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It has been suggested that acquiring the appropriate use of referring expressions consists of a shift from an initial focus on global accessibility factors, e.g., animacy or character type, towards primarily considering local accessibility factors, such as information status, referential function and topicality. At which age this shift takes place remains an open question. The present study investigates anaphoric reference in picture-based written narratives by German-speaking 10-year-olds and adults. We analyse and compare the extent to which referential function (maintenance vs. reintroduction), a local accessibility factor, and character type (main character vs. secondary character), a global accessibility factor, influence children's and adults' choice of referring expression. The results show that referential function affected referential choice in both children and adults, with significantly higher proportions of pronouns in maintenance than in reintroduction. However, character type only influenced the children, who produced a significantly higher proportion of pronouns with main characters than with secondary characters. These results suggest that children's referring expression use is not yet fully adultlike at age 10, and that adults and children weigh local and global accessibility factors differently: global factors play a role in children's referential choice in addition to local ones, whereas adults are primarily influenced by local accessibility factors.

Keywords: accessibility, character type, German, maintenance, primary school children, reintroduction, referring expressions, referential function, written narratives

1. Introduction

1 When referring back to referents that have been previously mentioned in the discourse, speakers (or writers) can choose amongst various referring expressions. For example, to refer back to John [1], one could use a personal pronoun [2a], a definite noun phrase [2b] or a proper noun (name) [2c].

[1] John watches the news.

[2a] He is interested in politics.

[2b] The boy is interested in politics.

[2c] John is interested in politics.

- 2 On what basis does a speaker decide which referring expression to use? Referential forms are linked to the relative degree of a referent's accessibility in discourse (Ariel, 1990). For example, pronouns are typically used to refer to highly accessible referents, while definite noun phrases (NPs) are mainly used to refer to referents of low accessibility. Several factors contribute to making a referent more or less accessible (for an overview, see Arnold, 2010). Some of these factors operate on a *local* discourse level, others on a *global* discourse level (Vogels, 2014). Local accessibility factors, such as the topicality of a referent, can change from clause to clause, whereas global accessibility factors like animacy normally stay constant throughout the discourse (Lindgren, Vogels, 2018; Vogels et al., 2013a; Vogels, 2014). An important local discourse factor is referential function. Pronouns are preferred when *maintaining* reference to a referent that was mentioned in the preceding clause, and definite NPs or proper nouns are typically used to *reintroduce* a referent that was mentioned at some earlier previous occasion in the discourse (Bamberg, 1987).
- 3 When children refer back to a referent in discourse, they sometimes show difficulties in using a referring expression that appropriately signals the accessibility of the referent (Colozzo, Whitely, 2014; Hendriks et al., 2014; Lindgren, Vogels, 2018). For example, the children may use pronouns that the addressee cannot assign a referent to, either because a referent has not been introduced or because there is more than one potential antecedent for the anaphor (Batoréo, Costa, 1999). Results from previous studies indicate that especially younger children appear to base their use of referring expressions on global accessibility factors such as animacy or character type (main vs. secondary characters) while ignoring local constraints like referential function (Bamberg, 1986; Colozzo, Whitely, 2015; Lindgren, Vogels, 2018). Choosing adequate referential forms seems to be a challenging task in the acquisition of reference, yet one that is crucial for communicative success (Clark, Wilkes-Gibbs, 1986). At what age children master this task remains an open question.
- 4 The present study investigates the use of anaphoric referring expressions in written narratives by German-speaking 10-year-olds and an adult control group.¹ The study aims to show if/how local accessibility factors (referential function: maintenance vs. reintroduction) and global accessibility factors (character type: main characters vs. secondary characters) influence children's choice of referring expressions in written narratives and whether they differ from adults. This paper proceeds as follows. First, we review previous studies on children's acquisition of anaphoric reference (Section 2) and present the research questions and predictions of the study (Section 3), before describing the method (Section 4) and the results (Section 5). The paper concludes with a discussion (Section 6).

1. This paper is based on a chapter from the first author's doctoral dissertation (Lehmkuhle, forthcoming).

2. Acquisition of anaphoric reference

5 Previous studies show conflicting results regarding the age at which (anaphoric) reference is mastered: the results from some studies suggest mastery of reference already at age 3, whereas other studies indicate that the process of acquiring adequate use of reference is not even completed by age 10 (for an overview, see Hickmann et al., 2015). Both studies investigating children's spontaneous speech and those employing experimental data have found that children show some sensitivity to certain local discourse factors already during the second year of life (for an overview, see Allen et al., 2015). For example, there is experimental evidence that German-speaking children between 2.5 and 3.5 years consider the referent's information status, i.e., whether or not the referent is known to the addressee, when they refer to objects that are available in the discourse or in the perceptual context (Wittek, Tomasello, 2005). On the other hand, results from studies that investigate elicited narratives suggest that even children above age 5 sometimes have difficulties in choosing adequate referring expressions (Colozzo, Whitely, 2014; Hendriks et al., 2014; Lindgren, Vogels, 2018; Rossi et al., 2000). Most likely, the reason for these contradictory findings lies in the different methodologies, for example that the tasks employed vary in their complexity. It could be the case that "the demands of narrative tasks are higher than those of spontaneous interaction, making it more difficult to use referring expressions appropriately in narrative discourse" (Lindgren, Vogels, 2018: 47). In the following, we mainly focus on studies of anaphoric reference in elicited narratives because they are the most relevant for the present study.

6 Before we proceed to summarize previous findings for the children's use of referential function (Section 2.1), a local accessibility factor, and their use of global accessibility factors (Section 2.2), it is important to point out that relatively few studies have investigated referring expressions in children's *written* narratives and out of those that did, even fewer can be compared to the present study. Many previous studies of reference in children's written narratives did not investigate all types of anaphoric referring expressions, focusing, for example, only on pronouns (e.g., Bel et al., 2010; Cox, Sulzby, 1984), or referring expressions in subject position (e.g., Bel, Albert, 2016; Ravid et al., 2002). Few of the studies differentiated between referential functions, instead comparing for example the use of referring expressions in different types of written texts (De Weck, Schneuwly, 1994) or by children with different levels of reading ability (Bartlett, 1984; Cox, Sulzby, 1984), and, to our knowledge, none analysed the effect of global accessibility factors. For this reason, most of the studies cited below concern oral narratives. However, we also provide a summary of general differences between oral and written narratives in the use of referring expressions (Section 2.3) and we return to the question of how the results of this study are comparable to the results of studies of oral narratives in the discussion (Section 6).

