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The encoding of epistemic operations in two Romance languages: intonation and pragmatic markers

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Abstract

For years linguists have noted that intonation patterns and sentence-final discourse particles encode similar meanings across languages (e.g., [23], [21]). Yet the division of labor between the two kinds of systems—and in particular whether there exists a compensatory distribution between them—remains to be clarified. In this article, we focus on two languages within the Romance group (Catalan and Friulian) that have been reported to use intonation and pragmatic markers to different extents to mark epistemic meanings (e.g., [17], [18]). A total of 15 speakers per language were asked to participate in a Discourse Completion Task designed to elicit statements with several degrees of speaker commitment. The results show that Catalan and Friulian display an asymmetry in the marking of epistemically-biased statements: while Catalan uses a greater variety of stance-marking intonation contours, Friulian uses a more varied set of stance-marking modal particles and a more restricted set of intonation contours. However, both languages make use of epistemic adverbs together with intonation and place restrictions on how pragmatic particles and intonation are paired, indicating that the relationship between the two systems can be quite complex. Overall, we claim that dynamic semantic models enable us to integrate the study of intonational meaning with other parts of the grammar into a unified approach.

Index Terms: intonation, sentence-final particles, SFPs, Catalan, Friulian

1. Introduction

Human languages use a variety of linguistic strategies, including prosody, for the expression of a speaker's epistemic disposition (or speaker knowledge) towards a proposition (see [12], among others). Though the general tradition within prosodic and semantic studies has regarded tunes as important indicators of epistemic commitment on the part of the various participants in a discourse (e.g., [13], [1], [9], [2], [14], [10]; see [15] for a review), little work has been devoted to relating the pragmatic functions encoded by intonation across languages with the functions encoded by other grammatical components.

Linguists have noted for some time that the types of meaning carried by **sentence-final discourse particles** (henceforth SFPs) overlap to a large extent with the types of meaning expressed by **intonation** in intonational languages. In a study of the SFPs in three typologically diverse languages (Dutch, Lao, and Tzeltal Mayan), Enfield [7] showed that these markers "make subtle distinctions in relative strengths of knowledge or commitment to a proposition, of both speaker and addressee, manipulating the local epistemic gradient". In a language like Manado Malay [20], SFPs encode fine-grained epistemic distinctions, namely degree of speaker commitment (see the examples in 1a) or degree of speaker agreement (or disagreement; see 1b) with the context or with the addressee's views, in both statements and questions. Interestingly, many of these are functions that in other languages are expressed through intonation (e.g., through the use of disbelief, uncertainty, and obviousness intonation contours).

(1) **a. Speaker commitment**

so mo ujang **sto**	'It is probably going to rain'
so mo ujang **no**	'It is definitely going to rain'
so mo ujang **kata**	'Someone said it is going to rain'
so mo ujang **kang?**	'It is going to rain, isn't it?'
so mo ujang **kote'**	'I sense that it is going to rain (I felt the first raindrops)'

b. Speaker agreement

so mo ujang **le**	'And now it is even going to rain!'
so mo ujang **kwa'**	'But it is going to rain!'
so mo ujang **komang**	'Once again it is going to rain'
so mo ujang **so?**	'Is it really going to rain?'
so mo ujang **to**	'It is going to rain, as you may know'

Examples taken from [20]

One of the questions that arise is whether we find a **compensatory distribution** between the two kinds of systems across languages. Typologically, languages with lexical tone systems (and thus with very restricted sets of intonation patterns) tend to have richly developed SFP systems. For example, many pragmatic meanings (e.g., polar questions, obviousness, etc.) that are expressed in the form of SFPs in Cantonese are expressed through intonation in languages such as English (e.g., [21]). Mandarin Chinese also uses a wide set of modal particles such as the modal particle *me* for assertion of the obvious and disagreement; [5]. Interestingly, the pitch shape of SFPs in tone languages tends to be strongly influenced by local intonational patterns rather than determined purely by lexical tone ([11], [22]). Apart from these cross-linguistic tendencies, little is known about the

division of labor between SFPs and intonation across languages. To our knowledge, there has been no previous systematic and quantitative comparison of how two typologically different languages express epistemic meanings through pragmatic particles and intonation and how the two systems are constrained.

In this paper, we will assess the behavior of two distinct languages within the Romance continuum, Catalan and Friulian. Catalan is a language that makes extensive use of stance-marking intonation contours which encode fine-grained distinctions in speaker commitment in relation to the speaker's own propositions [4]. On the other hand, in Friulian epistemically biased statements are expressed through a rich system of modal particles (both sentence-final and sentence-medial), and fewer intonational distinctions are made [18].

