Furthermore, by connecting this examination to narrative transportation, the aim has been to suggest that both science and religion make use of narration as a way to process information and generate novel insight.

8 Summary

In this dissertation I investigate the role that imagination plays in scientific and religious ways of making the world intelligible. As a way to study this area, I examine how imagination operates in practices such as models, metaphors, analogies, thought experiments and – in the religious case – rituals. I also explore the phenomenon of aspect perception, which exists between pure imagery and pure perception.

As a framework for my examination, I use the contemporary discussion of imagination that, in recent years, has been taking place primarily within philosophy of mind. Philosophy of mind is a sub-discipline of philosophy that investigates the question of how mental states and processes should be conceived in relation to physical states and processes. This framework allows me to explore the mental state of imagination, not as an isolated phenomenon, but, rather, as one of many mental states that co-exist and interact in our cognitive architecture.

In my study I identify and conceptualize four forms of imagination that contribute to scientific and religious discourse: sensory, propositional, experiential, and creative imagination. These forms of imagining are, in turn related to scientific and religious practices. As a way to specify how imagination operates in scientific and religious cognition, I also examine how imaginings interact with mental states such as belief and perception.

When discussing scientific and religious cases of imagination, I connect them with two levels of mediation that shape and structure the imaginings that are involved. At the first level, mediation takes place via a particular conceptual framework that constructs and conceptualizes reality in a certain way. This level is, for this reason, related to “thematic imagination”, in which a certain thema guides the scientist’s or the religious individual’s imagination. While this is a phenomenon that occurs in science as well as in religion, religious traditions involve a more explicit thematic guidance (which may involve apophatic as well as kataphatic strategies). At the second level of mediation, imaginings are generated via a certain imaginative device (for example, a model or a thought experiment) that operates according to a specific course of action.

When examining scientific cases of sensory imagination, I relate them to the theoretical quality of “visualizability” as well as episodes of sudden illumination (so called “eureka” experiences). Regarding the latter, I suggest that these kinds of “passive imaginings” often are the result of the integration and

reprocessing of a large amount of information to which the scientists already have access (but now see in a new light). In my study of religious cases of sensory imagination, special attention is given to two visual phenomena: visualization and visionary experiences. As a stepping stone to my own conceptualization, I use St Augustine's distinctions between corporeal, spiritual, and intellectual vision. These categories serve as background to an exploration of cases of visualization and vision in Christian medieval monasteries, contemporary Western esotericism, and Mahayana Buddhism. While the received view is that visualization draws more heavily on imagination than visionary practices do, I suggest a much closer relationship between these two visual strategies.

In order to gain an understanding of new areas – or phenomena that transcend our current conceptualization of the world – we often compare them with something familiar. In science as well as in religion, this takes the form, for example, of metaphors and analogies (where selected characteristics of a well-known concept are compared with selected characteristics of a less familiar area). However, while these kinds of conceptual images are necessary for our way of exploring the world, they can also constrain our inquiries in undesirable ways. In this dissertation, I address this issue by, for instance, relating scientific and religious metaphors and analogies to different levels of creativity. In cases of “explorative creativity,” a discipline's codified set of rules or principles influences how much analogies and metaphors may enable individuals to “think outside the box.” By contrast, if analogies and metaphors give rise to “transformational creativity,” they prompt individuals to go beyond the limits of a discipline's conceptual space and to transform the set of rules that governs it.

As a way to study aspects of the world that are too complex to be examined in detail, scientists construct simplified and idealized models of them. In this dissertation, I study three accounts that describe scientific models as imaginative devices. According to *the propositional account*, models are said to engage primarily a propositional kind of imagination. This can, for example, take the form of a comparison between scientific models and cases of fiction and make-believe. According to *the metaphorical account*, a metaphor serves as an interpretative frame that temporarily guides us in adopting new perspectives and determines what information we notice about a subject. Instead of choosing between either of these approaches, I argue that *the additive account* best describes the multifaceted way in which imagination operates in scientific and religious modeling. In addition, in regard to religious models, I distinguish between two categories: RM¹ (models that relate to selected aspects of a religious discourse) and RM² (where entire religions function as “models” of reality). I acknowledge, furthermore, a close relation between models and narratives, and suggest that certain narratives can function as interpretative frameworks in themselves.

While interpretative frames can guide us in adopting new perspectives, novel vision can also be generated by aspect perception. In such an experience, a subject suddenly sees something (an aspect) in an object that s/he hasn't noticed before. As a way to explicate the relationship between interpretative frames and the seeing of aspects, I acknowledge that the word "seeing" can have a literal as well as a metaphorical connotation – that is, it can refer to both a perceptual and a meaning-making/epistemic experience. In relation to scientific and religious discourse, I propose that both entail a dynamic between interpretive frames/models and aspect perception. That is, even if a scientist or a religious person perceives the target of investigation through a certain interpretative frame, it doesn't exclude him/her from also having experiences of aspect perception. While models contribute a certain continuity, the seeing of aspects, by contrast, is an episodic phenomenon that enables the scientist/religious person to spot novel aspects within the framework in which s/he is situated. At other times, the dawning of an aspect may necessitate the creation of an entirely novel interpretative frame.

The way in which subjects relate to a model is, in turn, dependent on the functional role it plays in a specific environment as well as its relation to truth normativity. In this study I, on the one hand, differentiate between, two notions of truth (T-Gen and T-Ex) and, on the other hand, existential meaning-making (Ex-M). In the case of an existential truth claim (T-Ex), it is colored by its particular context (a certain religious way of life). Even so, I argue that T-Ex doesn't exist in isolation from truth in general sense (T-Gen). However, in contrast to the justification procedure of scientific truth claims, we do not have intersubjectively agreeable means by which we can test whether our T-Ex claims are justified.

In the case of meaning-making, I distinguish between (1) a rudimentary cognitive level, where imaginings operate and affect our everyday cognition; and (2) a specialized level, where imagination is directed towards specified disciplinary tasks. When imagination is used in rudimentary forms of meaning-making, it can help us either to interpret our sensory experiences or to enable us to distance ourselves from the present realities. In regard to specialized levels of meaning-making – such as science and religion – they may give rise to different forms of epistemic gain (such as knowledge or understanding). However, as I point out in my study, the states of knowledge and understanding *originate* as meaning-making procedures that acquire their epistemic status relative to their relationship to truth. That is, even if the processes that result in knowledge or understanding involve components that are truth-independent (such as imaginings), they have, in some sense, truth as a non-constitutive aim.

In light of these categories, I distinguish between doxastic, non-doxastic, and fictionalist approaches to religious and scientific models and practices. According to religious forms of doxasticism, one cannot have faith that p (for example, that God exists) without belief that p (that God exists). When the

term “doxasticism” is employed in a scientific context, it refers to a situation in which an individual scientist or a scientific community adopts the attitude of belief towards a theory or hypothesis. At the same time, I point out that the term “belief” is more controversial in a scientific context than in a religious environment.

Non-doxasticism and fictionalism, in turn, are positions according to which a weaker attitude (for example, acceptance or imagination) can play the cognitive role that is typically assigned to belief. While non-doxasticism is incompatible with both belief and disbelief, it holds the truth of p to be epistemically possible. As an example of a non-doxastic attitude towards religion, I refer to J.L. Schellenberg’s philosophical position of ultimism and his use of the concept of “imaginative faith.” When discussing his account, I argue that imaginative faith resembles in many ways a scientific approach towards a (currently) unknown, or at least insufficiently known, “object” of investigation. Even so, I argue that existential wrestling generally requires something more than suppositions and hypothetical reasoning about a possible state of affairs. Even if entertaining possibilities is indeed an essential part of this procedure, it is not to be equated with the procedure as a whole.

In the case of fictionalism, it involves a rejection of belief as the appropriate attitude towards the statements of the discourse. In my examination I distinguish between two kinds of this position: Fic.¹ (according to which the discourse is false) and Fic.² (according to which one should be agnostic about the truth of the discourse). In addition, fictionalist accounts incorporate some aspect or feature of fiction or pretense, and can be of either a hermeneutic or a revolutionary kind.

As examples of religious fictionalism I refer to the accounts of Andrew Eshleman and Robin Le Poidevin (Fic.¹) and Peter Lipton (Fic.²). A common feature of both the scientific and the religious versions of the fictionalist stance is that they are put forward as strategies (a) to avoid inconsistencies and tensions in a belief system, and (b) to access the utilities of a certain framework while not believing in its claims. However, in my analysis I argue that fictionalism is better suited to a scientific than to a religious context. That is, even if religious engagement may involve episodes of fictionalism and/or non-doxasticism, there are certain challenges in life (for example, suffering) that may require something more than just “imaginative faith” or engaging in religion as a game of make-believe.

In light of my discussion of doxasticism, non-doxasticism, and fictionalism, I propose that a more accurate approach is to acknowledge a constant interaction between different positions. In the case of religion, I assert that it is plausible that subjects take a number of stances towards different parts of the same religion. As a way to illustrate the complex interplay between imagination and belief, I examine the fiction-based religion Jediism. Whereas Jediists acknowledge that their founding narrative (*Star Wars*) is a purely fic-

tional narrative, they approach certain of its supernatural entities with the attitude of belief, doxastic acceptance or, at least, a recognition that they are epistemically possible. The discussion of doxasticism, non-doxasticism, and fictionalism serves, in turn, as a bridge to my formulation of the position of *interactivism*. According to this position, human cognition is governed by a constant interaction and negotiation between different mental states.

In relation to experiential imagination, I introduce the narratological concept of “transportation.” This concept is typically associated with a situation in which an agent is transported into a fictional or a factual narrative and becomes immersed in it. When I investigate the role of imagination in religious rituals, I use the concept of transportation as an analytical tool. As a point of departure for my exploration, I assume that rituals have a narrative substance into which the ritual participant is transported. By doing so, (a) s/he is able to try on alternative selves while, simultaneously, (b) staying within the experiential categories that are provided by his/her religious tradition. Through such a journey, the participant is able to exist in a liminal space between the ritual world and the outside world. This in-between character, in turn, enables transformations of various kinds. Instead of seeing this phenomenon as a case of “imaginative identification” (in which the imaginer metaphysically becomes his/her imagined alternative self), I consider this to be the result of a constant interaction between imaginings and beliefs. That is, even if experiential imagination allows us to explore alternative ritual identities, we are generally well aware of the distinction between what is “real” in the outside world (according to our beliefs) and what is imagined. This, in turn, is consistent with the position of interactivism.

In the case of thought experiments, they consist of narrated imaginary scenarios that allow a subject to experiment in his/her mind what might happen if the scenario were to occur in reality. However, there is no consensus among philosophers about what kind of imagination is operative in this procedure. In this dissertation, I distinguish between three contemporary proposals. According to the *imagistic approach*, thought experimentation is a procedure that is primarily enabled by sensory (visual) imagining. *The propositional approach*, by contrast, holds that we can imagine the narrated scenario without the presence of mental imagery. According to *the experiential approach*, thought experimenting involves a recreation of experiential perspectives. Instead of promoting any one of these views, I consider it more accurate to say that these categories apply to different types of thought experiment. Even so, I give particular attention to scientific thought experiments that make use of experiential imagination. While imagination as a whole is typically associated with the operations of a subjective mind, this aspect becomes even more explicit in experiential imagination. That is, since this kind of imagination is constituted by the recreation of a certain subjective standpoint, it contradicts the idea of an objective “view from nowhere.”

When discussing the epistemic role of scientific and religious thought experiments, I propose that the epistemic state of understanding fits particularly well with the thought-experimenting procedure. I motivate this claim by referring to thought experiment's ability to prompt us to do cognitive work of our own (which I associate with the concept of "cognitive control") rather than giving us isolated pieces of information. This is consistent with the epistemic state of understanding, I argue, since it requires that – in order to understand a subject matter or state of affairs – we "grasp" its relevant relationships (how its pieces fit together, and what role each one plays in the context of the whole).