2.1 Local accessibility factors

7 Few studies have investigated referring expression use for the referential functions of reintroduction and maintenance in children's written narratives.² In a study of oral and written personal narratives by Spanish-speaking children aged 9–10, 12–13 and 16–17 and adults (N = 40), Bel and Albert (2016) found a distinction between reintroduction and maintenance in the use of third-person subject referring expressions, with more null pronouns in maintenance (interestingly, there was no difference between the functions in the use of lexical NPs), but no significant difference between the groups; at age 9–10, children thus showed similar patterns in reintroduction and maintenance as adults. Rossi et al. (2000) analyzed the types of referring expressions used in referent reintroduction and maintenance in oral and written narratives elicited with the well-known "Frog story", i.e., the wordless picture-book *Frog, where are you?* (Mayer, 1969), from Catalan- and Italian-speaking children in Grades 1, 3 and 5 (N = 120). The statistical analyses were performed on the two referential functions separately, with a focus on differences between grades and modalities. However, the descriptive results point to differences in the types of referring expressions used in maintenance and reintroduction in both modalities. In maintenance, the children mainly used pronouns (overt and null forms), and these proportions were similar across ages in both modalities and languages. In reintroduction, the most frequent type was lexical NPs, and there was a significant decrease in pronouns (both null and overt forms) and increase in lexical NPs in the higher grades across modalities and languages. Most importantly, though, in both languages, the children in Grade 5 still used pronouns for reintroduction, although less frequently in their written narratives (around 20%) than in their oral ones (around 35%). Rossi et al. (2000) did not investigate adults. How children's use of referring expressions in the two referential functions in written elicited narratives compare to the adult use therefore remained open; this issue is investigated in the present study.

8 Studies of oral narrative discourse provide ample evidence that children between 3 and 10 years of age are able to use adequate referring expressions for referent maintenance in oral narrative discourse (Bamberg, 1986; Colozzo, Whitely, 2014; Hendriks et al., 2014; Hickmann, Hendriks, 1999; Lindgren, Vogels, 2018). For example, Hickmann and Hendriks (1999) investigated the use of referring expressions in narratives produced by children (aged 4, 7 and 10) and adults in four languages (English, German, French, Mandarin Chinese). Across languages and age groups, pronouns were found to be predominantly used when referring to referents that are coreferential with another referent in the preceding clause, i.e., when maintaining reference. Similarly, Hendriks et al. (2014), in a study of referential choice in picture-based narratives, showed that Dutch-speaking 4–7-year-olds, like adults, used more pronouns than lexical NPs when maintaining referents.

2. Some additional studies have investigated the difference between new and given referents. For example, Vion et al. (1989) elicited short picture-based written narratives from French-speaking 9- and 11-year-olds and adults (N = 60) and found more pronouns for referents that had previously been mentioned in the discourse (reintroduction/maintenance) compared to those that were new (referent introduction) in all groups.

9 In contrast, the proper reintroduction of referents seems to be a more cognitively challenging task; for this referential function, children produce more pronouns than would be expected based on adult performance (Bamberg, 1986; Colozzo, Whitely, 2014; Hendriks et al., 2014; Lindgren, Vogels, 2018). Such pronouns are often considered inappropriate (Colozzo, Whitely, 2014) and could also be difficult or impossible to interpret for an addressee who is unfamiliar with the story (Lindgren, Vogels, 2018). For example, Hendriks et al. (2014) report that, whereas the adults in their study mainly used lexical NPs to reintroduce referents, the children produced a high number of ambiguous pronouns in this function. Furthermore, Colozzo and Whitely (2014) investigated the adequacy of referring expressions used by 5–8-year-old English-speaking children to introduce, maintain and reintroduce characters in complex narratives involving multiple characters. Analyses showed that adequacy levels were higher for maintenance than for reintroduction, and that the majority of inadequate references occurred when pronouns were used for reintroduction. Finally, Lindgren and Vogels (2018) elicited narratives from Swedish-speaking children aged 4–6. They examined how local and global accessibility factors influence the children’s use of referring expressions and evaluated which of these factors lead to the production of unrecoverable expressions. Their results show that the percentage of pronominal references that were considered unrecoverable, i.e., impossible for an addressee to resolve to the intended referent, was significantly higher for reintroduction than for maintenance.

10 Regarding the reason for the relatively high proportion of pronouns used by children to reintroduce referents, a number of authors propose that the processes of maintaining and reintroducing referents differ in their complexity (Colozzo, Whitely, 2014; Hendriks et al., 2014; Lindgren, Vogels, 2018). Maintenance does not require the addressee’s perspective to be taken into account when choosing a referring expression, since overspecified referring expressions (lexical NPs) can also be successfully resolved. Reintroduction, however, necessitates the consideration of the addressee’s perspective: speakers need to evaluate the extent to which referents are easily predictable and accessible to the addressee, or whether it is necessary to signal a change of reference by using appropriate referring expressions (Colozzo, Whitely, 2014; Hendriks et al., 2014). Carrying out this kind of evaluation process requires a constant updating of the discourse model as the relative accessibility of discourse referents is constantly changing. Lindgren and Vogels (2018) propose that children’s relatively limited cognitive abilities (compared to those of adults) are not sufficient to maintain a detailed discourse model: children fail to keep track of the constantly changing accessibility of referents, which leads them to base their pronoun use on their own perspective rather than that of the addressee.

2.2 Global accessibility factors

11 Studies of reference in children’s written narratives have, to our knowledge, not investigated the effects of global accessibility factors. However, previous studies of oral narratives show that children’s use of referring expressions is also influenced by global accessibility factors such as animacy and character type (Bamberg, 1986; Colozzo,

Whitely, 2015; Lindgren, Vogels, 2018; Serratrice, 2013). For example, Lindgren and Vogels (2018) found that Swedish-speaking 4- to 6-year-old children produced a significantly higher proportion of pronouns when referring to human referents compared to animals and inanimate objects. In addition, they found a significant effect of animacy on the use of unrecoverable expressions, i.e., expressions whose referent could not be deduced based on the discourse context; the children produced more unrecoverable pronouns when they reintroduced human characters compared to animals and inanimate objects. Bamberg (1986) investigated German-speaking children aged 3 to 10 and adults. He elicited oral Frog story narratives and analyzed referring expressions used to refer to the two characters (a boy, and a dog) of the story. In reintroduction, 3.5–4-year-olds more frequently used pronouns to refer to the main character (the boy) compared to the secondary character (the dog), to which reference was primarily made using lexical NPs. Bamberg (1986) argues that these children use a global reference strategy (*thematic subject strategy*; Karmiloff-Smith, 1985) when referring to story characters. When this strategy is used, pronouns are not used anaphorically (i.e., for referent maintenance), but rather as a default form for the main character (the thematic subject). Bamberg (1986) found that not until age 9–10 did children use lexical NPs more frequently than pronouns also when reintroducing the main character. Even at this age, children used a higher proportion of pronouns to reintroduce the main character (31%) compared to the adults (8%). Finally, Colozzo and Whitely (2015), using the same narrative data as in the study by Colozzo and Whitely (2014) described above, analysed the extent to which character type influences the use of referring expressions in character introduction, maintenance and reintroduction. The results showed that, in addition to referential function, character type also influenced the 5–8-year-old children's choice of referring expressions.

