

Epistemic stance without epistemic modality: the Presumptive Future in Italian and Romanian

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1 Introduction

General goals

1. Understand the similarities and differences between different types of ‘epistemic softeners’, i.e., linguistic expressions that weaken epistemic commitment to a proposition *p*.
 - (1) Joan *may/must* have left.
 - (2) *Perhaps* Joan left.
 - (3) Joan is *likely* to have left.
 - (4) Joan *ought to* have left.
2. Work towards a theory of such devices.

Particular goal

- Provide an account of the presumptive (or epistemic) future (P-future) in Italian and Romanian.
 - (5) a. Gianni *sarà* a casa.
Gianni will-ne at home
Gianni must be at home.
 - (6) a. Ion *o fi* acasă.
Ion will be at-home
Ion must be at home.
- In the course of doing that we will:
 - distinguish it from standard epistemic necessity and possibility modals
 - distinguish it from weak necessity modals such as *ought to/dovrebbe/ar trebui*
 - discuss P-future in interrogatives

Roadmap

Section 2: Data

Section 3: Proposal

Section 4: Back to the data

Section 5: Alternative accounts

Section 6: Conclusions and open issues

2 The data

2.1 Intro to the P-future in Italian and Romanian

P-future:

- Epistemic flavored use of the future tense that arises when the time reference of the proposition within the scope of the future (the prejacent) is not future.
- It exists in Romance languages, Greek, Dutch, among others.
- The epistemic force appears to be similar to the necessity modal – *dovere/trebuie* in Italian/Romanian – as shown in (7) but we will see that this is not always the case.
- Occurs in both declarative and interrogative sentences:

Italian

- (7)
- a. Dov'è Gianni?
where-is Gianni
Where is Gianni?
 - b. Sono le 6 del pomeriggio. Sarà a casa.
They-are the 6 of-the afternoon. Will-be-he at home
It's 6pm. He must be at home.
 - c. Sono le 6 del pomeriggio. Deve essere a casa.
They-are the 6 of-the afternoon. Must-he be at home
It's 6 pm. He must be home.
- (8) It's 3am. Maria and Gianni are sleeping. Someone knocks at her front door.
- a. Maria: Chi sarà?
Maria: who will-be?
Who could it (possibly) be?

Italian P-future morphology:

- uses the regular future tense.

Romanian

- (9)
- a. Unde e Ion?
where is Ion
Where is Ion?
 - b. E 6 dupămasă. O fi acasă.
Is 6 afternoon. Will be home
It's 6pm. He must be home.

- c. E 6 dupămasă. Trebuie să fie acasă.
Is 6 afternoon. Must SUB be home
It's 6 pm. He must be home.
- (10) It's 3am. Maria and Gianni are sleeping. Someone knocks at her front door.
- a. Maria: Cine o fi
Maria: who will be?
Who could it possibly be?

Romanian P-future morphology:

- The future tense in Romanian has two forms (see [Mihoc \(2014\)](#)):
 - literary: inflected forms of *a voi* ‘to want’: Sg: *voi, vei, va*; Pl: *vom, veți, vor*
 - colloquial: shortened forms: Sg: *oi, oi, o*; Pl: *om, oți, or*
- Colloquial forms have only P-future uses
- Literary forms have both temporal and P-future uses, with a preference for temporal uses
- Special feature of Romanian: P-future and temporal future differ morphologically.

2.2 The P-future compared with epistemic modals

The P-future is different from epistemic necessity:

- the DOCTOR case: epistemic *must* is good, P-future is bad.¹
- (11) Maria has just given a very detailed description of her symptoms to her doctor. When she finishes, he says:
- a. Deve trattarsi di narcolessia.
it-must be of narcolepsy
It must be narcolepsy.
- b. #Sarà narcolessia
it-will-be narcolepsy
It must be narcolepsy.

Intuition: the use of the P-future signals that the doctor is not making an informed inference but rather, that she is guessing, which is at odds with our assumptions about a doctor's competence concerning health-related issues.

