EPISTEMIC FUTURE IN QUESTIONS:
EVIDENCE QUALITY AND THE MIRATIVITY EFFECT OF *mica**

ALDA MARI
Institut Jean Nicod CNRS/ENS/EHESS/PSL University

1 Introduction

It has now been robustly and cross-linguistically established that semantically, the future tense is not the dual of the past tense (see among many others,Enç 1987, Bertinetto 1979, Copley 2009, Mari 2009a,b, 2010, De Saussure and Morency 2012, Giannakidou and Mari 2013b, 2018a, Frana and Menéndez-Benito 2019, Ippolito and Farkas 2019, Escandell-Vidal 2021, among many others; *pace* Prior 1962, Kissine 2008.) Unlike the past, the future is open, and, even if we were to consider the future as metaphysically settled, we cannot deny that we cannot know the future. A sentence in the future tense is perceived as a prediction that could turn out to be true or false (Huddleston and Pullum 2005, MacFarlane 2003).

(1)   a. It will rain tomorrow.

   b. Domani   pioverà.   (Italian)
       tomorrow rain.FUT.3SG
       'It will rain tomorrow.'

For Italian future, this epistemic openeness, together with the fact that the future can have present and past orientation in a way akin to *dovere* (*must*) and *potere* (*might*), has lead several theoreticians to conceive of the future as an epistemic modal (Bertinetto 1979, Mari 2009a,b, Pietrandrea 2005, Giannakidou and Mari 2013a, 2018a), with some amount of disagreement as to the force of future, underspecified for some (e.g. Pietrandrea 2005, Baranzini and Mari 2019); and universal for others (Giannakidou and Mari 2018a).

(2) Flavio sarà   nella sua camera.
     Flavio be.FUT.3SG in.the his room
     'Flavio must/might be in his room.'

(3) Flavio deve essere nella sua camera.
     Flavio must be   in.the his room
     'Flavio must be in his room.'

(4) Flavio può   essere nella sua camera.
     Flavio might be   in.the his room
     'Flavio might be in his room.'

In this article, we study the effects of the future in questions.

(5) Dove sarà   Anna? Non la   vedo.
     where be.FUT.3SG Ann   NOT her see
     'Where might Ann be? I do not see her.'

(6) Anna sarà   a casa, ora?
     Ann be.FUT.3SG at home now
     'Might Ann be at home now?'

It would be hazardous to state right from the bat what this effect would be, as there is no consensus on the description of the facts themselves. While most of the existing theories are based on the idea that the future in Italian is an evidential, and in particular an inferential evidential (Mari 2009a,b, Frana and Menéndez-Benito 2019, Eckardt and Beltrama 2019) or a subjective evidential (Mari 2010, Ippolito and Farkas 2019), there is no agreement on the effects of evidentiality on the meaning of the question.

According to some (Eckardt and Beltrama 2019), questions with the future tense (considered as an inferential evidential) are 'conjectural' and do not require an answer. This effect is robustly documented across languages of very different families such as St'át'imcet (Matthewson 2010).

(7) From Littell et al. (2010), for Gitksan:
     a. sdin=**ima**=hl   xbiist.
         be.heavy=infer=CND box
         'The box might be heavy.'
     b. nee=hl   sdin=hl   xbiist=a?
         YNQ=CND be.heavy=CND box=INTERROG
         'Is the box heavy?'
     c. nee=**ima**=hl   sdin=hl   xbiist=a
         YNQ=infer=CND be.heavy=CND box=INTERROG
         'I wonder if the box is heavy'

According to others (Frana and Menéndez-Benito 2019), in questions, the future tense (still considered as an inferential evidential) would trigger what is called the *interrogative flip*.

Interrogative flip is the phenomenon according to which the source of evidence would become the addressee, whereas, in assertives, the source of evidence is the speaker. The flip is argued to occur with evidentials in biased questions (Bhadra 2020, Korotkova 2016, Murray 2016, a.o.). The reasoning goes as follows: (i) a question containing an evidential expects that the **hearer** ... has the relevant type of evidence ... (interrogative flip, e.g., Speas and Tenny 2003, Aikhenvald 2004, Murray 2016, San Roque et al. 2017, Bhadra 2020, a.o.) (ii) the evidential future is an inferential (iii) the hearer does not have direct evidence to answer the question. This elegantly explains the infelicity of (8) as a case of presupposition failure with the addressee having direct evidence rather than indirect evidence.

(8) #Quanti   anni avrai   ?
    how.many years have.FUT.2SG
    'How old might you be?'

We will undertake here a different path, and explain the impossibility of (8) by resorting to the epistemic modal meaning of future (and without resorting to the interrogative flip).

We can indeed immediately note that epistemic modal questions such as (9) are also odd, on the assumption that the addressee knows their own age and that this impossibility is not due to evidentiality.

(9) #Quanti   anni puoi   avere?
    how.many years can.FUT.2SG have
    'How old might you be?'

To achieve this, we will discuss in detail the arguments that have been addressed against the epistemic modal view. We level a confusion between **evidence type** and **evidence quality** and argue that epistemic modals are not sensitive to inferential evidence, but to any type of evidence granted that it is 'degraded' and not fully reliable. We argue that the interpretation of future questions follows from this property. Needless to say, all elements of a class do not need to pattern alike. We advance that the specificity of future within the larger class of epistemic modality is to be grounded in very unreliable evidence, potentially down to a lack of clues (which we do not conflate with 'subjectivity' treating the Italian future as a subjective evidential (*pace* Mari 2010, Ippolito and Farkas 2019). The unreliability of the evidence determines the weak epistemic commitment of the future, which, in our view, belongs to the family of anti.knowledge markers (Giannakidou and Mari 2021c). Lack of knowledge is not derived as an inference (*pace* Ippolito and Farkas 2019) but is encoded as a presupposition along the lines of Giannakidou and Mari (2015). This view will lead us to treat Italian future questions as introspective, unbiased, and targeting *plausibility* of the truthfulness of the prejacent. The knowledge – degraded and partial – remains that of the speaker, and not of the addressee.

Our analysis proposes a modal skeleton for future in questions, extending Giannakidou and Mari (2018b, 2021c) that leaves room to straightforwardly explain the role of *mica* (and more precisely *non mica*). We will observe and account for its newly noted mirative effect, thus proposing an alternative view to the common ground management device theory (Frana and Rawlins 2019).

(10) Non sarà   mica a casa?
     NOT be.FUT.3SG MICA at home
     'He is not home, isn't he?'

The paper unfolds as follows. In Section 2 we present new arguments for the modal account of the future – in contrast with the inferential-evidential and subjective-evidential accounts. In Section 3 we describe the behavior of the Italian future in questions with and without *mica*. Our framework is presented in Section 4 and the analysis of the future in questions with and without *mica* is in Section 5. Section 6 concludes.

2   Evidence Quality and Epistemic Modality

The intricacies between evidentiality and epistemic modality are both descriptive and theoretical. From a descriptive point of view, it is often not easy to classify expressions as belonging univocally to one or the other of these categories, and the extent of the debate about the notional status of the future tense in Italian testifies to this difficulty; from an analytic point of view, it is also controversial to know whether evidentiality is reducible to a modal sense (Matthewson et al. 2007) or whether the two are to be analyzed at two quite distinct levels (Aikhenvald 2004, Faller 2002). There is a certain consensus to admit that epistemic modals are sensitive to sources of knowledge. The literature advocates indirect (Karttunen 1972), inferential (Von Fintel and Gillies 2010) or partial evidence (Giannakidou and Mari 2018b) as presuppositions of the epistemic meaning of modals.

At this stage of the debate on Italian future, it becomes crucial to clarify a distinction that has crept into the discussion and has created a certain amount of confusion, namely the one between type of evidence and quality of evidence. We show that the future is sensitive **not** to a certain **type** of evidence, **but** to a certain **quality** of evidence. By virtue of the degradation of evidence on which they rely, sentences in the future tense convey a weak commitment to the truthfulness of *p*, in a way similar to epistemic modals.

Our empirical discussion on reliability and epistemic modality proceeds in three steps. We start by reviewing the arguments that aim at proving that the future tense in Italian is an evidential, and show that they cannot definitively settle the question of the evidential or modal status of the future tense. We then discuss further empirical arguments to show that the future tense is sensitive to the quality of the evidence, down to lack of evidence altogether. Finally, we establish a dependence between strengths of epistemic commitment and evidence quality disentangling epistemic modal *dovere* (MUST) from Italian future (FUT).[1] *Pace* Mari (2010) and Ippolito and Farkas (2019) we also show that FUT is not a subjectivity marker conveying mere credence.

