

Three strategies for *Socratic inquisitiveness* in reflective questions

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Abstract

We identify a new phenomenon of reflective questions as expressing *aporia*: a state of Socratic inquisitiveness that presumes that there is no authoritative answer a question. By formulating an aporetic question, the speaker has an awareness that inquisitiveness will persist and that may be no epistemic authority that can give a complete and a definitive answer; for this reason reflective questions are typically self-addressed and appear monological in nature. We discuss a variety of linguistic manifestations of reflection in Greek, Italian, English and Korean, and identify three grammatical strategies: questioning possibilities, restricting or enlarging the set of initial options considered by the speaker while keeping intact the state of uncertainty. In our approach, reflection is a notional category that blurs the boundary between assertions and questions—whereby questions lose their information seeking discourse function to rather convey modal meaning of enhanced, i.e., Socratic inquisitiveness.

Keywords: questions, reflection, *aporia*, speech acts, modality, scope, epistemic widening, meta-evaluation

1 Introduction

In this paper, we study a type of question that differs from familiar information seeking questions, and which we call *reflective* (Giannakidou and Mari, 2021b). The reflective question is produced typically with some form of modalization, i.e. by adding a modal particle or verb to the interrogative sentence. We give below basic examples with a possibility modal in English, the future in Italian, and the subjunctive plus other modal particles in Greek and German (from Eckardt (2020)):¹

¹Abbreviations: GEN: genitive; PAST: past; PL: plural; PRT: particle; SG: singular; SUBJ: subjunctive. We rely on data that we produce as native speakers, and cite our own work when specific examples have already been discussed elsewhere.

- (1) Ti na kanei (araje) i Ariadne tora teleftea?
 what SUBJ do.3SG PRT the Ariadne now lately
 What might Ariadne be doing nowadays?
- (2) Dove saranno i miei occhiali?
 where be.FUT.3PL the my glasses
 Where might my glasses be?
- (3) Pu na evala (araje) ta gialia mou?
 where SUBJ put.PAST.1SG PRT the glasses mine
 Where might I have put my glasses?
- (4) Wo wohl der Schlüssel ist?
 where PRT the key is?
 Where might the key be, I wonder.

This type of question appears at first glance to be monologic in character, as it does not need an addressee. It can be addressed to oneself: for instance, an absent-minded speaker is looking around as she can't find her glasses, or she hasn't seen Ariadne in some time and is wondering what might have happened to her. The question seems also unanswerable at the time of asking:

- (5) Na perase araje to test odijisis i Ariadne?
 SUBJ passed.3SG PRT the test driving the Ariadne
 Could Ariadne have passed the driving test, I wonder.

Given that Ariadne is not here to give us an answer and the reflective question doesn't have an obvious addressee, and formulating it in this manner reveals less of a desire, on the part of the speaker, to have an actual answer and more a desire to engage in reflection about whether Ariadne passed the test, or what Ariadne is up to.

Lyons, in the passage below, describes a difference between asking a question and what he calls merely 'posing' a question (Lyons (1977); von Fintel and Iatridou (2019)):

“a distinction between asking a question of someone and simply posing the question (without necessarily addressing it to anyone). When we pose a question, we *merely give expression to, or externalize, our doubt* [emphasis ours]; and we can pose questions which we do not merely expect to remain unanswered, but which we know, or believe, to be unanswerable. To ask a question of someone is both to pose the question and, in doing so, to give some indication to one's addressee that he is expected to respond by answering the question that is posed”
 (quoted from Gärtner and Gyuris (2012)).

We will interpret the above text as saying that merely posing a question is akin to taking a stance of *aporia*, a wonderment or reflection, in the Socratic sense that we find typically in the Platonic dialogues where a question is posed— e.g. what might the nature of knowledge be?— in order to reflect on a concept knowing that at best we can produce tentative or partial answers, or perhaps no answers at all, as some dialogues indeed end in *aporia*. Importantly, foundational philosophical questions manifest themselves as reflections very naturally, with the subjunctive and particles:

- (6) Pja na ine araje/taxa i fysi tis dikaiosynis?
 what SUBJ be.3SG PRT/PRT the nature the.GEN justice.GEN
 What might the nature of justice be?

Asking this question opens a theme for introspection which might end up without a complete or factual answer, and removing the particles deprives the question from its aporetic character:

- (7) Pja ine i fysi tis dikaiosynis?
 what be.3SG the nature the.GEN justice.GEN
 What is the nature of justice?