- the MATHEMATICS case: epistemic *must* is good, P-future is bad.
- (12) Se l'insieme delle formule logicamente valide fosse decidibile, allora il problema della terminazione sarebbe decidibile. Il problema della terminazione non è decidibile. Quindi, l'insieme delle formule logicamente valide deve essere/#sarà indecidibile. (If the set of validities were decidable, then the halting problem would be decidable. The halting problem is not decidable. So the set of validities must be undecidable. [Mandelkern \(2018\)](#))

¹From now on we only give Italian examples in all cases in which the two languages behave alike.

Intuition: the force of the P-future is too weak to be compatible with a mathematical conclusion

- the IGNORANCE case: epistemic *must* is bad, P-future is good

(13) a. Dov'è Maria?
b. Non ne ho la piu pallida idea. #Deve essere a casa.
Not of-it I-have the most faint idea. She-must be at home
I don't have the slightest idea. She must be at home.

(14) a. Dov'è Maria?
b. Non ne ho la piu pallida idea. Sarà a casa.
Not of-it I-have the most faint idea. She-will-be at home
I don't have the slightest idea. She must be at home.

Intuition: the use of the epistemic necessity modal is incompatible with previous assertion of lack of knowledge/evidence about the prejacent.

- Interrogatives: P-future is good, epistemic *must* is odd.

(15) It's 3am. Maria and Gianni are sleeping. Someone knocks at her front door.
a. Maria: Chi sarà?
Maria: who will-be?
Who could it possibly be?
b. ??Chi dev'essere alla porta?
Who must-be at-the door
Who must it be at the door?

(16) Maria comes home and finds her chocolate box open and empty.
a. Chi avrà mangiato i miei cioccolatini?
Who will-have eaten the my chocolates
Who could have possibly eaten my chocolate?
b. ??Chi deve aver mangiato i miei cioccolatini?
Who must have eaten the my chocolates
Who must have eaten my chocolates?

Conclusion 1: The P-future and the epistemic necessity modal have different distributions and therefore cannot have the same semantics (*pace* [Giannakidou and Mari \(2018\)](#))

The P-future is different from epistemic possibility:

- Raising multiple possibilities is acceptable with *might/potere* but not with the P-future (also [Frana and Menéndez-Benito \(2015\)](#)):

(17) a. Dov'è Gianni?
where-is Gianni
Where's Gianni?

- b. Sono le 5. Potrebbe essere già a casa e/ma potrebbe essere
 They-are the 5. He-might be already at home and/but he-might be
 ancora al lavoro.
 still at work
 It's 5 o'clock. He might already be at home and/but he might still be at work.
- c. Sono le 5. ??Sarà già a casa e/ma sarà ancora al lavoro.
 They-are the 5. He-will be already at home and/but he-will be still at
 work
 It's 5 o'clock. He might already be at home and/but he might still be at work.

- When the speaker expects p to be true, the P-future is fine while the possibility modal is not:

- (18) a. Where is John? I can't find him.
 b. Dove vuoi che sia! Sarà a casa/dev'essere a casa/#potrebbe
 Where you-want that he-be! He-will-be at home/must-be at home/could
 essere a casa.
 be at home
 What do you think! He must be at home/#he could be at home.

Intuition:

- The speaker thinks that the most likely answer to the question about John's whereabouts is that he's at home. Both the P-future and the necessity epistemic modal are fine. The possibility epistemic modal is not.

Conclusion 2: The P-future is not an epistemic possibility modal.

Conclusion 3: The P-future is not an epistemic modal.

The P-future is not a mere likelihood modal:

A likelihood claim is fine in the DOCTOR case, repeated below in (19), where the P-future is not, and it is somewhat degraded in the IGNORANCE case, repeated below in (20), where the P-future is fine.

- (19) Maria has just given a very detailed description of her symptoms to her doctor. When she finishes, he says:
- a. È probabile che sia narcolessia
 It-is probable that be narcolepsy
 It's probably narcolepsy.
- b. #Sarà narcolessia
 it-will-be narcolepsy
 It must be narcolepsy.
- (20) a. Dov'è Maria?
 Where is Maria?
- b. Non ne ho la piu pallida idea. Sarà a casa.
 Not of-it I-have the most faint idea. She-will-be at home
 I don't have the slightest idea. She must be at home.