Regarding the religious equivalent to scientific thought experiments, I choose to refer to them as "religious" rather than as "theological." I motivate this choice by arguing that this term allows a broader spectrum of narratives to be associated with thought-experimenting qualities. In light of this decision, I distinguish between narratives that are given a thought-experimenting function in retrospect (RTE¹) and narratives that, on the contrary, were designed to have "thought-experimenting qualities" (RTE²). In the group of thought experiments that involve experiential imagination, I count stories that allow us to relive, identify with, or merely reflect upon the experiences of significant figures of our own spiritual tradition.

As a result of my examination, I conclude that imagination contributes to scientific and religious intelligibility by fulfilling distinct epistemic, creative, and meaning-making functions for each discourse. In view of this study, I suggest, furthermore, that imagination should be conceptualized as a heterogeneous mental capacity that involves a variety of imaginings that display certain phenomenological variations. The common denominator, however, is their truth-independence. As a result of this characteristic trait, they are able to represent a state of affairs without any requirement on the imaging agent's part that s/he consider, wish, or expect that the imagined state of affairs is actually the case. This capacity creates, in turn, a basis for my claim that imagination isn't reducible to other mental states. Thus the functional argument against such a reduction is that imagination is able to do certain operations that truth-normed mental states (such as belief) are incapable of doing.

One way in which this dissertation might influence our understanding of science and religion is that it points to certain similarities in how each of these discourses make use of imagination. As an example I point out that both discourses entail a dynamic between interpretative frames and aspect perception. Instead of connecting it to the distinct aims of either discourse, I argue that this kind cognitive flexibility, at its deepest level, is founded on a shared human disposition that transcends disciplinary boundaries.

At the same time, it is necessary to take into account the different aims of science and religion. For this reason, I relate my discussion to John Cottingham's distinction between the "epistemology of reception" and the "epistemology of control." Whereas Cottingham connects the former with religious

beliefs and transformative vision, he relates the latter to the detached and objective standpoint that science typically favours. Even so, I argue in this dissertation that one can acknowledge the different aims of science and religion while, at the same time, recognizing certain resemblances in how imagination is used in both areas. However, as a first step, it is necessary to acknowledge that, in fact, imagination *is* operative and influential in religion as well as in science. That is, while the received view has been that religious practices are more “imaginative” than scientific ones, the suggestion of this dissertation is that imagination is an essential component in both endeavors.

9 Bibliography

- Abbott, H.P. (2003) Unnarratable knowledge: The difficulty of understanding evolution by natural selection. In: D. Herman, ed. *Narrative theory and the cognitive sciences*. Stanford, CA: CSLI Publications, pp.43-62.
- Abraham, A. (2020a) Surveying the imagination landscape. In: A. Abraham, ed. *The Cambridge handbook of imagination*. Cambridge: Cambridge University Press, pp. 1-10.
- Abraham, A. (2020b) The force of the imagination. In: A. Abraham, ed. *The Cambridge handbook of imagination*. Cambridge: Cambridge University Press, pp.811-814.
- Achinstein, P. (1983). *The nature of explanation*. New York, N.Y.: Oxford University Press
- Addis, D.R., Wong, A.T. & Schacter, D.L. (2007). Remembering the past and imagining the future: Common and distinct neural substrates during event construction and elaboration. *Neuropsychologia*, vol. 45 (7), pp. 1363-1377.
- Agam-Segal, R. (2012). How to investigate the grammar of aspect-perception: A question in Wittgensteinian method. *Essays in philosophy*, vol. 13 (1), pp.85-105.
- Alston, W. (1996). *A realist conception of truth*. Ithaca, NY: Cornell University Press
- Alston, W. (2007). Audi on nondoxastic faith. In: M. Timmons, J. Greco, A.R. Mele, eds. *Rationality and the good: Critical essays on the ethics and epistemology of Robert Audi*. Oxford: Oxford University Press, pp. 123-138.
- Appelros, E. (2002) *God in the act of reference: debating religious realism and non-realism*, Aldershot: Ashgate.
- Arcangeli, M. (2014). Against cognitivism about supposition. *Philosophia*, vol. 42 (3), pp. (3), pp.607–624.
- Arcangeli, M. (2018). *Supposition and the imaginative realm: philosophical inquiry*. New York, N.Y.: Routledge.
- Aristotle (2011). *De anima: On the Soul*. Trans. M. Shiffman. Newburyport, MA: Focus Publishing/R. Pullins Co.
- Armour-Garb, B.P. and Kroon, F. (2020). Introduction. In: B. Armour-Garb and F. Kroon, eds. *Fictionalism in philosophy*. Oxford: Oxford University Press, pp. 1-27.
- Arthur, R. (1999). On thought experiments as a priori science. *International studies in the philosophy of science*, vol.13 (3), pp .215-229.
- Asad, T. (1993). *Genealogies of religion: Disciplines and reasons of power in Christianity and Islam*. Baltimore: The John Hopkins University Press.
- Asprem, E. (2017). Explaining the esoteric imagination: Towards a theory of kataphatic practice. *Aries*, vol. 17 (1), pp. 17-50.
- Aquinas, T (1948) *Summa Theologiae*. Trans. by Fathers of the English Dominican Province. New York: Benziger Brothers.

- Augustine. (1982). *The literal meaning of Genesis [De Gens ad Literam]*. Transl. J.H. Taylor. New York, N.Y.: Newman Press.
- Augustine. (1991). *The Trinity [The Trinitate]*. Transl. E. Hill. New York: New City Press.
- Augustine. (1998) *The confessions*. Trans. and ed. H. Chadwick. Oxford: Oxford University Press.
- Audi, R. (2009). Religion and the politics of science: Can evolutionary biology be religiously neutral? *Philosophy & social criticism*, vol.35 (1-2), pp. 23-50.
- Audi, R. (2011). *Rationality and religious commitment*. Oxford: Oxford University Press
- Axtell, G. (2019). Recent work on religious imagination. *The junkyard of the mind* [online] Available at: <https://junkyardofthemind.com/blog/2019/8/30/recent-work-on-religious-imagination> [Accessed: 10 Sept 2019]
- Bacon, F. (1900). *Novum organum*. Trans. R. Ellis and J. Spedding, London: Routledge.
- Bainbridge, W.S. (2017). Jediism: The most popular online virtual religion. In: W.S. Bainbridge, ed. *Dynamic secularization: information technology and the tensions between science and religion*, Springer Cham, pp.121-149
- Balcerak Jackson, M. (2016). On the epistemic value of imagining, supposing, and conceiving. In: A. Kind, P. Kung, eds. *Knowledge through imagination*. Oxford: Oxford University Press, pp. 41–60.
- Balthasar, H. U.v. (1982). *The glory of the Lord: A theological aesthetics*. Vol.1..
- Bangu, S. (2015). Progress, understanding, and unification. In: I. D. Toader, G. Sandu,, I. Pärvu, eds. *Romanian studies in philosophy of science* . Cham: Springer, pp. 239-253.
- Barberousse, A. (2018). Scientific Change. In: A. Barberousse et al. *The philosophy of science: a companion*. New York: Oxford University Press, pp. 225-256
- Barbour, I (1997). *Religion and science: Historical and contemporary issues*. San Francisco: Harper.
- Barnes, E. (1991). Beyond verisimilitude: A linguistically invariant basis for scientific progress. *Synthese*, vol. 88, pp.309– 339.
- Barnes, E. (1991). Beyond verisimilitude: A linguistically invariant bias for scientific progress. *Synthese*, vol.88 (3), pp.309-339.
- Baumeister, R. F. (1991). *Meanings in life*. New York, N.Y.: Guilford.
- Baz, A. (2000). What's the point of seeing aspects? *Philosophical investigations*, vol.93 (2), pp. 97-121
- Bird, A. (2007). What is scientific progress? *Noûs*, vol. 41 (1), pp. 64-89.
- Bird, A. (2008). Scientific progress as accumulation of knowledge: A reply to Rowbottom. *Studies in history and philosophy of science*. vol. 39 (2), pp. 279-281.
- Bird, A. (2015). Scientific progress. In: P. Humphreys, ed. *The Oxford handbook of philosophy of science*. Oxford: Oxford University Press, pp. 544-563.
- Bishop, J. (2016). In: E. N. Zalta, ed. *The Stanford encyclopedia of philosophy*. [online] Winter 2016 Edn. Available at: <https://plato.stanford.edu/archives/win2016/entries/faith/>>.
- Black, M. (1962). *Models and metaphors: Studies in language and philosophy*. Ithaca, N.Y.: Cornell University Press.
- Black, M. (1993) More about metaphor. In A. Ortony, ed. *Metaphor and thought*, 2nd ed. Cambridge University Press, pp. 19-41.
- Bloch, M. (2008). Why religion is nothing but is central. *Philosophical transactions. Biological sciences*, vol.363 (1499), pp. 2055-2061.
- Boden, M. (1994). What is creativity? In M. Boden, ed. *Dimensions of creativity*. Cambridge, MA: MIT Press, pp. 75-118.

- Boden, M. (2004). *The creative mind: Myths and mechanisms*. Hove: Psychological Press.
- Bokulich, A. (2011). How scientific models can explain. *Synthese* (Dordrecht), vol. 180 (1), pp.33-45.
- Bokulich, A. (2016). Fiction as a vehicle for truth: Moving beyond the ontic conception. *The Monist*, vol. 99 (3), pp. 260-279.
- Bor, D. (2012). *The ravenous brain: How the new science of consciousness explains our insatiable search for meaning*. New York, N.Y.: Basic Books.
- Boudry, M. and Coyne, J. (2016). Disbelief in belief: On the cognitive status of supernatural beliefs. *Philosophical psychology*, vol. 29 (4), pp. 601-615.
- Bragg, W. (1936). The progress of physical science. In: J. Jeans, ed. *Scientific progress*. London: George Allen and Unwin, pp. 39-78.
- Braithwaite, R.N. (1955). *An empiricist's view of the nature of religious belief. The Eddington lecture*. Cambridge: Cambridge University Press.
- Brann, E T.H. (1991). *The world of the imagination: Sum and substance*. Savage, Maryland: Rowman & Littlefield Publishers
- Brendel, E. (2004). Intuition pumps and the proper use of thought experiments”, *Dialectica*, 58, pp. 89–108.
- Brock, S. (2020). Religious fictionalism and Pascal’s Wager. In: Armour-Garb, B.P., F. Kroon, F., eds. *Fictionalism in philosophy*. Oxford: Oxford University Press, pp. 207-230.
- Brown, J. R. (1991/2011). *Laboratory of the mind: Thought experiments in the natural sciences*. 2nd ed. London: Routledge.
- Brown, J. R. (2004). Peeking into Plato's heaven. *Philosophy of science*, vol. 71 (5), pp. 1126–1138.
- Brown, J.R. (2005). Naturalism, pictures, and platonic intuitions. In: P. Mancosu, K.F. Jørgensen, S.A. Pedersen, eds. *Explanations, visualizations, and reasoning styles in mathematics* Dordrecht: Springer, pp. 57–73.
- Brown, J.R. (2007). Counter Thought Experiments. *Royal institute of philosophy supplement*, vol. 61 (82), pp. 155–177.
- Bruner, J. (1986). *Actual minds, possible worlds*. Cambridge, MA: Harvard University Press.
- Bruner, J. (1991). The narrative construction of reality. *Critical inquiry*, vol. 18 (1), pp. 1–21.
- Brümmer, V. (1993). *The model of love: A study in philosophical theology*. Cambridge, CA: Cambridge University Press.
- Buchak, L. (2012). Can it be rational to have faith?’ in J. Chandler, V. Harrison, eds. *Probability in the philosophy of religion*. Oxford: Oxford University Press, pp. 225-246
- Buckner, R.L. and Carroll, D.C. (2007). Self-projection and the brain. *Trends in cognitive sciences*, vol. 11 (2), pp. 49-57.
- Bultmann, R. (1941/1953). The New Testament and mythology. In: H-W. Bartsch, ed. *Kerygma and myth*, vol I. London: SPCK: pp. 1-44.
- Bundy, M.W. (1927). *Theory of imagination in classical and mediaeval thought*. University of Illinois, Studies in Language and Literature. Vol. XII. 2-5, Urbana III. University of Illinois Press.
- Burge, T. (2010). *The origins of objectivity*. Oxford: Clarendon University Press.
- Butler, A. (2004). Making magic modern: Nineteenth-century adaptations. *The pom-egranate*, vol 6. (2), pp. 212-230.
- Byrne, R. (2005). *The rational imagination: How people create alternatives to reality*. Cambridge, MA: MIT Press.