The question now leads to the expectation of a concrete true answer; it is no longer a reflection. A reflection appears formally as a question, but it is in fact an indication of an open-ended state of enhanced inquisitiveness where the speaker entertains assumptions and negotiates possibilities. We call this Socratic inquisitiveness.

The aporetic effect of reflection is distinct from rhetorical, in the case below positive bias:

- (8) Didn't Ariadne pass the driving test?

Negation is known in the literature to create positive bias (see a.o. Ladd (1981); Buring and Gunlogson (2000); Romero and Han (2004); AnderBois (2011); Northrup (2014); Krifka (2015); Malamud and Stephenson (2015); Goodhue (2019); Larrivée and Mari (2022)). A biased question differs from the information seeking question in that the speaker is less inquisitive, i.e., she prior assumptions which tilt the non-veridical equilibrium of neutral information seeking towards favoring *Ariadne passed the test* as a more likely answer than its negation (Giannakidou (2013), Giannakidou and Mari (2018b, 2021c)). While reflection is also a rhetorical strategy, in contrast to the biased question, in the reflective question the speaker is more inquisitive and lacks prior assumptions or preferences that render a specific answer more likely— and is willing to entertain a broader set of answers. In Giannakidou and Mari (2021b, 2024) we envisioned the rhetorical effect of reflection as the pragmatic dual of bias.

The reflective question is well documented for a number of languages including English, Greek, Salish, German, Romanian, Japanese and Korean, and has been labeled ‘conjectural’ (see a.o. Littell et al. (2010); Giannakidou (2016); Matthewson (2010); Eckardt (2020); Frana and Menéndez-Benito (2019); Mari (2021)), ‘monologic’ ((Kang and Yoon, 2018, 2019)), and ‘unasked’ (von Fintel and Iatridou, 2019).² The term ‘unasked’, in particular, suggests that this type of question is so non-canonical that it doesn't even constitute an act of asking. We chose the word ‘reflective’ to indicate the introspective character of the question, and to suggest that what the speaker is doing with this question is to convey Socratic (i.e., enhanced) inquisitiveness, i.e., genuine aporia.

We will ask below the following questions:

1. What is the nature of the elements that produce Socratic inquisitiveness?

²Farkas (2022) talk about ‘non-intrusive’ questions; see also Falaus and Laca (2014) for the initial insight.

2. What is the syntactic structure of reflective sentences?
3. The difference between Greek (using possibility modal particles) and Italian (which uses FUT), does it reflect a difference in strategy?

We will argue that reflective questions illustrate very clearly the presence of a modal element in the question, and indeed the presence of a non-biased modal (possibility or FUT). There are three strategies for reflection. The first strategy, observed as a general pattern, involves asking about the possibility of p and has a speculative effect and has a speculative effect; in the second strategy observed in Italian, the modal scopes over the question operator QUES, thereby narrowing down the question to a subset of the epistemic state; finally in Greek and Korean, there is a third strategy of enhancing the modal base by a meta-evaluation function that creates epistemic widening and disbelief with one’s own assumptions. This third strategy produces the most monologue-like effect. In all cases, the result is increased inquisitiveness, but there are subtle differences in the aporetic states expressed which we hope to elucidate in the discussion.

Reflective questions are to be distinguished from deliberative questions (e.g. Krifka (2021)), (9).

(9) What should I do ?

In the words of (Krifka, 2021, 89), this is also a “question that does not put the addressee under an obligation to answer but just raises the issue as being of interest.” Deliberative questions are the counterpart of reflective questions in the deontic domain: they question possible course of action and not possible states of affairs and thereby often feature deontic modals and most notably *should* and SHOULD.³ The modals and the particles involved in the questions under scrutiny here are epistemic in nature and our focus is on the epistemic domain. The strategies that we identify rely on a subjective evaluation of the answerability of the question and enhanced epistemic uncertainty.

We proceed as follows. In section 2, we offer a more detailed discussion of the Greek and Italian data, along with data from Korean that suggest reflection as a monologic introspective strategy. In section 3, we discuss the three strategies and then we conclude.

2 Empirical patterns of reflection

The reflective question contains an epistemic modal adverb, particle or verb. For a long time, it was thought that epistemic modals do not occur in questions (Coates, 1983; Drubig, 2001; Jackendoff, 1972; Leech, 1971; McDowell, 1987). Jackendoff, specifically, claimed that while *may* can either be interpreted deontically or epistemically in a declarative sentence (*John may leave early tonight*), it can only be interpreted deontically in a question (*May John leave early tonight?*). Ernst (2009), on the other hand, presented examples with modal adverbs in questions (*Is she possibly the murderer?*), and Hacquard and Wellwood (2012) offer corpus data with possibility modals in questions. Here are some examples:

³We use capital letters to indicate a class of expressions cross-linguistically and italics to indicate specific entries in a given language.

