



Grammaticalization of prosodic configurations? The case of evidential interrogative in Spanish

Fernando Bermúdez

Uppsala University, Department of Modern Languages, Thunbergsvägen 3L, 752 38 Uppsala, Sweden



ARTICLE INFO

Article history:

Received 21 May 2024

Received in revised form 25 September 2024

Accepted 6 November 2024

Available online xxx

Keywords:

Evidentiality

Prosody

Grammaticalization

Prosodic change

Questions

Shared knowledge

ABSTRACT

This study investigates how prosodic evidentials (i. e. evidential markers constituted solely by prosodic configurations, regardless of their lexical and grammatical content) can emerge and develop. This is exemplified by a type of interrogative intonation used to convey assertions presented as shared knowledge, a prosodic configuration that we call *evidential interrogative*. The conclusion drawn is that prosodic configurations marking evidential meaning develop analogously to lexical or morphological evidentials, thus undergoing a process comparable to grammaticalization (Traugott, 2003; Narrog and Heine, 2021). This entails a reconsideration of grammaticalization as a broader form of linguistic change, encompassing not only lexical items and constructions but also, for instance, prosodic configurations.

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1. Introduction

A yes/no question constitutes a speech act that can be investigated and defined at different levels. Regarding its formal features, we can find a particular intonation, which in River Plate-Spanish, the variant of Spanish that will be studied here, is a final contour defined by a rise in tone in the last stressed syllable followed by a final tonal descent¹ (Gabriel et al., 2013), alongside specific syntactic features (subject/verb inversion and indicative mood), while its semantics can be defined as the set of possible responses (that is, the affirmation or negation of its lexical content). Finally, at the pragmatic level, yes/no questions can be defined as a request for unknown information.

However, these traits characterize only the prototypical case. There are yes/no questions that lack subject-verb inversion (1), others entail only a singular viable response, such as rhetorical questions (2), others that involve a request for information already known by the speaker, such as exam questions (3). Moreover, there are interrogative utterances that do not entail requests for information per se but rather requests (4) or offers (5), for instance.

- (1) ¿Ustedes van a salir a correr?
‘You are going out for a run?’

E-mail address: Fernando.bermudez@moderna.uu.se.

¹ In Section 4, the interrogative intonation of River Plate Spanish will be specified in more detail within the Autosegmental Metrical model (Pierrehumbert, 1980; Ladd, 2008), according to the ToBI labeling system (Silverman et al., 1992; Beckman et al., 2002).

- (2) [after hitting a hole in one:] ¿Y? ¿Soy bueno para jugar al golf?
'So? Am I good at playing golf?'
- (3) [A geography teacher to a student:] ¿Es Río de Janeiro la capital de Brasil?
'Is Rio de Janeiro the capital of Brazil?'
- (4) ¿Me podrías pasar la sal?
'Could you pass me the salt?'
- (5) ¿Probaron mis empanadas?
'Have you tried my empanadas?'

All these utterances from (1–5) are experienced as questions, albeit not prototypical ones, by language users. One such non-prototypical question, which has not received much attention, is exemplified in (6)²:

- (6) A: *Nunca ha habido un gobierno anarquista de verdad.*
B: ¿Cataluña durante la Guerra Civil?
A: 'There has never been a truly anarchist government.'
B: 'Catalonia during the Civil War?'

In (6), speaker B, through the use of interrogative intonation, is not seeking information but rather making a statement (namely, that Catalonia during the civil war is an example of a truly anarchist government) while simultaneously expressing that such information is shared knowledge; that is, the interlocutor cannot be unaware of this fact.

Thus, it could be claimed that the interrogative intonation in (6) - later it will be shown that the phenomenon is more complex than mere intonation - is marking the statement with an evidential value, if we include the appeal to shared knowledge as a dimension within the field of evidentiality (see Bermúdez, 2006, 2016; Nuyts 2012; Hintz and Hintz 2017; Evans et al., 2017; Rodríguez Rosique 2020). In other words, this scenario may represent an instance of a prosodic evidential marker – a category whose existence Bermúdez (2023) has pointed out for the case of quotatives. In this study, utterances akin to (6) will be referred to as *evidential interrogatives*.

This study, in addition to providing further evidence for the existence of such prosodic evidentials, endeavors to investigate their origin and evolution. The questions that will be attempted to be answered, based on the analysis of examples like that of (6), are the following: How have prosodic evidential markers arisen and evolved? Is it possible that they are the result of a process similar to grammaticalization, that is, similar to the process that gave rise to lexical or grammatical evidentials? And related to this same question, are the prosodic traits involved arbitrary, or are they related in some way to the meaning they convey?

2. Evidentiality and related notions

In contrast to the long history of modality, the term "evidentiality", related to how speakers encode the source of the information they convey in their speech, is relatively recent, first appearing in a work of Boas (1947) about Kwakiutl³. Initially, evidentiality was mostly seen as a grammatical feature specific to certain languages, particularly indigenous American languages. However, in the past 3 decades, after the publication of Chafe and Nichols (1986), evidentiality has emerged as a distinct field of research within linguistics, and now it is widely believed that all languages have the capacity to express information sources through various linguistic means (Bermúdez, 2004, 2006; Squartini 2004; Guentchéva 2018). At the same time, the fact that evidentiality has become a central category within both semantics and pragmatics has made the concept itself more nuanced and complex, and its influence on various aspects of the grammar and morphology of natural languages has been revealed.

Following the foundational publication of Chafe and Nichols (1986) about evidentiality in English, there have been several debates surrounding the concept of evidentiality. Besides the controversy about the relationship between evidentiality and epistemic modality⁴, a lot of attention has been given to the scope of the concept of evidentiality itself, and to its internal structure.

The ongoing discussion regarding the scope of evidentiality debates on whether concepts like *mirativity* (related to the notion of unprepared mind), *egophoricity* (about the speaker's personal involvement in an event), and *engagement* (how knowledge is distributed among participants in an interaction) should fall under evidentiality or not (see deLancey 2001; Lau and Roorick 2017; Bergqvist and Kittilä 2020 for further discussion). As for the internal structure of evidentiality, various

² The interaction in (6) stems from the recording of a spontaneous conversation among three speakers of the Rioplatense variety of Spanish, between 35 and 72 years.

³ Izquierdo Alegria et al. (2019) point out, however, that Jochelson (1905) already draws attention to certain particles in Yucaguiro and uses the adjective "evidential". An anonymous reviewer has furthermore correctly pointed out that the very concept of evidentiality, although labelled differently, appears to some extent earlier in the description of the grammar of certain languages.

⁴ For a review on this debate, see Bybee et al. (1994:320–324), Dendale and Tasmowski (2001:339–348), Palmer (2001:8–9), Infatidou (2001:5–8), Bermúdez (2006), Boye (2012), among others.

proposals have been made, largely drawing from distinctions observed in languages known as "evidential languages", which have specialized morphological systems for expressing evidential meanings. Fig. 1 depicts the model proposed by Willett (1988), that builds upon the core distinction between direct and indirect evidence, which is undoubtedly the most widely cited (see Aikhenvald 2004; Plungian 2010; Izquierdo Alegría 2016 for alternative classifications).