We adopt a version of the theory of speech act dynamics, which has analyzed biased epistemic questions in detail by assessing the conditions that restrict their appearance in discourse ([1], [2], [10]). According to this model, speech acts create commitments by the interlocutors and may also introduce changes in commitments that can be analyzed as transitions between commitment spaces, in a conversational game (see [10]). Within this view, we conceive intonation, as well as discourse particles, as **epistemic operators** which encode fine-grained distinctions in speaker commitment to the speaker's own propositions.

2. Method

In order to elicit comparable data across languages, the same questionnaire based on a Discourse Completion Task (henceforth DCT, [3]) was used for the two languages. A DCT has the advantage of allowing for an overall assessment of the speakers' responses (including the use of intonation and discourse particles) while at the same time controlling for semantic epistemic biases in the discourse.

2.1. Participants

A total of fifteen native speakers of Northern Friulian (9 men and 6 women aged between 34 and 81) and fifteen native speakers of Central Catalan (15 women aged between 19 and 50) participated in the DCT task.

2.2. Materials

Table 1 summarizes the types of pragmatic contexts used in the DCT. The contexts encoded three levels of **speaker commitment**, or degree of epistemic disposition towards the propositional content of the sentence (high, mid, and low).

Table 1. *Types of pragmatic contexts analyzed in the study*

Relationship	Degree	Sentence type
	High	Assertions of the obvious
Commitment	Mid	Broad focus statements
	Low	Uncertainty statements

In essence, the three levels of speaker commitment to the expressed proposition correspond to so-called uncertainty statements (low commitment), broad focus statements (mid commitment), and assertions of the obvious (high

commitment).[1] The examples in (2) and (3) show discourse contexts encoding low and high speaker commitment (potential resulting utterances are shown in italics).

(2) LOW SPEAKER COMMITMENT CONTEXT (UNCERTAINTY)

A friend of yours has asked you to buy a gift for someone that you do not know very well and you are afraid that you have not chosen very aptly. You tell your friend that the other person may not like what you have bought.

EXPECTED STATEMENT (CATALAN): *Potser no li agradarà.* 'Maybe s/he won't like it.'

EXPECTED STATEMENT (FRIULIAN): *Ma, forsit no i plâs.* 'Hmm, maybe s/he won't like it.'

(3) HIGH SPEAKER COMMITMENT CONTEXT (OBVIOUSNESS)

You are with a friend and you tell him/her that Maria, a mutual friend of yours, is pregnant. Your friend asks you who the father is. You are surprised that s/he doesn't know because everyone knows that the father is her boyfriend, Jaume/Meni. What do you tell her?

EXPECTED STATEMENT (CATALAN): *Del Jaume!* 'It's Jaume, of course!'

EXPECTED STATEMENT (FRIULIAN): *Di Meni, po!* 'It's Meni, of course!'

2.3. Recording procedure

The DCT interviews were performed individually and took approximately 15 minutes each. Participants were presented with the discourse context orally and were asked to respond freely to the situation. The recordings were made with a Marantz PMD620 digital recorder and Shure SM58 microphone and took place in a quiet room at the home of each participant. A total of 90 utterances were obtained for each of the two languages (15 speakers x 2 languages x 3 contexts 'broad focus/ uncertainty/obviousness').

2.4. Data analysis

The 90 utterances were prosodically labeled using the Catalan and Friulian AM standard systems for the transcription of intonation, namely Cat_ToBI [17] and Fri_ToBI [18]. For the annotation of the **pragmatic epistemic markers** contained in the utterances, we adopted four categories generally used in the literature ([19], [6], and others), namely modal adverbs (e.g., Cat. *potser* 'perhaps'), modal particles (e.g., Fri. *po* 'of course'), interjections (e.g., Cat. *bé* 'well', Fri. *î* 'hmm'), and phrases (e.g., Cat. *No sé* 'I don't know').

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[1] Though the pragmatic markers related to obviousness (e.g., *obviously*, *it is clear that*) are characterized in this paper simply as an expression of a high commitment operator, we acknowledge the polyfunctionality of these pragmatic markers at both the evidential level (e.g., they may encode indirect evidentiality which leads to high commitment and speaker involvement) and at the interactional and agreement level (e.g., they can encode a disagreement with the interlocutor and the view that the audience should be engaged to a similar degree). In this specific article, we will regard these two levels as a pragmatic extension of the semantics of commitment.