- 12 It seems to be the case that adults and children weigh local and global accessibility factors differently. Adults' use of referring expressions is also influenced by global accessibility factors in addition to local ones. For example, in an experimental study, Fukumura and Van Gompel (2011) investigated to what extent the animacy of referents influences English-speaking adults' use of referring expressions when local accessibility factors like grammatical function and position were controlled for and found that participants use pronouns more frequently when referring to animate referents than inanimate referents. Yet, global accessibility factors only play a role when local function constraints are satisfied (e.g., Fukumura, Van Gompel, 2011; Vogels et al., 2013b). Adults' choice of referring expressions thus depends more on the immediate discourse environment; they use a local anaphoric strategy (Bamberg, 1986). On the other hand, children seem to give more weight to global accessibility factors than to local accessibility factors. Lindgren and Vogels (2018) argue that the referents' global accessibility may outweigh its local accessibility in preschool children's referential productions because basing the choice of referring expressions on global accessibility factors like animacy or character type is cognitively easier. In most cases, a character's global accessibility, e.g., whether or not a particular character

is animate or is the main character of the story, tends to stay the same throughout longer stretches of discourse or does not change at all; global factors do not require the discourse model to be updated very often. In contrast, local accessibility factors like referential function can change from clause to clause and thus requires the discourse model to be constantly updated. The results from a study by Whitely and Colozzo (2013), where children's capacity to update working memory was found to be linked to their ability to use referring expressions adequately in oral narratives, lend support to this hypothesis.

13 Following Lindgren and Vogels (2018), we assume that a developmental change in children's use of referring expressions takes place from the use of more global strategies to more local strategies as their cognitive abilities develop: "at first, they use pronominalization only for the referent they have established as the protagonist. Later, they start differentiating between pronouns and nouns for non-protagonists based on local discourse factors, and finally they use local factors for all referents" (Lindgren, Vogels, 2018: 48). The question is when this change takes place; the results from Lindgren and Vogels (2018) showed no difference between age 4 and age 6 with respect to this and Colozzo and Whitely's (2015) findings suggest that this developmental change is also not yet completed in 8-year-old children. It thus remains open at which age children are able to use referring expressions anaphorically in an adultlike manner. Additionally, how both local and global factors influence children's use of referring expressions in the written modality has not been previously studied; the present study seeks to address this gap.

2.3 Comparisons of reference in oral and written narratives

14 Before we proceed to describe the present study, we summarize studies comparing referring expressions use in oral and written narratives. With the exception of the study by Rossi et al. (2000) of Catalan- and Italian-speaking children in Grades 1, 3, and 5 described above, previous studies that compared the use of referring expressions in children's oral and written narratives are not fully comparable to the present study, as they used different referential measures (e.g., only subject references instead of all anaphoric referring expressions as in the present study),³ but their results point to some general differences between the two modalities.

15 Studies comparing the general use of different types of referring expressions in children's oral and written narratives have found that pronouns are less frequent in written than in oral narratives (Batoréo, Costa, 1999; Bel, Albert, 2016; Rossi et al., 2000; Vion et al., 1989). For example, in the study of personal narratives by French-speaking children and adults by Bel and Albert (2016), higher proportions of lexical NPs were found in the written narratives across age groups. Fewer pronouns than lexical NPs in written than in oral elicited narratives were also found in the study by Vion et al. (1989) of French-speaking 9- and 11-year-olds and adults, as

3. Note that studies that focus only on one specific type of referring expression, such as pronouns (e.g. Bel et al., 2010; Cox, Sulzby, 1984) are not brought up here, since their results cannot be compared to the present study.

well as in a small-scale study of six Portuguese-speaking 10-year-olds (Batoréo, Costa, 1999). Rossi et al. (2000) found that written narratives contained more lexical NPs in reintroduction and fewer null pronouns in maintenance, compared to oral narratives. It thus seems to be the case that more explicit expressions (i.e., lexical NPs instead of pronouns or overt pronouns instead of null pronouns) are used in writing,⁴ but the reason for this difference between the modalities remains open.

16 There are also indications that modality affects the use of ambiguous pronouns, i.e., pronouns whose antecedent cannot be properly recovered. Bel and Albert (2016) found fewer ambiguous pronouns in the written narratives compared to the oral ones. Additionally, the 9–10-year-olds produced more ambiguous pronouns in their written narratives than the older groups. Rossi et al. (2000) found similar levels of ambiguous pronouns in the two modalities, but also a development with age between Grade 1 and 3.⁵ Age thus seems to influence the ability to use pronouns appropriately in written narratives, just as has been shown for oral narratives.

3. The present study

17 The present study investigates the use of anaphoric referring expressions in picture-based elicited written narratives by German-speaking 10-year-olds, comparing them to an adult control group. Our research questions are the following:

18 Q1: To what extent do the children and adults base their choice of referring expressions on referential function (maintenance vs. reintroduction)?

19 Q2: To what extent is the children's and adults' choice of referring expressions influenced by the character type (main vs. secondary character)?

20 Based on results from previous studies (Bamberg, 1986; Colozzo, Whitely, 2014; Hendriks et al., 2014; Lindgren, Vogels, 2018; Rossi et al., 2000), we predict that the children will take the referential function into account when choosing referring expressions, with pronouns mainly being used for referent maintenance and lexical NPs for referent reintroduction, but that character type will also play a role in their choice of referring expressions; more pronouns are expected to be used with main characters than with secondary characters. Additionally, based on the idea that adults and children weigh certain accessibility factors differently (Lindgren, Vogels, 2018), we expect that referential function will have a stronger effect on adult's choice of referring expressions compared to the children's, whereas character type will influence the children's referential choice to a larger extent than the adults'.

4. This conclusion is also supported by the results from Mazur-Palandre et al. (2012), who, in a study focusing on the production of lexical NPs by French-speaking children (aged 10, 12, 15) and adults (N = 80), found a higher number of nouns per clause in written than in oral personal narratives.

5. In addition, Yde and Spoelders (1990), in a study of cohesive devices in Dutch-speaking children's picture-based written narratives, report a similar age effect, with a more frequent use of ambiguous pronouns by 8–9-year-olds (N = 76) compared to 10–11-year-olds (N = 85).

4. Method

4.1 Participants

21 The participants of this study were 32 monolingual German-speaking 10-year-olds (15 females, mean age: 10;4, age range: 9;11–10;10), who all attended Grade 4 in one out of four classes at the same primary school in a rural area close to the city of Osnabrück in Northern Germany. Written consent was obtained from all parents. In addition, 52 monolingual German-speaking adults (44 females, mean age: 22 years, age range: 18–50 years), who were students at Osnabrück University and TU Dortmund University, participated in the study.

4.2 Material

22 The stimulus materials used for eliciting the narratives consist of a picture sequence with six coloured pictures plus the written beginning of the story (see Appendix A, Figure 2). In the story, two boys (Tim and Max) and their dog (Bello) are on a treasure hunt to a mysterious castle. On their way they encounter two scary monsters (Monster 1, Monster 2). All characters have the same grammatical gender (masculine) in German, which prevents disambiguation via gender markings on pronouns.

4.3 Procedure

23 The children wrote their narratives by hand in their classrooms during one school lesson (45 minutes). Before writing, the children created a six-digit code consisting of the first two letters of their mother's first name, the first two letters of their father's first name and the last two letters of their own month of birth. The children were instructed to write the code and not their name on the sheet they were writing on. This was done in order to anonymize the narratives. The children were then shown the pictures together with the written beginning of the story and were given the following instructions: *Schreibe die Geschichte weiter. Die Bilder helfen dir dabei* 'Continue the story. The pictures are there to help you.' The teachers were instructed not to give the children any help with writing the texts. Children who finished before the end of the lesson were allowed to draw a picture.