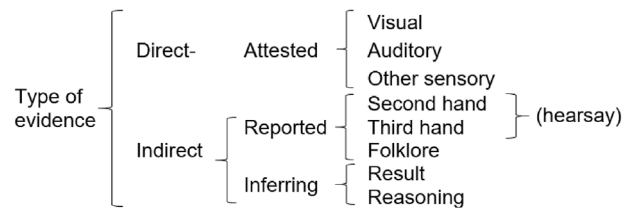


Fig. 1. The internal organization of the evidential category according to Willett (1988).

Semasiological models, such as Willett's, have been effective in explaining the highly grammaticalized systems found in languages like Tuyuca or Tariana. However, these models face challenges when it comes to explaining how evidential meanings are expressed in languages like English and Spanish. They also have certain limitations, both conceptually and empirically, when attempting to describe the semantic domain of evidentiality. This issue will be further explored in the upcoming section.

2.1. Evidentiality and deixis

Following Bermúdez (2006, 2008), this study adopts a deictic perspective on evidentiality. In this view, evidentials serve to place the information conveyed in an utterance in relation to the speaker and the speech context, hence its deictic nature (for previous models of evidentiality based on deixis, see Frawley (1992) and Mushin (2000)). What is claimed here is that evidential deixis is metaphorically built drawing on the model of spatial deixis, in the same way that temporal deixis is. We return to this relationship below.

Spatial deixis involves the perspectivization of physical space from a central point that defines the viewpoint, typically the speaker. This perspectivization can be defined by three independent but related parameters: *direction*, *distance*, and *reference points*. The *deictic center*, representing the speaker, plays a very important role as the starting point of the perspective.

For instance, the expression "behind" in "the cup is behind the lamp" is deictic as it orients space from the speaker's viewpoint, indicating that the cup is located in the same **direction** as the lamp (a **reference point**) but at a greater **distance**. This description of the deictic meaning of "behind" can be seen graphically in Fig. 2:

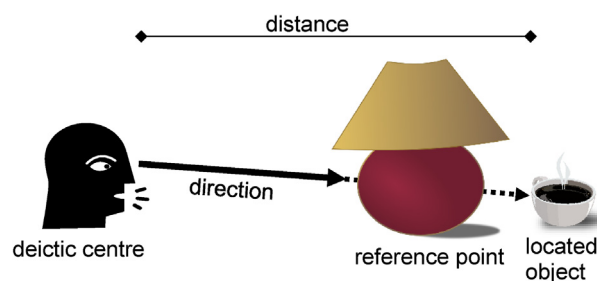


Fig. 2. The expression "The cup is behind the lamp".

While some expressions, like "behind", specify all three parameters, others may only focus on one or two, leaving the rest unspecified. "Near", for example, specifies only distance from the deictic centre, without reference to either direction or reference points, while "thither" specifies both direction and a reference point, but leaves distance unspecified.

Temporal deixis is in turn metaphorically built upon the model of spatial deixis. Events are placed in a "timeline", "back" or "ahead" a deictic center (i.e. the speech situation) and in relation to referent points, only that these reference points are no longer objects in space but time intervals.

Just as spatial deixis involves the perspectivization of space relative to a deictic center, and temporal deixis involves the perspectivization of time relative to a deictic center, evidentiality involves situating the information conveyed by an utterance

relative to a deictic center, typically associated with the speaker. Our hypothesis is then that the semantic space of evidentiality can be delineated using the same three parameters that define spatial deixis, specifically: direction, distance, and reference points. However, in the case of evidentiality, like in the case of temporal deixis, these parameters are interpreted metaphorically to reflect the placement of information in relation to individuals rather than objects in physical space.

The first parameter, *direction*, is reconceptualized as *direction of the information*, or *information path*: either towards the speaker (as in the case of sensory evidence, where the information “hits” the speaker) or from the speaker (as in the case of reasoning, where the speaker processes the information cognitively). This parameter represents the *source of the information* conveyed by the utterance, or in other words, the *mode of acquisition* of the information, and is depicted as a continuum between pure perception and pure cognition, with several intermediate points in between. For instance, *visual sensory evidence* represents a pure sensory impression devoid of cognitive processing, while *reasoning*, as in Willett’s model, denotes pure cognitive analysis devoid of sensory impressions. Noteworthy intermediate points include *inference*, a cognitive process partly grounded in sensory stimuli, and mental states like premonitions or dreams, straddling between sensory impression and cognitive processing, as the speaker both forms and experiences them. This parameter is termed as the *mode of access to information* in Bermúdez, 2006 as it primarily concerns the manner in which the speaker acquires the information conveyed in the utterance.

The second parameter, *distance*, is understood in terms of *distance to the source of information* in the evidential domain. This continuum ranges from minimum distance to the source of information (first-hand information where the source is the speaker) to maximum distance from the source of information (such as rumors), with intermediate points like second-hand information.

Lastly, *reference points* in the deictic model of evidentiality no longer involve objects in spatial relation, but individuals with specific relationships to the information being conveyed; that is, individuals with or without access to the information. This parameter ranges from the situation that the speaker claims exclusive access to the information (i.e. presenting the information as new to the interlocutor) to universal accessibility of the information (as in the case of *folklore*, where all members of a language community are presumed to have access to it by mere belonging). Intermediate points exist, one of significance to this study being when the speaker claims that the information is shared by both the speaker and the interlocutor(s). Bermúdez, 2006 labels this parameter as *information accessibility*.

The proposed deictic model has been shown to be more accurate in describing the semantic space of evidentiality compared to other existing models, such as those proposed by Willett (1988), Frawley (1992), Plungian (2001, 2010), or Aikhenvald (2004), which are commonly referenced in literature. Firstly, the proposed model successfully accommodates evidential meanings such as *folklore* or *common knowledge* (Willett 1988; Lazard 2001; Kittilä 2020), *mirativity* (DeLancey 1997, 2001; Peterson 2015), *shared information* (Nuyts 2001; Hintz and Hintz 2017), and *endophoric evidence* (Tournadre 1996) within its system. In contrast, other models struggle to account for these values within their classifications, which in many cases becomes impossible.

For example, folklore in Willett’s model is grouped with second and third-hand evidence (see Fig. 1), despite its unique characteristics. It is obvious that stating that folklore is a kind of “transmitted evidence” overlooks a central component of its meaning. In contrast, our deictic model defines folklore as *universal access to information* combined with *maximal distance to the source*, capturing the essence of the concept more effectively: knowledge that belongs to common knowledge, to which anyone within a specific linguistic community has access, but that is not firsthand, as the original source is lost in the boundaries of time and space.

Furthermore, *shared information* and *mirativity*, which are not accounted for in Willett’s model, find a natural place in our deictic model. *Shared information*, or more technically *shared access to the information* (Bermúdez, 2006; Hintz and Hintz 2017; Evans et al., 2017; Rodríguez Rosique 2020), is characterized straightforward as an intermediate value between exclusive and universal access to information⁵, while *mirativity*, defined as sudden realization or unprepared mind (Lau and Roorick 2017), can be described in the deictic model as a combination of lack of access to information and cognitive mode of access, as in the case of (7):

- (7) [seeing a child doing extremely skilled tricks with a soccer ball:] Habías sido bueno para el fútbol.
You are good at soccer! [which is a surprise to me]

What the speaker communicates in (7) through the use of the pluperfect (and a specific intonation pattern) is that the speaker has just realized, based on the experienced evidence, the soccer skills of the child; in other words, the result of an inferential process that reveals the speaker’s lack of knowledge.