- Camilleri, K. (2014). Towards a constructivist epistemology of thought experiments. *Synthese*, vol. 191 (8), pp. 1697–1716.
- Camp, E. (2009). Two varieties of literary imagination: Metaphor, fiction, and thought experiments. *Midwest studies in philosophy*, vol. 33(1), pp. 107–130.
- Camp, E. (2020 a). Imaginative frames for scientific inquiry. Metaphors, telling facts, and just-so stories. In: A. Levy, P. Godfrey-Smith, eds. *The scientific imagination: Philosophical and psychological perspectives*. Oxford: Oxford University Press, pp. 304-336.
- Camp, E. (2020 b). Perspectives and frames in pursuit of ultimate understanding. In: S. Grimm, ed. *Varieties of understanding. New perspectives from philosophy, psychology, and theology* Oxford University Press, pp.17-45.
- Carson, R. (1937). Undersea. *Atlantic monthly*, September, pp. 55–67.
- Cartwright, N. (1983). *How the laws of physics lie*. Oxford: Oxford University Press.
- Cartwright, N. (2010). Models: parables v fables. In: R. Frigg, M.C. Hunter, eds. *Beyond mimesis and convention: Representation in art and science*. Boston Studies in the Philosophy of Science. Dordrecht: Springer, pp. 19-31.
- Carruthers, P. (2002). Human creativity: Its cognitive basis, its evolution, and its connections with childhood pretence. *The British journal for the philosophy of science*, vol. 53 (2), pp. 225-249.
- Carruthers P. (2006). Why pretend? In: S. Nichols, ed. *The architecture of the imagination: New essays on pretense, possibility, and fiction*, New York, N.Y.: Oxford University Press, pp. 89–109.
- Carruthers, P. (2013). The distinctively human mind: The many pillars of cumulative culture. In: G. Hatfield H. Pittman, eds. *The evolution of mind, brain, and culture*. Philadelphia: University of Pennsylvania Museum of Archaeology and Anthropology, pp. 325-345.
- Chalmers, D. (2002). Does conceivability entail possibility? In: T.S. Gendler, J. Hawthorne, eds. *Conceivability and possibility*. New York, N.Y.: Oxford University Press, pp. 145–200.
- Child, W. (2018). Wittgenstein, seeing-as and novelty. In: B. Harrington, D. Shaw, M. Beaney, eds. *Aspect perception after Wittgenstein. Seeing-as and novelty*. New York, N.Y.: Routledge, pp. 29-48.
- Chryssides, G. D. (2011). Jediism. In: G.D. Chryssides, ed. *Historical dictionary of new religious movements*, Scarecrow Press, p. 177.
- Clack, B. (2007). After Freud: Phantasy and imagination in the philosophy of religion. *Philosophy compass*, vol. 3 (1), pp. 203-221.
- Cohen, L. J. (1980). What has science to do with truth? *Synthese*, vol. 45 (3), pp. 489–510.
- Comfort, N.C. (2001). *The tangled field*. Harvard University Press, Cambridge, MA; 2001
- Cottingham, J. (2017 a). Detachment, rationality and evidence: Towards a more humane religious epistemology. *Royal institute of philosophy supplement*, vol. 81, pp. 87-100.
- Cottingham, J. (2017 b). Transcending science. Humane models of religious understanding. In: F. Ellis, ed. *New models of religious understanding*. Oxford: Oxford University Press, pp. 23-42.
- Cuneo, T. (2014). Ritual knowledge. *Faith and philosophy*, vol. 31 (4), pp. 365-385.
- Currie, G. (2002). Imagination as motivation. *Proceedings of the Aristotelian Society*, vol. 102 (1), pp. 201-216
- Currie, G. (2010). Tragedy. *Analysis*, vol. 70 (4), pp. 632-638.
- Currie, G and Ravenscroft. I. (2002). *Recreative minds: Imagination in philosophy and psychology*. Oxford: Oxford University Press.

- Cusack, C.M. (2010). *Invented religions: Imagination, fiction and faith*. Farnham, UK: Ashgate Press.
- Daly, C. (2020). Fictionalism and reason. In: B. Armour-Garb, F. Kroon, eds. *Fictionalism in philosophy*. Oxford: Oxford University Press, pp. 61-80.
- Darden, L. (1991). *Theory change in science: strategies from Mendelian genetics*. New York: Oxford University.
- D'Argembeau, A. and van der Linden, M. (2006) Individual differences in the phenomenology of mental time travel. *Consciousness and cognition*, vol. 15 (2), pp. 342-350
- Darwin, C. (1859/1964). *On the origin of species: A facsimile of the first edition*. Cambridge, MA: Harvard University Press.
- Davenport, E.A. (1983). Literature as thought experiment (On aiding and abetting the muse). *Philosophy of the social sciences*, vol. 13 (3), pp.279–306.
- Davidson, M.A. (2012). The spiritual milieu based on J.R.R. Tolkien's literary mythology. In: A. Possamai, ed. *Brill handbooks on contemporary religion: Handbook of hyper-real religions*. Leiden, Brill, pp. 185-204.
- Davidson, M.A. (2013). Fiction-based religion: Conceptualizing a new category against history-based religion and fandom. *Religion and culture: An interdisciplinary journal*, vol. 14 (4), pp. 378–395.
- Davidson, M.A. (2016 a). The religious affordance of fiction: A semiotic approach. *Religion*, vol. 46 (4), pp. 521–549.
- Davidson, M.A. (2016 b). Fiction and religion: How narratives about the supernatural inspire religious belief – Introducing the thematic issue. *Religion*, vol.46 (4), pp. 488-499.
- Davidson, M.A. (2016 c). From Star Wars to Jediism. The emergence of fiction-based religion. In: E.v.d..H, A. Szafraniec, eds. *Words: Religious language matters*. New York: Fordham University Press.
- Davies, D. (2007). Thought experiments and fictional narratives. *Croatian journal of philosophy*, vol. 7 (19), pp. 29-45
- Davies, D. (2010). Learning through fictional narratives in art and science. In: R. Frigg, M.C. Hunter, eds. *Beyond mimesis and convention: Representation in art and science*. *Boston studies in the philosophy of science*, vol. 262, Dordrecht: Springer, pp. 51-69.
- Davis, M. H., L. Conklin, A. Smith, C. Luce. (1996). Effect of perspective-taking on the cognitive representation of persons: A merging of self and other. *Journal of personality and social psychology*, vol. 70 (4), pp. 713–726.
- Dellsén, F. (2016). Scientific progress: Knowledge versus understanding. *Studies in history and philosophy of science*, vol. 56, pp. 72–83.
- Dennett, D. (1969). *Content and consciousness*. London, New York: Routledge & Kegan Paul.
- Dennett, D. (1995). Intuition pumps. In: J. Brockman, ed. *The third culture: Beyond the scientific revolution*. New York, N.Y.: Simon & Schuster, pp. 181–197.
- De Cruz, H. (2013). Religious concepts as structured imagination. *International journal for the psychology of religion*, vol. 23 (1), pp. 63-74.
- De Cruz, H. and De Smedt, J. (2010). Science as structured imagination. *The journal of creative behavior*, vol. 44 (1), pp. 37-52.
- De Regt, H. W. (2014) Visualization as a tool for understanding. *Perspectives on science*, vol.22 (3), pp. 377-396.
- De Regt, H.W. (2017). Visualizability and intelligibility: Insight into the quantum world. In: H.de Regt, *Understanding scientific understanding*. Oxford: Oxford University Press, pp. 226-259.

- Desimone, R. and Duncan J. (1995). Neural mechanisms of selective visual attention. *Annual review of neuroscience*, vol. 18 (1), pp. 193–222.
- Dias, M. G., and P.L. Harris. (1990). The influence of the imagination on reasoning by young children. *British journal of developmental psychology*, vol. 8, pp. 305–318.
- Dilip, N. (2016). Imagination and the self. In: A. Kind, ed. *The Routledge handbook of imagination*. London and New York, N.Y.: Routledge, pp. 274–285.
- Doggett, T. and Egan, A. (2007). Wanting things you don't want: The case for an imaginative analogue of desire. *Philosophers Imprint*, vol. 7 (9), pp. 1–17. Ann Arbor, MI: Michigan Publishing. University of Michigan Library.
- Dokic, J. and Arcangeli, M. (2015). The heterogeneity of experiential imagination. In: T. K. Metzinger, J. M. Wind, eds. *Open MIND. Philosophy and the mind sciences in the 21st Century*. MIT Press, pp. 431–450.
- Driver, T.F. (1998). *Liberating rites. Understanding the transformative power of ritual*. Boulder Colorado: Westview Press.
- Dunbar, K. (1997). How scientists think: On-line creativity and conceptual change in science. In T.B. Ward, S.M. Smith, J. Vaid, eds. *Creative thought. An investigation of conceptual structures and processes*. Washington D.C.: American Psychological Association, pp.461–493.
- Egan, H. D. (1978). Christian apophatic and kataphatic mysticisms. *Theological studies*, vol. 39 (3), pp. 399–426.
- Egan, D. (2016). Literature and thought experiments. *The journal of aesthetics and art criticism*, vol.74 (2), pp. 139–50.
- Einstein, A. (1949). Autobiographical Notes. In: P. A. Schilpp, ed. *Albert Einstein-Philosopher Scientist*. New York: Tudor Publishing, pp. 2-95
- Elgin, C. Z. (2004). True enough. *Philosophical issues*, vol. 14 (1), pp. 113–131.
- Elgin, C. Z. (2007). Understanding and the facts. *Philosophical studies*, vol. 132 (1), pp. 33–42.
- Elgin, C. Z. (2010). Telling instances. In: R. Frigg, M.C. Hunter, eds. *Beyond mimesis and convention: Representation in art and science*. Springer, Dordrecht, pp. 1–17.
- Elgin, C. Z. (2014). *Fiction as thought experiment. Perspectives on science*, vol. 22 (2), pp. 221–24.
- Eshleman, A. (2005). Can an atheist believe in God? *Religious studies*, vol. 41 (2), pp. 183–199.
- Eshleman, A. (2010). Religious fictionalism defended: Reply to Codry. *Religious Studies*, vol.46 (1), pp. 91–96.
- Evans, C. S. (1998). *Faith beyond reason: A Kierkegaardian account*. Cambridge: Wm. B. Eerdmans Publishing Co.
- Everson, S. (2007). Belief in make-believe. *European journal of philosophy*, vol. 15 (1), pp. 63–81.
- Faivre, A. (1994) *Access to western esotericism*. New York, N.Y.: State University of New York Press, Albany
- Fauconnier, G. and M. Turner. (1998). Conceptual integration networks. *Cognitive science*, vol. 22 (2), pp. 133– 187.
- Fauconnier, G. and Turner, M. (2002). *The way we think: Conceptual blending and the mind's hidden complexities*. New York, N.Y.: Basic Books
- Fauconnier, G. and M. Turner. (2003). Conceptual blending, form, and meaning. *Recherches en communication*, vol. (19), pp. 53– 83.
- Fehige, Y. (2009). Thought experimenting with God: Revisiting the ontological argument. *Neue Zeitschrift für systematische Theologie und Religionsphilosophie*, . vol. 51 (3), pp. 249–267.