3. Results

3.1. Epistemic intonation

Table 2 shows the results of our intonational analysis of the two languages. Mid-level commitment assertions are expressed through **broad focus statements**. All broad focus statements in Catalan were produced with the same nuclear configuration (L* L%) and without lexical epistemic markers. The same pattern can be seen in Friulian, where all speakers used the same intonational pattern (H+L* L%), and lexical epistemic markers were again absent. As for low commitment assertions, **uncertainty statements** in Catalan were always produced with the L+H* !H% nuclear configuration, which conveys a pragmatic meaning of uncertainty [17]. By contrast, Friulian uncertainty statements were produced with a H*+L L% nuclear configuration, which expresses the existence of a more general epistemic bias [18]. Finally, high commitment assertions are expressed through **assertions of the obvious**. In Catalan these sentences were always produced with the special L+H* L!H% nuclear configuration, which conveys a pragmatic meaning of obviousness [18]. In the Friulian data, on the other hand, 67% of the statements of the obvious displayed the same intonation as that used in the expression of uncertainty statements. The remaining 33% of the data showed the L+H* L% pitch contour, which is generally used for narrow focus statements and exclamatives.

Table 2. *Results of the intonation analyses*

Relationship	Degree	Catalan intonation	Friulian Intonation
Commitment	Low	L+H*!H% (100%)	H*+L L% (100%)
	Mid	L* L% (100%)	H+L* L% (100%)
	High	L+H* L!H% (100%)	H*+L L% (67%)

3.2. Lexical epistemic markers

As mentioned above, mid-level commitment assertions (e.g., **broad focus statements**) in both languages made no use of lexical epistemic markers such as particles, adverbs, interjections, or phrases. With respect to **low commitment assertions**, Table 3 shows the types of lexical epistemic markers of uncertainty that occurred in the two languages.

Table 3. *Classification of lexical epistemic markers of uncertainty*

Epistemic markers	Catalan	Friulian
Adverbs	*potser* 'perhaps'	*forist* 'perhaps'
Interjections	*bé* 'well'	*ma* 'but', *î, ê,* 'hmm, er'
Phrases	*no sé* 'I don't know'	*no sai* 'I don't know'

Figure 1 shows the quantitative distribution of lexical epistemic markers in the data for the two languages. First, both languages show a comparable number of occurrences of epistemic adverbs (like *potser* and *forsit* 'perhaps') and phrases (like *no sé* and *no sai* 'I don't know'). They radically differ, however, on the use of epistemic interjections. While a minority of Catalan speakers (2/15) started their sentences with the interjection *bé* 'well' (and its corresponding Castilian *bueno*, a common borrowing in Central Catalan), the majority of Friulian speakers (11/15) made use of epistemic interjections *î, ma*, and *ê*, all of them expressing the existence

of some kind of epistemic bias. It is worth pointing out that epistemic interjections can adopt a variety of pragmatic meanings depending on the context; it has been pointed out that in many languages these markers have emerged after a loss of semantic features (what is known as "semantic bleaching"; [8]).
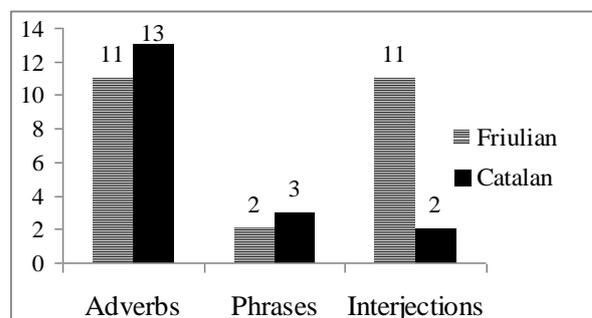

Fig. 1: *Quantitative distribution of the lexical epistemic markers found in uncertainty statements*

With respect to **high commitment assertions**, Table 4 shows the types of lexical epistemic markers of obviousness that were present in the two languages. It is interesting to note that Friulian has two specific particles related to obviousness that do not have a clear correlate in Catalan, namely *po* and *ve,* 'obviously'.

Table 4. *Classification of lexical epistemic markers of obviousness*

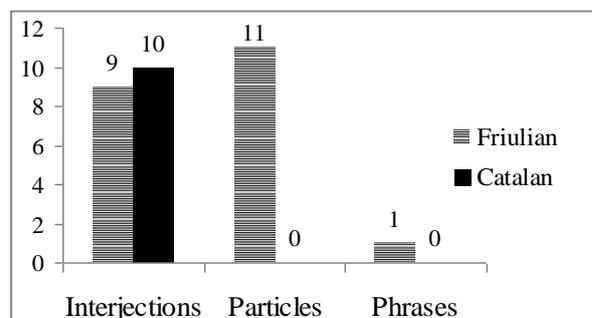| Epistemic markers	Catalan	Friulian
Particles	-	*po, ve* 'obviously'
Interjections	*home* 'man' *coi* 'gosh'	*ma* 'but', *ê* 'oh'
Phrases	-	*ducj a san* 'everybody knows'

Fig. 2: *Quantitative distribution of the lexical epistemic markers found in assertions of the obvious*