The same can be said of endophoric evidence, which refers to those situations where visual or sensory perception is not possible at all, i.e., when describing unobservable phenomena, such as intentions, desires, or other internal mental and

⁵ It is important to highlight here that what we call shared knowledge or, more specifically, “shared access to information” is, as we have just pointed out, an evidential value related to the *engagement system* of Evans et al. (2017). That is, linguistic devices whose primary function is to mark who in the speech situation have access to the source of information. We are thus not referring here to notions such as assumptions, floor, or common ground, that enable conversation and mutual understanding, nor to the notion of new and old information involved in the notions of *theme* and *rheme* or *topic* and *comment*, but to an overt reference to the distribution of information between the participants in a speech situation.

physical states (Tournadre 1996; Plungian 2001). Endophoric evidence can also be naturally characterized in our deictic model (Bermúdez, 2006) as an intermediate value between purely sensory and purely cognitive access to information, which captures the very essence of the concept: a mental state that is experienced by the mind but at the same time produced by it.

Additionally, evidential meanings expressed through adverbs like “teóricamente” ‘in theory’ and “evidentemente” ‘evidently’ present challenges for models like that of Willett due to their complex nature.

(8) *Teóricamente, a causa de la mayor libertad sexual, desde 1970 la prostitución tendría que haber bajado. Pero ha ocurrido justo lo contrario. La demanda de prostitutas es cada vez mayor, y la oferta también* (El Mundo, 27/12/1996).

‘Theoretically, due to greater sexual freedom, prostitution should have decreased since 1970. But the opposite has happened. The demand for prostitutes is increasing, and so is the supply’

(9) *Evidentemente, Miguel está cansado.*

‘Evidently, Miguel is tired.’

In (8), by using the evidential adverb *teóricamente* ‘in theory’, the speaker expresses that the assertion that prostitution decreases when there is greater sexual freedom is a conclusion drawn by an external source, or, in other words, it is *reasoning* and at the same time *second-hand information*. Similarly, in (9), the speaker, by using the adverb *evidentemente* ‘evidently’, expresses that they have inferred that Miguel is tired from the available evidence, but at the same time, they express that access to the source of information is shared, i.e., everyone present can come to the same conclusion. However, these complex evidentials are impossible to describe in models like that of Willett because an evidential can be a second-hand marker or an inference marker, but not both at the same time, which these adverbs clearly are.

In the deictic model in Fig. 3, on the other hand, these complex meanings can be explained directly, as these values (inference, second-hand information, and shared access to the source of information) relate to different and independent parameters. The example in (8) would be, in the deictic model, cognitive access mode and external source of information (in other words, *second-hand inference*), while (9) would be analyzed as cognitive mode and shared access to the source of information (*shared inference*). Similarly, the model can account for evidential expressions created on the spot such as “as we all here have heard sometime” (external source + shared access) or “as you can understand” (cognitive access mode + shared access).

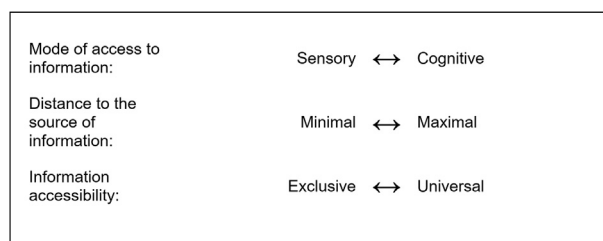


Fig. 3. The semantic space of evidentiality.

2.2. Evidentiality, prosody and grammaticalization

Almost without exception, studies on evidentiality have been limited to the study of morphological and lexical markers (Chafe and Nichols 1986; Aikhenvald 2004; Aikhenvald and Dixon 2014; González Ruiz, Izquierdo Alegría & Loureda Lamas 2016, among many others), with no reference to their prosody. This is also true for studies adopting an interactional approach (Squartini 2012; Nuckolls and Michael 2014; Söderqvist 2020), where some emphasis on intonation might have been expected. It is only in recent years that isolated works have emerged highlighting the potential role of prosody in the expression of evidentiality (Estellés Arguedas and Albelda Marco 2014; Estellés Arguedas 2015; Caldiz 2019; García Negroni and Caldiz 2016; Vanrell et al. 2017; Cabedo Nebot and Cornillie 2018). However, these studies have been very specific, conducted from different theoretical perspectives, and without an explicit aim of trying to understand in-depth the relationship between evidentiality and prosody.

Cabedo Nebot and Cornillie (2018), for example, have pointed out some correlations between intonation and (inter)subjectivity in certain evidential adverbs, while Vanrell, Amstron & Prieto (2017) have found evidential nuances in specific variations of intonation in polarity expressions in Catalan. Additionally, García Negroni & Caldiz (2016), in a pioneering work within a Ducrotian framework, suggest that intonation plays an important role in the encoding and decoding of evidentiality, as prosodic marking “can in itself fulfill that modal function.” Continuing with the role of intonation in the expression of so-called “evidential viewpoints,” Caldiz (2019), within the same theoretical framework, emphasizes the role of circumflex accent in River Plate Spanish, while Estellés Arguedas (2015) identifies certain prosodic configurations in indirect speech situations. However, no efforts have been made to deeply investigate the relationship between evidentiality and prosody.

In a recent study, Bermúdez (2023) has provided arguments in favor of the existence of “prosodic evidential markers”, i.e., prosodic patterns that by themselves mark a statement or a smaller sequence with an evidential value. Specifically, it is stated

there that the *quotative* can be expressed by speakers through a combination of purely prosodic elements, related to intonation and rhythm, independently of the associated lexical content. Through a study based on a Discourse Completion Task (DCT), it was found that in four languages from four different language families (Spanish, Swedish, Polish, and Hungarian), speakers consistently marked the quoted fragment with a micropause before and after the fragment and an increase in fundamental frequency (f_0) of the fragment attributed to another speaker, breaking the melodic intonation pattern of assertions in those languages.

Regarding the relationship between grammaticalization and phonological processes, research has mainly focused on the erosion of phonetic substance, i.e., reduction, elision, and syllabic loss (Meillet 1965 [1912]; Lehmann 1995; Hopper and Traugott 2003). This lack of exploration in this field is largely due to the fact that grammaticalization studies, due to their need for historical data, are based on written documents, without access to prosodic information. Recently, however, a small number of studies have drawn attention to the role of prosody in grammaticalization processes. Wichmann (2011), for example, argues that the loss of phonetic material in grammaticalization processes is a consequence of underlying prosodic changes, while Dehé and Stathi (2016) claim that different coexisting prosodic patterns correspond to different degrees of grammaticalization, providing evidence that desemantization and erosion develop simultaneously. However, to the best of our knowledge, no study has explored the emergence and semantic change of prosodic evidential markers, as the recognition of such markers is very recent.