- Fehige, Y. (2012). Quantum physics and theology: John Polkinghorne on thought experiments. *Zygon*, vol. 47 (2), pp. 256–88.
- Fehige, Y. (2014). Intellectual tennis without a net? Thought experiments and theology. *Theology and science*, vol. 12 (4), pp. 378–395.
- Fehige, Y. (2018). Theology and thought experiments. In: M. T. Stuart, Y. Fehige, J.R. Brown, eds. *The Routledge companion to thought experiments*. London and New York, N.Y.: Routledge, pp. 183–94.
- Fehige, Y. (2019) The Book of Job as a thought experiment: On science, religion, and literature. *Religions*, vol. 10, pp.77.
- Ferré, F. (1967/2013): *Basic modern philosophy of religion*. London: Routledge
- Feuerbach, L. (1841/1969). *Das Wesen des Christentums*. 3rd ed. Stuttgart: Philipp Reclam.
- Feynman, R. P., R.B. Leighton, and M. Sands. (1963– 1965). *The Feynman lectures on physics*, vol. 3 [Quantum mechanics] New York, N.Y.: New millennium edn., Basic Books.
- Field, H. (1980). *Science without numbers: A defense of nominalism*. Princeton, N.J.: Princeton University Press.
- Fisch, M. (2019). Gulliver and the rabbis: Counterfactual truth in science and the Talmud. *Religions*, vol. 10 (3), pp. 228.
- Fiskå Hägg, H. (2006) *Clement of Alexandria and the beginnings of Christian apophaticism*. Oxford: Oxford University Press.
- Fitzgerald, T. (1997). A critique of ‘religion’ as a cross-cultural category. *Method and theory in the study of religion*, vol. 9 (2), pp. 91–110.
- Fitzgerald, T. (2000). *The ideology of religion studies*. Oxford: Oxford University Press
- Floridi, L. (2012). Turing’s three philosophical lessons and the philosophy of information. *Philosophical transactions of the Royal society of London*, vol. 370 (1971), pp. 3536–3542.
- Freud, S. (1907). Obsessive actions and religious practices. In: J. Strachey, ed. *Standard edition of the complete psychological works of Sigmund Freud*. Vol. 9 London: Virago, pp. 115–127.
- Friedman, M. (1974). Explanation and scientific understanding. *The journal of philosophy*, vol. 71 (1), pp. 5–19.
- Friedman, O. and Leslie, A.M. (2007). The conceptual underpinnings of pretense: Pretending is not “behaving-as-if.” *Cognition*, vol. 105 (1), pp. 103–124.
- Frigg, R. (2010 a). Models and fictions. *Synthese*, vol. 172 (2), pp.251–268.
- Frigg, R. (2010 b). Fiction and scientific representation. In: R. Frigg, M.C. Hunter, eds. *Beyond mimesis and convention. Representation in art and science. Boston Studies in the philosophy of science*, vol. 262. Dordrecht, Springer, pp. 97–138.
- Frigg, R. and Nguyen, J. (2016). The fiction view of models reloaded. *The Monist*, vol. 99 (3), pp. 225–242.
- Funkhouser, E. and Spaulding, S. (2009). Imagination and other scripts. *Philosophical studies*, vol.143 (3): pp. 291–314.
- Gagliardi, A. (1882). *Commentarii seu explanationes in exercitia spiritualia sancti patris Ignatii de Loyola*. C. Aken, ed.. Bruges: Desclée de Brouwer
- Gaut, B. (2010). The philosophy of creativity. *Philosophy Compass*, vol. 5 (12): pp. 1034–1046.
- Gavrilyuk, P. L. and S. Coakley. (2012). *The spiritual senses. Perceiving God in western Christianity*. Cambridge, New York, N.Y.: Cambridge University Press
- Gazzinga, M.S. (1970). *The bisected brain*. New York, NY: Appleton-Century-Crofts
- Geertz, C. (1973). *The interpretation of cultures*. New York: Basic Books.

- Gendler, T.S. (2000a). The puzzle of Imaginative resistance. *The journal of philosophy*, vol. 97 (2), pp. 55–81.
- Gendler, T.S. (2000 b). *Thought experiment: On the powers and limits of imaginary cases*. New York, N.Y.: Garland Press.
- Gendler, T.S. (2003). On the relation between pretence and belief. In: M. Kieran, D. McIver Lopes. eds. *Imagination, philosophy and the arts*. London: Routledge, pp. 124-141.
- Gendler, T.S. (2004). Thought experiments rethought — and re-perceived. *Philosophy of science*, vol. 71 (5), pp. 1152– 1163.
- Gendler, T.S. (2006a). Imaginative resistance revisited. In: S. Nichols, ed. *The architecture of the imagination: New essays on pretence, possibility, and fiction* [e-book] Oxford University Press, pp. 149–173.
- Gendler, T.S. (2006b). Imaginative contagion. *Metaphilosophy*, vol. 37 (2), pp. 183-203.
- Gendler, T.S. (2011). Imagination. In: E.N. Zalta, ed. *Stanford encyclopedia of philosophy* [online] Spring 2011 Edn.. Available at: <https://plato.stanford.edu/archives/spr2011/entries/imagination/>
- Gendler, T. (2012). Imagination. In: E.N. Zalta, ed. *Stanford encyclopedia of philosophy* [online] Winter 2016 Edn. Available at: <https://plato.stanford.edu/archives/win2016/entries/imagination/>.
- Gentner, D. (1983). Structure-mapping: A theoretical framework for analogy. *Cognitive Science*, vol.7 (2), pp. 155-170.
- Gettier, E. (1963). Is justified true belief knowledge? *Analysis*, vol.23 (6), pp. 121–123.
- Giere, R. N. (1988). *Explaining science: A cognitive approach*. Chicago: University of Chicago Press
- Giere, R. (2004). How models are used to represent reality. *Philosophy of science*, vol. 71 (5), pp. 742-752.
- Godfrey-Smith, P. (2006) The strategy of model-based science. *Biological philosophy*, vol. 21 (5), pp. 725–740.
- Godfrey-Smith, P. (2009). Models and fictions in science. *Philosophical studies*, vol. 143 (1), pp. 101-116.
- Goldie, P. (2000). *The emotions. A philosophical exploration*. Oxford: Oxford University Press.
- Golding, J.L. (1990). Toward a pragmatic conception of religious faith.” *Faith and philosophy*, vol. 7 (4), pp. 486–503.
- Gooding, D.C. (1994) Imaginary science. *British journal for the philosophy of science*, vol. 45 (4), pp.1029–1045.
- Gooding, D.C. (1998). Picturing experimental practice. In: M. Heidelberger, F. Steinle, eds. *Experimental essays – Versuche zum experiment*. Baden Baden: Nomos, pp. 298-323.
- Goodman, L. E. (2013). *Avicenna: Arabic thought and culture*. Routledge Press.
- Gopnik, A. and Walker, C.M. (2013). Considering counterfactuals. The relationship between causal learning and pretend play. *American journal of play*, vol. 6 (1), pp.15-28.
- Gosetti-Ferencei, J.A. (2018). *The life of imagination: Revealing and making the world*. New York, N.Y.: Columbia University Press.
- Green, M. C. and Donahue, J.K. (2008). Simulated worlds: Transportation into narratives. In: K. Markman, W.M. Klein, J.A. Suhrd, eds., *Handbook of imagination and mental simulation*. New York, NY: Psychology Press, pp. 241–255.

- Gregersen, N.H. (2014). The role of thought experiments in science and religion. In: M. Welker, ed. *Science and religion dialogue: Past and future*. Frankfurt am Main: Peter Lang AG, pp. 129-140.
- Gregory, D. (2016). Imagination and mental imagery. In: A. Kind, ed. *The Routledge handbook of imagination*. New York, N.Y.: Routledge, pp. 97-110.
- Grimm, S. R. (2010). Understanding. In: S. Bernecker and D. Pritchard, eds. *Routledge companion to epistemology*. London and New York: Routledge, pp. 84-94.
- Grimm, S.R. (2012). The value of understanding. *Philosophy compass*, vol.7 (2), pp. 103-117
- Gruber, H.E. (1978/2005). Darwin's 'tree of nature' and other images of wide scope. In: H. E Gruber, and K. Bödeker, ed. *Creativity, psychology and the history of science. Boston studies in the philosophy of science*, vol. 245. Dordrecht: Springer, pp. 241-257.
- Gruber, H. E. (1981). On the relation between 'aha experiences' and the construction of ideas. *History of science*, vol. 19 (1), pp. 41-59.
- Hadamard, J.W. (1945). *Essay on the psychology of invention in the mathematical field*. Princeton: Princeton University Press.
- Harris, P. L. (2000). *The work of the imagination*. Malden, MA: Blackwell
- Harris, P. L. Kavanaugh, R.D., Wellman, H.M., Hickling, A.K. (1993). Young children's understanding of pretense. *Monographs of the society for research in child development*, vol. 58 (1), pp. 1-107.
- Harris, P.L. and Leevers, H.J. (2000). Reasoning from false premises. In: P. Mitchell, K-J. Riggs, eds. *Children's reasoning and the mind*. London: Psychology Press, pp. 67-86
- Harrison, V.S. (2006) The pragmatics of defining religion in a multi-cultural world. *International journal for philosophy of religion*, vol. 59 (3), pp. 133-152.
- Harrison, V. S. (2007). *Religion and modern thought*. London: SCM Press
- Harrison, V.S. (2015). Seeing the Dao: conceptual metaphors and the philosophy of religion. *Religious studies*, vol. 51 (3), pp. 307-322.
- Hatchell, Chris. (2013). Buddhist visual worlds II: Practices of visualization and vision. *Religion compass*, vol.7 (9), pp. 349-360.
- Haught, J. (1995). *Science and religion. From conflict to conversation*. Mahwah: Paulist Press
- Hawkins, J.R., Pea, R.D., Glick, J., Scribner, S. (1984). Merds that laugh don't like mushrooms': Evidence for deductive reasoning by preschoolers. *Developmental psychology*, vol. 20 (4), pp. 584-594.
- Hayek, A. (2018). Pascal's Wager. In: E.N. Zalta, ed. *The Stanford encyclopedia of philosophy* [online] Summer 2018 Edn. Available at: <https://plato.stanford.edu/archives/sum2018/entries/pascal-wager/>.
- Hedley, D. (2008). *Living forms of the imagination*. London, New York: T & T Clark
- Hedley, D. (2011). *Sacrifice imagined: Violence, atonement, and the Sacred*. New York: Continuum
- Hedley, D. (2016). *The iconic imagination*. New York, London: Bloomsbury Academic
- Helmholtz, H.v. (1896). *Vorträge und reden*. Brunswick: Friedrich Viewig und Sohn
- Hempel, C.G. (1962). Deductive nomological vs statistical explanation. *Minnesota studies in the philosophy of science*. University of Minnesota Press, Minneapolis, vol.3, pp. 98-169
- Hempel, C.G. (1965). *Aspects of scientific explanation: and other essays in the philosophy of science*, Free Press, New York.

