

Modality, presupposition and discourse: the meaning of European Portuguese *afinal* and Italian *alla fine*

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Abstract This paper provides a semantic analysis of the particles *afinal* (European Portuguese) and *alla fine* (Italian) in terms of the notion of *truth un persistence*, which can be situated at the intersection of epistemic modality and discourse structure. In the analysis proposed, the particles are propositional operators and require that the truth of a proposition p^* fail to persist through a temporal succession of epistemic states, this proposition being incompatible with the prejacent, and that the interlocutors share knowledge of a previous epistemic attitude toward p^* . We analyze two main cases (plan-related and non plan-related propositions) and also show that these particles are indexical to one (or more) epistemic agent(s) and allow for shifts in perspective.

Keywords Epistemic modality, Presupposition, Discourse structure, Perspective, European Portuguese, Italian

1. Introduction

This paper is concerned with data that can be situated at the intersection of modality, presupposition, and discourse. A growing interest on epistemic modality has recently shown its connections with other semantic domains, e.g. scalarity and evidentiality; here we focus on epistemic modal particles as they interact with the presuppositions of the participants in a conversation. Specifically, we analyze those presuppositions that pertain to what conversational

participants are assumed to know of their own epistemic attitudes and the epistemic attitudes of other relevant agents with regards to a certain Question under Discussion (QUD).¹

Previous work on epistemic modality in its interaction with discourse, which is relevant for our topic, is the work on *sempre* as a modal operator of “truth persistence” (TP) that contributes a confirmation of the modified proposition (Gonzaga 1997, Brito 2001, Amaral and Del Prete 2014), as in (1):

- (1) Sempre vou ao cinema no domingo à noite. (European Portuguese, henceforth EP)
‘I’m *sempre* going to the movies this Sunday night.’

The use of *sempre* in (1) is felicitous if the speaker had previously planned on going to the movies on Sunday and had shared this plan with the interlocutor. Given this shared knowledge, by uttering (1) the speaker confirms the truth of the modified proposition against the possibility that this plan may no longer be valid. In this paper we propose the related notion of “truth unpersistence” (\sim TP), according to which the truth of a previously entertained proposition is disconfirmed, as relevant for the analysis of *afinal* (EP) and *alla fine* (Italian, henceforth I), as in (2):

- (2) a. Afinal hoje vou ao teatro.
b. Alla fine vado a teatro questa sera.
‘*Afinal/alla fine* I’m going to the theater tonight.’

¹ Throughout this paper, we use this term as proposed in Roberts (1996) to denote a question accepted by participants in a conversation as the immediate topic of discussion. For our purposes, a question provides an explicit way to model the topic of a conversation, which constitutes shared knowledge of the interlocutors and may have evolved over a certain time interval.

The context of (2) is the same as in (1); the QUD “What are you doing on Sunday night?” was believed by the interlocutors to be resolved as “I will go to the movies on Sunday night”. However, on Sunday morning the speaker decides that she will go to the theater instead, and by uttering (2) she expresses to the hearer the disconfirmation of her previous plan.² ~TP is defined as follows:

(~TP) The truth of a proposition p^* fails to persist through a temporal succession of epistemic states, where p^* is incompatible with the prejacent³ of *afinal/alla fine*.

We consider that ~TP has a presuppositional component because its definition contains implications that pass the Family of Sentences test (Chierchia and McConnell-Ginet 1990, Tonhauser et al. 2013), as in (3):

- (3) a. Não é verdade que *afinal* o Micha não é russo.
‘It is not true that *afinal* Micha is not Russian.’
- b. É possível que *afinal* o Micha não seja russo.
‘It is possible that *afinal* Micha is not Russian.’
- c. *Afinal* o Micha não é russo?
‘*Afinal* is Micha not Russian?’

² Both *sempre* and *afinal/alla fine* are propositional operators and as such they take scope over the whole minimal clause in which they occur. Although we leave a syntactic analysis for further work, we hypothesize that from a historical point of view there has been an increase in syntactic and semantic scope from a VP-internal adverbial to a sentence-level operator (for EP, see the syntactic account of the diachrony of *sempre* in Fiéis 2010).

³ By *prejacent* we mean the proposition expressed by the minimal clause in which the particles occur.