2.1   Evidentiality or Epistemic Modality? Evaluating the Arguments

#1: The ban against direct perception. The ban against direct perception is one of the most debated arguments in the literature of both epistemic modality (Karttunen 1972, Portner 2009, Von Fintel and Gillies 2010, Giannakidou and Mari 2015, Goodhue 2017, a.o.) and Italian future (Mari 2009b, Giannakidou and Mari 2015, Frana and Menéndez-Benito 2019, a.o.). In Frana and Menendez-Benito's most recent works, it has been instrumental in showing that (i) the future is indeed an evidential and specifically (ii) it is an inferential evidential.

---

[1]We use FUT to refer to Italian Future and MUST to the Italian equivalent of English 'must' for readability. However, in line with previous works, we are also committed to the idea that the observations about Italian extend well beyond this specific language Giannakidou and Mari (2021c) .

In (11) we see that Italian future is certainly banned from direct evidence contexts and in (12) that it is felicitous in inferential contexts. However, this is not an argument for considering the Italian future as an evidential. *Dovere* (MUST) patterns just alike, also being infelicitous in direct evidence contexts (13) and being felicitous in inferential evidence contexts (14).

(11) Context: Direct visual perception of rain, the speaker sees the rain falling.
      #Starà   piovendo.
        be.FUT.3SG raining
      'It must be raining'

(12) Context: I see a wet umbrella.
      Starà   piovendo.
      be.FUT.3SG raining
      'It must be raining'

(13) Context: Direct visual perception of rain, the speaker sees the rain falling.
      #Deve star piovendo.
        must be   raining
      'It must be raining'

(14) Context: I see a wet umbrella.
      Deve star piovendo.
      must be   raining
      'It must be raining'

#2: Challengeability. As for evidentials, it is correct that a future claim cannot be challenged.

(15) A: 'Why is Luca absent today?'
      B: Sarà.FUT malato. ('He might be ill.')
      A: 'That's not true. He is perfectly fine.'
      A: #'That's not true. You saw he was ill.'

However, epistemic modals cannot be challenged either (see Papafragou 2006), and the non-challengeability is also not sufficient to show that the Italian future is not an epistemic modal.

(16) A: 'Why is Luca absent today?'
      B: Deve essere malato. ('He must be ill.')
      A: 'That's not true. He is perfectly fine.'
      A: #'That's not true. You saw he was ill.'

#3: Addressee orientation. Frana and Menéndez-Benito (2019) finally also argue that, unlike epistemic modals (17a), the future cannot be anchored to the addressee (17b). We provide a simplified version of the context.

(17)   Context: Robert's mom is running after the school bus with a snack. Robert is not on the
       bus. Lucie, who is with Robert, asks Robert why his mom is running after the bus. Robert
       replies (endorsing his mom's perspective):

       a. I might be on the bus
       b. #Sarò   sull'autobus.
            be.FUT.1SG on.the.bus
            'I might be on the bus.'

According to Frana and Menéndez-Benito (2019), because the Italian future cannot be
anchored to the addressee, unlike English *might*, Italian future is not a modal.

We note, however, that in Italian the future patterns just like the modal *potere* (*might/can*) in
the indicative (18b), which is also infelicitous in the same context. In Italian, anchoring to the
addressee is possible with *potere* in the conditional (18c).

(18)   (The felicity is relative to addressee anchoring)
       a. #Sarò   sull'autobus.
            be.FUT.1SG on.the.bus

       b. #Posso   essere sull'autobus.
            might.IND.1SG be   on.the.bus

       c. Potrei   essere sull'autobus.
            might.COND.1SG be   on.the.bus

To conclude, none of the tests seems to be able to disentangle evidentiality from epistemic
modality and to show that the Italian future is not an epistemic modal.

2.2   Evidence Quality and Epistemic Modals MUST and FUT

Let us now seriously consider the idea that the future tense in Italian is an inferential evidential.
Typologies of evidentials distinguish between direct and indirect evidentiality, as in Willett (1988).
Inferential evidentials are a specific subtype of indirect evidentials.

We can show that inference is neither a necessary nor a sufficient condition for the use of future
tense in Italian. First, it is not necessary. Consider the following context.

(19)   Context: I hear a loud noise in the street. (direct evidence, hearing)
       Sarà   un incidente?
       be.FUT.3SG an accident
       'Is it maybe an accident?'

Here the evidence is direct and it is auditory, yet the future is felicitous. It could be replied
that an inference is indeed drawn from what is heard and that the Italian future is still conveying
inferential content. But to accept this argument would mean recognizing that 'inference' is a
super-category transversal to the other types of evidentials. It would thus target a notion other than
'source of information', thus losing the opposition between 'inference' as a subtype of indirect
evidence to other evidential sources.

Types of Evidence

Direct

Attested

Visual   Auditory   Other sensory

Indirect

Reported   Inferring

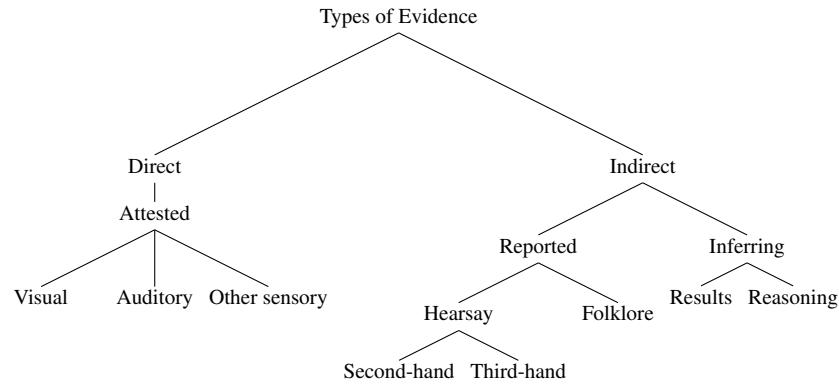Hearsay   Folklore   Results   Reasoning

Second-hand   Third-hand

Figure 1: Willet's 1988 taxonomy of evidentials

Inference is not a sufficient condition on the use of the future tense in Italian either. In the following example, the evidence is inferential, and yet the future tense is not allowed.

(20)   Context: there are 3 boxes and 1 ball. The ball is hidden below one of the three boxes. The ball is neither in A nor in B.
   #Sarà   in C.
     be.FUT.3SG in C
   'Is is maybe in C.'

Why is it that future is felicitous in (12) (the umbrella case), but not felicitous in (20) (the boxes case)? In line with Giannakidou and Mari (2015) we claim that this is due to the fact that in the context of (12) the speaker has a **lack of knowledge** about whether it is raining outside, while, in the context of (20) the speaker **has knowledge** of where the ball is (box C is the only option). FUT is an anti-knowledge marker, thus bearing the hallmark of all epistemic modals (see Giannakidou and Mari 2021c and references therein, *pace* Von Fintel and Gillies 2010).

Both direct and indirect sources can be sources of knowledge. We learn from direct experience as well as from inference or hearsay. However, these same types of sources may not produce knowledge, depending on their degree of reliability. The notion of 'evidence quality' is transversal to all sources of knowledge, and directly relates to informativity. Only reliable sources are informative. We assume that there is a scale of reliability for every evidence type.

(21)   Reliability scales for evidence types:
   • Inference ranges from strict implication to guess.
   • Reportative ranges from high quality ("faithful news") to low quality ("fake news").
   • Visual ranges from high quality (clear vision) to low quality (blurred vision).
   • ...

We conclude here that epistemic modals are sensitive *not to evidence type but to evidence quality*. In particular, epistemic modals are sensitive to evidence that does not allow knowledge of *p* and are thus anti-knowledge markers.

Note that lack of knowledge is not cancellable (as the recent account of Ippolito and Farkas (2019) proposes by deriving lack of knowledge as an implicature), as future statements would

otherwise be compatible with scenarios of direct evidence. We will thus treat it as a lexical presupposition of future (as well as epistemic modals more generally, see Section 4).

2.3 Lack of Knowledge and (Un)Reliability

All epistemic modals rely on degraded evidence, but they convey different strengths of epistemic commitments. Their strength depends on the reliability of the evidence, that is to say, its informativeness, and **all epistemic modals do not pattern alike**.

Giannakidou and Mari (2015) propose a 'scale of epistemic commitment', according to which by asserting p the speaker is 'fully committed to p'[2]; with MUST p the speaker is partially committed to p (see Giannakidou and Mari 2018b, 2021c). With MIGHT p the speaker is in a state of hesitation.