- (10) a. With the owners and the players on opposite sides philosophically and economically, what might they talk about at the next bargaining session?
 b. Might he be blackballed by all institutions of higher learning?

These questions with *might* illustrate the strategy of reflecting on the possibility of *p*: Giannakidou (2016) proposed an initial analysis of reflection as being a question modalized with possibility. This appears to be, in any case, the strategy of English, but is observed also in Greek and Italian when a possibility verb or adverb is used:

- (11) Bori i Ariadne na kerdise ton agona?
 may the Ariadne SUBJ won.3SG the race
 Is it possible that Ariadne won the race?
- (12) È possibile che Flavio abbia vinto la regata?
 is possible that Flavio have.SUBJ.3SG won the regatta?
 Is it possible that Flavio has won the regatta?

This question indeed asks about the possibility of winning the race. The question could be addressed to someone, but because they are asking about the possibility of *p*, their character is speculative, and there is no expectation of a factual answer.

Let us turn now to Greek where a wealth of particles are used.

2.1 Greek aporetic particles in questions

In Greek, as noted in Giannakidou (2009, 2016) already, we find possibility modal particles, adverbs, and of course also possibility verbs in questions as we just saw. Some of the particles are speaker oriented expressing some form of doubt or wonderment, and we can call them *aporetic*. We give below examples with the so-called *evaluative subjunctive* (Giannakidou, 2016), the possibility adverb *mipos* ‘maybe’, and the particles *taha*, *araje* that we discussed in our earlier work (Giannakidou and Mari, 2021b). We see that they all are best translated with *might*, *maybe*, *perhaps* in English.

Consider first the unmodalized question:

- (13) Kimate i Ariadne?
 sleep.3SG the Ariadne
 Is Ariadne sleeping?

The unmodalized polar question is a genuine request for information where the speaker starts from a position of ignorance and asks addressee whether Ariadne is sleeping or not. The speaker presumes that the addressee has epistemic authority on the matter, i.e. they can give a true answer to it.

This bare question can be augmented with subjunctive or modal particles. The occurrence of the subjunctive in questions originally observed in Rouchota (1994), who called it ‘dubitative’. Descriptively, we find either the subjunctive on its own or accompanied by particles such as *araje*, *taha* and the modal adverb *mipos* ‘possibly’.

- (14) Na kimate (araje) i Ariadne?
 SUBJ sleep.3SG (PRT) the Ariadne

Might Ariadne be sleeping?
Is Ariadne perhaps sleeping?

- (15) Mipos kimate i Ariadne?
maybe sleep.3SG the Ariadne
Maybe Ariadne is sleeping?
- (16) (Na) Kimate taha i Ariadne?
SUBJ sleep.3SG PRT the Ariadne
Maybe Ariadne is sleeping, I wonder?

Taha means literally ‘as if, allegedly’ and can be added in a declarative sentence to cast doubt on the truth of the proposition it attaches to (see Ifantidou, 2001) :

- (17) Kani taha oti niazete.
do.3SG PRT that care.3SG
He acts as if he cares (but he does not, or I have increased doubt that he does).

The addition of *taha* in a declarative clause expresses increased doubt or falsifies the pre-jacent. The Greek negative particle *mi(n)* is also used in reflective questions (Chatzopoulou, 2018).

In contrast to the information seeking questions, the subjunctive and particle question can be self-addressed, and it seems to lack the urgency to receive an answer:

- (18) Pu na evala (araje) ta gialia mou? Pjos kseri!
where SUBJ put.1SG PRT the glasses mine. who knows
Where might have I put my glasses? Who knows.

This is a question that one poses to herself, as the addition of ‘who knows’ indicates. Yet, the question can indeed be answered by a third party (while it may not be directed to them):

- (19) Ston pago tis kouzinas.
in-the counter the.GEN kitchen
On the kitchen counter.

My daughter, who hears me talking to myself, can indeed volunteer this answer. von Fintel and Iatridou (2019) present additional examples of reflective questions that can be answered, as they illustrate in the following dialogue.

- (20) A: Ti na kani i Miranda tora araje?
A: what SUBJ does the Miranda now PRT
A: What might Miranda be doing now, I wonder.
- (21) B: Spudhazei iatriki.
B: study.3SG medicine
B: She’s studying medicine.

In this case, a third party is free to assume epistemic authority and gives an answer as an uptake move—which is consistent with reflection but not a part of the initial intent of the speaker who self-addressed this question from the position of lacking epistemic authority.