In (3a-c), the requirement that the interlocutors share knowledge of the previous belief in the truth of p^* (where p^* = that Micha is Russian) survives. This presupposition is a constraint on the contexts of use of the particles: it restricts the felicitous use of *afinal* and *alla fine* by placing conditions both on the beliefs of the interlocutors and on their previous discourse exchanges.⁴ Additionally, in some cases it can be accommodated (see Amaral and Del Prete 2016).

In the following, we show that the notion of \sim TP shows tight connections between modality, evidentiality, and discourse structure. In section 2 we present the empirical data from EP and Italian. First, we present the case of plan-related propositions (section 2.1) and then the case of propositions without plans (section 2.2). In section 2.3 we distinguish the instances of *alla fine* as an epistemic marker (those of interest in this paper) from its uses as a temporal adverbial. Section 3 provides a formal account of the notion of \sim TP. Building on the proposed analysis of the particles, in section 4 we show that *afinal* and *alla fine* have an indexical component and allow for perspectival shifts, as can be seen in free indirect discourse. We conclude in section 5.

2. Empirical data from European Portuguese and Italian

2.1 Plan-related propositions

We start with the case of a sentence by which the speaker communicates to the hearer that a certain *plan*, which she had previously entertained and shared with him, is not valid anymore, as in (2) above. Examples (2a,b) are acceptable only if the following conditions are satisfied:

⁴ An anonymous reviewer raises the question of whether this requirement should be considered a presupposition or a conventional implicature. Given the tests presented here we have chosen to treat it as a presupposition. We leave a detailed discussion of this question for further work.

- (4) C1. The speaker had planned on going to some place, different from the theater;
C2. The speaker shared with the hearer the information that she had planned on going to this other place.

Note that given (4C1), the previously entertained proposition is incompatible with the prejacent proposition, in the sense that the factual realization of one proposition excludes the factual realization of the other (logical incompatibility being one special case of this more general condition). Furthermore, it is a requirement of these particles that the initial plan be shared knowledge of the interlocutors; a sentence containing *afinal* is not felicitous if the speaker has entertained a certain plan but has not shared it with the hearer (however, the same sentence without *afinal* would be felicitous in such a context).

2.2 *Non plan-related propositions*

The second case is one in which speaker and hearer had first shared the belief that a certain proposition p^* was true, and now they have changed their epistemic attitude toward p^* as they have come to believe, on the basis of new evidence, that p^* is false. An example is (5):

- (5) Context: You and I have thus far shared the false belief that our neighbor Micha is Russian, since we have been misled by his name. Today I see his passport and learn that he is actually Ukrainian, so I change my belief about Micha's nationality on the basis of the more reliable source of information. As I change my belief, I can felicitously utter one of (5a,b):

- a. Afinal o Micha não é russo, é ucraniano.
- b. Alla fine Micha non è russo, è ucraino.

‘*Afinal/Alla fine* Micha is not Russian, he’s Ukrainian.’

For (5a,b) to be acceptable, the following conditions must be satisfied:

- (6) C1. The speaker had the belief that a certain proposition p^* (*that Micha is Russian*) was true;
- C2. She shared the belief that p^* was true with the hearer.

Examples (5a,b) display an evidential flavor; the source of evidence for the truth of the proposition that Micha is Ukrainian is more reliable than the source of the previously believed information. Is this evidential component semantically contributed by *afinal/alla fine*, or is it an inference arising from the fact that the speaker has changed his mind, hence implicating that the believe that the evidential flavor is not contributed by the particles; indeed, it is found in (5) but not in (2). This difference is due to the fact that with plan-related prejacent the change affects a type of propositional attitude which is not grounded in evidence in the same way as beliefs are. While the final change of our belief concerning Micha’s nationality is triggered by the availability of a better type of evidence, my change of plans from going to the movies to going to the theater is not due to the availability of better (external) evidence but rather from my own will.

To summarize, for an utterance of *afinal/alla fine(p)* to be felicitous, an appropriate epistemic attitude toward a p^* incompatible with p —either a belief that p^* is the case or an expectation that p^* will be the case—must have been jointly held by speaker and hearer. This is

represented in Figure 1, in which $\Omega(int(C), t)$ is the collective epistemic state of the interlocutors of context C at t , $t^* < t_i < t_j < t_{end}$ are time points ordered on the time line from earlier to later, inducing a similar order on the corresponding epistemic states, a proposition p situated below a time point t is part of the corresponding state $\Omega(int(C), t)$, $\sim p^*$ is a proposition incompatible with p^* and need not have the form of the logical negation of p^* .