(22) Scale of epistemic commitment (Giannakidou and Mari 2015):
$< p$, MUST p, MIGHT $p >$;
where i is the speaker, p conveys *full* commitment of i to p; MUST p conveys *strong* commitment of i to p, and MIGHT p conveys *trivial* commitment of i to p.

This scale of epistemic commitment is anchored to a scale of information reliability. The assertion of p requires the speaker to have reliable information; MUST p relies on partial information (Giannakidou and Mari 2015) ; MIGHT p may rely on unreliable information. For any $x, y; x \gg y$ indicates that x is grounded in evidence more reliable than y.

(23) Scale of epistemic commitment and evidence reliability:
$< p$ (total evidence) $\gg$ MUST p (partial evidence) $\gg$ MIGHT p (evidence in favor of both p and $\neg p$)$>$

While MUST and FUT are both anti-knowledge markers relying on partial evidence, they diverge in that FUT is felicitous in contexts where i has no evidence at all; partial evidence with FUT can boil down to 'no evidence', or 'no clues'.

(24) Where is Gianni?

a. Bo'. Sarà   a casa!
   bah   be.FUT.3SG at home
   'Bah! He might be home!'

b. Bo'. #Deve essere a casa!
   bah   must be   at home
   'Bah! He must be home!'

c. Bo'. #Può   essere a casa!
   bah   might be   at home
   'Bah! He might be home!'

This explains why it is weird for a doctor to use a sentence in the future:[3]

---

[2]Or at least takes p on his own account by pretending to be fully committed to his truth; except in the case of lies.
[3]See Ippolito and Farkas (2019) for discussion of a similar example but a different, subjectivity-based explanation, which we show to be incorrect later in this section.

(25)   Context: the doctor has visited John and utters:
       #Sarà   il   Covid.
         be.FUT.3SG the Covid
       'It will be Covid.'

As Giannakidou and Mari (2015) note, a MUST sentence is also weird in the context of a medical visit, as the doctor is revealing a certain amount of lack of knowledge. If MUST is felt as slightly less inappropriate with respect to a medical statement in the future tense (see e.g., Ippolito and Farkas 2019) it is because it rules out cases in which the attitude holder (here, the doctor) relies on no evidence whatsoever.

(26)   Context: the doctor has visited John and utters:
       ??Deve essere il   Covid.
         must be   the Covid
       'It will be Covid.'

Interestingly, the fact that FUT can be used without any clue, whereas MUST uses evidence,[4] explains the most striking difference between the two: FUT is used to *project a world* that does not yet exist (temporal use of the future), MUST mandatorily uses clues and thus requires that the world already exists. It cannot, therefore, be future-oriented and epistemic at once (see Condoravdi 2002).

(27)   John must come with us. (#Epistemic)

Note, however, that it would be erroneous to state that Italian future associates with subjectivity. The idea that FUT conveys pure credence either in its modal base or in its ordering source, is developed at length in Mari (2010). The core idea that Mari (2010:1-8) advanced in this early work is that the Italian future uses a 'subjective stereotypicality' set of preferences, and ranks 'according to what **it is more likely for the speaker**.' She also establishes a relation between subjectivity as credence and (lack of) reliability. In their recent paper Ippolito and Farkas (2019) propose a very close idea, in their terms: '**subjective likelyhood**'. While appealing, this line of analysis is not on the right track.

First, Italian future statements can also rely on exogenous evidence, as in (12). Second, we see that with purely subjective predicates (i.e., taste predicates Lasersohn 2005, Stephenson 2007, a.o.), the future gives rise to a suppositional meaning and not a purely subjective or solipsistic reading (see Mari 2016, Giannakidou and Mari 2021c on credence/supposition in Italian.)

Consider the indicative present tense first. (28a) expresses a personal subjective judgment – which can also be referred to as solipsistic – based on a preference/credence and purely endogenous sources (see Mari 2016 on endogeneity and credence).

With the future, the sentence does not convey the same subjective evaluation. In non-temporal readings (i.e., the painting already exists and the speaker is looking at it), (28b) conveys instead that there is some *standard* according to which the painting is to be considered beautiful and that the speaker does not know those standards. It is thus an epistemic statement: the speaker does not know whether p is true but resorts to some 'objective' criterion (the *standard* of beauty) to evaluate the truthfulness of p.

---

[4]See also Dendale (2001) for French.

(28)   Context: in front of a painting:

      a.   Questo quadro   è   bello.
          this   painting is beautiful
          'This painting is beautiful.'

      b.   Questo quadro   sarà   bello.
          this   painting be.FUT.3SG beautiful
          'This painting must/might be beautiful.'

We note that this effect arises also with epistemic modals: (29) conveys a supposition that relies on exogenous clues and seeks to establish truth and it is not an expression of mere credence.[5]

(29)   Questo quadro   deve/può   essere bello.
      this   painting must/might be   beautiful
      'This painting must/might be beautiful.'

If Italian future is not subjective, as we just showed, it can nonetheless be used even in a total absence of clues (recall (24a)). It thus ranks very low on the scale of evidence reliability. As a consequence, the epistemic commitment will also be very weak.

(30)   Scale of epistemic commitment and evidence reliability with future:
      $< p$ (good quality evidence) $\gg$ MUST p (partial but reliable evidence) $\gg$ MIGHT p (low quality evidence) $\gg$ **FUT p (possibly no evidence)**$>$

(31)   Scale of epistemic commitment with future:
      $< p$, MUST p, MIGHT p, FUT $p >$;
      where i is the speaker, p conveys commitment of i to p; MUST p conveys *strong* commitment of i to p, MIGHT p conveys *trivial* commitment of i to p and **FUT p conveys *very low* commitment to** p.

At this point, the question arises of how strong commitment with FUT arises (32a) (see Bertinetto 1979, Pietrandrea 2005, Mari 2010), a question for which our analysis will provide an answer in Section 4.

(32)   a.   Sarà   sicuramente a casa.
          be.FUT.3SG certainly   at home
          'He must certainly be home.'

      b.   Sarà   forse a casa.
          be.FUT.3SG maybe at home
          'He might maybe be home.'

Let us take stock. FUT is not an evidential sensitive to a type of evidence source (inferential or a subjective evidential). Like epistemic modals, it is however sensitive to the quality of the evidence. The evidence it relies upon is of degraded quality, and not sufficiently informative to induce knowledge. Italian future, like epistemic modals, is an anti-knowledge marker (see

---

[5]See Mari and Portner (2021) for the effects of solipsistic and non-solipsistic judgments on the common ground.

Giannakidou and Mari 2021c and references therein). The quality of the evidence determines the epistemic commitment with a dependence of the commitment on the reliability. The stronger a modal is, the more reliable the information is. Unlike MUST that uses partial evidence and clues, FUT can use no clues at all and thus ranks very low on the scale of informativity.

3 Future in Bare Questions and *mica*-Questions

3.1 Anti-knowledge Future in Questions

One of the most difficult issues to deal with in relation to questions with the future is the identity of the recipient of the question. Under the assumption that future is an evidential - no matter whether inferential (Frana and Menéndez-Benito 2019) or subjective (Ippolito and Farkas 2019) - theoreticians have proposed that there is an interrogative flip. This view offers an elegant proposal for the impossibility of (8), repeated in (33) by stating that the question is felicitous only if the addressee has inferential evidence. In a different line of thought Ippolito and Farkas (2019) explain this impossibility by appealing to a lack of knowledge of the addressee, but still assume that the interrogative shifts the perspective from the one of the speaker to that of the addressee.

(33) #Quanti   anni avrai?
      how.many years have.FUT.2SG
      'How old might you be?'

However, it is very unclear whether the addressee must have indirect evidence or is in a state of lack of knowledge. The following scenarios are a case in point.

(34) <u>Context</u>: Mary and Susan are having a coffee. They do not know each other very well. Mary looks very young, but she hints at the fact that she is much older than she seems. She asks Susan to guess how old she is.
      Avrai   già   quarant'anni?
      have.FUT.2SG already forty.years
      'Might you already be forty years old?'

Mary is knowledgeable, yet Susan's question is felicitous in this context. Similarly, in the context in (35), I am the addressee, and I know the answer since I bought the gifts. The speaker (my son) is instead in a state of lack of knowledge. In these cases, the speaker is in a confused state of mind and hesitates. The addressee is neither confused nor in a state of lack of knowledge, yet the future question is felicitous.