3. Methodology

To verify that the statement in (6), which we referred to as *evidential interrogative*, is not an idiolectal phenomenon but a verbal pattern that speakers produce and understand, we needed to confirm the existence of similar examples. Given the difficulty of systematically searching for statements like those in (6) in oral corpora, we instead decided to employ a Discourse Completion Task (DCT) methodology to elicit them. Six speakers of River Plate Spanish between the ages of 28 and 63 were presented with a series of situations to which they had to verbally react. The DCT consisted of three parts. In the first part, the objective was to elicit a canonical question, and the presented situation was as follows: "A friend returns from the supermarket where they went to buy ingredients for a dinner you are preparing together, and when they arrive, you ask them if they bought onions." All participants produced the question *¿Compraste cebolla?* 'Did you buy onions?' Next, participants were presented with the following situation: "You are talking to a friend who is married to Juan Carlos, whose birthday is coming up. Your friend then asks, 'What can I get him?' Provide possible gift suggestions." Here, the responses from participants varied a little, but the vast majority produced interrogative statements, such as *¿Un par de zapatos?* 'A pair of shoes?' or *¿Un adorno para la casa?* 'A decoration item for the house?' The purpose of this part of the DCT will become clear later, in Chapter 6. Finally, five situations reminiscent of the original scenario in which the statement in (6) was generated were presented. The general explanation provided to the participants for these situations was: "You and me are talking and I make a statement, but you disagree and point it out to me with an obvious example that I definitively have to know." It was important to emphasize for the informant that they would not only express disagreement but that they must be explicit in marking the obviousness of the counterexample, and that the interlocutor should know it. The interviewer then presented the statements on the left side of the following table, while the participant reacted with examples on the right side.

Statement	"Obvious example"
<i>Ninguna mujer ocupó la Casa Blanca</i> 'No woman has occupied the white house'	Kamala Harris
<i>Nunca ha habido un gobierno anarquista de verdad</i> 'There has never been a truly anarchist government'	<i>Cataluña durante la Guerra Civil</i> 'Catalonia during the Civil War'
<i>En mi familia son todos buenos deportistas</i> 'Everyone in my family are good athletes'	<i>Tu hermano</i> 'Your brother'
<i>Yo nunca me enojo con mi hijo</i> 'I never get angry with my son'	<i>Ayer en la juguetería</i> 'Yesterday at the toy store'
<i>La única religión monoteísta es el cristianismo</i> 'The only monotheistic religion is Christianity'	Islam

In this final part of the DCT, the responses varied more, as some participants produced complex statements such as *Estás equivocado, Kamala Harris ocupa la Casa Blanca en este momento* 'You are mistaken, Kamala Harris currently occupies the White House'. However, four out of the six participants produced the expected results, that is, interrogative sentences like those in (6).

4. Interrogations, questions, and information requests

As mentioned earlier, the aim of this study is to investigate the origin and evolution of the use of interrogative intonation in the example (6), repeated here as (10), to express the evidential value of shared access to information.

- (10) A: *Nunca ha habido un gobierno anarquista de verdad*
 B: *¿Cataluña durante la Guerra Civil?*
 A: 'There has never been a truly anarchist government.'
 B: 'Catalonia during the Civil War?'

Let's first analyze the characteristics of prototypical yes/no questions like (11) and see how example (10) differs from them.

- (11) *¿Compraste cebolla?*
 'Have you bought onions'

As previously stated, a yes/no question like (11) is a complex phenomenon that can be analyzed at different levels. On one hand, it is an interrogative sentence, which typically possesses certain formal characteristics, such as a particular intonation. In the case of River Plate Spanish, this intonation configuration is as follows: $L_{+i}H^*HL\%$ (Gabriel et al., 2013), which means a nuclear accent with rising contour ($L_{+i}H^*$) followed by a bitonal boundary tone ($HL\%$), as graphically represented in Fig. 4⁶:

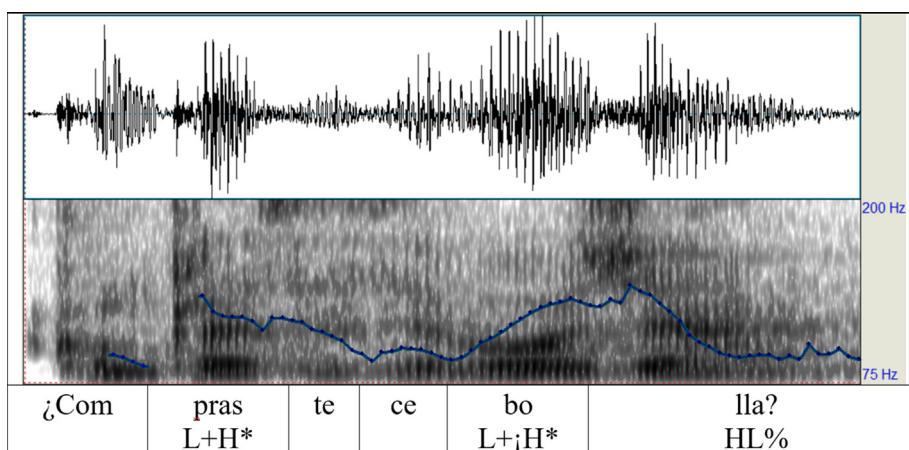


Fig. 4. Intonation of yes/no questions in River Plate Spanish.

In Fig. 4, we can visually observe the tonal structure of yes/no interrogations in River Plate Spanish. The blue line represents f_0 , the fundamental frequency, which is perceived auditorily as pitch variations. In other words, the typical intonation of yes/no questions in Rioplatense Spanish is characterized by a sharp tonal rise on the final stressed syllable ("bo" in Fig. 4) followed by a complex boundary tone (high-low)⁷. Additionally, the initial accent of the interrogative phrase (in the example of Fig. 4, the syllable "prás" in "comPRASte") is also associated with a tonal rise ($L + H^*$).

In terms of semantics, it can be generally stated that understanding a question entails understanding what counts as a possible answer. Therefore, with certain variations in different semantic models, the meaning of a question is usually identified with the set of possible answers (Belnap and Steel, 1976; Hamblin, 1973; Hintikka, 1999; Karttunen, 1977). In yes/no questions, the possible answers are simply yes or no, or in other words, the assertion or negation of the lexical content of the question. According to Hintikka (1999), the set of possible answers is the *presupposition* of the question, i.e., the necessary condition for the question to be correctly formulated; in other words, a statement that must be true for the question to make sense. In the case of yes/no questions, as we just mentioned, the presupposition is the disjunction of the affirmation and negation of the lexical content of the question; in logical symbols: $S \vee \neg S$. In the specific case of the question in example (11), the statement that must be true for the question to be formulated, i.e., its presupposition, is "you did buy onions or you did not buy onions", which would be the description of its meaning. On the other hand, within Hintikka's model, the speaker's mental state when knowing the correct answer to a question is the *desideratum*.

⁶ In the Autosegmental Metrical model, two types of tones are distinguished:

- *Tonal accents*, which are associated with tonic syllables and can be low (L^*), high (H^*), or a combination of these basic tonal elements. In the case of complex tonal accents, the asterisk indicates which part is associated with the tonic syllable, such as $L + H^*$, L^*+H , $H + L^*$, etc.