- c. Non ne ho la piu pallida idea. #È probabile che sia a casa
 Not of-it I-have the most faint idea. Is likely that she-is-Subj at home
 I don't have the faintest idea. It is likely that she is at home.

Conclusion 4: The P-future is not a mere likelihood modal.

2.3 The P-future compared to weak necessity modal *ought to/dovrebbe*

Yalcin (2016)'s account of *ought to*:

- the P-future appears to be similar to *dovrebbe*, the Italian equivalent of *ought to*
- (21) a. Dov'è Gianni?
 where-is Gianni
 Where's Gianni?
 b. Dovrebbe essere già a casa
 He-ought-to be already at home
 He ought to be home already.
 c. He ought to be already home.
- Yalcin (2016) shows that, despite its “epistemic” flavor, *ought to* is not an epistemic modal because the prejacent may be counterfactual. The same facts hold in Italian.

- (22) a. I should be dead now.
 b. Noam ought to be in his office now but he is not.

- (23) a. Dovrei essere morta ora.
 I-should be dead now
 I ought to be dead now.
 b. Noam dovrebbe essere in ufficio adesso ma non lo è.
 Noam ought be in office now but not it is
 Noam ought to be in his office now but he is not.

- Yalcin's proposal for *ought to*: necessity modal with a normality base.

- (24) $ought\ to(p) = 1$ in w iff $\forall w'$ such that what is normal in w is true in w' , $p = 1$ in w'

- The epistemic flavor of *ought to* is explained as a default inference from a claim about what is normally the case to a claim about what is presumably the case (Veltman (1996))

The P-future is different from the normality modal *dovrebbe*:

- The prejacent of the P-future must be compatible with the speaker's doxastic state:

- (25) #Noam sarà in ufficio adesso, ma non lo è.
 Noam will-be in office now, but not it is
 Noam is presumably in his office but he isn't there.

- The sequence in (26) is not redundant:

- (26) a. A: Where is John?
 b. B: A quest'ora dovrebbe essere a casa.
 at this-time he-ought be at home
 At this time he ought to be home.
 c. A: Allora sarà a casa.
 Then will-be at home.
 Then presumably he's at home.

Conclusion 5: The P-future is not a simple normality necessity modal.

What, then, is the semantics of the P-future?

3 Proposed account

P-future(p):

- p is more *likely* than any other contextually salient alternative;
- where likelihood is assessed based on what is *normally the case* in the world of evaluation w relative to a *doxastic* base anchored to the speaker in declaratives and to the addressee in interrogatives (cf. ‘interrogative flip’; cf. Murray (2010), Meriçli (2016) among others)

The semantics of a declarative P-future sentence is given in (27):

- (27) $\llbracket \text{P-future}(p) \rrbracket^{g,w,c} = 1$ iff $\forall q : q \in C_2$ and $q \neq p [Dox_{ic}(w) \cap p <_{N(w)} Dox_{ic}(w) \cap q]$, where:
- C_2 is a free variable ranging over sets of propositions, whose value is contextually determined
 - $N(w) = \{p \in \wp(W) : p \text{ is normally the case in } w\}$
 - For any propositions $p, q \in \wp(W)$:
 $p <_{N(w)} q$ just in case p is more likely than q with respect to what is normally the case in w

Predictions:

- P-future $\neq \Box_{EPI}$: the P-future is not about knowledge; thus it should be inappropriate in contexts where knowledge-based claims are expected.
- P-future $\neq \Diamond_{EPI}$: the P-future entails uniqueness and cannot be true of more than one alternatives.
- The P-future is different from a mere likelihood modal because of the normality base. If claims based on normality are somewhat less informative than claims based on evidence/knowledge, then we expect the P-future to be infelicitous in contexts where the speaker is making a likelihood claim based, for example, on some available evidence.
- The P-future is different from weak necessity modals (at least assuming a semantics *à la* Yalcin) because of (i) the doxastic base compatibility requirement, and (ii) the likelihood component.