- Hempel, C. and Oppenheim, P. (1948). Studies in the logic of explanation. *Philosophy of science*, vol. 15 (2), pp. 135–175.
- Herman, D. (2008). Description, narrative, and explanation: Text-type categories and the cognitive foundations of discourse competence. *Poetics today*, vol. 29 (3), pp. 437-472.
- Herman, D. (2018). *Narratology beyond the human: Storytelling and animal life*. New York, N.Y.: Oxford University Press.
- Hesse, M. (1966/1963). *Models and analogies in science* (rev.ed.) Notre Dame, Indiana: Notre Dame University Press.
- Hick, J. (1969). Religious faith as experiencing-as. In: N. H.G Robinson, ed. *Talk of God*. London: Macmillan, pp. 20-35.
- Hick, J. (1985). *Problems of religious pluralism*. Macmillan, London.
- Hills, A. (2016). Understanding why. *Nous*, vol. 50 (4), pp. 661–688.
- Hills, A. and Bird, A. (2019). Against Creativity. *Philosophy and phenomenological research*, vol.99 (3), pp.694-713.
- Hofstadter, D. and Sander, E. (2013). *Surfaces and essences: Analogy as the fuel and fire of thinking*. New York, N.Y.: Basic Books
- Holton, G. (1996). On the art of scientific imagination. *Daedalus*, vol. 125 (2), pp. 183-208.
- Holton, G. (1978/1998). *The scientific imagination*. Cambridge, MA, London, England: Harvard University Press.
- Holmes, F.L. (2004). *Investigative pathways. Patterns and stages in the careers of experimental scientists*. New Haven, C.T.: Yale University Press.
- Horowitz, T. (1998). Philosophical intuitions and psychological theory. *Ethics*, vol. 108 (2), pp. 367–385.
- Howard-Snyder, D. (2013). Propositional faith: What it is and what it is not. *American Philosophical Quarterly*, vol.50 (4). pp. 357-372.
- Howard Snyder, D. (2019). Three arguments to think that faith does not entail belief. *Pacific philosophical quarterly*, vol. 100 (1), pp. 114-128.
- Hume, D. (1738/1975). *A treatise of human nature*, L. A. Selby-Bigge, ed. Oxford: Clarendon Press
- Ignatius of Loyola. 199. *The spiritual exercises and selected works*. Trans. G.E. Ganss. New York, N.Y.: Paulist Press.
- Ishiguro, H. (1967). Imagination. *Proceedings of the Aristotelian Society, Supplementary volumes*, vol.41, pp. 37-56
- Jacob, F. (2001). Imagination in art and in science. Transl. T. Ryan. *The Kenyon review*, vol. 23, (2), pp. 113-121.
- Jastrow, J. (1900). *Fact and fable in psychology*. Houghton, Mifflin and Co.
- Johnson-Laird, P.N. (1983). *Mental models. Towards a cognitive science of language, inference, and consciousness*. Cambridge, MA: Harvard University Press
- Jennings, T. (1982). On ritual knowledge. *The journal of religion*, vol. 62 (2), pp.111-127.
- Julian of Norwich. (1966). *The revelations of divine love*. Trans. C. Wolters, New York, N.Y.: Penguin.
- Jüngel, E. (1974). Metaphorischew. In: P. Ricoeur, E. Jüngel, eds. *Metapher: zur hermeneutik religiöser sprache*. Munich: Chr. Kaiser Verlag, pp. 71–122.
- Kahneman D and Tversky A. (1982). The simulation heuristic. In: D. Kahneman, P Slovic, A Tversky, eds. *Judgment under uncertainty: Heuristics and biases*. New York: Cambridge University Press pp. 201–208.
- Kampa, S. (2018). Imaginative transportation. *Australasian journal of philosophy*, vol.96 (4), pp. 683-696.

- Kant, I. (1788/1998). *Critique of pure reason*. Eds. and trans..P. Guyer, A.Wood, Cambridge: Cambridge University Press.
- Kant, I. (1781/2000). *Critique of the power of judgement*. Trans. P. Guyer, E. Matthews. Cambridge: Cambridge University Press.
- Katz, S. T. (1992). Mystical speech and mystical meaning. In: S. T. Katz, ed. *Mysticism and language*. New York, N.Y.: Oxford University Press, pp. 3-41.
- Kaufman, G. F. and Libby, L.K. (2012). Changing beliefs and behavior through experience-taking. *Journal of personality and social psychology*, vol. 103 (1), pp. 1-19.
- Kekulé, A. (1890). *Benzolfest rede. Berichte der Deutschen chemischen gesellschaft*, vol. 23 (1), pp. 1302-1311.
- Kemp, M. (2001). *Visualizations: The nature book of art and science*. Oxford: Oxford University Press.
- Kemp, M. (2006). *Seen/unseen. Art, science, and intuition from Leonardo to the Hubble telescope*. Oxford: Oxford University Press.
- Kenney, A. (2005). *The unknown God: Agnostic essays*. London: Continuum
- Kenny, A. (1992). *What is faith?* Oxford: Oxford University Press.
- Kind, A. (2001). Putting the image back in imagination. *Philosophy and phenomenological research*, vol.62 (1), pp.85–109.
- Kind, A. (2011). The puzzle of imaginative desire. *Australasian journal of philosophy*, vol. 89 (3), pp. 421–439.
- Kind, A. (2013). The heterogeneity of the imagination. *Erkenntnis*, vol. 78 (1), pp. 141–159.
- Kind, A. (2018a). How imagination gives rise to knowledge. In: F. Macpherson, F. Dorsch, eds. *Perceptual imagination and perceptual memory*. Oxford: Oxford University Press, pp.227-246.
- Kind, A. (2018b). Imaginative presence. In: F. MacPherson, F. Dorsch. M. Nide-Rumeling, eds. *Phenomenal presence*. Oxford University Press, pp.165-180
- Kind, A. (2019). Introduction to vol. 6. Twentieth-century philosophy of mind: themes, problems, and scientific context. In: A. Kind, ed. *Philosophy of mind in the twentieth and twenty-first centuries*. New York, Abington, Oxon: Routledge, pp. 1-20.
- Kind, A. and Kung, P. (2016). Introduction, In: A. Kind, P. Kung, eds. *Knowledge through imagination*. Oxford: Oxford University Press, pp. 1-38.
- Kitcher, P. (1989). Explanatory unification and the causal structure of the world. In: P. Kitcher, W. Salmon, eds. *Scientific explanation*. Minneapolis: University of Minnesota Press, pp. 410-505.
- Klein, S.B. (2013). The complex act of projecting oneself into the future. *Wiley interdisciplinary review: Cognitive science* 4 (1) pp.63-79.
- Klein, S.B, Loftus, J., and Kihlstrom, J.F. (2002). Memory and temporal experience: The effects of episodic memory loss on an amnesic patient's ability to remember the past and imagine the future. *Social cognition*, vol. 20 (5), pp. 353-379.
- Koestler, A. (1964). *The act of creation*. London: Hutchinson.
- Kosslyn, S.M. 1980. *Image and mind*. Cambridge, MA: Harvard University Press.
- Kosslyn, S.M. (1994). *Image and brain: the resolution of the imagery debate*. Cambridge, MA: MIT Press
- Kosslyn, S., Thompson, W., and Ganis, G. (2006). *The case for mental imagery*. New York: Oxford University Press.
- Kroon, F. and Voltolini, A. (2019). Fiction. In: Edward N. Zalta, ed. *The Stanford encyclopedia of philosophy*. Winter 2019 Edn. Available at: <https://plato.stanford.edu/archives/win2019/entries/fiction/>>

- Kuhn, T. S. (1962/1970). *The structure of scientific revolutions*. 2nd ed., with post-script. Chicago: University of Chicago Press.
- Kuhn, T.S. (1964/1977). A function for thought experiments. In: T. Kuhn, *The essential tension. Selected studies in scientific tradition and change*. Chicago: Chicago University Press.
- Kukkonen, T. (2014). Ibn Sina and the early history of thought experiments. *Journal of the history of philosophy*, vol. 53 (3), pp.433–453.
- Kung, P. (2010). Imagining as a guide to possibility. *Philosophy and phenomenological research*, vol. 81 (3), pp. 620–663.
- Lakatos, I., (1978). The methodology of scientific research programmes. In: J. Worrall, G. Currie, eds. *Philosophical papers*. Cambridge: Cambridge University Press.
- Lakoff, G. and Johnson, M. (1980). *Metaphors we live by*. Chicago: University of Chicago Press.
- Langland-Hassan, P. (2015). Self-knowledge and imagination. *Philosophical explorations*, vol.18 (2), pp. 226-245.
- Langland Hassan, P. (2020). *Explaining imagination*. Oxford: Oxford University Press
- Laudan, L. (1978). *Progress and its problems: Toward a theory of scientific growth*. Berkeley: University of California Press.
- Laudan, L. (1984). *Science and values: the aims of science and their role in scientific debate*. Berkeley: University of California Press
- Lenhard, J. (2018). Thought experiments and simulation experiments: Exploring hypothetical worlds. In: M.T. Stuart, Y. Fehige, J.B. Brown, eds. *The Routledge companion to thought experiments*. London and New York, N.Y.: Routledge, pp.484–497
- Lennox, J. G. (1991). Darwinian thought experiments: A function for just-so stories. In: T. Horowitz, G. Massey, eds. *Thought experiments in science and philosophy*, CPS publication in philosophy of science. Lanham: Rowman & Littlefield, pp. 223–245.
- Le Poidevin, R. (2003). Theistic discourse and fictional truth. *Revue internationale de philosophie*, vol. 225, (3), pp. 271-284.
- Le Poidevin, R. (2016). Playing the God game. The perils of religious fictional-ism. In: B. Andrei, Y. Nagasawa eds. *Alternative concepts of God. Essays in metaphysics of the divine*. New York: Oxford University Press, pp. 178-193.
- Leslie, A.M. (1987.) Pretense and representation: The origins of ‘theory of mind.’ *Psychological review*, vol. 94 (4), pp.412–426.
- Leslie, A.M. (1994). Pretending and believing: Issues in the theory of ToMM. *Cognition*, vol. 50 (1–3), pp. 211–238.
- Levy, A. (2012). Models, fictions, and realism: Two packages. *Philosophy of science*, vol. 79 (5). pp. 738–748.
- Levy, A. (2015). Modelling without models. *Philosophical studies*, vol.172 (3), pp.781-798.
- Levy, A. (2020) Metaphor and scientific explanation. In: A. Levy, P. Godfrey-Smith, eds. *The scientific imagination. Philosophical and psychological perspectives* Oxford: Oxford University Press, pp. 280-302.
- Levy, A and P. Godfrey-Smith P. (2020). Introduction. In: A. Levy, P. Godfrey-Smith eds. *The scientific imagination: Philosophical and psychological perspectives*. Oxford: Oxford University Press, pp. 1-16.
- Levy, N. (2017). Religious beliefs are factual beliefs: Content does not correlate with context sensitivity. *Cognition*, vol. 161, pp. 109-116.
- Lewis, D. (1973). *Counterfactuals*. Oxford: Basil Blackwell.

- Liao, S-Y. (2017). (Unpublishable). Immersion is attention/becoming immersed. Available at: <https://philarchive.org/archive/LIAIIAv1>
- Liao, S-Y and Doggett, T. (2014). The imagination box. *Journal of philosophy*, vol. 111 (5), pp. 259-275.
- Liao, S-Y and Gendler, T.S. (2011). *Pretense and imagination*. *Wiley Interdisciplinary Reviews: Cognitive Science*, vol. 2 (1), pp. 79–94.
- Liao, S-Y and Gendler, T.S. (2019). Imagination. In E.N. Zalta, ed. *The Stanford encyclopedia of philosophy* [online] Spring 2019 Edn. Available at: <https://plato.stanford.edu/archives/spr2019/entries/imagination/>
- Lieberman, J.N. (1977). *Playfulness: Its relationship to imagination and creativity*. New York, N.Y.: Academic Press.
- Liliard, A. (2001). Pretend play as twin earth: A social-cognitive analysis. *Developmental review*, vol. 21 (4) pp.495–531.
- Lipton, P. (2009). Science and religion: The immersion solution. In: J. Cornwell, M. McGhee, ed. *Philosophers and God: At the frontiers of faith and reason*. London, New York: Continuum, pp.1-19.
- Luhmann, T. (1989). *Persuasions of the witch's craft: Ritual magic and witchcraft in present-day England*. Oxford: Basil Blackwell, Cambridge, MA: Harvard University Press
- Luhmann, T.M. (2010). What counts as data? In: J. Davies, D. Spencer, eds. *Emotions in the field: The psychology and anthropology of fieldwork experience*. Stanford University Press, pp. 212-235.
- Luhmann, T.M. (2012). *When God talks back: Understanding the American evangelical relationship with God*. New York, N.Y.: Vintage Books.
- Luhmann, T.M. (2013). Making God real and making God good: Some mechanisms through which prayer may contribute to healing. *Transcultural psychiatry*, vol. 50, (5), pp. 707-725.
- Luhmann, T.M and Morgain, R. (2012). Prayer as inner sense cultivation: An attentional learning theory of spiritual experience. *Ethos*, vol. 40 (4), pp. 359-389.
- Luhmann, T., Nussbaum, H., and Thisted, R.. (2010).The absorption hypothesis: Learning to hear God in evangelical Christianity. *American anthropologist*, vol. 112 (1), pp. 66–78.
- Luhmann, T., Nussbaum, H. and Thisted, R. (2013) Lord, teach us to pray: Prayer practice affects cognitive processing. *Journal of cognition and culture*, vol. 13 (1-2), pp. 159–177.
- Lynch, M.P. (2017). Understanding and coming to understand. In: S. Grimm, ed. *Making sense of the world: New essays on the philosophy of understanding*. New York: Oxford University Press, pp. 194-208.
- Mach, E. (1897). Über Gedankenexperimente. In: *Zeitschrift für den physikalischen und chemischen Unterricht*, 10, pp. 1-5.
- Malcolm, F and M. Scott. (2018). Religious fictionalism. *Philosophy compass*, vol. 13 (3), pp. 1-11.
- Malm-Lindberg, I. (2019). The thought experimenting qualities of Kierkegaard's Fear and Trembling. *Religions*, vol. 10 (6),pp. 391.
- Martindale, C. (1995) Creativity and connectionism. In: S.M. Smith, T. B. Ward, R. Finke eds. *The creative cognition approach*. Cambridge, MA: MIT Press, pp. 249-268.
- Martindale, C. (1999). Biological bases of creativity. In: R. Sternberg, ed. *Handbook of creativity*. New York, N.Y.: Cambridge University Press, pp. 137-152.
- Matravers, D. (2014). *Fiction and narrative* Oxford: Oxford University Press.