- *Boundary tones*, which are not associated with a tonic syllable but with the end of an intonational phrase ($L\%$, $H\%$), and can also be complex, i.e., they can consist of more than one tonal element, such as $LH\%$ or $HL\%$.

Moreover, in Spanish, the nuclear accent of a sentence is the final accent of that sentence. Therefore, the sequence $L + H^* HL\%$ signifies a rising nuclear accent followed by a bitonal final tone, which starts high and falls.

⁷ By "sharp tonal rise," we mean that the tonal rise exceeds the previous peak in the sentence; this is often called "upstepping" and is represented by the symbol " i " in " $L_{+i}H^*$."

At the pragmatic level, questions, defined as requests for information, are the prototypical cases of interrogative sentences. In the specific case of example (11), the speaker is asking the interlocutor for information about whether it is true that they bought onions or, conversely, whether it is true that they did not buy onions. However, as previously noted, an interrogative sentence can be used to perform different speech acts, such as requests or offers, but here we refer to its prototypical use as a request for information (Escandell 1999).

Lastly, from the perspective of evidentiality, a yes/no question, as a request for information, implies a situation in which the speaker presents themselves as a participant without access to the information, while presupposing the interlocutor as a participant with access to the information (see Fig. 3).

Now, let's compare these characteristics of the prototypical yes/no question with the case of (10)⁸:

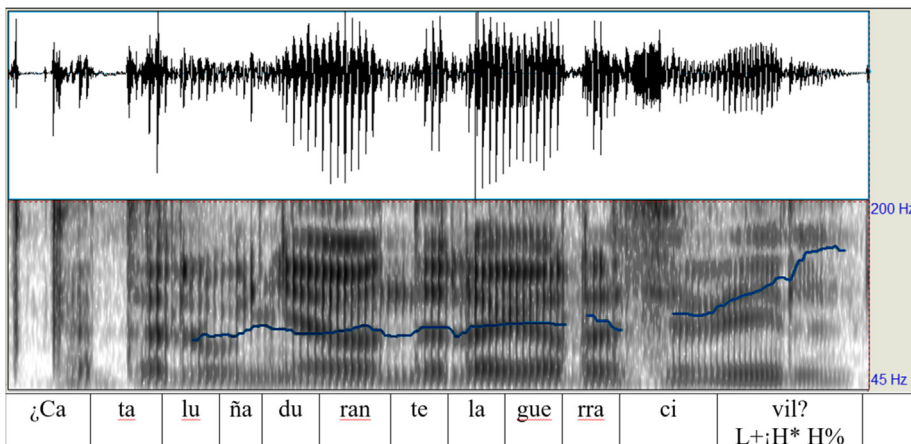


Fig. 5. Intonation of ¿Cataluña durante la guerra civil? 'Catalonien under the Civil War?'.⁸

Firstly, we observe that the intonation, although interpreted as interrogative, lacks the final f_0 descent that can be observed in the example ¿Compraste cebolla? from Fig. 4. That is, the boundary tone, instead of being bitonal (HL%) as in the canonical question, is a high monotonal (H%). The tonal configuration is therefore L+;H* H%. It could be argued that the lack of the final tonal descent is due to the last word ("civil") being stressed on the final syllable, and thus there is a truncation of the tonal descent due to a lack of lexical material to be realized; however, the same intonation can be observed in a phrase with nuclear stress on the second last syllable, as seen in Fig. 6, pertaining to another informant:

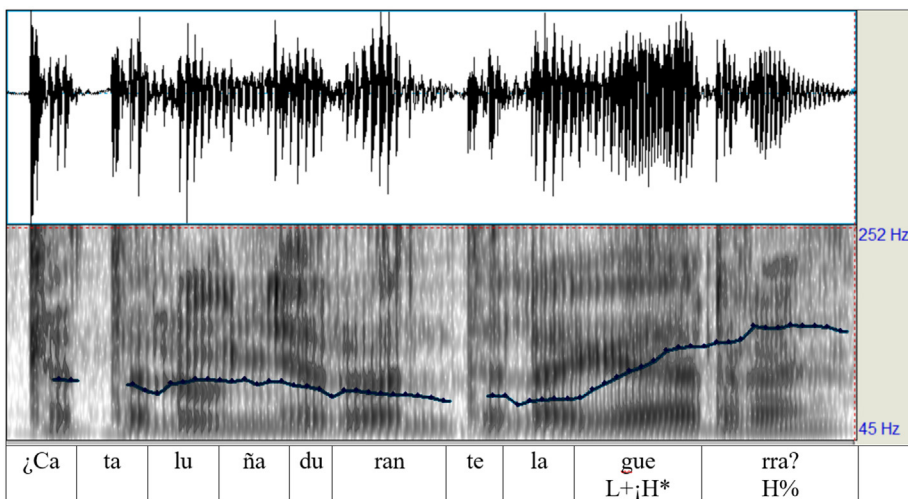


Fig. 6. Intonation of ¿Cataluña durante la guerra? 'Catalonien during the war?'.⁸

⁸ All examples come from the responses of informants in the DCT.

Another intonational difference is the absence of the f_0 rise associated with the first accent of the phrase. Indeed, as mentioned earlier, in Fig. 4, a pronounced rise in the fundamental tone associated with the syllable "pras" in "comPRASte" can be observed. This is a general feature of the intonation of questions in River Plate Spanish (Gabriel et al., 2013). In Figs. 5 and 6, this tonal rise on the first accent, i.e., on the syllable "lu" in "CatalUña," is not registered.

The other formal characteristic in which they differ is that (10) is a nominal phrase and not a complete sentence like in ¿Compraste cebolla? 'Have you bought onions?'. It might be thought that this is not an essential characteristic of this use of interrogative intonation; however, if we modified the sequence of (10) and changed B's intervention to a complete sentence, the interpretation would change completely, as seen in (12).

- (12) A: *Nunca ha habido un gobierno anarquista de verdad*
 B: ¿Tuvo Cataluña un gobierno anarquista durante la guerra civil?
 A: 'There has never been a truly anarchist government.'
 B: 'Did Catalonia have an anarchistic government during the Civil War?'

In this case, the statement is interpreted as a sincere question, requesting unknown information as in the case of ¿Compraste cebolla? In other words, this use of interrogative intonation to express shared access to information seems to work only with a specific type of construction, namely, constructions smaller than the sentence.

Semantically, (10) differs from yes/no questions in that its meaning is not the disjunction of two opposing propositions (Cataluña [had a true anarchist government] during the Civil War or No, Cataluña [did not have a true anarchist government] during the Civil War), but rather in this case, the meaning is what we previously called the *desideratum*, i.e., the correct answer to the supposed question, in other words, the proposition "Cataluña [had a true anarchist government] during the Civil War".

Pragmatically, the example in (10) is not a request for information but rather a sort of assertion, with the addition that the speaker simultaneously presents such assertion as information to which the interlocutor has access, i.e., as known information. Therefore, also on the evidential level, as already noted, there is a difference from prototypical questions, since in (10) the speaker expresses that both the speaker and the interlocutor have access to the information, while in yes/no questions the speaker presents himself as having no access to the information and presupposes that the interlocutor does have access to the correct answer, and hence it makes sense to ask the question.