24 The adult narratives were collected online using LimeSurvey. The adult participants were given the same instructions as the children together with the pictures and the beginning of the story. Since the adults were more experienced writers and, unlike the children, could write the text using the computer keyboard, they received 20 minutes to finish the task. Examples of complete narratives by two children and one adult can be found in Appendix B.

4.4 Coding and analysis

25 Since the children's narratives were handwritten, they were first typewritten using the same spelling and punctuation as in the original handwritings. Next, all narratives

from the children and the adults were divided into clauses.⁶ All anaphoric references to one of the five characters of the story (Tim, Max, Bello, Monster 1, Monster 2) were marked in the narratives and subsequently coded for three aspects: type of referring expression, referential function, and character type (see below for detailed information). All narratives were coded by the first author. The second author then independently marked referring expressions and coded them in 19% (16/84) of the narratives to enable interrater reliability to be calculated. The interrater agreement was very high (marked referring expressions: 92.2%; type of referring expression: 99.7%; referential function: 98.1%; character type: 100%). All cases of disagreement were subsequently discussed until consensus was reached.

26 First, the expressions were classified according to *type of referring expression* as proper noun, definite NP, (overt) pronoun, or null (pronoun).⁷ Coordinated expressions (e.g., *Max und Tim* 'Max and Tim', *der Troll und der Elf* 'the troll and the elf') were coded as one expression. Cases where a definite NP was combined with a proper noun for one referent (e.g., *sein Hund Bello* 'his dog Bello', *Hund Bello* 'dog Bello', *Bello der Hund* 'Bello the dog') were classified as proper noun. There were a few cases of combinations with definite NP and proper noun for two referents (e.g., *Max und der Hund* 'Max and the dog'); these were also coded as proper noun.

27 Second, each referring expression was classified according to its *referential function* as either maintenance or reintroduction. Expressions that referred to a character that had been mentioned in the same or the preceding clause were coded as maintenance, whereas expressions that referred to a character who had been mentioned earlier in the discourse were coded as reintroduction (Bamberg, 1986).⁸ Following Colozzo and Whitely (2015), we coded shifts from referring to a group of characters together to one or a subset of these characters (e.g., *Sie* [Tim, Max, Bello] *liefen eine halbe Stunde. Dann sah Max ein Schloss* 'They [Tim, Max, Bello] walked for half an hour. Then Max saw a castle') and shifts from referring to one character (or more) to a group of characters (e.g., *Max sah ein Schloss von Weitem. Beide* [Tim, Max] *gingen hin* 'Max saw a castle already from a distance. They both [Max, Tim] went there') as reintroductions.⁹

6. We defined a clause as a finite verb that was produced with at least one of its complements. Following this definition, subordinated clauses were thus counted as separate clauses.

7. The category pronouns included personal pronouns as well as demonstrative and relative pronouns, which were both rarely produced, especially by the children (adults: 10 demonstrative, 27 relative; children: 3 relative). Null pronouns were only used in coordinated clauses (ellipsis).

8. In most cases intervening clauses contained another character. Only in 12.6% (21/167) of the reintroductions by the children did the intervening clause not contain another character (e.g. *Dort war ein dunkles Schloss auf einem Berg. Tim, Max und Bello...* 'Over there, there was a dark castle on top of a mountain. Tim, Max and Bello...'). The corresponding figure for the adult data was 25.4% (172/676).

9. Since all main characters (two boys and a dog) have masculine gender in German, and the secondary characters (two monsters) were almost exclusively considered to be male as well (the noun *Troll* 'troll', which was the most frequently used, also has masculine gender), in both shift contexts, a lexical NP is the most appropriate referring expression to refer unambiguously to the characters. It is therefore unproblematic to combine these cases into one category together with other cases of reintroduction.

28 Finally, all referring expressions were coded for *character type*, as either main character or secondary character. According to McGann and Schwartz (1988) the degree of agency, frequency of appearance, and first appearance are prototypical attributes of main characters (protagonists). In the story, the boys and the dog are mentioned first: they are introduced in the beginning of the story given to the participants and can be seen in the first pictures. The two monsters, on the other hand, appear only in the fifth picture of the story. The boys and the dog also appear more frequently in the pictures, in four pictures (one of the boys in three) whereas the monsters only appear in two pictures. Finally, the boys and the dog show a higher degree of agency than the monsters, as the pictures show them walking, running, pointing, and growling, whereas the monsters are rather passive, only shown standing still and becoming surprised by the boys and the dog. For these reasons, we coded the boys and the dog as main characters and the two monsters as secondary characters. All expressions that referred to all five characters together as a group (N = 31) were excluded from the analysis.

29 First, the distribution of different types of referring expressions (proper nouns, definite NPs, pronouns or null) were analysed descriptively for the two groups and the two referential functions. Next, we combined proper nouns and definite NPs into the category “lexical NPs” and pronouns and null forms into the category “pronouns” and carried out a logit mixed effect model using the package lme4 in R (Bates et al., 2015) with production of pronouns as the dependent variable. The three binary variables Group (adults, children), Referential function (reintroduction, maintenance), and Character type (main, secondary) as well as the interactions Group × Referential function and Group × Character type were included as predictors in the model. All predictors were centred to avoid collinearity. In case of non-convergence, as advocated by Bates et al. (2018), the models were simplified by removing the random slope that accounted for the lowest variance until convergence was reached. Only final models are reported. In case of significant interactions, post-hoc tests in the form of logit mixed effects models for adults and children separately were carried out.

5. Results

30 A total of 1,753 referring expressions were produced by the 84 participants in their narratives (adults: 1,391, children: 362). In Table 1, the different types of referring expressions used by the adults and the children when reintroducing and maintaining referents are shown.¹⁰

31 The results in Table 1 show that, in both groups, lexical NPs are more common in reintroduction as are pronominal forms in referent maintenance. Proper nouns make out a substantial part of the lexical NPs in both reintroduction and maintenance

10. Tables showing the types of referring expressions used by the children and the adults by character type (main vs. secondary) in the two referential functions can be found in Appendix C.

and are equally frequent in the narratives of both children and adults. Null pronouns are almost exclusively used for referent maintenance and are overall less frequent than overt pronouns in both groups. In reintroductions, pronouns are more often used by the children than by the adults.