(35) <u>Context</u>: Christmas eve. The gifts are under the Christmas tree. I bought all the gifts. *My son asks me*:
      Cosa ci   sarà   in quel pacchetto ?
      what there be.FUT.3SG in that box
      'What will be there, in that box?'

It can be objected that, it is possible that the speaker knows the answer, as in (36), where I know what is under the Christmas tree, yet I question my son.

(36)   Context: Christmas eve. The gifts are under the Christmas tree. I bought all the gifts. *I ask my son*:
       Cosa ci   sarà   in quel pacchetto?
       what there be.FUT.3SG in that box
       'What will be there, in that box?'

The same description holds for the scenario suggested by Ippolito and Farkas (2019). In a TV contest, the host always has the true answers and is thus knowledgeable. Yet, the future can be used in the questions that s/he poses, a fact that would invalidate the hypothesis that the speaker has to have degraded evidence and be in a state of lack of knowledge.

(37)   Context: The host of a TV show tries to help a contestant in trouble and says: "Fine, let's go back to the reasoning. We have said that Robespierre was the chief of terror." He then asks:
       Come sarà   morto ?
       how   be.FUT.3SG died
       'How will he have died?'

(36) and (37) are contexts in which the speaker incarnates a position of ignorance, putting herself/himself in the clothes of the addressee. In those cases, as also noted in Ippolito and Farkas (2019), the host reconstructs the reasoning with the contestant and thereby presents her/himself as momentarily not knowledgeable. In both (36) and (37) we observe a condescending tone whereby the authority endorses the reasoning of the addressee, sharing with the latter the state of lack of total information.

We will thereby assume that, in questions with the future tense in Italian, lack of knowledge is the hallmark of the speaker's epistemic state rather than the addressee's.

3.2   *Mica*-Questions

Turning now to future questions with *mica*, they have been described as being self-addressed, with *mica* undoing the interrogative flip induced by the bare future (Frana and Menéndez-Benito 2019). This empirical characterization is also not entirely accurate. Consider the following context:

(38)   Context: Mary and Susan are having a coffee. They do not know each other very well. Mary looks very young, but she hints at the fact that she is much older than she seems. Susan asks:
       Non avrai   mica più   di quarant'anni ?
       NOT have.FUT.2SG MICA more of forty.years   ?
       'You will not be more than forty years old, do you?'

In (38) the speaker is curious, and s/he really wants to know how old the addressee is. The question is not (only) self-addressed. In a similar vein, consider the context suggested by Frana and Menéndez-Benito (2019) (simplified). Here the speaker also genuinely intends to know whether Susan has already eaten.

(39)   Context: Mary has invited Susan and John to dinner. Susan is not eating. Mary asks John:
       Non avra   mica già   mangiato ?
       NOT have.FUT.3SG MICA already eaten
       'She hasn't eaten already, has she?'

A complete characterization of *mica* needs to take into account the complexity of the biases at stake. Three biases are at play in (39): (i) the speaker has a prior belief that Susan should not have eaten prior to the dinner (speaker bias) (ii) the speaker has evidence that Susan has eaten (evidence bias[6]) (iii) the speaker expects a positive answer to the question (answer bias[7]). In virtue of the contrast between the speaker bias (negative) and the answer bias (positive), *mica* enhances a mirative effect. It will be our endeavor to show how this interpretation comes about.

Note that there is no effect linked to the use of third and second person, the three biases are all at play in (40) as well, with the speaker again expecting an answer from the addressee.

(40)   Non avrai   mica già   mangiato ?
       NOT have.FUT.2SG MICA already eaten
       'You haven't eaten already, have you ?'

To conclude: there is no mandatory interrogative flip with future questions, and there is not only self-addressedness with *mica*-future questions. With *mica* questions, the starting assumption (the speaker bias) is that the possibility that p is true is ranked as very unlikely and this will be one of the elements that our analysis will capture within a unified view of anti-knowledge markers.

4   Analysis

4.1   The Presupposition of Lack of Knowledge

To delineate the analysis we will build on the work of Giannakidou and Mari (2015, 2018b, 2021a,c),[8] recalling only the main building blocks. Our starting notion will be the one of the epistemic state of an individual anchor i, which, for Italian future, is always the speaker.

(41)   *Epistemic state of an individual anchor i*
       An epistemic state M(i) is a set of worlds associated with an individual *i* representing worlds compatible with what *i* knows or believes in the context of utterance.

A nonveridical state conveys epistemic uncertainty if (and only if) it is partitioned into p and $\neg p$ worlds.

(42)   *Nonveridical information state*
       An information state M(i) is nonveridical about p iff M(i) contains both p and $\neg p$ worlds.

Since all epistemic modals rely on degraded evidence that induces lack of knowledge, we will also endorse the Nonveridicality axiom for modals.

(43)   *Nonveridicality Axiom of modals*
       MODAL (M(i)) (p) can be defined if and only if the modal base M(i) is nonveridical, i.e., only if M(i) contains p and $\neg p$ worlds.

MUST / FUT use a primary epistemic modal base, which we label Epist(i), making the explicit the assumption that lack of knowledge is due to partial or corrupted evidence, or even lack of evidence that leaves the speaker in uncertainty.

---

[6]See Buring and Gunlogson (2000), Sudo (2013), a.o.

[7]See Krifka (2015), Malamud and Stephenson (2015), AnderBois (2019), a.o.

[8]We will not repeat the references; all the definitions in this section are cited from their latest version in Giannakidou and Mari (2021c) .

(44) $\text{Epist}(i)(t_u)(w_0) = \lambda w'(w'$ is compatible with what is known by the speaker i in w_0 at $t_u)$

(45) $\text{Ideal}_\mathcal{S} (\text{Epist}(i)(t_u)(w_0)) = \{w' \in \text{Epist}(i)(t_u)(w_0) : \forall q \in \mathcal{S}(w' \in q)\}$

So defined, $\text{Ideal}_\mathcal{S}$ delivers the worlds in the modal base in which all the propositions in $\mathcal{S}$ are true. $\mathcal{S}$ is a set of propositions that correspond to common ground norms/personal convictions etc. In some previous works we have called this Ideal (see Giannakidou and Mari 2015, 2018b), in some others, DOX (see Mari 2010, 2016, Mari and Portner in press). We stick here with Ideal, emphasizing that the propositions can contain all kind of content that is relevant according to i to restrict the modal base M(i). **Ideal** encodes i's **beliefs and pieces of knowledge, but not necessarily mere credences**. One's beliefs can also rely on considerations of stereotypicality conditions or normalcy conditions. Note, however, that Ideal is a secondary modal base and does not provide ranking: Ideal worlds are not ranked as higher than non-Ideal ones.

With Epist and Ideal in place, the non-final analysis for Italian future is as follows (see Giannakidou and Mari 2015, 2018b).

(46) $[\![\text{FUT (PRES } (p))]\!]^{\text{Epist,Ideal,i},\mathcal{S}}$ is defined only if (i) M(i) is nonveridical and (ii) M(i) is partitioned into $\text{Ideal}_\mathcal{S}$ and $\neg\text{Ideal}_\mathcal{S}$ worlds, and (iii) i **has potentially no clues**.
If defined,
$[\![\text{FUT (PRES } (p))]\!]^{\text{Epist,Ideal,i},\mathcal{S}} = 1$ iff $\forall w' \in \text{Ideal}_\mathcal{S} : p(w',t_u)$
Paraphrase: (presupposition) The modal base Epist is partitioned into p and $\neg p$ worlds as well as into $\text{Ideal}_\mathcal{S}$ and $\neg\text{Ideal}_\mathcal{S}$ worlds. i has potentially no clues for p. (assertion) All Ideal worlds are p worlds.

This definition of future is parallel to the one of MUST as Giannakidou and Mari (2015, 2018a) have argued: the presupposition encodes lack of knowledge and quantification happens over an inner set of Ideal worlds. FUT and MUST differ in that the presupposition (iii) in (47) is not met with MUST which requires that i has clues in the context of utterance.

(47) $[\![\text{MUST (PRES } (p))]\!]^{\text{Epist,Ideal,i},\mathcal{S}}$ is defined only if (i) M(i) is nonveridical and (ii) M(i) is partitioned into $\text{Ideal}_\mathcal{S}$ and $\neg\text{Ideal}_\mathcal{S}$ worlds, and (iii) i **has some reliable evidence**.
If defined,
$[\![\text{MUST (PRES } (p))]\!]^{\text{Epist,Ideal,i},\mathcal{S}} = 1$ iff $\forall w' \in \text{Ideal}_\mathcal{S} : p(w',t_u)$
Paraphrase: (presupposition) The modal base Epist is partitioned into p and $\neg p$ worlds as well as into $\text{Ideal}_\mathcal{S}$ and $\neg\text{Ideal}_\mathcal{S}$ worlds. i has some reliable evidence for p. (assertion) All Ideal worlds are p worlds.