Figure 2 shows the quantitative distribution of lexical epistemic markers for the two languages. As in the low commitment assertions, the two languages differ considerably in how they mark high commitment. While the majority of the Catalan speakers (10/15) started their utterances with the interjection *home* 'man' or *coi* 'gosh', the Friulian speakers combined interjections with an abundant use of modal particles. The Friulian sentence-initial interjections *î, ma,* and *ê*, all of them expressing the existence of some kind of epistemic bias, appear in the majority of sentences (9/15). Even more interestingly, we find 11 occurrences of modal particles. The most common particle is *po* (8 times), which

expresses obviousness with no further connotation. The particle *ve* (used by one speaker) adds a nuance of reproach, in the sense that the speaker is reproaching the hearer for his/her ignorance. Finally, the particle *be* (used by 2 speakers) expresses contradiction of the interlocutor's expectations (and ⱨ is used between auxiliary and main verb in an affirmative statement). Indeed, *be* may be used in combination with *po* and *ve* (for example, one of our subjects used the combination *be + po*).

Interestingly, both Catalan and Friulian place intonational restrictions on the production of interjections. For example, the Catalan interjection *home* 'man' is commonly produced in the contexts seen here with a L+H* L!H- pitch configuration. Similarly, the Friulian interjections *î, ma*, and *ê* are frequently produced with the Friulian epistemic contour H*+L L%.

4. Discussion and Conclusions

We have shown that intonation and pragmatic markers act as important semantic-pragmatic resources encoding epistemic commitment in statements in two Romance languages. The study has shown evidence that (a) intonation closely parallels the function of pragmatic markers in their encoding of speaker commitment operators; and (b) in the case at hand, the rich system of modal epistemic markers found in Friulian entails fewer intonational epistemic contrasts than Catalan; on the other hand, Catalan uses a combination of intonational patterns combined with a more restrictive set of modal lexical markers. However, the relationship between the two systems can be quite complex, as (1) Catalan also makes extensive use of lexical epistemic markers in combination with intonation patterns and (2) both languages place restrictions on how epistemic interjections and intonation are paired (e.g., *home* in these contexts was predominantly produced with the obviousness intonation L+H* L!H%).

We claim that promising frameworks within semantics, like dynamic semantic models, can enable us to integrate the study of intonational meaning with other parts of the grammar into a unified approach (e.g., [15, 4]). An important issue is how to characterize the conventional meanings that intonation and pragmatic particles convey. In [4] we showed how question intonation contours in Catalan encode fine-grained information about the epistemic stance of the speaker, not only in relation to the speaker's own propositions but also in relation to the addressee's propositions or to contextual information. Following Krifka's semantic theory of speech acts, we proposed that biased question intonation in Catalan encodes different levels of ASSERT (commitment), and REJECT ((dis)agreement) epistemic operators. An ASSERT speech act is claimed to express two commitments (Krifka, 2013, in press): one by which the speaker first expresses a commitment to the proposition (S1: p), and a second one by which the speaker calls on the addressee to be also committed to the same proposition, with the result that p becomes part of the common ground (p ∈ CG). A CONFIRM speech act is such that the speaker expresses the same commitment already expressed by the ASSERT speech act (cf. [24], Farkas and Bruce, 2010). Finally, a REJECT speech act is one by which a speaker opposes to the commitment suggested by the interlocutor, and forces a change of commitment. In the semantic analysis, these illocutionary operators are able to turn syntactic categories into speech acts. For example, the two steps that are involved in the production (and interpretation) of a *confirmatory question* will be implemented as combinations

of two speech acts. First, with the interrogative clause syntax (the syntactic operator REQUEST) the speaker will express the interrogative speech act. A second commitment will be due to prosody, and in particular the nuclear configuration H+L* L%, which carries out the operator ASSERT.

In this paper we have shown that statement intonation in Catalan, like pragmatic markers in Friulian, can act as an important semantic-pragmatic resources encoding epistemic distinctions in the commitment and agreement spaces created by the interlocutors. In the case at hand, we can analyze *uncertainty statements* as combinations of two speech acts, namely the statement clause syntax (the syntactic operator ASSERT) the speaker will express the interrogative speech act. A second commitment will be due to prosody or particle marking, which carries out the DISCONFIRM operator. Thus, the operators CONFIRM/DISCONFIRM and REJECT, can apply to an ASSERT or a REQUEST speech act operators. Importantly, both intonation and pragmatic markers can encode these speech act and epistemic operators.

In sum, intonation contours, like pragmatic particles in other languages, can function as epistemic operators that strongly interact with commitment spaces set out by discourse participants in normal conversation. All in all, intonation constitutes an important part of grammar that encodes multidimensional pragmatic meanings and should be studied in combination with morphosyntactic and pragmatic discourse marking.

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6. References

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