	Adults				Children			
	Reintroduction		Maintenance		Reintroduction		Maintenance	
	%	N	%	N	%	N	%	N
lexical NPs	84.02	568	19.72	141	73.05	122	19.49	38
definite NPs	36.98	250	10.21	73	23.95	40	8.21	16
proper nouns	47.04	318	9.51	68	49.10	82	11.28	22
pronouns	15.98	108	80.28	574	26.95	45	80.51	157
(overt) pronouns	14.65	99	51.61	369	25.75	43	60.51	118
null (pronouns)	1.33	9	28.67	205	1.20	2	20.00	39
total	100.00	676	100.00	715	100.00	167	100.00	195

Table 1 – Types of referring expressions produced by adults and children, per referential function: Percentages (%) and raw figures (N)

32 In the statistical analyses, the focus is on the production of pronouns (including null forms) and lexical NPs (definite NPs and proper nouns) with respect to the factors Group (adults, children), Referential function (reintroduction, maintenance) and Character type (main, secondary). Figure 1 gives an overview of the percentage of pronouns and lexical NPs produced by the two groups in the two referential functions, per character. Although the exact percentages (see Appendix C) differ somewhat between the two groups, both adults and children mainly use pronouns for referent maintenance and lexical NPs for referent reintroduction, when referring to both main and to secondary characters. The examples in [3] and [4] show this general preference (cases of maintenance are marked in bold, cases of reintroduction are underlined).¹¹

[3] **Sie** [Tim, Max, Bello] liefen und liefen durch die dunkle Nacht! Von Weitem konnten **sie** das Schloss sehen. **Sie** kamen immer näher, aber auf einmal waren da zwei Trolle! Der eine war groß und grün, der andere war klein und hautfarben. Tim und sein Hund und sein Freund haben Angst und \emptyset liefen ganz schnell weg! (Child Master)

11. All examples have been orthographically corrected.

‘They [Tim, Max, Bello] walked and walked through the dark night! From afar they could see the castle. They came closer and closer, but suddenly there were two trolls! The one was big and green, the other was small and skin-coloured. Tim and his dog and his friend were scared and Ø ran away really fast!’

- [4] Sie [Tim, Max, Bello] rennen gemeinsam durch eine Ansammlung von Steinen und Felsen und Ø erhöhen immer mehr ihre Geschwindigkeit, bis ganz plötzlich zwei Kreaturen vor ihnen standen, die sich hinter einem der großen Felsen versteckt haben. Der eine ist grün und groß und er trägt ein langes Stück Holz in seinen Händen. Max und Tim schauen sich schockiert in die Augen und Ø fangen beide an zu zittern.

(Adult B27)

‘They [Tim, Max, Bello] run together through a collection of stones and rocks and Ø increase their speed more and more until all of a sudden two creatures stood in front of them, who were hiding behind one of the big rocks. The one is green and big and he carries a long piece of wood in his hands. Max and Tim look into each other’s eyes in shock and Ø both start shaking.’

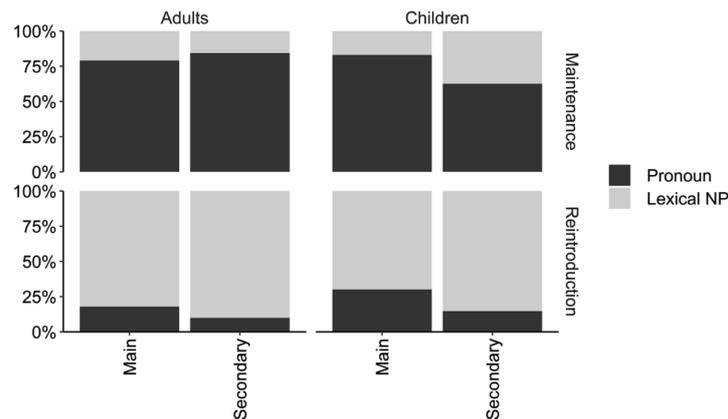


Figure 1 – Percentage pronouns and lexical NPs by group, referential function and character type. Main = main characters, Secondary = secondary characters

33 Table 2 shows the summary of the final logit mixed effects model for the production of pronouns.¹²

34 The main effect of Group was not significant; pronouns were not significantly more likely to be produced by one of the two groups (adults: 49.03%, children: 55.80%). There was a significant main effect of Referential function, with pronouns generally being more often produced in maintenance than in reintroduction, but

12. Note that no model including random slopes converged.

no significant main effect of Character type. However, the interaction effects Group \times Referential function and Group \times Character type were both significant, showing that the effects of Referential function and Character differ between children and adults. In order to investigate these differences further, post-hoc analyses in the form of separate logit mixed effects models for the two groups were carried out. Model summaries are shown in Tables 3 and 4.

Random effects	(s^2)	<i>SD</i>		
Participant (intercept)	0.14	0.38		
Fixed effects	<i>coef.</i>	<i>SE</i>	<i>z</i>	<i>p</i>
Intercept	-0.03	0.08	-0.33	.75
Group (Adults vs. Children)	-0.29	0.18	-1.63	.10
Referential function (Reintro vs. Maint)	3.01	0.13	22.72	<.001***
Character type (Secondary vs. Main)	0.25	0.15	1.63	.10
Group \times Referential function	0.66	0.30	2.12	.03*
Group \times Character type	-0.93	0.40	-2.34	.02*

Note. *** = $p < .001$, * = $p < .05$. Logit mixed effects model with random intercept for participant. Model fit by maximum likelihood (Laplace approximation). All predictors are centered. All values have been rounded to two decimals. Reintro = reintroduction, Maint = maintenance.

Table 2 – Model summary: Logit mixed effects model:
production of pronouns comparing adults and children

Random effects	(s^2)	<i>SD</i>		
Participant (intercept)	0.09	0.31		
Fixed effects	<i>coef.</i>	<i>SE</i>	<i>z</i>	<i>p</i>
Intercept	0.31	0.14	2.16	.03*
Referential function (Reintro vs. Maint)	2.47	0.28	8.77	<.001***
Character type (Secondary vs. Main)	0.99	0.36	2.76	<.01**

Note. *** = $p < .001$, ** = $p < .01$, * = $p < .05$. Logit mixed effects model with random intercept for participant. Model fit by maximum likelihood (Laplace approximation). All predictors are centered. All values have been rounded to two decimals. Reintro = reintroduction, Maint = maintenance.

Table 3 – Model summary: Logit mixed effects model:
production of pronouns – children

Random effects	(s ²)	SD		
Participant (intercept)	0.15	0.39		
Fixed effects	coef.	SE	z	p
Intercept	-0.10	0.09	-1.10	.27
Referential function (Reintro vs. Maint)	3.16	0.15	20.92	<.001***
Character type (Secondary vs. Main)	0.06	0.17	0.33	.74

Note. *** = $p < .001$. Logit mixed effects model with random intercept for participant. Model fit by maximum likelihood (Laplace approximation). All predictors are centered. All values have been rounded to two decimals. Reintro = reintroduction, Maint = maintenance.

Table 4 – Model summary: Logit mixed effects model:
production of pronouns – adults

35 For both groups, there was a significant effect of Referential function. However, the effect was stronger in the adult group than in the child group (as shown by the size of the coefficients in the models); compared to the adults, the children produced a similar percentage of pronouns in maintenance (children: 80.51%, adults: 80.28%) but a higher proportion in reintroduction (children: 26.95%, adults: 15.97%). In some cases, these pronouns suggest a different reading than the one intended by the child, as in [5] (inappropriate pronouns are marked in bold), where the children use a pronoun to reintroduce the secondary character.

[5] Bello bekam rote Augen. Er war sehr sauer. Tim und Max rannten weg, nur Bello blieb da und Ø bellte **ihn** an: „Woooooff!“
(Child Syuwni)

‘Bello got red eyes. He was very angry. Tim and Max ran away, only Bello stayed there and Ø barked at **him**: “Woooooff!”’

36 The effect of Character type (main vs. secondary) was significant for the child group, but not for the adult group. The children produced a higher percentage of pronouns when referring to main characters (59.87%) compared to secondary characters (34.48%). In the adult group, percentages of pronouns were highly similar for main (49.44%) and secondary (47.71%) characters.