With these elements in place, we can now turn to the metaevaluation, which will introduce ranking.

4.2 Ordering and Metaevaluation

The initial characterization stemming from Lyons (1977) described modal verbs and auxiliaries as able to combine with modal adverbs of a force comparable to that of the modal (see also Huitink 2012, Willer 2013). According to this description, MUST combines with adverbs such as DEFINITELY/PROBABLY and MIGHT combines with MAYBE.

(48) a. John must definitely/probably be at home.

      b. He might possibly be at home.

However, all modals show a cross-linguistic tendency to flexibility, by being compatible with a variety of adverbs revealing different strengths of confidence on the part of the speaker. Giannakidou and Mari (2018b) call this phenomenon *modal spread* and show that there is cross-linguistic variation. In Italian (like in English) we find some mismatches with a weak-modal combining with a stronger adverb and a strong modal combining with a weak adverb. They propose the following examples.

(49) Il vaso, che costituisce uno dei premi guadagnati dagli atleti negli agoni panatenaici di Atene, **deve forse** fare parte del corredo di una sepoltura ubicata non lontano dall'area di Castel Nuovo.
      'The jar, which constitutes one of the prizes earned by the athletes in the pan-athenians olympics of Athens, must maybe belong to the kid of a burial located not far from the area of Castel Nuovo.[9]'

(50) So there **must maybe** be some glitch somewhere along the line or something that makes this happen. I am sure is a cache or technical glitchup.[10]

(51) e a questa circostanza **può probabilmente** essere dovuto il fatto che egli fosse arrivato al nono compleanno. Comunque stessero le cose, in ogni modo, era il suo nono compleanno.
      'and the fact that he reached his ninth birthday might probably be due to these circumstances. No matter how the facts where settled, in any case, it was his ninth birthday.[11]'

(52) In some cases, however, the psychosis **might definitely** be due to anxieties and conflicts associated with the pregnancy.[12]

Giannakidou and Mari (2018b) propose that the modal skeleton features an obligatory metaevaluator, which can be overt (or ∅), and which, by default, has a force equal to the one of the modal.

As for MUST, the default value of the metaevaluator is weak necessity, and the resulting final interpretation for MUST leaves unchanged the initial proposal (with the addition of a new slot that enables manipulating the default weak necessity bias). The metaevaluation is non at-issue (hence the ●).

(53) $[\![∅ \text{ MUST } (\text{PRES } (p))]\!]^{\mathcal{O},\text{M},\text{i},\mathcal{S}}$ is defined only if (i) the modal base M(i) is nonveridical and (ii) M(i) is partitioned into Ideal$_{\mathcal{S}}$ and ¬Ideal$_{\mathcal{S}}$ worlds, and (iii) i has clues in the context of utterance (although not total knowledge).
      If defined,
      $[\![∅ \text{ MUST } (\text{PRES } (p))]\!]^{\mathcal{O},\text{M},\text{i},\mathcal{S}} = 1$ iff Ideal$_{\mathcal{S}}$ is a **weak necessity** with respect to ¬Ideal$_{\mathcal{S}}$ relative to M(i) and $\mathcal{O} ● \forall w' \in \text{Ideal}_{\mathcal{S}} : p(w', t_{\text{u}})$

---

[9]Source: https://www.comune.napoli.it/flex/cm/pages/ServeBLOB.php/L/IT/IDPagina/1425.

[10]Source: https://www.blackhatworld.com/seo/ogads-com-mobile-cpa-cpi-incent-network-mobile-content-locker-high-cr.704909/page-26.

[11]Source: https://books.google.fr/books?isbn=8804536829.

[12]Source: https://books.google.com/books?id=c6JPyfOBZYIC&pg=PA74&lpg=PA74&dq=%22might+definitely.
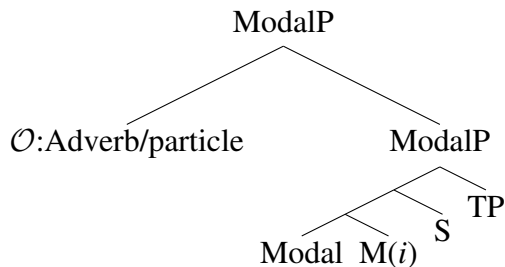
Figure 2: Modal skeleton with metaevaluation

When combined with DEFINITELY the default force is modified into a stronger one, with weak necessity becoming necessity. The resulting analysis of the combination DEFINITELY MUST p is in (54).

(54) $[\![\text{DEFINITELY MUST (PRES } (p))]\!]^{\mathcal{O},\text{M},\text{i},\mathcal{S}}$ is defined if and only see (53).
       If defined,
       $[\![\text{DEFINITELY MUST (PRES } (p))]\!]^{\mathcal{O},\text{M},\text{i},\mathcal{S}} = 1$ iff Ideal$_{\mathcal{S}}$ is a **necessity** with respect to $\neg$Ideal$_{\mathcal{S}}$ relative to M(i) and $\mathcal{O} \bullet \forall w' \in \text{Ideal}_{\mathcal{S}} : p(w', t_{\text{u}})$

4.3   Italian Future and Metaevaluation

We consider the ability of Italian future of combining with adverbs of different strengths as a manifestation of the modal spread.

(55)   a.   Sarà   sicuramente a casa.
            be.FUT.3SG certainly   at home
            'He must certainly be home.'

       b.   Sarà   forse a casa.
            be.FUT.3SG maybe at home
            'He might maybe be home.'

We assume that (56) is the default interpretation of Italian future sentences, where Italian future is treated as a weak modal with no bias, simply proposing alternatives without ranking them (Baranzini and Mari 2019). Italian future indicates true uncertainty as there is no ranking between Ideal and non Ideal worlds. (Recall that Ideal is just a partition, not a ranking and ranking comes from metaevaluation).

(56)   Default interpretation of Italian future sentences (final version)
       $[\![\emptyset \text{ FUT (PRES } (p))]\!]^{\mathcal{O},\text{M},\text{i},\mathcal{S}}$ is defined only if (i) M(i) is nonveridical and (ii) M(i) is partitioned into Ideal$_{\mathcal{S}}$ and $\neg$Ideal$_{\mathcal{S}}$ worlds, and (iii) i has potentially no clues.
       If defined,
       $[\![\emptyset \text{ FUT (PRES } (p))]\!]^{\mathcal{O},\text{M},\text{i},\mathcal{S}} = 1$ iff $\mathcal{O}$ is **empty** $\bullet \forall w' \in \text{Ideal}_{\mathcal{S}} : p(w', t_{\text{u}})$

Strengthening of the bias is overwriting the lack of ordering. When combined with PROBABLY, FUT conveys weak necessity and the default lack of bias is strengthened into a positive one.

(57) $[\![\text{PROBABLY FUT (PRES } (p))]\!]^{\mathcal{O},\text{M},\text{i},\mathcal{S}}$ is defined if and only if see (56).
If defined,
$[\![\text{PROBABLY FUT (PRES } (p))]\!]^{\mathcal{O},\text{M},\text{i},\mathcal{S}} = 1$ iff Ideal$_{\mathcal{S}}$ is a **necessity** with respect to $\neg$Ideal$_{\mathcal{S}}$ relative to M(i) and $\mathcal{O} \bullet \forall w' \in \text{Ideal}_{\mathcal{S}} : p(w',t_{\text{u}})$

Bias manipulation is not specific to modals. In a recent work Greenberg and Wolf (2018) argue that even assertivity is a scalar notion that comes with degrees of commitment. This highlights the necessity of rethinking commitment as conveyed by linguistic expressions as an elastic[13] notion and epistemic and evaluative adverbs as well as modal particles are cross-linguistically used to signal strength of the commitment, including at the sentence level.

With these ingredients in place we can now return to future in questions.

5 Future in Questions

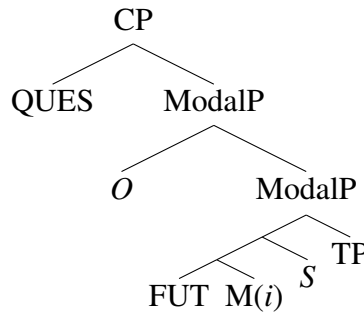The modal skeleton of questions bearing on a modal is as follows:

Figure 3: Modal skeleton for Italian future questions

The interpretation of a future question is in (58). What is at stake is whether the speaker is committed to the Ideal worlds as being *p* worlds and the question revolves around what the speaker believes, granted lack of knowledge.