- McCord, A.M. (2010). The immaculate conception of the blessed virgin Mary: A thought-experiment in medieval philosophical theology. *The Harvard theological review*, vol.103 (2), pp. 133–159.
- McCormick, D. (2012). The sanctification of Star Wars: From fans to followers. In: A. Possamai, ed. *Brill handbooks on contemporary religion: Handbook of hyper-real religions*. Brill, pp.164-184.
- McFague, S. (1987). *Models of God: Theology for an ecological, nuclear age*. London: SCM Press.
- McFague, S. (1993). *The body of God: An ecological theology*. Minneapolis: Fortress Press.
- McGinn, B. (2005) Visions and visualizations in the here and hereafter. *The Harvard theological review*, vol. 98(3), pp. 227-246.
- McGinn, C. (2004). *Mindsight: image, dream, meaning*. Cambridge, MA: Harvard University Press.
- McGinnis, J. (2018). Experimental thoughts on thought experiments in medieval Islam. In: M.T. Stuart, Y. Fehige, J.R.Brown, eds. *The Routledge companion to thought experiments*. London and New York, N.Y.: Routledge, pp. 77–91.
- McInroy, M. J. (2012). Origen of Alexandria. In: P.L. Gavriluk, S. Coakley, eds. *The spiritual senses. Perceiving God in western Christianity*. Cambridge, New York, N.Y.: Cambridge University Press, pp. 20-35.
- McKaughan, D. J. (2013). Authentic faith and acknowledged risk: Dissolving the problem of faith and reason. *Religious Studies*, vol. 49 (1), pp. 101-12.
- McKaughan, D. J. (2017). On the value of faith and faithfulness. *International journal for philosophy of religion*, vol. 81(1-2), pp. 7-29
- McMahan. D.L. (2002). *Empty vision: Ocular metaphor and visionary imagery in Mahayana Buddhism*. London: Routledge Curzon.
- Michelian, K. (2016). *Mental time travel: Episodic memory and our knowledge of the personal past*. Cambridge, MA: MIT Press
- Miller, A. I.. (1984). *Imagery in scientific thought creating 20th-century physics*. Boston, MA: Birkhäuser Boston.
- Miščević, N. (2007). Modelling intuitions and thought experiments. *Croatian journal of philosophy*, VII, pp. 181–214.
- Montemayor, C. and Haladjian, H.H. (2015). *Consciousness, attention, and conscious attention*. Cambridge, MA: MIT Press.
- Moran, R. (1994). The expression of feeling in imagination. *The philosophical review*, vol. 103 (1), pp. 75–106.
- Morehead, J.W. (2012). A world without rules and controls, without borders or boundaries: Matrixism, new mythologies, and symbolic pilgrimages. A. Possamai, ed. *Brill handbooks on contemporary religion: Handbook of hyper-real religions* Brill, pp. 111-128.
- Morgan, D.(2005). *Sacred gaze: Religious visual culture in theory and practice*. Berkeley and Los Angeles: University of California Press
- Morgan, M. S. (2001). Models, stories and the economic world. *Journal of economic methodology*, vol.8 (3), pp. 361–384.
- Morgan, M. S. and Wise, M.N. (2017). Narrative science and narrative knowing. Introduction to special issue on narrative science. *Studies in history and philosophy of science*, vol. 62, pp.1-5.
- Moyers, B. (1999). Of myths and men: A conversation between Bill Moyers and George Lucas about the meaning of The Force and the true theology of Star Wars. *Time*, April 26, 1999.
- Mujica, B. (2001). Beyond image: The apophatic-kataphatic dialectic in Teresa de Avila. *Hispania*, vol. 84 (4), pp. 741-748.

- Mullally, S. L. and Maguire, E. A. (2014). Memory, imagination, and predicting the future: A common brain mechanism? *Neuroscientist*, 20 (3), pp.220-234.
- Murphy, A. (2020) Toward a pluralist account of the imagination in science. *Philosophy of science*, vol. 87 (5), pp. 957-967.
- Nagel, T. (1971) Brain bisection and the unity of consciousness. *Synthese*, vol. 22 (3/4), pp. 396-413.
- Nagel, T. (1974). What is it like to be a bat? *Philosophical review*, vol. 83 (4), pp. 435-450.
- Nanay, B. (2010). Attention and the perceptual content. *Analysis*, vol. 70 (2), pp.263-270.
- Nanay, B. (2013). *Between perception and action*. Oxford: Oxford University Press
- Nanay, B. (2015). Perceptual content and the content of mental imagery. *Philosophical studies*, vol. 172 (7), pp. 1723-1736.
- Nanay, B. (2016). Imagination and perception. In: A. Kind, ed. *The Routledge handbook of imagination*. New York, N.Y.: Routledge, pp.124-134.
- Nersessian, N.J. (1984). *Faraday to Einstein: constructing meaning in scientific theories*. Dordrecht: Kluwer Academic Publishers
- Nersessian, N. J. (1992a). How do scientists think? Capturing the dynamics of conceptual change in science. In: R. Giere, ed. *Cognitive models of science. Minnesota studies in the philosophy of science*, vol. 15, pp. 3– 45.
- Nersessian, N.J. (1992b). In the theoretician's laboratory: Thought experimenting as mental modelling. *Proceedings of the Biennial Meeting of the Philosophy of Science Association*, vol. 1992 (2), pp. 291-301.
- Nersessian, N.J. (2007). Thought experiments as mental modelling: Empiricism without logic. *Croatian journal of philosophy*, vol. 7 (20), pp.125–161.
- Nersessian, N.J. and Chandrasekharan, S. (2009). Hybrid analogies in conceptual innovation in science. *Cognitive systems research*, vol. 10 (3), pp. 178-188.
- Newman, B. (2005). What did it mean to say 'I saw'? The clash between theory and practice in medieval visionary culture. *Speculum*, vol. 80 (1), pp. 1-43.
- Nichols, S. (2004). Imagining and believing: The promise of a single code. *Journal of aesthetics and art criticism*, vol. 62 (2), pp.129–139.
- Nichols, S. (2006). Just the imagination: Why imagining doesn't behave like believing. *Mind and language*. vol.21 (4), pp. 459–474.
- Nichols, S. (2008). Imagination and the I. *Mind & language*, vol. 23 (5), pp. 518-535.
- Nichols, S. and Stich, S. (2000). A cognitive theory of pretense. *Cognition*, vol. 74 (2), pp. 115–147.
- Nichols, S. and Stich., S. (2003). *Mindreading: An integrated account of pretense, self-awareness and understanding other minds*. Oxford: Oxford University Press
- Nicholson, M. (1956). *Science and imagination*. Ithaca, N.Y.: Great Seal Books.
- Nickles, T. (2018). Prospective versus retrospective points of view in theory of inquiry: Toward a quasi-Kuhnian history of the future. In: B. Harrington, D. Shaw and M. Beaney, eds. *Aspect perception after Wittgenstein. Seeing-as and novelty*. New York, N.Y. and London: Routledge, pp.153-172.
- Niiniluoto, I. (1980). Scientific progress. *Synthese*, vol. 45 (3), pp. 427– 462.
- Niiniluoto, I. (2014). Scientific progress as increasing verisimilitude. *Studies in history and philosophy of science*, vol. 46, pp. 73– 77.
- Ninan, D. (2016). Imagination and the self. In: A. Kind, ed. *The Routledge handbook of imagination*. New York, N.Y.: Routledge, pp. 274-285.
- Noë, A. (2004). *Action in perception*. Cambridge, M: The MIT Press.
- Norton, J. (2004). On thought experiments: Is there more to the argument? *Philosophy of science*, vol. 71 (5), pp. 1139–1151.

- Novitz, D. (1999). Creativity and constraint. *Australasian journal of philosophy*, vol.77 (1), pp. 67–82.
- Nussbaum, M. C (1997). *Cultivating humanity. A classical defense of reform in liberal education*. Cambridge, MA: Harvard University Press.
- O’Brien, L. (2005). Imagination and the motivational role of belief. *Analysis*, vol. 65 (1): pp. 55–62.
- Okuda, J., Fujii, T., Othake, H., et al. (2003) Thinking of the future and the past: the roles of the frontal pole and the medial temporal lobes, *Neuro image*. Vol. 19 (4), pp. 1369-1380.
- O’Shaughnessy, B. (2000). *Consciousness and the world*. Oxford: Clarendon Press
- Ørsted, H.C. (1920/1811). Prolegomenon to the General Theory of Nature. In: K Meyer, ed. *Naturvidenskabelige Skrifter*. Copenhagen: A.F. Høst & Søn, vol. 3, pp. 151–90.
- Page, J.W., P. Duhamel, and M.A. Crognale. (2011). ERP evidence of visualization at early stages of Visual processing. *Brain and Cognition*, vol. 75 (2), pp. 141-146.
- Palmqvist, C J. (2019). Forms of belief-less religion: Why non-doxasticism makes fictionalism redundant for the pro-religious agnostic. *Religious studies*, vol. 57 (1), pp.49-65
- Pascal, B. (1670/1910). *Pensées* Trans. W. F. Trotter. London: Dent.
- Peacocke, C. (1985). Imagination, possibility and experience: A Berkeleian view defended In: J. Foster, H. Robinson, eds. *Essays on Berkeley: a tercentennial celebration*. Oxford: Clarendon, pp. 19-35.
- Peacocke, C. (1986). The inaugural address: Analogue content. *Supplementary volume - Aristotelian Society*, vol.60 (1), pp. 1-17.
- Phillips, D.Z. (1970). *Faith and philosophical enquiry*. London: Routledge & Kegan Paul.
- Piaget, J. (1932). *The moral judgement of the child*. London: Routledge & Kegan Paul.
- Picciuto, E. (2009). The pleasures of suppositions. *Philosophical psychology*, vol. 22 (4), pp. 487-503.
- Picciuto, E. and Carruthers, P. (2014). The origins of creativity. In: E.S. Paul, S. B. Kaufmann eds. *The philosophy of creativity: New essays*. New York, NY: Oxford University Press, pp.199-223.
- Picciuto, E. and Carruthers, P. (2016). Imagination and pretense. In: A. Kind, ed. *The Routledge handbook of imagination*. London and New York, N.Y.: Routledge, pp. 314-325.
- Pinker, S. (1997). *How the mind works*. New York, N.Y.: Norton.
- Plaisance, C.A. (2014). Magic made modern? Re-evaluating the novelty of the Golden Dawn’s magic. *Correspondences*, vol. 2 (2), pp. 159–187.
- Plantinga, A. (1983). Reason and belief in God. In: A. Plantinga & N. Wolterstorff eds. *Faith and rationality: Reason and belief in God*. Notre Dame: University of Notre Dame Press, pp. 16-93.
- Plantinga, A. (2000). *Warranted Christian belief*. New York: Oxford University Press.
- Poincaré, H. (1913/2012). *The foundations of science: Science and hypothesis; The value of science; science and method*. Trans. G.B. Halstead. New York, N.Y.: Science Press. Available at: <https://www.gutenberg.org/files/39713/39713-h/39713-h.htm> [Accessed: 21 Jan 2019]
- Pojman, L. (1986). Faith without belief? *Faith and philosophy*, vol. 3 (2), pp. 157-176.
- Polanco, J. (1955). *Monumenta Ignatiana*, Ser. II, 2: 300–3.