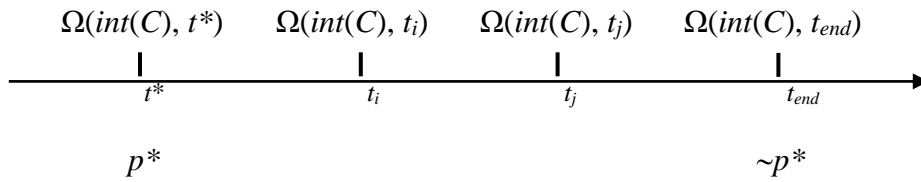


Fig. 1 Felicity conditions of *afinal/alla fine*($\sim p^*$)

In this section, we have identified two components of $\sim TP$: (i) *Epistemic change*: Sentences containing *afinal* and *alla fine* introduce epistemic change of an agent; (ii) *Presuppositionality*: The use of *afinal* and *alla fine* is presuppositional since it requires that the interlocutors entertain certain beliefs and have shared them in previous discourse exchanges. We have identified two cases that license the use of *afinal* and *alla fine*: plan-related prejacent and non plan-related prejacent.⁵ The next section provides several tests establishing a distinction that is relevant in Italian between the use of *alla fine* as a modal operator (as described in the previous sections) and its use as a temporal adverbial.

⁵ A more detailed analysis of the possible contexts for *afinal* and *alla fine* is provided in Amaral and Del Prete (2016).

2.3 *Temporal uses of alla fine*

The value of *alla fine* described in this section is characterized by the presence of a temporal process: a narration of a sequence of events is given in the text and *alla fine* occurs in a sentence at the end of that narration, as in (7):

- (7) Nei mesi scorsi i ministri economici hanno dedicato gran parte del loro tempo a disputare sulla utilizzazione e la destinazione di quei 10 - 15 mila miliardi che si prevedeva di risparmiare in corso d'anno in forza dell'andamento dei mercati del petrolio e del dollaro. Da un lato, chi li voleva tutti trasferiti a vantaggio dei consumatori e delle imprese. Dal lato opposto, chi li voleva requisire a favore del contenimento del disavanzo pubblico. In mezzo, chi era per una soluzione mista. *Alla fine* non si è giunti a nessuna decisione strategica.⁶

‘In the last months the ministers of economy have devoted a large part of their time to debate the use and destination of those 10 - 15 thousand billions that were predicted to be saved during the year as a consequence of the trend in the oil and dollar markets. On the one hand, some wanted to use them all in the interest of customers and companies. On the other hand, others wanted to use them to reduce the public debt. In the middle, yet others were for a mixed solution. *Alla fine* no strategic decision was reached.’

In (7) *alla fine* is a temporal adverbial, not a modal operator. Although one may argue that this example invites an inference that a certain proposition should be true (i.e., the proposition that a decision would be reached by the ministers of economy), this implication is contextually

⁶ From the newspaper corpus *La Repubblica* (Baroni et al. 2004).

generated. In fact, the properties of *alla fine* in (7) are different from those of a modal operator, as shown by morphosyntactic tests:

- (i) Temporal *alla fine* can take an overt PP complement, e.g. in (7) we may add *alla fine della riunione* ‘at the end of the meeting’;
- (ii) With or without a PP complement, temporal *alla fine* may be used as a stand-alone answer to a *when*-question, as in (8a);
- (iii) Temporal *alla fine* can be clefted, as in (8b);
- (iv) Temporal *alla fine* may be modified by focus adverbs like *solo* ‘only’ and *quasi* ‘almost’, as in (9).

These tests are exemplified in (8a,b) and (9):

- (8) Context-sentence: Maria e Gianni sono partiti per un lungo viaggio. Alla fine si ritroveranno in Cina.

‘Maria and Gianni left for a long journey. At the end they’ll find themselves in China.’

- a. Q: Quando si ritroveranno in Cina?

‘When will they find themselves in China?’

A: Alla fine (del loro viaggio).

‘At the end (of their journey).’

- b. È alla fine (del loro viaggio) che si ritroveranno in Cina.

‘It’s at the end (of their journey) that they’ll find themselves in China.’

(9) Si ritroveranno in Cina solo/quasi alla fine (del loro viaggio).

‘They’ll find themselves in China only/almost at the end (of their journey).’