4 Back to the data

The epistemic flavor of the P-future

- *Why does the P-future feel “epistemic”?*
 - The epistemic flavor is the result of an inference from what is likely to be the case given what is normally the case to what the speaker believes is indeed the case.
 - This inference goes through if the speaker puts high credence in the claim that normality conditions obtain.
- *Why is the P-future guess-like?*
 - The speaker is inferring the truth of the prejacent merely on the basis of what is normally the case and not based on evidence/knowledge.
- Since a P-future sentence makes a claim about what is likely to be the case given what is normally the case in the actual world, it would seem in principle possible for a speaker to utter a P-future sentence while having evidence that the prejacent is unlikely given the speaker’s knowledge. However, normally a P-future statement will convey that sp has no evidence for or against the prejacent. Why?
 - We know that generalizations based on normality have exceptions, and therefore, we don’t know whether what is normally true is actually true.
 - If sp has evidence that the prejacent is not true, then she should say so, since evidence that the prejacent is not true can block the inference from [normally true] to [true].
 - If sp didn’t say so, it must mean that she does not have evidence that the prejacent is not true. This implicature-type inference can be suspended:
 - (28) a. Where is John?
 - b. Sarà in ufficio, per quanto quando l’ho sentito al telefono
 He-will be in office, although when him-have heard at-the phone
 ieri sembrava malatissimo.
 yesterday seemed very-sick
 He’s presumably in the office, although when I spoke with him on the phone
 yesterday he sounded very sick.
 - On the other hand, if the speaker has enough evidence that the prejacent is true, evidence that would support either *must p* or an assertion of *p*, then she should say so since either one of those is *more informative* than the P-future, where *p is more informative than q* with respect to the QUD is true if *p* raises our credence in the prejacent more than *q*.
- (29) a. Where is John?
 - b. A quest’ora, sarà in ufficio. Infatti, sono sicuro che sia in ufficio
 At this-time, he-will be in office. Indeed, I-am sure that he-be in
 perchè a casa non risponde nessuno.
 office because at home not answers nobody
 At this time, he must be in the office. In fact, I am sure he’s at the office because
 nobody is answering the phone at home.

- We can generalize this to both negative evidence (evidence that $\neg p$) and positive evidence (evidence that p): claims based on evidence about a particular proposition p are more informative than claims based on normality assumptions because the former raise/lower our credence in p .

The ignorance case

- Given the assumption that in uttering a *P-future*(p) sentence the speaker is addressing the QUD *whether p*, the P-future utterance will trigger the implicature that the speaker's doxastic state is agnostic as to whether p . Thus, P-future(p) is predicted to be appropriate in contexts where the speaker is ignorant as to whether p is the case or not as in (30).

- (30) a. Dov'è Maria?
Where is Maria?
- b. Non ne ho la piu pallida idea. Sarà a casa.
Not of-it I-have the most faint idea. She-will-be at home
I don't have the slightest idea. She must be at home.

- But the *P-future*(p), unlike *dovrebbe*(p), is predicted to be infelicitous in contexts where the speaker's doxastic state is incompatible with p due to the doxastic compatibility requirement of the P-future:

- (31) #Noam sarà in ufficio adesso, ma non lo è.
Noam will-be in office now, but not it is
Noam is presumably in his office but he isn't there.

The doctor's case:

- (32) Maria has just given a very detailed description of her symptoms to her doctor. When she finishes, he says:

- a. Deve trattarsi di narcolessia.
it-must be of narcolepsy
It must be narcolepsy.
- b. #Sarà narcolessia
it-will-be narcolepsy
It must be narcolepsy.

- The normality base renders the P-future infelicitous here: the doctor is not supposed to venture conjectures simply based on what is normally the case, especially in contexts in which factual information is available
- The epistemic necessity modal is felicitous in such cases because the epistemic necessity statement claims that the prejacent follows from what the speaker knows/has evidence for.

The math case:

- (33) Se l'insieme delle formule logicamente valide fosse decidibile, allora il problema della terminazione sarebbe decidibile. Il problema della terminazione non è decidibile. Quindi, l'insieme delle formule logicamente valide deve essere/#sarà indecidibile.
(If the set of validities were decidable, then the halting problem would be decidable. The halting problem is not decidable. So the set of validities must be undecidable. [Mandelkern \(2018\)](#))

- Conclusions in mathematical arguments must be based on what follows mathematically from the premises rather than on what the speaker considers to be a normal course of events.