6. Discussion and conclusion

37 The present study investigated how referential function and character type influence the choice of referring expressions in written narratives by German-speaking 10-year-old children and adults. We predicted that the children would take referential function into account when choosing referring expressions, but that character type would also

play a role for their referential choices. In addition, we expected the children to give more weight to character type compared to the adults. Our results were in line with these predictions. The children did consider referential function in their choice of referring expressions by predominantly using pronouns to maintain referents and lexical NPs to reintroduce referents, similarly to the Catalan- and Italian-speaking children in Grades 1, 3 and 5 in the study of elicited oral and written narratives by Rossi et al. (2000). However, their use of referring expressions was also influenced by character type: in both referential functions, the children used a higher proportion of pronouns with main characters, compared to secondary characters. These findings are in line with those of previous studies (Bamberg, 1986; Colozzo, Whitely, 2014, 2015; Hendriks et al., 2014; Lindgren, Vogels, 2018), but found here for the first time in a study of children's written narratives. Additionally, as predicted, our results indicate that adults and children may weigh local and global accessibility factors differently, as suggested by Lindgren and Vogels (2018): while referential function had a strong effect on both adults' and children's use of referring expressions, character type only influenced the children's referential choice significantly. The adults in our study were thus only influenced by the local accessibility factor referential function, and not by the global factor character type.¹³ The results suggest that the use of referring expressions is not yet fully adultlike at age 10.

38 One possible explanation for the children's higher use of pronouns with the main characters is that they (at least partially) use a global reference strategy, the thematic subject strategy (Bamberg, 1986; Karmiloff-Smith, 1985). When children use this strategy, they conceptualize their narrative in a different way than the adults, centring it more around one or more characters (protagonists) that they identify with and which they perceive the narrative to be about. These characters remain maximally accessible to the children as they write (or tell) their narrative, irrespective of the local discourse context in which the characters are referred to. To keep track of the characters' accessibility in the discourse and thus taking the addressee's perspective into account may then become secondary to the children, or they may fail to consider that their conceptualization of the narrative is not shared by the addressee, leading to an overuse of (ambiguous) pronouns, expressions that signal a high level of accessibility (Ariel, 1990), to refer to the main characters. A related explanation would be that the children simply fail to take the addressee's perspective into account due to general difficulties with perspective taking.

39 Another possible explanation for the significant effect of character type on the children's but not on the adults' referential choices is that important cognitive abilities may not be fully developed at age 10. Previous studies have found that

13. Note that this differs from the results of previous studies for another global accessibility factor, namely animacy: adults' use of pronouns has been found to be influenced by the animacy of the referent, with more pronouns being used for animates than for inanimates, although this was only the case when local factors were controlled for (e.g., Fukumura, Van Gompel, 2011; Vogels et al., 2013b). Additionally, character type has been found to influence adults' anaphora resolution; pronouns are more often interpreted to refer to the main character (Morrow, 1985).

executive functions like working memory play an important role in the ability to maintain a detailed discourse model and refer appropriately (Whitely, Colozzo, 2013). Working-memory capacities have been found to only match those of adults at age 12 (Huizinga et al., 2006), meaning that it is likely that the 10-year-olds in our study do not yet have such capacities comparable to adults. The proposal has been put forward that basing the referential choice on global accessibility factors, such as character type or animacy, is cognitively less costly compared to local accessibility factors like referential function, which require the discourse model to be constantly updated (Lindgren, Vogels, 2018); the results from our study support this hypothesis. However, it remains unclear whether the fact that the children in our study partly base their referential choice on character type is due to difficulties with working memory specifically or whether they follow a thematic subject strategy based on their own conceptualization of the narrative and fail to take the perspective of the addressee into account. The role of working memory as well as perspective-taking abilities for children's written reference production needs to be investigated in future studies.

40 The modality in which the narratives were elicited, one important aspect of the methodology of the present study, might in fact speak against the children's more limited working-memory capacities as the main explanation for the observed difference between the children and the adults in the factors influencing referential choice. In contrast to most previous studies of the influence of local and global accessibility factors on children's use of referring expressions, which investigated oral narratives (e.g., Colozzo, Whitely, 2014; Hendriks et al., 2014; Lindgren, Vogels, 2018), the present study analysed written narratives. There are substantial differences between oral and written narratives in terms of their demands on the speaker/writer and this is likely to influence the use of referring expressions (Bel, Albert, 2016; Millogo, 2005). Writers have the opportunity to go back in the text and take time to evaluate the extent to which the referring expressions they chose are interpretable to potential readers. This lessens demands of working memory on reference production; in fact, writing creates an external copy of the discourse, meaning that maintaining a mental model of the discourse becomes less crucial for using referring expressions appropriately. Results from previous studies that found significantly lower proportions of pronouns in referent reintroduction (Rossi et al., 2000) and an overall lower number of ambiguous pronouns (Bel, Albert, 2016) in written compared to oral narratives support the idea that it may be easier to keep track of referents in written discourse. If the main reason why children rely on global accessibility factors for referential choice is because of difficulties with maintaining a mental model of the discourse as a result of limitations in working-memory capacity, it would be expected that a global accessibility factor such as character type would have a smaller effect on the children's referring expression use *in writing*, since the written modality may lessen demands on the working memory compared to the oral modality.

41 However, despite this advantage of the written modality over the oral modality, the 10-year-olds in our study did not perform adultlike. In fact, they performed

similarly to younger children in the previous studies of oral narratives (e.g., Colozzo, Whitely, 2014; Hendriks et al., 2014; Lindgren, Vogels, 2018). Just as these younger children, the 9–10-year-olds in Bamberg (1986), as well as the children in Grade 5 in the study of written narratives by Rossi et al. (2000), the children in our study showed difficulties with referential choice in reintroduction, i.e., an overuse of pronouns in this function compared to adults. The children in our study were also influenced by character type, just as has been found for younger children in oral narratives. How can our results then be explained?

42 One possibility is that the modality of writing is demanding for the children in other ways, which influences their use of referring expressions negatively. The children are still developing their writing skills and are not as competent writers as the adult participants. For developing writers, the task of writing a narrative may be challenging, leading to less control over the production of (appropriate) referring expressions; the written modality could be more challenging than the oral one (Grabowski, 2010). This idea is supported by the study by Bel and Albert (2016) who found a higher number of ambiguous pronouns in the written narratives of 9–10-year-olds, compared to older children and adults (see also Millogo, 2005; Rossi et al., 2000). When the child and adult narratives in our study are compared in terms of other aspects such as length, syntactic complexity and vocabulary, a clear difference can be seen; the children's narratives are shorter and contain fewer complex syntactic structures and a simpler vocabulary; such differences have also been found in previous studies (Bel, Albert, 2016). Judging from our impressions of their written narratives, most of the children are struggling with the task, despite the fact that they were given a longer time to write their narratives compared to the adults. It is thus likely that the process of writing puts a substantial demand on the children's cognitive capacities, leaving them with reduced capacities for employing other linguistic, narrative and/or pragmatic capacities, including the ability to take the addressee's perspective into account while referring (Bel, Albert, 2016; Millogo, 2005). This in turn could have led them to rely more on the global accessibility factor character type and use more pronouns in reintroduction. Due to the demands of writing, it could thus even be the case that 10-year-old children are *less adultlike* in their referential choice in writing than in oral narratives. The results of Rossi et al. (2000), who found higher proportions of pronouns in reintroduction in children's oral narratives compared to their written ones, suggest otherwise. However, since Rossi et al. (2000) did not investigate adults' narratives, it remains open whether the same difference between the modalities can also be found for adults. Other previous studies showed similar patterns in terms of differences between oral and written narratives for children and adults with respect to overall proportions of pronouns (Bel, Albert, 2016; Vion et al., 1989), but it remains open whether the effect of local and global accessibility factors differ between the oral and written modality. In order to investigate this issue, future studies should elicit and systematically compare oral and written narratives from both children and adults, preferably from the same group of participants and using the same stimuli in both modalities.