As we can see, the example in (10) differs from the prototypical question at all levels of analysis. Nonetheless, it is interpreted intonationally as a question. The question that arises, therefore, is how it is possible for a tonal pattern that is directly related to questions and, therefore, to the lack of access to information by the speaker, to have come to express assertions of shared knowledge. To answer this question, we will review the process by which constructions in general have arisen and been modified, i.e., grammaticalization.

5. Grammaticalization of prosodic structures?

The study of grammaticalization processes is another area of linguistics that, like evidentiality, has gained the attention of many scholars in the last 30 years. We take here Traugott's (2001) definition of grammaticalization:

Grammaticalization is the change whereby lexical items and constructions come in certain linguistic contexts to serve grammatical functions or grammatical functions develop new grammatical functions (Traugott 2001: 1).

According to this definition (and all others that have been proposed, see for example Hopper 1991; Lehmann 1995; Harris and Campbell 1995; Heine and Kuteva 2007; Narrog and Heine 2021), grammaticalization is a process of linguistic change that applies to lexical items and constructions, leaving prosodic structures outside its scope. However, we believe it is legitimate to ask whether grammaticalization, as defined, cannot be thought of as a particular case of a more general process of linguistic change that could also include suprasegmental configurations. We will return to this point in the following section.

The question then is: could it be argued that the tonal structure of the "evidential interrogative" in Figs. 5 and 6, regardless of the associated lexical content, is the result of a change from the tonal structure of the "canonical question" in Fig. 4? And if so, could the process of change that led from one tonal structure to the other, with the consequent change from a request for information to an assertion with a qualification of shared knowledge, be considered analogous to grammaticalization?

There is, however, an essential impediment to answering the first question, namely, the lack of diachronic data. The problem is essentially that we do not have hundreds of years of speech recordings to trace the process of change and identify what Heine (2003) calls *bridging contexts*, i.e., contexts in which the structure appears with a new meaning in a new context, and *switch contexts*, that is, contexts with which the original meaning is incompatible. We will return to this point later.

Now, assuming for a moment that an affirmative answer could be given to the first question, i.e., that the prosodic configuration we investigate here is in fact the result of a change originating from the canonical question in Fig. 4, it remains to be answered whether the phenomenon can be associated with grammaticalization as Traugott (2001) and others conceptualize it.

The process of grammaticalization is usually associated with certain phenomena, such as desemantization, (inter)subjectivization, decategorization, and erosion (phonological reduction) (Narrog and Heine, 2021). We will see shortly that all

these features would be present in the process that presumably led from the intonation of the canonical question (hereafter, CQ) to our marker of shared access, or "evidential interrogative" (hereafter, EI). Let's start with desemantization. As (Hopper and Traugott 2003:94) establish,

"[t]here is no doubt that, over time, meanings tend to become weakened during the process of grammaticalization. Nevertheless, all the evidence for early stages is that initially there is a redistribution or shift, not a loss, of meaning."

As we saw above, the meaning of CQ, understood as the disjunction of the affirmation and the negation of the lexical content, has been weakened in EI, since only one of the disjuncts remains. Indeed, the meaning of EI is no longer {S v ~S} but simply S; that is, the *desideratum* in terms of Hintikka (1999). In other words, the meaning of the tonal configuration has been simplified. However, at the same time, EI has acquired new meanings from the context, namely, the mark of shared knowledge. We can say in this way that the path of desemantization here corresponds to what happens in cases of grammaticalization.

Regarding the status of the semantic change that operates in grammaticalization, Bybee et al. (1994) establish that there is always "semantic retention", in the sense that the grammaticalized construction retains remnants of the meaning of the original construction, or, seen from another perspective, that in the process of grammaticalization there is "source determination", in the sense that the meaning of the original construction restricts the possible uses in context and therefore the possible meanings that the grammaticalized construction can acquire. Both phenomena are intimately related and can be seen as two sides of the same coin. Now, this "source determination" can be clearly seen in the case at hand: the semantic-pragmatic characteristics associated with canonical interrogative intonation (which would be the original stage of the presumed process of prosodic grammaticalization resulting in EI) would make it implausible for such intonation to be used to, for example, mark exclusive access of the speaker to the information, since interrogative intonation involves the presupposition that the interlocutor has access to the information that functions as a response (i.e., the *desideratum*), being this an essential trait. Therefore, if we want to make an assertion, and only with prosody mark that we are presupposing that the information has to be known to the interlocutor, the choice of interrogative intonation is somewhat logical given its evidential values, since questions imply the presupposition that the interlocutor has access to the answer.

Here we have a plausible answer to the question we posed at the end of the previous section: how is it possible for a tonal pattern that is directly related to questions and, therefore, to the speaker's lack of access to information, to have come to express assertions of shared access? The answer is that the presupposition that the interlocutor has access to the information is central in questions⁹, and that when we use interrogative intonation in a context where it is clear that the speaker himself does have access to the information (a *switch context* in Heines (2003) terms), the result is that the structure is reanalyzed as a marker of shared knowledge¹⁰. This reinforces the hypothesis that we are dealing with a case analogous to grammaticalization: according to Heine (2003), the process of grammaticalization begins with what he calls *bridging contexts*, that is, contexts in which a construction appears with a new meaning in a new context (but still compatible with the original meaning), and is carried out when the construction appears in what he calls *switch context*, that is, contexts in which the original meaning is incompatible, which forces a reanalysis and reinterpretation. The *switch context* here is a context in which the original meaning of a question (the speaker's lack of knowledge plus the presupposition of hearer's access to that knowledge) is incompatible: a context where it is clear that the speaker does have access to the information. However, the question about the *bridging context*, that is, the missing link between the original meaning of CQ and the new evidential marker that we called IE, remains. We will return to this in the next section.

In fact, this new aspect of EI, the fact of being a marker of shared knowledge, serves as evidence for another aspect associated with the process of grammaticalization, namely, (inter)subjectivization, which Traugott has termed "the main mechanism and root of semantic change" (Traugott and Dasher 2002:279) and which can be defined as "the tendency for meanings to be increasingly based on the speaker's subjective belief state/attitude toward the proposition" (Traugott 1989) and "an increased orientation of meaning towards the speech situation" (Traugott and Dasher 2002). According to (Traugott 2003:128), intersubjectivization specifically is a process that emphasizes "the SP/W's [speaker/writer's] attention to the 'self' of addressee/reader in both an epistemic sense ... and in a social sense... [It] involves SP/W's attention to AD/R [addressee/reader] as a participant in the speech event, not in the described situation." Clearly, the evidential qualification that an expressed situation is shared knowledge is both a shift of focus to the speech situation and a strengthening of the

⁹ The fact that the essential aspect of questions is the assumption of the interlocutor's access to information can be observed in all types of "anomalous" questions in which the speaker has access to the information, such as rhetorical questions or exam questions, as presented in examples (2) and (3). This type of question is unmistakably interpreted as a question, even though the speaker does have access to the information (the *desideratum*); conversely, there is no type of question in which the interlocutor's access to the *desideratum* is not assumed.

¹⁰ An example of this phenomenon in English is the following conversation, taken from the first episode of the second season of the series *The Sinner*:

Hello?

—Hi, is this Harry Ambrose?