The account explains the incompatibility of the P-future with certainty expressions such as *non c'è dubbio*, “there is no doubt”:

- (34) Gianni sarà casa. #Non c'è dubbio.
Gianni will-be at home. Not here-is doubt that
Gianni will be at home. There is no doubt about that.

- If one has no doubt that p is true, then one believes (or is certain) that p .
- Sp is required to make his contribution as informative as possible (see above).
- Since the QUD is whether p , and since sp believe that p (\approx sp has no doubt that p), then sp should assert p .

Contrasts with epistemic possibility

- The P-future does not allow the coordination of multiple possibilities, as in (35), because it requires p to be the likeliest possibility, a requirement that ensures uniqueness

- (35) a. Dov'è Gianni?
where-is Gianni
Where's Gianni?
b. Sono le 5. ??Sarà già a casa e/ma sarà ancora al
They-are the 5. He-will-be already at home and/but he-will be still
lavoro.
at work
It's 5 o'clock. He might already be at home and/but he might still be at work.

- The P-future is predicted to be felicitous in (18), repeated below as (36): the speaker expresses confidence in the fact that the situation in question patterns according to what is normally the case

- (36) a. Where is John? I can't find him.
b. Dove vuoi che sia! Sara' a casa/dev'essere a casa/#potrebbe
Where you-want that he-be! He-will-be at home/must-be at home/could
essere a casa.
be at home
What do you think! He must be at home/#he could be at home.

4.1 The P-future in interrogatives

The semantics of a P-future interrogative sentence:

$$(37) \quad \llbracket \text{P-future}(p)? \rrbracket = \{ \llbracket \text{P-future}(p) \rrbracket, W \setminus \llbracket \text{P-future}(p) \rrbracket \}$$

Comments:

- The individual anchor of the doxastic base is set to the speaker in declaratives, and to the addressee in interrogatives (‘interrogative flip’ – see [Murray \(2010\)](#), [Meriçli \(2016\)](#) among others).
- The interrogative steers the conversation towards two possible futures:
 - a future in which the addressee commits to $\llbracket \text{P-future}(p) \rrbracket$
 - a future in which the addressee commits to $W \setminus \llbracket \text{P-future}(p) \rrbracket$
- Both projected addressee commitments are pragmatically appropriate only in case the addressee does not know whether p is the case or not (neither p nor its alternatives follow from Dox_{Ad}).
- This is so because committing to P-future(p) expresses a weaker epistemic stance than committing to p .

Predictions

- P-future(p)? should be fine in interrogatives in contexts that do not assume that the addressee knows whether p holds or not.
- conversely, P-future(p)? should not be acceptable in contexts where it is expected that the addressee knows whether p holds or not.

Data confirming the predictions:

1. Lack of assumed addressee competence relative to p - P-future is fine:

$$(38) \quad \text{Two egyptologists have just discovered a sarcophagus. It contains a mummy.} \\ \text{Egyptologist \#1: Sarà un uomo o una donna? (lit: Will it be a man or a woman?)}$$

Difference from the doctor case: (38) is asking for a guess.

2. Assumed addressee competence relative to p : P-future is infelicitous.

- The P-future is infelicitous in **quiz contexts**:

$$(39) \quad \text{Host: \#In che anno sarà stato firmato il Trattato di Versailles?} \\ \text{Host: in what year it-will-be been signed the treaty of Versailles} \\ \text{Host: What year was the Treaty of Versailles presumably signed?}$$

– In the context of a quiz, the speaker is testing the addressee’s knoweldge.

- The P-future is infelicitous in contexts that presuppose that the addressee knows whether p holds or not – **competent addressee contexts**.

- (40) Maria is talking on the phone with her sister Anna who she hasn't spoken to in years.
- a. #Avrai ancora quelle forti emicranie che ti venivano
 You-will-have still those strong migraines that to-you came
 quando eri giovane?
 when you-were young
 I wonder if you still have those strong migraines you used to have when you were young.