The use of *alla fine* identified in this section should be kept distinct from the modal operator of \sim TP. In this respect, EP and Italian behave differently; this temporal *alla fine* is not translatable as EP *afinal*, but rather as the adverbials *no fim* or *no final* ‘at the end’, which also display the morphosyntactic properties just described (see Lopes 2011).⁷

3. Analysis of the data

We assume a model structure $M = \langle \{\Gamma_i\}_{i \in N}, T, \leq_T, W, \{\Omega_{\langle \Gamma, t, w \rangle}\}_{\Gamma \in \{\Gamma_i\}, t \in T, w \in W}, \{P_{\langle \Gamma, t, w \rangle}\}_{\Gamma \in \{\Gamma_i\}, t \in T, w \in W} \rangle$, defined as follows:

- (a) $\{\Gamma_i\}$ is a family of sets Γ_i of epistemic agents;
- (b) T is a non-empty set, the set of times;
- (c) \leq_T is a linear order on T , the relation of succession between times;
- (d) W is a non-empty set, the set of possible situations, which includes possible worlds (i.e., maximal situations);
- (e) $\{\Omega_{\langle \Gamma, t, w \rangle}\}$ is a family of sets $\Omega_{\langle \Gamma, t, w \rangle} \in \wp(W)$ such that $\Gamma \in \{\Gamma_i\}$, $t \in T$, $w \in W$ and the $w' \in \Omega_{\langle \Gamma, t, w \rangle}$ are the worlds compatible with the propositions that the epistemic agents in Γ jointly accept as true at time t in world w —we call $\Omega_{\langle \Gamma, t, w \rangle}$ the *collective epistemic state* of the set of agents Γ at time t in world w ;

⁷ EP *afinal* only has a modal meaning and, in this respect, it is different from Italian *alla fine*. An analysis of etymologically related adverbs, such as EP *no fim*, *no final* or *finalmente*, is left for further research.

- (f) $\{P_{\langle \Gamma, t, w \rangle}\}$ is a family of partial relations $P_{\langle \Gamma, t, w \rangle}$ over possible worlds, such that $\Gamma \in \{\Gamma_i\}$, $t \in T$, $w \in W$ and the domain over which $P_{\langle \Gamma, t, w \rangle}$ is defined is the collective epistemic state $\Omega_{\langle \Gamma, t, w \rangle}$; $P_{\langle \Gamma, t, w \rangle}$ is a partial order over $\Omega_{\langle \Gamma, t, w \rangle}$ such that $P_{\langle \Gamma, t, w \rangle}(w_2, w_3)$ if and only if w_2 is more likely than w_3 for Γ at t in w .

We assume that the denotation function $[[\cdot]]$ is relativized to a context of utterance C —with specified features such as the interlocutors of C , $int(C)$, and the speaker of C , $sp(C)$ —, a time interval T^* (the interval during which that temporal succession of epistemic states obtains which is relevant for the interpretation of *afinal/alla fine*), and a world of evaluation w_0 . A formula $K_\Gamma(p)$ means that every agent in Γ knows the proposition p . With these ingredients in place, we propose the following lexical entry for *afinal/alla fine*:

$$(10) \quad [[\text{afinal/alla fine}]]^{C, T^*, w_0} = \lambda p:$$

$$\begin{aligned} & \exists p^* \exists \Gamma^* \exists t_1 \in T^* [t_1 \leq_T END(T^*) \wedge K_{int(C)}(\Omega_{\langle \Gamma^*, t_1, w_0 \rangle} \subseteq p^*) \\ & \wedge p^* \cap p = \emptyset] \text{ (presupposition)} \\ & p(w_0) = 1 \wedge \forall w_3 [[w_3 \in \Omega_{\langle sp(C), END(T^*), w_0 \rangle} \wedge \neg \exists w_2 [w_2 \in \\ & \Omega_{\langle sp(C), END(T^*), w_0 \rangle} \wedge P_{\langle sp(C), END(T^*), w_0 \rangle}(w_2, w_3)]] \rightarrow p(w_3) = \\ & 1] \text{ (assertion)} \end{aligned}$$

According to (10), relative to a context C , time interval T^* , and world of evaluation w_0 , *afinal* denotes a partial function f from propositions to truth values such that:

- (a) $f(p)$ is defined only if p is incompatible with a proposition p^* which the interlocutors of C know to have been the object of the belief or expectation of the epistemic agents in a set Γ^* at a time $t_1 \in T^*$ such that t_1 is before the endpoint of T^* ;
- (b) whenever defined, $f(p)$ is true if p is true at the world of evaluation w_0 and at all best epistemic worlds accessible for the speaker of C at the endpoint of T^* in the world of evaluation w_0 .