43 In addition to modality, the stimulus material itself may impact the participants' choice of referring expressions. There is evidence that various aspects of stimulus material such as the length of a story and the number and order of characters in the story have large effects on referential choice (e.g., Colozzo, Whitely, 2015; Hickmann, Hendriks, 1999; Lindgren, 2018; Schneider, Hayward, 2010). One aspect that may account for a more frequent use of pronouns is the number of shared activities some of the characters perform in comparison to other characters, the co-agentivity of characters (Colozzo, Whitely, 2015; Orsolini et al., 1996). In the stimuli used in the present study, the main characters, the boys Tim and Max and the dog Bello, performed many shared activities and this could have triggered the use of pronouns. In addition, the secondary characters in our study are much less active than the main characters (i.e., standing as opposed to performing actions such as walking, see Appendix A).¹⁴ This could have contributed to lower proportions of pronouns for the secondary characters. However, other studies that used stimuli with more active secondary characters have shown similar results (Bamberg, 1986; Colozzo, Whitely, 2015). For example, both in maintenance and in reintroduction, the 9–10-year-old children in Bamberg's (1986) study used pronouns less frequently to refer to the secondary character, a dog, than to the main character, a boy, despite the fact that the dog was a very active participant in the story (it performed a range of different actions, e.g., putting its head into a jar, licking the boy's face, sniffing and jumping).

44 Specific features of the characters may also influence the use of pronouns. In addition to the character type (Colozzo, Whitely, 2015), the degree of animacy of different story characters plays a role, where children produce more pronouns when referring to human characters compared to animals and inanimate objects (Bamberg, 1986; Lindgren, Vogels, 2018). In our study, the main characters included both human (Tim and Max) and animal characters (Bello), whereas the secondary characters (the two monsters) can be said to belong to a category somewhere between human and animal, making it difficult to draw conclusions about the possible contribution of animacy to the choice of referring expressions in the present study. Furthermore, it needs to be mentioned that the children relatively rarely reintroduced and maintained the secondary characters (N = 58) compared to the adults (N = 327) in this study (see Appendix C). All children except one introduced the secondary characters into the narratives, but nine children did not refer back to them. All adults except one referred back to the secondary characters. The fact that the secondary characters seem to have played a smaller role in the

14. Nevertheless, our secondary characters are an important part of the story, since they do create a complication in the story, which can be seen in how the adults and children refer to them in the story (e.g. *Als sie da waren, sahen sie Monster und rannten weg.* 'When they were there, they saw monsters and ran away.' [Child Mochar] and *Die drei versuchen sich dem Schloss zu nähern, als sie plötzlich einem Troll und einem Oger begegnen. Vor Schrecken laufen die drei Freunde weg und lassen den sichtbar erstaunten Troll und den Oger hinter sich.* 'The three try to approach the castle when they suddenly encounter a troll and an ogre. Terrified, the three friends run away, leaving the visibly astonished troll and ogre behind them.' [Adult B126]). Most references to the secondary characters were in the form of grammatical subjects (75% compared to 85% for the main characters).

children's narratives can likely be attributed to the fact that the adults wrote longer and more detailed narratives. Since the adults' narratives are more developed in general, they contain larger number of references to all characters, and it was not the case that the secondary characters were more passive in the children's than in the adults' narratives.¹⁵

45 Another specific feature of the stimuli employed in the present study is the story beginning that the participants received as part of the instructions. In the story beginning, the boys and the dog were introduced with proper nouns and this may have triggered the frequent subsequent uses of proper nouns by both children and adults. Especially in maintenance, it is conceivable that the participants would have produced a higher rate of pronouns if the main characters would not have been introduced with proper nouns. Pronouns are typically used to maintain reference, but proper nouns may be more appropriate than definite NPs in this referential function. It should be pointed out, though, that the use of proper nouns does not explain the differences between children and adults, as children and adults use similar proportions of proper nouns (see Table 1). However, it would be interesting to carry out a follow-up study where participants do not receive this story beginning as part of the instructions and compare their choice of referring expressions with those of the present study.

46 It needs to be stressed that the properties of the stimuli employed in the present study do not explain the difference in performance between children and adults: it remains an important finding that children and adults were influenced differently by referential function and character type. It does highlight the need for future studies to carefully select stimuli in which story-specific properties (such as number and order of characters, and number of shared activities of the characters) and character-specific properties (such as character type and degree of animacy) are controlled for, when investigating children's (and adults') use of referring expressions in narratives. Additionally, future studies should investigate other local and global accessibility factors, such as animacy, syntactic function, and topicality.

47 In conclusion, the present study has shown that 10-year-old German-speaking children seem to weigh certain accessibility factors differently than adults: whereas adults primarily rely on referential function, a local accessibility factor, in their choice of referring expressions, children are also influenced by character type, a global accessibility factor, in addition to referential function. This is reflected in children's overuse of underspecified referring expressions (i.e., pronouns) compared to adults in cases of referent reintroduction, which can potentially lead to ambiguities. The children more frequently used pronouns to refer to main characters than to secondary characters, irrespective of the referential function. Following Lindgren and Vogels (2018), we suggest that in these cases, the global accessibility factor character type

15. For example, both children and adults primarily reintroduced and maintained the secondary characters as grammatical subjects, which indicate an active role in the narrative (70% subject references in the children's compared to 76% in the adults').

outweighs the local accessibility factor referential function. The reason why this happens can be either that the children (at least partially) conceptualize the main characters as the overall most accessible irrespective of the local discourse context (i.e., use the thematic subject strategy) and then fail to take the addressee's perspective into account or that considering global accessibility factors is cognitively less demanding than taking into account local accessibility factors, which can change from clause to clause, or a combination of these explanations. The results of the present study suggest that the acquisition of the use of appropriate referring expressions in written narratives is not fully completed even at the age of 10.

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Appendix

A. Stimulus material

Tim hat auf dem Dachboden seines Großvaters eine mysteriöse Karte gefunden, die zu einem verborgenen Schloss führen soll. Gemeinsam mit seinem Hund Bello und seinem Freund Max begibt er sich auf die Suche...

'In his grandfather's attic, Tim has found a mysterious map that leads to a hidden castle. Together with his dog Bello and his friend Max he goes on a search...'



Figure 2 – The picture sequence used as stimulus materials (Soboll, 2019: 34)^a

a. The task including these pictures was developed by Sebastian Soboll for use in his bachelor's thesis at Osnabrück University (Soboll, 2019) and he kindly allowed it to be used in the present study.