3. Addressee cannot provide the answer: the case of seemingly “self-addressed” questions (example inspired by [Farkas \(2018\)](#)'s work on *oare* questions).

- (41) Maria is writing a letter to her sister Anna who she hasn't spoken to in years.

- a. Avrai ancora quelle vecchie foto della nostra infanzia?
 You-will-have still those old photos of-the our childhood
 I wonder if you still have those old photos of our childhood.

- Addressee cannot answer (not in the conversational context). Sp does not know the answer.
- An appropriate question in this case is a question about what is likely to be true given what is normally the case: is it likely on the basis of what is normally the case that you still have those old photos?
- Compare to (42):

- (42) Maria is talking on the phone with her sister Anna who she hasn't spoken to in years.

- a. #Avrai ancora quelle vecchie foto della nostra infanzia?
 You-will-have still those old photos of-the our childhood
 I wonder if you still have those old photos of our childhood.

- Ad is (by default) assumed to be competent.
- Ad can answer (is in the conversational context).
- Asking a P-future question will implicate that sp has no evidence for or against the prejacent.
- In a context where the ad competence is dropped, P-future is felicitous:

- (43) Maria is talking on the phone with her sister Anna who she hasn't spoken to in years. After their parents passed away, nobody has visited their childhood house, even though all their belongings from the time they all lived together are still in the house.

- a. Non andiamo in quella casa da anni. Ci saranno ancora quelle vecchie
 Not we-go in that house since years. There will-be still those old
 foto della nostra infanzia?
 photos of-the our childhood
 We haven't been in that house for years. I wonder if those old photos of our childhood will still be there.

5 Brief comparison with previous approaches and further issues

The non-epistemic nature of the P-future

- [Giannakidou and Mari \(2018\)](#): semantic account in which the P-future is equivalent to the epistemic necessity modal *must*.
 - main empirical challenge: accounting for the contrasts between the P-future and epistemic necessity discussed above.
- [Mihoc \(2014\)](#): an epistemic modality account of the P-future in Romanian – basically the same challenge.

Should the contribution of the P-future be located in the compositional semantics or at the level of CDEs?

- [Frana and Menéndez-Benito \(2015\)](#): contribution of the P-future ‘above the FP’ – in the terminology of [Farkas and Roelofsen \(2017\)](#): contribution at the level of CDE.
- Such an account would have to replicate the current proposal at the level of CDEs
- A consideration against a CDE approach: the constancy of morphological means by which the P-future is expressed across unrelated languages: strong connection between the meaning of the future and of the tense morpheme, on the one hand, and the resulting interpretation on the other
- However, the interpretation of the P-future is not fully compositional; in Romanian only one of the two morphological futures can be used as a P-future – grammaticalization process
- Decisive empirical question: how easily can the P-future embed – an issue we leave open for now

Additional data and further open issues

- Concessive uses:

- (44) A: Gianni ha studiato per giorni / Gianni studied for days.
(44) B:Avrà (pure) studiato per giorni, ma non ha comunque passato il test.
B:will-have (also) studied for days, but not has anyways passed the test
He might have studied for days (as you say), but he still failed the test.

- Exclamative P-future in Italian (but for example not in Romanian or Dutch):

- (45) a. A: Sei stupido/ You’re stupid.
b. B: Stupido sarai tu!
B: Stupid will-be you
You must be the stupid one!

Conclusion

- In our account, the P-future combines some of the means that languages use to signal nuanced commitment to a proposition (‘epistemic softening’):

- using a normality base
 - expressing compatibility with doxastic base
 - expressing likelihood
- The different empirical effects arise precisely because all these elements are combined
 - This account of the P-future might be related to accounts of the temporal future where likelihood or normality play a role – cf. [Kaufmann \(2005\)](#), [Copley \(2009\)](#).
 - Some avenues for future research:
 - A more thorough investigation of this use of the future cross-linguistically. Are there meaningful generalizations about languages that do and do not have the P-future?
 - Difference among languages that do have the P-future (we have mentioned one such difference above).
 - Different means of expressing what the P-future expresses (*wohl* for example; cf. [Zimmermann \(2011\)](#)).

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