The analysis proposed can be summarized as follows: (i) *Afinal* and *alla fine* have a modal meaning with respect to both their asserted and their presupposed meaning; (ii) the notion of epistemic change relies on the assumption that propositions are evaluated with respect to specific times and epistemic agents; (iii) incompatibility does not have to be understood as logical incompatibility between the prejacent and p^* but in the sense that the factual realization of one proposition excludes the factual realization of the other.

Under our analysis, the parameters of evaluation include the speaker, the time interval T^* , and w_0 (i.e. the asserted component refers to the epistemic state of the speaker in world w_0 at the time $END(T^*)$). Note that the evaluation parameter T^* is closely connected to discourse structure, since the temporal sequence anchors the epistemic states that pertain to a certain QUD; participants in a conversation keep track of the propositions to whose truth the other participants commit until the QUD is resolved. This aspect of the interpretation of *afinal* and *alla fine* is particularly relevant to understand the data discussed in the next section.

4. Perspectival shifts

We have assumed that, in order to evaluate an assertion of the form *alla fine(p)*, one needs to have access to a temporal succession of epistemic states, hence to a temporal interval T^* anchoring those states, and to consider the epistemic state of the speaker in the world of the utterance at the final time of T^* . Crucially, however, the speaker may have access to a temporal succession of epistemic states without having entertained any thoughts about the prejacent p at the time in question; in fact, the speaker may not even have existed at that time. We find examples of this type when we have a perspectival shift: the point of view of the speaker matches the point of view of another epistemic agent who concluded the debate that is relevant for the interpretation of *afinal/alla fine*. In literary texts this mechanism is known as “free indirect discourse”. One may also find instances of it in non-literary texts as (11) from Italian:

(11) Nel IV secolo a.C., Aristotele credeva che la Terra fosse ferma al centro dell’universo. Alla fine non era ferma: nel XVII secolo Galileo dimostrò che essa gravita intorno al Sole.

‘In the fourth century BC Aristotle believed that the Earth was stationary at the center of the universe. *Alla fine* it was not stationary: Galileo proved in the seventeenth century that it gravitates around the Sun.’

The interpretation of (11) involves a past interval T^* , which spans from the time t_1 in the fourth century BC at which Aristotle formed his (false) belief that the Earth was still at the center of the universe to the time t_2 in the seventeenth century at which Galileo formed his (true) belief that the Earth gravitates around the Sun. It would be perfectly felicitous for anyone at present to utter

(11), in spite of the fact that the current speaker did not exist (hence, could not entertain any beliefs) at t_2 . In this case, t_2 coincides with the endpoint of T^* ; the interval T^* includes those times that were relevant for the resolution of the QUD “What is the position of the Earth in the universe?”. The point of view of the speaker in (11) shifts to the point of view of Galileo—the epistemic agent who concluded that debate—given that Galileo’s perspective regarding the Earth’s position in the universe has not been questioned since. Although the speaker of (11), S_0 , did not exist at t_2 , (11) requires that the epistemic state of S_0 at the time of utterance t_0 match the epistemic state of Galileo at t_2 in the relevant respect: S_0 has to believe at t_0 , as Galileo did believe at t_2 , that the Earth is not stationary at the center of the universe. Accordingly, (12) would be incoherent:

(12) Nel IV secolo a.C., Aristotele credeva che la Terra fosse ferma al centro dell’universo. Alla fine non era ferma: nel XVII secolo Galileo dimostrò che essa gravita intorno al Sole. #Ma io penso che avesse ragione Aristotele.

‘In the fourth century BC, Aristotle believed that the Earth was still at the center of the universe. *Alla fine* it was not stationary: Galileo proved in the seventeenth century that it gravitates around the Sun. #But I think that Aristotle was right.’

The same holds, *mutatis mutandis*, for example (13) from EP:

(13) Wayne fica desbaratinado quando sabe que Tick afinal não é seu filho.⁸

‘Wayne loses it when he finds out that Tick *afinal* is not his son.’

⁸ From the corpus CETEMPúblico, *par=ext8453-soc-91b-1*.