B. Examples of narratives

The texts have been orthographically corrected.

Child Sianer

Als sie dann draußen waren, lasen sie die Karte. Da gingen sie los und gingen durch einen Wald. Als sie wieder herauskamen, sahen sie das Schloss. Sie gingen weiter. Da hörten ein Troll und ein Oger sie laufen. Auf einmal sahen sie den Troll und den Oger. Sie rannten weg und schrien, doch der Hund blieb stehen und knurrte die beiden an.

‘When they were outside, they read the map. Then they started walking and went through a forest. When they came out again, they saw the castle. They continued walking. Then a troll and an ogre heard them running. Suddenly they saw the troll and the ogre. They ran away and shouted, but the dog stopped and growled at the two.’

Child Mauwai

Die Karte führt zu einer alten Eiche. „Hier kann das Schloss nicht sein!“, meint Tim. Tims Hund Bello geht am Baum vorbei in eine Höhle. Dort ist ein langer Gang zum Schloss. „Cool“, sagte Max. „Krass“, fand Tim. Sie rannten um das Schloss und kamen an einem Stein an. Hinter dem Stein kamen ein Bergtroll und ein Schlosself hervor. Der Bergtroll hatte eine Keule in der Hand. Bello knurrte ihn an. Die Kinder rannten weg, doch der Bergtroll rief mit tiefer Stimme: „Fürchtet euch nicht, kommt mit ins Schloss. Wir können Freunde sein!“ Und so kamen die Kinder jeden Tag und spielten mit den beiden Besitzern des Schlosses.

‘The map leads to an old oak tree. “The castle can’t be here!”, says Tim. Tim’s dog Bello walks past the tree into a cave. There is a long passage to the castle. “Cool”, said Max. “Incredible”, thought Tim. They ran around the castle and arrived at a stone. From behind the stone, a mountain troll and a castle elf appeared. The mountain troll had a club in his hand. Bello growled at him. The children ran away, but the mountain troll called in a deep voice: “Don’t be afraid, come with us into the castle. We can be friends!” Thus, the children came every day and played with the two owners of the castle.’

Adult B124

Nachdem Tim auf dem Dachboden seines Großvaters eine mysteriöse Karte gefunden hat, macht er sich mit seinem Freund Max und seinem Hund Bello auf die Suche nach dem verborgenen Schloss. Die drei Freunde beginnen der Karte zu folgen, doch nach kurzer Zeit sind sie sich unsicher, wo der Weg weitergeht. Außerdem ist es mitten in der Nacht und die Jungen können kaum etwas sehen, da es dunkel ist. Doch nachdem sie sich die Karte noch einmal genau angesehen haben, ist Max sich sicher, die Karte verstanden zu haben. Er zeigt Tim und Bello, wo es weitergeht, und sagt: „In diese Richtung müssen wir gehen, um zu dem verborgenen Schloss zu kommen!“ Tim vertraut

seinem Freund und gemeinsam gehen die drei in die von Max angezeigte Richtung. Nachdem sie einige Minuten weitergelaufen sind, können sie im Mondschein ein Schloss erkennen. Max, Tim und Bello freuen sich sehr, dass sie das verborgene Schloss gefunden haben, und rennen gleich los, um das geheimnisvolle Schloss zu erkunden. Doch was sie nicht wissen, ist, dass hinter einem großen Stein ein kleiner Troll und ein Oger stehen. Als die Jungen mit ihrem Hund Bello an diesem Stein ankommen und sie den Troll und den Oger sehen, erschrecken sie sich und bekommen Angst. Sie wollen gerade wieder nach Hause rennen, als der Troll ihnen hinterherruft: „Wir tun euch nichts!“ Max, Tim und Bello bleiben stehen und gehen langsam auf den Troll und den Oger zu. Tim sagt: „Wir haben eine geheime Karte gefunden, die uns zu diesem Schloss geführt hat. Habt ihr vielleicht Lust, es mit uns zu erforschen?“ Der Troll und der Oger mussten nicht lange überlegen und sagten: „Ja!“ Daraufhin gingen sie gemeinsam zu dem Schloss und erlebten ein tolles Abenteuer. Nach diesem Tag trafen sich Tim, Max und Bello jeden Tag mit dem Troll und dem Oger und sie wurden beste Freunde.

‘After Tim finds a mysterious map in his grandfather’s attic, he heads off with his friend Max and his dog Bello to find the hidden castle. The three friends begin to follow the map, but after a short while they are unsure where the path leads. Besides, it is the middle of the night and the boys can hardly see anything because it is dark. But after they have looked carefully at the map again, Max is sure that he has understood it. He shows Tim and Bello where to go next and says: “We have to go this way to get to the hidden castle.” Tim trusts his friend and together the three of them walk in the direction indicated by Max. After they have walked on for a few minutes, they can make out a castle in the moonlight. Max, Tim and Bello are delighted to have found the hidden castle and immediately run off to explore the mysterious castle. But what they don’t know is that behind a big stone, there is a little troll and an ogre. When the boys arrive at this stone with their dog Bello and they see the troll and the ogre, they are frightened and get scared. They are about to run back home when the troll calls after them: “We won’t hurt you!” Max, Tim and Bello stop and slowly walk towards the troll and the ogre. Tim says: “We found a secret map that led us to this castle. Would you like to explore it with us?” The troll and the ogre didn’t have to think for long and said: “Yes!” Afterwards, they went to the castle together and had a great adventure. After that day, Tim, Max and Bello met the troll and the ogre every day and they became best friends.’

C. Types of referring expressions by adults and children for reintroduction and maintenance by character type

	Adults				Children			
	Main character		Second. character		Main character		Second. character	
	%	N	%	N	%	N	%	N
lexical NPs	82.14	423	90.06	145	69.92	93	85.29	29
definite NPs	23.69	122	79.50	128	9.77	13	79.41	27
proper nouns	58.45	301	10.56	17	60.15	80	5.88	2
pronouns	17.86	92	9.94	16	30.08	40	14.71	5
(overt) pronouns	16.50	85	8.70	14	28.57	38	14.71	5
null (pronouns)	1.36	7	1.24	2	1.51	2	0.00	0
total	100.00	515	100.00	161	100.00	133	100.00	34

Note. Second. = secondary.

Table 5 – Types of referring expressions produced by adults and children in referent reintroduction, per character type: Percentages (%) and raw figures (N).

	Adults				Children			
	Main character		Second. character		Main character		Second. character	
	%	N	%	N	%	N	%	N
lexical NPs	20.95	115	15.67	26	16.96	29	37.50	9
definite NPs	8.93	49	14.46	24	4.09	7	37.50	9
proper nouns	12.02	66	1.21	2	12.87	22	0.00	0
pronouns	79.05	434	84.33	140	83.04	142	62.50	15
(overt) pronouns	51.91	285	50.60	84	61.99	106	50.00	12
null (pronouns)	27.14	149	33.73	56	21.05	36	12.50	3
total	100.00	549	100.00	166	100.00	171	100.00	24

Note. Second. = secondary.

Table 6 – Types of referring expressions produced by adults and children in referent maintenance, per character type: Percentages (%) and raw figures (N)