(58) $[\![\text{QUES } \emptyset \text{ FUT (PRES } (p))]\!]^{\mathcal{O},\text{M},\text{i},\mathcal{S}}$ is defined if and only if see (56).
If defined,
$[\![\text{QUES } \emptyset \text{ FUT (PRES } (p))]\!]^{\mathcal{O},\text{M},\text{i},\mathcal{S}} = 1$ iff $\mathcal{O}$ is **empty** $\bullet$
$\{\forall w' \in \text{Ideal}_{\mathcal{S}} : p(w',t_{\text{u}})\}$ *or* $\{\neg\forall w' \in \text{Ideal}_{\mathcal{S}} : p(w',t_{\text{u}})\}$
Content of the question: The speaker is not settled as of whether *p* is the case or not.

Turning to the predictions of the analysis, recall that the empirical discussion had led to the conclusion that a felicitous use of the future requires that the speaker does not know the answer. A question with FUT is also blind to the state of knowledge of the addressee. A question with FUT is *introspective or reflective*.[14]

---

[13]See Liu (2019) for the first use of this term.

[14]See Giannakidou and Mari (2021b) for cross-linguistic comparison with Greek and Korean. See also Eckardt and Beltrama (2019) for a similar conclusion, although ground in an evidential account of FUT and also advancing an extended interrogative flip where knowledge of the speaker and/or of the addressee can be at stake, along the lines of Von Fintel and Gillies (2011).

Recalling the facts, we see that in both (59) and (60) the addressee knows the answer and the speaker does not. We noted that only (59) is felicitous. We can now explain this discrepancy by appealing to introspectivity: the question addresses a conjecture on the part of the speaker and requires a specific context to be felicitous. In (59) *what Susan thinks* is at stake and *her thoughts are under discussion*. Very likely, Mary will let her guess, without immediately delivering the true answer.

(59) Context: Mary and Susan are having a coffee. They do not know each other very well. Mary looks very young, but she hints at the fact that she is much older than she seems. She asks Susan to guess how old she is.
      Avrai   già   quarant'anni?
      have.FUT.2SG already forty.years
      'How old will you be?'

According to our analysis, (60) is felicitous as a self-addressed question. If using (60) the speaker intends to know how old the addressee is, and the question is truly addressed, s/he is choosing a form that is too weak, that is to say, a question that triggers an answer weaker than the information expected. The question thus violates a maxim of quantity, which would require to ask a question that triggers an answer that maximizes the information that the addressee can provide. Carlson (2012) referred to this as to the epistemic desideratum of a question, that is expected to maximize the questioner information.

(60) #Quanti   anni avrai?
       how.many years have.FUT.2SG
       'How old might you be?'

Continuing with (61), we see that here my son does not know the answer and asks me what the plausible options are. As the recipient of the question, I know the answer. However, this is a typical scenario where I am asked to consider my son's guesses rather than providing the true answer to this question. Again, as a self-addressed question, FUT is blind to the epistemic state of the addressee.

(61) Context: The gifts I bought are under the Christmas tree. *My son asks me*:
      Ci   sarà   un profumo in quel pacchetto?
      there be.FUT.3SG a   perfume in that box
      'Will there be a perfume in that box?'

In some other case, the speaker is knowledgeable and yet asks a future question to the addressee. As we have noted, these are situations whereby the speaker endorses lack of knowledge and acts as if s/he did not know. This is typical of scenarios that feature some degree of condescension, as in the examples (36) and (37) which we repeat here below, where the speaker is *pretending* to ask an introspective question in the guise of an unknowledgeable person (in this case the addressee).

(62) Context: Christmas eve. The gifts are under the Christmas tree. I bought all the gifts. *I ask my son*:
      Cosa ci   sarà   in quel pacchetto ?
      what there be.FUT.3SG in that box
      'What will be there, in that box?'

(63) Context: The host of a TV shows tries to help a contestant in trouble and says : "Fine, let's go back to the reasoning. We have said that Robespierre was the chief of terror." He then asks:
Come sarà   morto ?
how   be.FUT.3SG died
'How will he have died?'

Turning now to *mica* future questions, we recall that three biases are at play: (i) the speaker has a prior belief p (negative speaker bias) (ii) the speaker has evidence for p (positive evidence bias) (iii) the speaker expects a positive answer to the question (positive answer bias[15]).

(64) Non avrà   mica votato per Zemmour ?
NOT have.FUT.3SG MICA voted for Zemmour
'He hasn't voted for Zemmour, has he?'

We can now explain the status of these biases, through the following analysis, where *non-mica* is a metaevaluator that ranks p as low in the expectations of the speaker.

(65) $[\![$QUES **NON-MICA** FUT (PRES (p))$]\!]^{\mathcal{O},\mathrm{M},\mathrm{i},\mathcal{S}}$ is defined if and only if see (56).
If defined,
$[\![$QUES **NON-MICA** FUT (PRES (p))$]\!]^{\mathcal{O},\mathrm{M},\mathrm{i},\mathcal{S}} = 1$ iff
Ideal$_{\mathcal{S}}$ is a **slight possibility** with respect to ¬Ideal$_{\mathcal{S}}$ relative to M(i) and $\mathcal{O}\bullet$
$\{\forall w' \in \mathrm{Ideal}_{\mathcal{S}} : p(w',t_{\mathrm{u}})\}$ *or* $\{\neg\forall w' \in \mathrm{Ideal}_{\mathcal{S}} : p(w',t_{\mathrm{u}})\}$
Paraphrase: The speaker is in a state of lack of knowledge and considers p very unlikely and asks whether the unlikely possibility is the case.

Without entering in the details of high negatives with Italian future questions, we argue that the low ranking of *non-mica* results from a positive bias reversal of *mica* over *non*. It is a well-known fact that high negation in questions induces positive bias.

(66) Context: Susan is not eating anything.
(Non) avrà   già   mangiato ?
NOT   have.FUT.3SG already eaten
'Will she have already eaten?'

In non future questions with high negation, the evidence is in contradiction with the bias (see a.o., Ladd 1981, Buring and Gunlogson 2000, Sudo 2013). In future questions with a high negative, (66) the speaker has evidence for p, but also positive bias for p. That Susan has already eaten is a possibility that it is ranked as high in the mental space of the speaker, given the evidence. Theoreticians have been proposing a variety of solutions to the puzzle of why high negation highlights the positive alternative, and we will not enter here into this debate.[16] Note that here, high negation is almost expletive, as without it, the future question maintains a positive bias towards p.

---

[15]See Krifka (2015), Malamud and Stephenson (2015), AnderBois (2019), a.o.

[16]The literature on the matter, since Ladd (1981), is huge. One of the main lines of analysis stems from Romero and Han (2004), Repp (2013). In opposition to the covert operator approaches, other authors have proposed discourse based ones, e.g., Buring and Gunlogson (2000), Krifka (2015) to mention just a few. For a discussion of the existing approaches, see Giannakidou and Mari (2021b) and references therein.

(67) $[\![\text{QUES }\textbf{NON}\text{ FUT (PRES }(p))]\!]^{\mathcal{O},\text{M,i},\mathcal{S}}$ is defined if and only if see (56).
If defined,
$[\![\text{QUES }\textbf{NON}\text{ FUT (PRES }(p))]\!]^{\mathcal{O},\text{M,i},\mathcal{S}} = 1$ iff
$\text{Ideal}_{\mathcal{S}}$ is a **good possibility** with respect to $\neg\text{Ideal}_{\mathcal{S}}$ relative to M(i) and $\mathcal{O}\bullet$
$\{\forall w' \in \text{Ideal}_{\mathcal{S}} : p(w', t_{\text{u}})\}$ *or* $\{\neg\forall w' \in \text{Ideal}_{\mathcal{S}} : p(w', t_{\text{u}})\}$
Paraphrase: the speaker is in a state of lack of knowledge and considers p likely and asks whether the likely possibility is the case.

Once *mica* is interpreted, (65) states that p is considered as an unlikely possibility, thus conveying prior negative bias towards p. However, since the context provides evidence for this unlikely possibility making it salient, the speaker expects that the addressee will confirm that p is the case. The *surprise effect* arises in virtue of the mismatch between the low ranking of p triggered by *mica* and the evidence/answer bias.