The epistemic state of the speaker of (13) at the time of utterance t_0 matches that of Wayne's at the relevant time in the past with respect to the prejacent proposition. Accordingly, it would be incoherent to continue (13) by adding “Mas eu acredito que o Tick na verdade é filho de Wayne” ‘But I believe that Tick is actually Wayne's son’. An important feature of (13), in common with (11), is that it involves a perspectival shift from the author of the text to some other agent mentioned in the discourse: (13) too is an instance of free indirect discourse. This has an important consequence: although Wayne is not the author of the text—thus not one of the interlocutors involved in the utterance of (13)—still the relevant perspective for the sentence evaluation is Wayne's, as if he were the speaker uttering the words *afinal não é meu filho*. These examples show that, although in the default cases *alla fine* and *afinal* are anchored to the speaker, they allow for perspectival shifts.

This property once again connects *afinal* and *alla fine* with epistemic modality. Epistemic modals are generally anchored to the speaker, i.e. it is the speaker's mental state in general that matters to determine the set of worlds on which the modal quantifies. However, epistemic modals can undergo perspectival shift, as in (14):

(14) That guy had to be John, thought Mary.

Here, it is Mary's mental state that matters for the interpretation of the modal of necessity. But if we remove “thought Mary” and consider the sentence in isolation, it is our present mental state that matters, i.e. the epistemic agent relevant for the modal interpretation is assumed to be the speaker of the utterance. The connection to epistemic modality is thus as follows: as epistemic modals are anchored to the speech situation (to the epistemic state of the conversational

participants), similarly *alla fine* and *afinal* prefer to be anchored to the epistemic state of the speaker, though both allow for perspectival shifts. In this respect, epistemic modals as well as *afinal* and *alla fine* behave like indexicals, in the sense that they depend on a certain perspective. In the absence of further information, the relevant perspective will be the speaker's, but in the presence of certain contextual cues this perspective can be shifted to another epistemic agent. This property also connects *afinal* and *alla fine* with certain types of use-conditional items (Gutzmann 2013)⁹ that depend on the evaluation of some epistemic agent, e.g. the epithet *bastard*, which allow for perspectival shifts given the appropriate contextual conditions (Amaral et al. 2007). Both epithets and *afinal/alla fine* can shift perspective in the same context, as in (15):

(15) [Context: Pedro and Ana have prepared a dinner for several friends and one of them, Tiago, told them he will show up earlier to help. Pedro really likes his friend Tiago, while Ana is skeptical regarding Tiago's reliability. In the end Tiago doesn't show up at all for the dinner.]

O Pedro e a Ana ficaram muito contentes com o jantar, os amigos adoraram a comida.
Afinal o palerma do Tiago nem apareceu, pensou a Ana.

'Pedro and Ana were very happy with the dinner and their friends loved the food. *Afinal* that idiot Tiago didn't even show up, thought Ana.'

In (15) the first sentence reports the point of view of Pedro and Ana but in the second sentence we have only Ana's perspective. Both the epistemic particle and the epithet are anchored to the

⁹ Given the analysis proposed here, one could claim that *afinal* and *alla fine* are use-conditional items in the sense of Gutzmann (2013), since one component of their meaning places constraints on the contexts in which they can be felicitously used. In this respect, they have a multidimensional meaning. We leave this connection to further research.

same epistemic agent, namely Ana. This property of epistemic particles should be explored in future research and may contribute to our knowledge of perspective and its expression in free indirect speech.

5. Conclusion

We have provided a semantic analysis of *afinal* and *alla fine* that relies on two assumptions: (i) the particles are propositional operators with a modal meaning, and (ii) they trigger presuppositions in that they impose conditions of use regarding the shared conversational background of the interlocutors in the contexts in which they occur. We have considered two main cases, that of plan-related and that of non plan-related propositions. In both cases, the particles require that the truth of a previously entertained proposition does not persist at the endpoint of a relevant time interval, during which a certain QUD is being considered by the interlocutors. We have also considered cases in which *afinal* and *alla fine* allow for perspectival shifts and hence can be indexed to an epistemic agent outside the discourse situation in which the particles are uttered. This fact not only broadens the connection with epistemic modals but also establishes a link between these modal particles and use-conditional items, a topic to be developed in future research.

Although we restrict our analysis to the behavior of these particles in EP and Italian, we expect other languages to encode the notion of \sim TP, possibly with a different distribution of meanings (cf. Spanish *al final*, French *au final*, English *in the end*), with the connection between modality, presupposition and discourse possibly being universal.

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Corpora used:

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