—Yes, speaking.

—Hi, this is Heather Novak. Jack Novak's daughter?

In this example, Heather Novak uses interrogative intonation to indicate that she is not informing but reminding her interlocutor that she is Jack Novak's daughter, i.e., she presents the information as shared knowledge that her interlocutor should know or remember.

interpersonal dimension, a strengthening of the orientation towards the interlocutor. In effect, expressing the assumption that the interlocutor must know what the speaker asserts shifts the focus from the specific situation being expressed (the status of government in Catalonia during the Civil War) towards the speech situation itself and towards the interlocutor, both in an epistemic sense (what the interlocutor knows or not) and in a social sense.

The third of the parameters of grammaticalization, decategorization and subsequent reanalysis, is clear: while CQ is a marker of clausal modality, EI is a prosodic evidential, more specifically, a marker of shared knowledge. That is, EI belongs to a different category than its supposed origin CQ. Once again, if there really is a derivation relationship between CQ and EI, the result is fully compatible with the outcome of a process of grammaticalization.

Lastly, phonological erosion is evident when comparing Fig. 4 with Fig. 6: while the melodic curve in general is maintained, the structure simplifies in two aspects. On the one hand, as mentioned earlier, the boundary tone simplifies, being bitonal in CQ (HL%) but monotonal in EI (H%). At the same time, the tonal accent on the first stressed syllable, typical of CQ (L + H*), is nonexistent in EI. In other words, the tonal structure has been simplified, somewhat reducing it to the essential tonal configuration of interrogation, i.e., the tonal rise by the end of the phrase.

In summary, if it could be proven that the evidential interrogative (10) is the result of a change process from the canonical question (11), then we could say that such a change process is comparable to the process of change known as grammaticalization.

6. The missing link

In the previous section, we pointed out that if it could be proven that the evidential interrogative in (10) is the result of a process of change stemming from the prosodic configuration of the canonical question as in (11), then it could be argued that such a change could be conceptualized as a case of grammaticalization in the sense of Traugott (2001). Unfortunately, the lack of historical prosodic data crucially complicates such a demonstration. In this section, however, we will argue that such evidence can be constructed from synchronic data.

As is known, different intermediate stages in the process of grammaticalization can become crystallized and coexist with the initial and final stages. One of countless examples of this phenomenon is the phrase *de verdad* 'truly', 'really' as a verbal modifier (13) and as a sentence adverb (14), which coexists with both the initial stage of the construction (15) and with the later development of *de verdad* as a discourse marker (16) (González Manzano 2013:240–244).

- (13) *Quien ama de verdad, ama para siempre.*
'Whoever loves truly, loves forever.'
- (14) *Caminaba como si de verdad estuviera borracho*
'He walked as if he were really drunk.'
- (15) *La afirmación no carece de verdad.*
'The statement is not without truth.' (lit. "does not lack of true")
- (16) *Lo que pasa es que, de verdad, o sea, la dejé por obligación*
'The thing is that, truly, I left her out of obligation.'

Our proposal is that the speech act exemplified by participant B's intervention in (17) below represents an intermediate stage between CQ and EI, or, in other words, the missing link that reveals the connection between the canonical question in (11) and the evidential interrogative in (10), showing that it is indeed a process of change, albeit in this case, the change process does not act on a construction but on a prosodic configuration.

- (17) A: *¿Qué le puedo regalar a Juan Carlos para el cumpleaños?*
B: *¿Un adorno para la casa?*
A: 'What can I get Juan Carlos for his birthday?'
B: 'A decoration for the house?'

The relationship between (17) and (10) is direct and evident, and it is initially difficult to discern differences between them. Indeed, the question "A decoration for the house?" shares crucial characteristics with the evidential interrogation in (10) at all levels of analysis. On one hand, as seen in Fig. 7, the melodic contour of (17) is characterized, like (10), by a nuclear pitch accent L₊H* with rising pitch, followed by a boundary tone H%, instead of the bitonal boundary tone HL% of canonical questions like (11). In other words, although it is interpreted as an interrogative sentence, it lacks, like (10), the typical final descent of canonical questions:

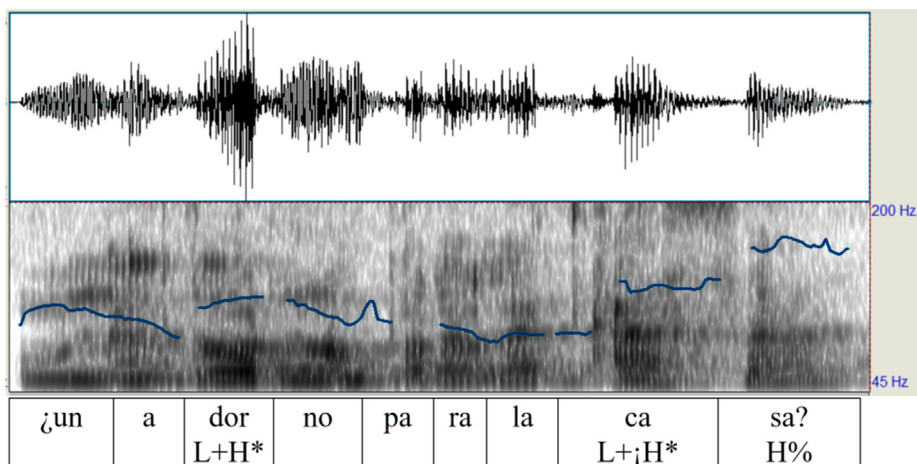


Fig. 7. Intonation of *¿Un adorno para la casa?* 'A decoration for the house?'.

Another formal feature that (17) shares with the evidential interrogative is the grammatical structure; namely, that it is a nominal phrase and not a complete sentence. As we noted in (11)–(12), if we transformed the statement in (17) into a complete sentence, the interpretation would change completely:

- (18) A: *¿Qué le puedo regalar a Juan Carlos para el cumpleaños?*
 B: *¿Puedes regalarle un adorno para la casa?*
 A: 'What can I get Juan Carlos for his birthday?'
 B: 'Can you give him a decoration for the house?'

In such a case, participant B's intervention would be interpreted as a sincere question, i.e., as a request for information regarding B's ability to give Juan Carlos something for the house, or its adequacy. (17), on the other hand, is a *proposal* or *suggestion*, precisely a speech act halfway between an assertion (like (10)) and a question (like (11)). In the exchange of (17), this mechanism can be clearly seen: with their initial question, participant A sets up a universe of possible answers, namely, all possible objects that could count as a gift for Juan Carlos (as we noted earlier, the semantics of a question is the set of possible answers). This conditions the grammatical structure of participant B's possible responses: since these gifts are objects, B's suggestions cannot be complete sentences but rather nominal phrases¹¹.

This reveals the close relationship of an example like (17) with the evidential interrogative in (10). Indeed, (10) can also be seen as a form of proposal or suggestion (or, in other words, an example), with the difference that in (10), the speaker is actually asserting the example, reminding the interlocutor that they cannot fail to know it, and the only remaining trace of the original question stage, beyond intonation, is the assumption that the interlocutor has access to the information expressed, whereas in (17), the speaker makes a suggestion and leaves it to the discretion of the interlocutor to decide if such a suggestion is appropriate; in other words, the speaker leaves the access to the *desideratum* to the interlocutor.