The contribution of future and metaevaluation are visible when contrasting a *non-mica* future question with a *non-mica* present tense indicative question. *Non-mica* in the latter indicates contrast between the evidence bias and the speaker bias, which is the negation of the evidence bias (in (68)-(69), be on a diet is roughly not eating a lot). With the future, there is ranking of p as low, a possibility that it is offered by the structure of the modal which contemplates a slot for preferences and ranking, where *mica* is responsible for introducing low ranking of p rather than contrast.

(68) Context: Susan is eating a lot. Mary to Susan:

    a. Non sei   mica a dieta?
       NOT be.PRES.IND.2SG MICA on diet

    b. #Non sarai   mica a dieta?
       NOT be.FUT.2SG MICA on diet

(69) Context: Susan is not eating anything. Mary to Susan:

    a. #Non sei   mica a dieta?
       NOT be.PRES.IND.2SG MICA on diet

    b. Non sarai   mica a dieta?
       NOT be.FUT.2SG MICA on diet

Non-mica future questions pattern instead like exclamatives, which have been argued to feature a degree semantics (Rett 2008). The precise semantics of *mica* in exclamatives is a question that we leave for future research.

(70) a. Context: Susan is eating a lot. Mary to Susan:
     #Non sei   mica a dieta!
      NOT be.PRES.IND.2SG MICA on diet
    b. Context: Susan is not eating anything. Mary to Susan:
     Non sei   mica a dieta!
      NOT be.PRES.IND.2SG MICA on diet

We submit that the surprise effect in interrogatives triggers a clarification on the part of the addressee (see Celle et al. 2019), and thus *mica*-questions are truly *addressee-oriented*. Analytically, we submit that they trigger a secondary point of question as given in (71):

(71)   *Non-mica* future questions (final version)
⟦QUES NON-MICA FUT (PRES (p))⟧$^{O,\mathrm{M},\mathrm{i},S}$ is defined only if see (56).
If defined,
⟦QUES NON-MICA FUT (PRES (p))⟧$^{O,\mathrm{M},\mathrm{i},S}$ = 1 iff
Ideal$_S$ is **slight possibility** with respect to ¬Ideal$_S$ relative to M(i)●
Primary question:$\{\forall w' \in \text{Ideal}_S : p(w', t_\mathrm{u})\}$ *or* $\{\neg \forall w' \in \text{Ideal}_S : p(w', t_\mathrm{u})\}$
Secondary point of question: $\{p, \neg p\}$

The idea of a primary and secondary point of question is parallel to the distinction between primary and secondary point of assertion (Simons 2007): a belief statement (72) adds both the belief and its content to the common ground.

(72)   I believe that it is raining

In a similar way, a *mica* question adds both the internal state of the speaker and its content to the negotiation space.[17]

This happens with future questions, any time they are not fully introspective, as when *mai* (*never*) is used, with the question targeting a remote possibility. (73), besides questioning the speaker's internal state, is also truly addressee oriented. The addition of *mai* renders the question similar to a *mica*-question, with an interpretation along the lines of (71). In contexts where an unexpectedness is made salient, the question becomes both introspective and addressee oriented. Note, indeed that in *non*-future questions (e.g. (66)), without *mica*, the question remains introspective.

(73)   Quanti   anni   avrai   mai   ?
how.many years have.FUT.2SG never
'How old might you be?'

We hypothesize that, in the typology of questions, *mica*-questions fill the gap between requests of information and conjectural questions (see Celle et al. 2019), but offering two points of question and triggering surprise.

6   Conclusion

In this paper we have studied the contribution of Italian future in questions. We have first established a distinction between evidence source and evidence quality and argued that all evidential sources come with a variety of degrees of quality and thus reliability and informativeness. Epistemic modals have been argued to be sensitive to evidence quality and to be anti-knowledge markers. Italian future has been shown to belong to this class and has been understood as featuring two modal bases: a partitioned epistemic modal base (thus encoding uncertainty) and a secondary modal base that encodes preferences, beliefs as well as considerations

---

[17]A negotiation space can be conceived as a superset of the common ground.

of stereotypicality and normality, in line with the initial proposal of Giannakidou and Mari (2018b). In line with these authors, the analysis reveals that the future conveys epistemic uncertainty (encoded as a presupposition) and a steady belief (encoded in the assertion).

We have shown that future questions are always self-addressed and introspective or reflective. We have argued that they are blind to the knowledge state of the speaker and that they do not feature interrogative flip. We have shown that *mica* questions can be addressee oriented and convey negative speaker bias towards p (in spite of evidence that p) as well as surprise.

We have cast the analysis in a framework that manipulates ranking through metaevaluation. Future questions target the inner domain of quantification of FUT, that is to say the secondary modal base Ideal, where the belief of the speaker is encoded. They are thus *reflective in the sense that they question the belief*.

Mica is treated as a metaevaluator that ranks p as very unlikely, but as supported by contextual evidence. It enhances a surprise effect that in turn acts as a call on the addressee[18] to provide a confirmation. We have implemented this idea by distinguishing a primary and secondary point of question in a way akin to what has been proposed for assertion with belief statements adding both the belief and its content to the common ground. A secondary point of question adds p to the negotiation space thus rendering *mica* questions truly addressee oriented in virtue of surprise.

References

Aikhenvald, Aleksandra. 2004. *Evidentiality*. Cambridge, MA: Oxford University Press.

AnderBois, Scott. 2019. *Negation, alternatives, and negative polar questions in american english*, 118 – 171. Leiden, The Netherlands: Brill.

Baranzini, Laura, and Alda Mari. 2019. From epistemic modality to concessivity: Alternatives and pragmatic reasoning per absurdum. *Journal of Pragmatics* 142:116–138. URL `https://www.sciencedirect.com/science/article/pii/S0378216617305088`.

Bertinetto, Pier Marco. 1979. Alcune ipotesi sul nostro futuro (con osservazioni su potere e dovere). *Rivista di Grammatica Generativa* 77–138.

Beyssade, Claire, and Jean-Marie Marandin. 2006. The speech act assignment problem revisited: Disentangling speaker's commitment from speaker's call on addressee. *Empirical issues in syntax and semantics* 6.

Bhadra, Diti. 2020. The Semantics of Evidentials in Questions. *Journal of Semantics* 37:367–423. URL `https://doi.org/10.1093/jos/ffaa003`.

Buring, Daniel, and Christine Gunlogson. 2000. Aren't positive and negative polar questions the same? *Ms.* .

Carlson, Lauri. 2012. *Dialogue games: An approach to discourse analysis*, Vol. 17. Springer Science & Business Media.

Celle, Agnès, Anne Jugnet, Laure Lansari, and Tyler Peterson. 2019. Interrogatives in surprise contexts in english. *Surprise at the Intersection of Phenomenology and Linguistics* 117–137.

Condoravdi, Cleo. 2002. Temporal interpretation of modals - modals for the present and for the past. In *The Construction of Meaning*, 59–88.

Copley, Bridget. 2009. *The semantics of the future*. Routledge.

---

[18]See Beyssade and Marandin (2006) .

De Saussure, Louis, and Patrick Morency. 2012. A cognitive-pragmatic view of the french epistemic future. *Journal of French Language Studies* 22:207–223.

Dendale, Patrick. 2001. Le futur conjectural versus devoir'épistémique: différences de valeur et de restrictions d'emploi. *Français moderne* 69:1–20.

Eckardt, Regine, and Andrea Beltrama. 2019. Evidentials and questions. *Empirical issues in syntax and semantics* 12:121–155.

Enç, Mürvet. 1987. Anchoring conditions for tense. *Linguistic Inquiry* 18:633–657. URL `http://www.jstor.org/stable/4178564`.

Escandell-Vidal, Victoria. 2021. The semantics of the simple future in romance: Core meaning and parametric variation. In *Aspects of tenses, modality, and evidentiality*, 9–31. Brill.

Faller, Martina T. 2002. Semantics and pragmatics of evidentials in cuzco quechua. Doctoral Dissertation, Stanford University.

Frana, Ilaria, and Paula Menéndez-Benito. 2019. Evidence and bias: the case of the evidential future in italian. In *Semantics and Linguistic Theory*, Vol. 29, 727–747.

Frana, Ilaria, and Kyle Rawlins. 2019. Attitudes in discourse: Italian polar questions and the particle mica. *Semantics and Pragmatics* 12:16.

Giannakidou, Anastasia, and Alda Mari. 2013a. The future of greek and italian: An epistemic analysis. In *Proceedings of Sinn und Bedeutung*, ed. Emmanuel Chemla, Vincent Homer, and Grégoire Winterstein, Vol. 17, 255–270.