- Polanyi, M. (2009/1966). Creative imagination. In: K. Bardsley, D. Dutton, M. Krausz, eds. *The idea of creativity*. Leiden: Brill, pp.147-163.
- Popper, K. (1934/1959) *The logic of scientific discovery*. London: Hutchinson
- Popper, K. (1963). *Conjectures and refutations: The growth of scientific knowledge*. London: Routledge.
- Popper, K. R. (1972). *Objective knowledge: An evolutionary approach*. Oxford: Clarendon Press
- Popper, K.R. (1976). A note on verisimilitude. *The British journal for the philosophy of science*, vol. 27 (2), pp. 147–159.
- Possamai, A. (2005) *Religion and popular culture: A hyper-real testament*. In the series Gods, humans and religions, 7. Brussels: Peter Lang.
- Possamai, A. (2012). Yoda goes to Glastonbury: An introduction to hyper-real religions. In: A. Possamai, ed. *Brill handbooks on contemporary religion: Handbook of hyper-real religions*. Brill, pp. 1-21.
- Potochnik, A. (2015). The diverse aims of science. *Studies in history and philosophy of science*, vol. 53, pp. 71– 80.
- Potochnik, A. (2020). Idealization and many aims. *Philosophy of science*, vol. 87 (5) pp. 933-943.
- Poulain, A. (1950/1901). *The graces of interior prayer*. Trans. L.L. Yorke Smith. London: Kegan Paul, Trench, Trübner & Co.
- Price, H. H. (1965). ‘Belief ‘in’ and belief ‘that.’ *Religious Studies*, vol. 1 (1), pp. 5-27.
- Prinz, J.J. (2005). A neurofunctional theory of consciousness. In: A. Brook, K. Akins, eds. *Cognition and the brain: The philosophy and neuroscience movement*. New York, N.Y.: Cambridge University Press, pp.381–96.
- Prinz, J.J. (2011). Is attention necessary and sufficient for consciousness? In: C. Mole, D. Smithies, W. Wu, eds. *Attention: philosophical and psychological essays*. Oxford: Oxford University Press, pp.174–203.
- Pritchard, D. (2009). Knowledge, understanding and epistemic value. *Royal institute of philosophy lectures*, vol. 64, pp. 19-43.
- Pritchard, D. (2010). The value of knowledge: Understanding. In A. Haddock, A. Millar, D. Pritchard, eds. *The nature and value of knowledge: Three investigations* Oxford: Oxford University Press, pp.5-24.
- Pryce, P. (2018) *The monk's cell: ritual and knowledge in American contemplative Christianity*. New York: N.Y. Oxford University Press.
- Pylyshyn, Z.W. (1973). What the mind's eye tells the mind's brain: A critique of mental imagery. *Psychological bulletin*, vol. 80 (1), pp.1–24.
- Pylyshyn, Z.W. (1984), *Computation and cognition: toward a foundation for cognitive science*, Cambridge, Mass: MIT Press.
- Rahner, K. (1979a). The spiritual senses according to Origen. In: *Theological investigations*, vol. 16. Trans. D. Morland. New York, N.Y.: Crossroad, pp. 81–103.
- Rahner, K. (1979b) The doctrine of the “spiritual senses” in the Middle Ages. In: K. Rahner. *Theological investigations*, vol. 16. Trans. D. Morland. New York, N.Y.: Crossroad, pp.104–134.
- Récanti, F. (2007). *Perspectival thought: A plea for (moderate) relativism*. Oxford: Oxford University Press.
- Reichenbach, H. (1938). *Experience and prediction. An analysis of the foundations and the structure of knowledge*. Chicago: The University of Chicago Press.
- Rennie, B. (2009). Myths, models, and metaphors: Religion as model and the philosophy of science. *Religion*, vol. 39 (4), pp. 340-347.
- Reynolds, S. (1989) Imagining oneself to be another. *Noûs*, vol. 23 (5), pp. 615-633.

- Riggs, W. (2003). Understanding virtue and the virtue of understanding. In M. de Paul, L. Zagzebski, eds. *Intellectual virtue: Perspectives from ethics and epistemology*. Oxford: Oxford University Press, pp. 203-226.
- Rocke, A.J. (2010). *Image and reality: Kekulé, Kopp, and the scientific imagination*. Chicago: University of Chicago Press.
- Rosales, A. (2017). Theories that narrate the world: Ronald A. Fisher's mass selection and Sewall Wright's shifting balance. *Studies in history and philosophy of science*, vol.62, pp. 22-30.
- Rosen, G. (1994). What is constructive empiricism? *Philosophical studies* vol. 74 (2), pp.143–178.
- Ruczaj, S. (2018). Seeing is not believing – A critique of the aspect-seeing theory of religious belief. *Heythrop journal*, vol. 59 (5), pp. 794-803.
- Russ, S.W. (2014). *Pretend play in childhood: Foundation of adult creativity*. Washington, D.C.: American psychological association.
- Salis, F. and R. Frigg. (2020). Capturing the scientific imagination. In: Godfrey-Smith A. Levy, eds. *The scientific imagination. Philosophical and psychological perspectives*. Oxford: Oxford University Press, pp. 17-50.
- Salmon, W.C. (1984). *Scientific explanation and the causal structure of the world*. Princeton, N.J.: Princeton University Press.
- Sandbeck, L. (2013). Imagination. In: A.L.C. Runehov, L.Oviedo, et al., eds. *Encyclopedia of sciences and religions* Dordrecht: Springer. Available at: https://doi-org.ezproxy.its.uu.se/10.1007/978-1-4020-8265-8_1188.
- Sarton, G. (1927). *Introduction to the history of science*, Williams & Wilkins, Baltimore.
- Sartre, J-P. (1940/2004). *The imaginary: A phenomenological psychology of the imagination*. London and New York: Routledge.
- Schacter, D.L., Addis, D.R., and Buckner, R.L. (2007). Remembering the past to imagine the future: The prospective brain. *Nature reviews neuroscience*, vol. 8 (9), pp.657-661.
- Schacter, D.L., Benoit, R.G., and Szpunar, K.K. (2017) Episodic future thinking: Mechanisms and functions. *Current opinion in behavioural science*, 17, pp.41-50
- Schechner, R. (2013). *Performance studies: An introduction*, 3.th edn. London, New York, N.Y. Routledge.
- Schellenberg, J.L. (2005). *Prolegomena to a philosophy of religion* Ithaca, N.Y: Cornell University Press
- Schellenberg, J.L. (2007). *The wisdom to doubt: A justification of religious skepticism*. Ithaca, N.Y: Cornell University Press.
- Schellenberg, J.L. (2009). *The will to imagine: A justification of skeptical religion* Ithaca, N.Y: Cornell University Press
- Schellenberg, J.L. (2013 a) *Evolutionary religion*. Oxford: Oxford University Press.
- Schellenberg, J.L (2013b) My stance in philosophy of religion. *Religious studies* vol. 49 (2), pp. 143-150
- Schellenberg, J. (2014). How to make faith a virtue. In: L.F. Callahan, T. O'Connor, eds. *Religious faith and intellectual virtue*. Oxford: Oxford University Press, pp. 74-94
- Schellenberg, S. (2013). Belief and desire in imagination and immersion. *Journal of philosophy*, vol. 110 (9), pp. 497-517.
- Schlaepfer, G. and Weber, M. (2018). Thought experiments in biology. In: M. T. Stuart, Y. Fehige and J.R. Brown, eds. *The Routledge companion to thought experiments*. London: Routledge, pp. 243-256.
- Schilbrack, K. (2004). Ritual metaphysics. In: K. Schilbrack, ed. *Thinking through rituals*. New York, N.Y: Routledge, pp.131-151.

- Schilbrack, K. (2013). What isn't religion? *The journal of religion*, vol. 93 (3), pp. 291-318.
- Schilbrack, K. (2014). *Philosophy and the study of religions. A manifesto*. Chichester, West Sussex, Malden, MA: Wiley & Sons.
- Schilbrack, K. (2018). Mathematics and the definitions of religion. *International journal for philosophy of religion*, vol. 83 (2), pp. 145–160.
- Schrödinger, E. (1928). *Collected papers on wave mechanics*. London: Blackie & Son Lmd.
- Scott, K. (2017). Religious knowledge versus religious Understanding. In: Fiona Ellis, ed. *New models of religious understanding*. New York: Oxford University Press, pp.134-150.
- Scott, M. and Malcolm, F. (2018). Religious fictionalism. *Philosophy compass*, vol. 13 (3), pp. 4-11.
- Searle, J.R. (1980). Minds, brains, and programs. *Behavioral and brain sciences*, vol. 3 (3), pp. 417-424
- Sells, M. (1994). *Mystical languages of unsaying*. Chicago: University of Chicago Press
- Shakespeare, W. (1997). *The riverside Shakespeare*, 2nd Edn. G. B. Evans et al., eds. New York, N.Y.: Houghton Mifflin Co.
- Shaykh Mawlay al-Arabi ad-Darqawi (1981). *The Darqawi way. The letters of Shayk Mawlay al-Arabi ad –Darqawi*. Trans. A.A.A. Bewley. Norwich: Diwan Press
- Shelley, C. (2003). *Multiple analogies in science and philosophy*. Amsterdam/Philadelphia: John Benjamins Publishing Company.
- Sinhababu, N. (2016). Imagination and belief. In: A. Kind, ed. *The Routledge handbook of imagination*. New York, N.Y.: Routledge, pp. 111–123.
- Singer, D.G. and Singer, J.L. (1990). *The house of make-believe: Children's play and the developing imagination*. Cambridge, MA: Harvard University Press.
- Sliwa, P. (2018). Know-how and acts of faith. In: M.A. Benton, J. Hawthorne, D. Rabinowitz, eds. *Knowledge, belief, and God: New insights in religious epistemology*. Oxford: Oxford University Press, pp.246-263.
- Smith, J.Z. (1982). *Imagining religion: From Babylon to Jonestown*. Chicago, IL: The University of Chicago Press.
- Smith, J.Z. (1987). *To take place: toward theory in ritual*. Chicago: University of Chicago Press.
- Smith, J.Z. (1998) Religion, religions, religious. In: M.C. Taylor, ed. *Critical terms for religious studies*. Chicago, IL: The University of Chicago Press, pp.
- Smith, P. K. (2009) *Children and play: Understanding children's worlds*. Oxford: Wiley-Blackwell
- Smith, W.C. (1963). *The meaning and end of religion*. New York: Macmillan.
- Smith, S. and S. Blankenship. (1989). Incubation effects. *Bulletin of the psychonomic society*, vol. 27 (4), pp. 311–314.
- Smith, S. and S. Blankenship (1991). Incubation and the persistence of fixation in problem solving. *American journal of psychology*, vol.104 (1), pp. 61–87.
- Soskice, J. M. (1985). *Metaphor and religious language*. Oxford: Clarendon
- Soskice, J. M. (2007). *The kindness of God: Metaphor, gender, and religious language*. New York, N.Y., Oxford: Oxford University Press
- Spaulding, S. (2015). Imagination, desire, and rationality. *Journal of philosophy*, vol. 112 (9), pp. 457-476.
- Sperber, D. (1982). Apparently irrational beliefs. In: M. Hollis, S. Lukes, eds. *Rationality and relativism*. Cambridge: MIT Press, pp.149-180.
- Sperry, R.W. (1964) Great cerebral commissure. *Scientific American*, vol. 210 (1), p. 42-53.