In other words, the evidential interrogative in (10), unlike (17), is an assertion, although its direct origin from a proposal or suggestion can be traced. This difference is clearly evident in the possible continuations of (10) and (17). While participant A can reply "I disagree" to the evidential interrogative in (10), since A may disagree with B's assertion that Catalonia during the Civil War had a truly anarchist government, such a response would make no sense as a continuation of (17), as B can accept or reject the proposal or suggestion, but not dissent, since it is not an assertion: B does not assert that A must give something to the house but only suggests it. In other words: it asserts that this is a possible gift and asks about the appropriateness of such a gift choice.

On the other hand, the derivation relationship between the canonical question and the proposal is evident, and it is not controversial to affirm that the use of interrogative intonation to express a proposal or suggestion originates from the intonation of canonical questions. In fact, proposals or suggestions are typically articulated prototypically as questions, like (19)–(20). The difference is that while questions require a discursive behavior from the addressee (i.e., an answer), proposals require an action (Malchanau 2019; Bunt 2011).

- (19) *¿Y si vamos a la playa mañana?*
 'What about going to the beach tomorrow?'

¹¹ Or infinitive phrases, such as *salir a cenar?* 'go out for dinner?', but in any case, structures smaller than the sentence, as they must correspond to the function of *qué* 'what' in *¿Qué le puedo regalar a Juan Carlos?* 'What can I give Juan Carlos?'.

- (20) *¿Un cafecito?*
 'How about a cup of coffee?'

Likewise, (17) has other features in common with the canonical question in (11), which set it apart from the evidential interrogative in (10) and reveal its character as an intermediate step between the canonical question and the evidential interrogation. On one hand, while a proposal is not inherently a request for information, B expresses a lack of knowledge about whether the proposed gift is appropriate, whereas in the IE in (10), the speaker simply asserts the suitability of their example. In fact, the speaker in (17) presents themselves as having no access to information about the suitability of their proposal, assuming the interlocutor has such information, which is the core of their question.

On the other hand, if we carefully observe the melodic contour in Fig. 7, we see that while the pitch accent pattern $L_{+i}H^*H$ % corresponds to that of the evidential interrogative, we can notice that the first accent of the phrase, *aDORno*, shows a visible pitch rise ($L + H^*$), which, as mentioned earlier, is characteristic of the intonation of the canonical question (see Fig. 4) but is completely absent in the evidential interrogation (Figs. 5 and 6). In other words, the statement in (17) is closer to the canonical question both semantically and intonationally.

Taken as a whole, we claim that the arguments presented in the last two sections demonstrate that EI is indeed related to CQ, and that such a relationship is that of being the outcome of a change process that can be equated with grammaticalization, wherein the tonal structure of proposal or suggestion such as that in (17) constitutes an intermediate stage.

7. Summary and conclusions

We know that morphological or lexical evidentials emerge from a process of grammaticalization of lexical items or constructions. However, the primary question we posed at the outset of this study was: how have "prosodic evidential markers," i.e., those consisting solely of a tonal configuration, arisen and evolved? Through the analysis of examples like those in (10), reiterated here as (21), we arrive at the conclusion that evidential markers consisting solely of a specific tonal configuration arise analogously to lexical or morphological evidentials, i.e., through a process of change analogous to grammaticalization, involving desemantization, (inter)subjectivization, decategorization, and phonological erosion, with the difference being that both the starting point and the end result of prosodic evidential markers are not constructions but, of course, prosodic configurations.

- (21) A: *Nunca ha habido un gobierno anarquista de verdad*
 B: *¿Cataluña durante la Guerra Civil?*
 A: 'There has never been a truly anarchist government.'
 B: 'Catalonia during the Civil War?'

In the specific case of what we called "evidential interrogative" (21), the starting point is the tonal configuration of the canonical question, with the intermediate step being the tonal configuration of the proposal or suggestion, which arises in specific dialogical situations with pragmatic inferences or particular expressive effects, as noted in the preceding section.

This finding challenges the specificity of grammaticalization, as the process of change resulting in configurations like that in (21) encompasses all the factors characterizing grammaticalization processes, such as decategorization/reanalysis, (inter)subjectivization, phonological erosion, and resemanticization. Thus, it can be proposed that what is known as grammaticalization is a special case of a more general linguistic change process, which also includes prosodic change.

Related to this same issue, we asked at the outset of this study: are these prosodic characteristics arbitrary, or are they somehow related to the meaning they convey? The answer we provide to this question is based on the basic tenets of grammaticalization theory, specifically, the concept of *source determination* (Bybee et al., 1994), according to which the basic meaning of the initial stage influences the meaning of the grammaticalized structure throughout the grammaticalization process. In our case, an essential feature of the initial configuration, namely, the assumption in the canonical question that the interlocutor has access to the required information, influences the possible further developments, allowing, for example, the structure to be used in special contexts to express shared knowledge, but not, for instance, to express speaker-exclusive access (i.e., new information).

The implications for grammaticalization theory can be extended further. Let us recall (Traugott's 2001:1) definition of grammaticalization:

"Grammaticalization is the change whereby lexical items and constructions come in certain linguistic contexts to serve grammatical functions or grammatical functions develop new grammatical functions."

An element of this definition that we did not comment on is the qualification introduced by "in certain linguistic contexts." This builds on Traugott's (1988) assertion that new meanings in the grammaticalization process are generated by the conventionalization of pragmatic inferences that emerge in a particular context. Or, in (Company's 2004:201) words, grammaticalization consists of the fixation of discursive strategies that produce particular expressive effects. Now, part of those "linguistic contexts" in which pragmatic inferences or expressive effects emerge is prosodic in nature, i.e., it is constituted by prosodic configurations or features, if Wichmann (2011) and Dehé and Stathi (2016) are correct in asserting that prosody is intimately involved in grammaticalization processes.

Thus, a specular relationship can be conceived between grammaticalization and the process outlined in this study: in grammaticalization, a lexical item or construction enters a process of change and conventionalization based on its use in particular contexts with particular expressive effects. And one aspect of these particular contexts is constituted by specific prosodic characteristics. Analogously, in the process of change outlined in this study, it is prosodic configurations that enter a process of change and conventionalization based on their use in particular contexts with particular expressive effects. And part of these particular contexts of use is constituted by specific grammatical features; in our case, for example, usage with structures smaller than the sentence. In both cases, these expressive effects, or pragmatic inferences, eventually become conventionally used structures. And both processes share very specific common features, such as decategorization/reanalysis, (inter)subjectivization, phonological erosion, and resemanticization. In other words, one could consider a more general process of change, of which grammaticalization and the process exemplified in this study are mere instances.

Thus, a field of future study is opened with two clear lines: on one hand, the identification of prosodic evidentials and the tracing of their origins and evolution, and on the other hand, the study of the role of prosody in the process of grammaticalization in general, and of the grammaticalization of morphological and lexical evidentials in particular.

Declaration of competing interest

None.

CRediT authorship contribution statement

Fernando Bermúdez: Writing – review & editing, Writing – original draft, Methodology, Investigation, Data curation, Conceptualization.

Data availability

Data will be made available on request.

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