Giannakidou, Anastasia, and Alda Mari. 2013b. A two dimensional analysis of the future: modal adverbs and speaker's bias. *Proceedings of the 19th Amsterdam Colloquium, AC 2013* 115–122.

Giannakidou, Anastasia, and Alda Mari. 2015. Epistemic future and epistemic must: Nonveridicality, evidence, and partial knowledge. *Mood, aspect, modality revisited* 75–118.

Giannakidou, Anastasia, and Alda Mari. 2018a. The semantic roots of positive polarity: epistemic modal verbs and adverbs in english, greek and italian. *Linguistics and Philosophy* 41:623–664. URL `https://doi.org/10.1007/s10988-018-9235-1`.

Giannakidou, Anastasia, and Alda Mari. 2018b. A unified analysis of the future as epistemic modality: the view from greek and italian. *Natural Language & Linguistic Theory* 36:85–129.

Giannakidou, Anastasia, and Alda Mari. 2021a. A linguistic framework for knowledge, belief, and veridicality judgment. *KNOW: A Journal on the Formation of Knowledge* 5:255–293.

Giannakidou, Anastasia, and Alda Mari. 2021b. Modalization and bias in questions. *University of Chicago and Insitut Jean Nicod* .

Giannakidou, Anastasia, and Alda Mari. 2021c. *Truth and veridicality in grammar and thought: Mood, modality, and propositional attitudes*. University of Chicago Press. URL `https://www.universitypressscholarship.com/10.7208/chicago/9780226763484.001.0001/ups`

Goodhue, Daniel. 2017. Must φ is felicitous only if φ is not known. *Semantics and Pragmatics* 10:14.

Greenberg, Yael, and Lavi Wolf. 2018. Gradable assertion speech acts. In *NELS 48: Proceedings of the Forty-Eighth Annual Meeting of the North East Linguistic Society*, Vol. 1, 271–280.

Huddleston, Rodnry, and Geqffrry Pullum. 2005. The cambridge grammar of the english language. *Zeitschrift für Anglistik und Amerikanistik* 53:193–194.

Huitink, Janneke. 2012. Modal Concord: A Case Study of Dutch. *Journal of Semantics* 29:403–437. URL `https://doi.org/10.1093/jos/ffr012`.

Ippolito, Michela, and Donka F Farkas. 2019. Epistemic stance without epistemic modals: the case of the presumptive future. In *Semantics and Linguistic Theory*, Vol. 29, 459–476.

Karttunen, Lauri. 1972. *Possible and must*, 1 – 20. Leiden, The Netherlands: Brill. URL `https://brill.com/view/book/edcoll/9789004372986/BP000002.xml`.

Kissine, Mikhail. 2008. From predictions to promises: How to derive deontic commitment. *Pragmatics & cognition* 16:471–491.

Korotkova, Natalia. 2016. Heterogeneity and uniformity in the evidential domain. Doctoral Dissertation, UNIVERSITY OF CALIFORNIA Los Angeles.

Krifka, Manfred. 2015. Bias in commitment space semantics: Declarative questions, negated quetions, and question tags. In *Semantics and linguistic theory*, Vol. 25, 328–345.

Ladd, D Robert. 1981. A first look at the semantics and pragmatics of negative questions and tag questions. In *Papers from the... Regional Meeting. Chicago Ling. Soc. Chicago, Ill*, 17, 164–171.

Lasersohn, Peter. 2005. Context dependence, disagreement, and predicates of personal taste*. *Linguistics and Philosophy* 28:643–686. URL `https://doi.org/10.1007/s10988-005-0596-x`.

Littell, Patrick, Lisa Matthewson, and Tyler Peterson. 2010. On the semantics of conjectural questions. *Evidence from evidentials* 28:89–104.

Liu, Mingya. 2019. The elastic nonveridicality property of indicative conditionals. *Linguistics Vanguard* 5:20190007. URL `https://doi.org/10.1515/lingvan-2019-0007`.

Lyons, John. 1977. *Semantics*, Vol. 2. Cambridge University Press.

MacFarlane, John. 2003. Future contingents and relative truth. *The Philosophical Quarterly* 53:321–336. URL `https://onlinelibrary.wiley.com/doi/abs/10.1111/1467-9213.00315`.

Malamud, Sophia A., and Tamina Stephenson. 2015. Three Ways to Avoid Commitments: Declarative Force Modifiers in the Conversational Scoreboard. *Journal of Semantics* 32:275–311. URL `https://doi.org/10.1093/jos/ffu002`.

Mari, Alda. 2009a. Future judges and normalcy conditions. Master's thesis, Institut Jean Nicod. Available at : https://jeannicod.ccsd.cnrs.fr/ijn$_0$0354462/document.

Mari, Alda. 2009b. Disambiguating the italian future. In *Proceedings of Generative Lexicon*, 209–216.

Mari, Alda. 2010. On the evidential nature of the italian future. Master's thesis, Institut Jean Nicod. Available at https://jeannicod.ccsd.cnrs.fr/ijn00678549/document.

Mari, Alda. 2016. Assertability conditions of epistemic (and fictional) attitudes and mood variation. *Semantics and Linguistic Theory* 26:61. URL `https://doi.org/10.3765/salt.v26i0.3782`.

Mari, Alda, and Paul Portner. 2021. Mood variation with belief predicates: Modal comparison and the raisability of questions. *Glossa: a journal of general linguistics* 40. URL `https://doi.org/10.16995/glossa.5726`.

Matthewson, Lisa. 2010. Cross-linguistic variation in modality systems: the role of mood. *Semantics and Pragmatics* 3:1–74.

Matthewson, Lisa, Henry Davis, and Hotze Rullmann. 2007. Evidentials as epistemic modals: Evidence from st'át'imcets. *Linguistic Variation Yearbook* 7:201–254. URL `https://www.jbe-platform.com/content/journals/10.1075/livy.7.07mat`.

Murray, Sarah E. 2016. Evidentiality and illocutionary mood in cheyenne. *International Journal of American Linguistics* 82:487–517. URL `https://doi.org/10.1086/688604`.

Papafragou, Anna. 2006. Epistemic modality and truth conditions. *Lingua* 116:1688–1702. URL `https://www.sciencedirect.com/science/article/pii/S0024384106000805`,

language in Mind: A Tribute to Neil Smith on the Occasion of his Retirement.

Pietrandrea, Paola. 2005. *Epistemic modality*. John Benjamins Publishing Company.

Portner, P. 2009. *Modality*. Modality. OUP Oxford. URL https://books.google.co.il/books?id=VPgTDAAAQBAJ.

Prior, A. N. 1962. Tense-logic and the continuity of time. *Studia Logica* 13:133–148. URL https://doi.org/10.1007/BF02317267.

Repp, Sophie. 2013. Common ground management: Modal particles, illocutionary negation and verum. In *Beyond expressives: Explorations in use-conditional meaning*, 231–274. Brill.

Rett, Jessica. 2008. A degree account of exclamatives. In *Semantics and Linguistic Theory*, Vol. 18, 601–618.

Romero, Maribel, and Chung-hye Han. 2004. On negative yes/no questions. *Linguistics and philosophy* 27:609–658.

San Roque, Lila, Simeon Floyd, and Elisabeth Norcliffe. 2017. Evidentiality and interrogativity. *Lingua* 186-187:120–143. URL https://www.sciencedirect.com/science/article/pii/S0024384114002630, essays on evidentiality.

Simons, Mandy. 2007. Observations on embedding verbs, evidentiality, and presupposition. *Lingua* 117:1034–1056.

Speas, Peggy, and Carol Tenny. 2003. Configurational properties of point of view roles. *Asymmetry in grammar* 315–344.

Stephenson, Tamina. 2007. Judge dependence, epistemic modals, and predicates of personal taste. *Linguistics and philosophy* 30:487–525.

Sudo, Yasutada. 2013. Biased polar questions in english and japanese. In *Beyond expressives: Explorations in use-conditional meaning*, 275–295. Brill.

Von Fintel, Kai, and Anthony S Gillies. 2010. Must... stay... strong! *Natural language semantics* 18:351–383.

Von Fintel, Kai, and Anthony S Gillies. 2011. Might made right. *Epistemic modality* 108–130.

Willer, Malte. 2013. Dynamics of epistemic modality. *Philosophical Review* 122:45–92.

Willett, Thomas. 1988. A cross-linguistic survey of the grammaticization of evidentiality. *Studies in Language. International Journal sponsored by the Foundation "Foundations of Language"* 12:51–97.