- Stalnaker, R. C. (1968). A theory of conditionals. In: N. Rescher, ed. *Studies in logical theory*. Oxford: Blackwell, pp. 98–112.
- Stenmark, M. (2004) *How to relate science and religion*. Grand Rapids MI: W.B. Eerdmans Publishing Co.
- Stenmark, M. (2013a). Religion and science. In: C. Meister, P. Copan, eds. *The Routledge companion to philosophy of religion*. 2nd ed. New York; Abingdon, Oxon: Routledge, pp. 775-784.
- Stenmark, M. (2013b) Typologies in science and religion. In: Runehov A.L.C., Oviedo L. et al., eds. *Encyclopedia of sciences and religions*. Dordrecht: Springer. Available at: https://doi-org.ezproxy.its.uu.se/10.1007/978-1-4020-8265-8_1448.
- Stevenson, L. (2003). Twelve conceptions of imagination. *The British journal of aesthetics*, vol. 43 (3), pp. 238-259.
- Stokes, D. (2007). Incubated cognition and creativity. *Journal of consciousness studies*, vol. 14 (3), pp. 83–100.
- Stokes, D. (2014). The role of imagination in creativity. In: E. S. Paul, ed. *The philosophy of creativity*. New York, N.Y: Oxford University Press, pp. 157-185.
- Stokes, D. (2016). Imagination and creativity. In: in A. Kind, ed. *The Routledge handbook of imagination*. New York, N.Y: Routledge, pp. 247-260.
- Stoll, T. (2020). Hans Vaihinger. In: E. N. Zalta, ed. *The Stanford encyclopedia of philosophy*. [online] Spring 2020. Available at: <https://plato.stanford.edu/archives/spr2020/entries/vaihinger/>.
- Strawson, P. (1970). Imagination and perception. In: L. Foster, J. W. Swanson, eds. *Experience and theory*. Amherst, MA: University of Massachusetts Press, pp. 31–54.
- Strevens, M. (2008). *Depth: An account of scientific explanation*. Cambridge, MA: Harvard University Press.
- Strevens, M. (2013). No understanding without explanation. *Studies in history and philosophy of science*, vol. 44 (3), pp. 510-515.
- Stuart, M. T. (2016). Taming theory with thought experiments: Understanding and scientific progress. *Studies in the history and philosophy of science*. vol. 58, pp.24-33.
- Stuart, M.T. (2017). Imagination: A sine qua non of science. *Croatian journal of philosophy*, vol. 17 (49), pp.9-32.
- Stuart, M. T. (2018). How thought experiments increase understanding. In: M.T. Stuart, Y. Fehige, J.R. Brown, eds. *The Routledge companion to thought experiments*. London and New York, N.Y: Routledge, pp.526-544.
- Sullivan, E. and Khalifa, K. (2019). Idealizations and understanding: Much ado about nothing? *Australasian journal of philosophy*, vol. 97 (4), pp. 673-689.
- Suarez, M. (2010). Scientific representation. *Philosophy compass*, vol.5 (1), pp. 91-101.
- Swinburne, R.G. (1992). *Revelation: from metaphor to analogy*. New York, N.Y., Oxford: Clarendon Press
- Swinburne, R. G (1981/2005). *Faith and reason*. 2nd Edn. Oxford: Oxford University Press.
- Swirski, P. (2007). *Of literature and knowledge. Explorations in narrative thought experiments, evolution and game theory*. New York, N.Y.: Routledge
- Taves, A. (2009). *Religious experience reconsidered: a building block approach to the study of religion and other special things*. Princeton, N.J.: Princeton University Press.

- Taylor, C. and Dewsbury, B.M. (2018). On the problem and promise of metaphor use in science and science communication. *Journal of microbiology & biology education*, vol. 19 (1), pp.1-5.
- Tesla, N. (1921). Making your imagination work for you. *American magazine*, April.
- Thagard, P. (1984). Conceptual combination and scientific discovery. *PSA: Proceedings of the Biennial Meeting of the Philosophy of Science Association*, vol. 1984 (1), pp. 3–12.
- Thomas, N.J.T. (1997). Imagery and the coherence of imagination. *Journal of philosophical research*, 22, pp. 95-127.
- Thomas, N.J.T. (2014). Mental imagery. In: E.N. Zalta, ed. *The Stanford encyclopedia of philosophy* [online] Summer 2019 Ed. Available at: <https://plato.stanford.edu/archives/sum2019/entries/mental-imagery/>
- Thomson-Jones, M. (2010). Missing systems and the face value practice. *Synthese* 172, pp. 283–299.
- Thomson-Jones, M. (2020). Realism about missing systems. In: P. Godfrey-Smith, A. Levy, eds. *The Scientific Imagination. Philosophical and psychological perspectives*. Oxford: Oxford University Press, pp. 51-75.
- Tilley, T.W. (2020). Religious understanding and cultured practices. In: S. Grimm, ed. *Varieties of understanding. New perspectives from philosophy, psychology, and theology*. New York, N.Y.: Oxford University Press, pp.253-273.
- Toon, A. (2010). Models as make-believe. In: R. Frigg, M.C. Hunter, eds. *Beyond mimesis and convention: representation in art and science*. 1. Aufl. edn, London, New York, N.Y.: Dordrecht: Springer, pp. 71-96.
- Toon, A. (2012) *Models as make-believe: Imagination, fiction and scientific representation*. Palgrave Macmillan: Basingstok
- Tulving, E. (1985). Memory and consciousness. *Canadian psychology*, 26 (1), pp.1-12.
- Turing, A. (1950). Computing machinery and intelligence. *Mind*, vol. 59, pp. 433-460.
- Turner, M, ed. (2006). *The artful mind: Cognitive science and the riddle of human creativity*. Oxford: Oxford University Press.
- Turner, M. (2014). *The origin of ideas: Blending, creativity, and the human spark*. New York, N.Y: Oxford University Press.
- Turner, V. (1969). *The ritual process: Structure and anti-structure*. London: Routledge & Kegan Paul.
- Tye, M. (1991). *The imagery debate*. Cambridge, MA: MIT Press.
- Vaihinger, H. (1911/1924). *The philosophy of 'As if'*. Trans. C. K. Ogden. London: Kegan Paul. First published in German as *Die Philosophie des Als Ob*, Berlin: Verlag von Reuther & Reichard. (2011).
- Van Fraassen, B. (1980). *The scientific image*. Oxford: Oxford University Press.
- Van Inwagen, P. (1978). The possibility of resurrection. *International journal for philosophy of religion* 9 (2), pp. 114-121.
- Van Leeuwen, N. (2009). The motivational role of belief. *Philosophical papers*, vol. 38 (2), pp. 219–246.
- Van Leeuwen, N. (2013). The meaning of 'imagine.' Part I: Constructive imagination. *Philosophy compass*, vol. 8 (3), pp. 220–230.
- Van Leeuwen, N. (2014). Religious credence is not factual belief. *Cognition*, vol.133 (3), pp. 698-715.
- Van Leeuwen, N. (2016). Beyond fakers and fanatics: A reply. *Philosophical psychology*, vol. 29 (4), pp. 616-621.
- Van Leeuwen, N. (2017). Do religious "beliefs" respond to evidence? *Philosophical explorations*, vol. 20 (1), pp. 52-72.

- Van Leeuwen, N. (2018). The factual belief fallacy. *Contemporary pragmatism*, vol. 15 (3), pp. 319-343.
- Velleman, D. J. (2003). Narrative explanation. *The philosophical review*, vol. 112 (1), pp. 1-25.
- Vendler, Z. (1984). *The matter of minds*. Oxford: Clarendon Press.
- Verbin, N.K. (2000). Religious beliefs and aspect seeing. *Religious studies*, vol.36 (1), pp. 1–23.
- Vygotsky, L.S. (1930/2014). Imagination and creativity in childhood. *Journal of Russian and East European psychology*, vol. 42 (1), pp. 7-97.
- Walker, C.M. and Gopnik, A. (2013a). Causality and imagination. In: M. Taylor, ed. *The Oxford handbook of the development of imagination*, pp. 342–58.
- Walker, C.M. and Gopnik, A. (2013b). Pretense and possibility—A theoretical proposal about the effects of pretend play on development: Comment on Lillard et al. (2013). *Psychological bulletin*, vol. 139 (1), pp.40–44.
- Wallas, G. (1926) *The art of thought*. London: Jonathan Cape.
- Walsh, C.R. and Byrne, R. (2007). How people think "if only" about reasons for actions. *Thinking & reasoning*, vol. 13 (4), pp. 461-483.
- Walsh, P.J. and Yoshimi, J. (2019) Philosophy of mind in the phenomenological tradition. In: A. Kind, ed. *Philosophy of mind in the twentieth and twenty-first centuries*. London and New York: Routledge, pp.21-51.
- Walton, K.L. (1990). *Mimesis as make-believe*. Cambridge, MA: Harvard University Press
- Waltz, S. (2011). The nature of attention. *Philosophy compass*, vol. 6 (11), pp.842–853.
- Ward, A. M. (2016). A critical evaluation of the episodic future thinking. *Neuropsychology*, vol. 30 (8), pp. 887-905
- Ward, T. B. (1994). Structured imagination: The role of category structure in exemplar generation. *Cognitive psychology*, vol. 27 (1), pp. 1-40
- Ward, T., Smith, S., Finke, R. (1999). Creative cognition. In: R. Sternberg, ed. *Handbook of creativity*. New York, N.Y.: Cambridge University Press.
- Warnock, M. (1976). *Imagination*. London: Faber & Faber.
- Webb, M.O. (2009). An eliminativist theory of religion *Sophia*, vol. 48 (1), pp. 35–42.
- Weinberg, J. M. and Meskin, A. (2006). Puzzling over the imagination: Philosophical problems, architectural solutions. In: S. Nichols, ed. *The architecture of the imagination: New essays on pretense, possibility, and fiction*. New York, N.Y. Oxford: Clarendon Press, pp.175–202.
- Weisberg, D. S., and A. Gopnik. (2013) Pretense, counterfactuals, and Bayesian causal models: Why what is not real really matters. *Cognitive science*, vol. 3 (7), pp. 1368–1381.
- Wertheimer, M. (1945). *Productive thinking*. New York, N.Y.: Harper and Brothers
- White, A.R. (1990). *The language of imagination*. Cambridge: Blackwell
- Whitteridge, G. (1976). *An anatomical disputation concerning the movement of the heart and blood in living creatures* Transl. of W. Harvey (1628). Oxford: Blackwell Scientific Publications
- Williams, B. (1973). *Problems of the self: Philosophical papers 1956-1972*. London: Cambridge University Press.
- Williamson, T. (2005). Armchair philosophy, metaphysical modality, and counterfactual thinking. *Proceedings of the Aristotelian Society*, vol.105 (1), pp. 1–23.
- Williamson, T. (2007). *The Philosophy of philosophy*, Malden, MA: Blackwell Publishing.

- Williamson, T. (2016). Knowing by imagining. In: A. Kind, P. Kung, eds. *Knowledge through imagination*. Oxford: Oxford University Press, pp. 113-123.
- Wiltsher, N. (2016). Against the additive view of imagination- *Australasian journal of philosophy*, vol. 94 (2), pp. 266-282.
- Wittgenstein, L. (1968) *Philosophical Investigations*. Trans. G. E. M. Anscombe. New York: Macmillan Publishing Co.
- Wittgenstein, L. (1929/2014). *Lecture on ethics*, 1st edn.. Edited by E. Zamuner. John Wiley & Sons, Chichester, West Sussex, UK.
- Wolff, P. and Gentner, D. (2011). Structure-mapping in metaphor comprehension. *Cognitive science*, vol. 35. (8), pp. 1456-1488.
- Wollheim, R. (1974). Imagination and identification. In: *On art and the mind*. Cambridge: Harvard University Press, pp. 54–83.
- Woods, J., ed. (2010): *Fictions and models: New essays*, Munich: Philosophia verlag.
- Woodward, J. (2003). *Making things happen: A theory of causal explanation*. New York, N.Y, Oxford: Oxford University Press.
- Yablo, S. (1993). Is conceivability a guide to possibility? *Philosophy and phenomenological research*, vol. 53 (1), pp. 1–42.
- Yablo, S. (2014). *Aboutness*. Princeton, NJ: Princeton University.
- Zagzebski, L. (2001). Recovering understanding. In: M. Steup, ed. *Knowledge, truth, and duty: Essays on epistemic justification, responsibility, and virtue*. Oxford University Press, pp. 235-252.
- Zimmerman, D. (1999). The compatibility of materialism and survival: The Falling elevator model. *Faith and philosophy* vol. 16 (2), pp. 194-212.
- Zimmerman, D. (2010). Bodily resurrection: The falling elevator model revisited. In G. Gasser, ed. *Personal identity and resurrection*. Surrey: Ashgate Publishing, pp. 33-50

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