2.2 Anti-addressee effect: further evidence for self-directedness

Crucially, directly addressing the hearer in the second person is odd in the reflective mode:

- (22) #Ti na efages araje xthes?
what SUBJ ate.2SG PRT xthes
What might you have eaten yesterday?
- (23) Ti efages xthes?
what ate.2SG xthes
What did you eat yesterday?

We will dub this, following Giannakidou and Mari (2021b), the ‘anti-addressee’ effect. It arises as a conflict between the speaker presuming no epistemic authority by choosing to use a particle, on the one hand, and the addressee being an epistemic authority on matters that concern her own actions like what he ate yesterday, on the other. If the speaker asks aporetically, she would have to both assume epistemic authority of the addressee *and* enhanced inquisitiveness which presumes no authority. Overall, of course, one must take the impossibility of asking a second person question to be further evidence for the self-addressed nature of these questions.

In the same vein, reflective questions cannot be asked by teachers to students in tests:

- (24) #Pjos na egrapse (araje/taxa) tis Syntaktikes Domes?
who SUBJ wrote (PRT/PRT) the Syntactic Structures
Who, do you reckon, wrote Syntactic Structures?

The test context is anti-aporetic: it is the typical context where it can be presumed that a specific and correct answer can be given. Likewise, asking an aporetic question at the beginning of a class in order to raise a topic for discussion seems to be odd when the question has a specific knowable answer:

- (25) Come può nascere l’eclissi ?
How might an eclipse arise ?

Unlike the philosophical questions that we mentioned at the beginning (*What might be the nature of justice?*) which are truly open-ended and perfect in the aporetic mode, test questions have concrete given answers and it is odd to phrase them in the aporetic mode. The only way such questions can become acceptable is as a game strategy: the teacher knows that there is the absence of knowledge on the part of the students, and invites the students to think together so that they can discover the known answer.⁴ In this case, the question is an invitation for introspection.

Relatedly, if the addressee is in a state of uncertainty the aporetic question can be addressed. Assume a scenario where I am a character and I do not know how old I might be

⁴We thank an anonymous reviewer for this note. See Eckardt and Disselkamp (2019) for discussion of a related example in Korean. Note that it is not theme raising that is the problem here but the fact that we are dealing with a scientific question that has a well known answer— though the students are not expected to know it at the time of asking, unlike in the text question, hence the oddity can be removed.

in the play.⁵ My friend asks me:

- (26) How old might you be?
(27) Quanti anni puoi avere?
how-many year can.2SG have
How old might you be ?

In the question, *might* is anchored to the addressee (this anchoring to different individuals is known as the ‘denotation cloud’ (see von Stechow and Gillies (2011), and discussion in Eckardt and Beltrama (2019))); and in this case the addressee has to be in a state of lack of knowledge as required by the modal.

The anti-addressee effect is pragmatic in nature and emerges as a clash between the instruction of the question that assigns epistemic authority to the addressee and the aporetic form that denies the ability to provide a definitive answer.⁶

2.3 Confrontation with conflicting evidence

Kang and Yoon (2019, 2020) argue that Korean *nka* questions are feigned monologues. Korean employs the disjunctive particle *nka* with the Q-marker *ni*. Kang and Yoon (2019, 2020) offer the following context. Mary, a reporter, is waiting for John and Bill who were competing with each other in the finals of the chess competition. Mary has credible information that Bill is the strong front-runner of the competition, but after the match John and Bill came out of the room— John with a subtle smile and Bill with a poker face. Given their facial expressions, Mary is confronted with the possibility that John, contrary to her expectations, might be the winner. Conflicted, and facing evidence that was unlikely given her initial assumptions, Mary says:

- (28) Con-i wusungca-i-nka? (Korean)
John-NOM winner-be-PRT
Maybe John is the winner, maybe not? [translation in the original]

In exactly the same context, the Greek reflective question can be posed and indeed Italian, French and English questions with possibility modals. Consider the context of a job competition:

- (29) Na edosan araje ston Jani ti thesi? [Greek]
SUBJ gave.3PL PRT to the John the position
Could they have possibly given the position to John?
(30) Possono aver dato il posto a Giovanni?
can.3SG have given the position to John?
Could they have possibly given the position to John?

In all these cases, the speaker is asking a question to herself, coupled with disbelief as she is confronted with evidence that contradicts her initial assumptions.

⁵see Mari (2021, 2024)

⁶For further discussion see 3.2.1.

2.4 Italian patterns with FUT

Mari (2021) shows that questions with epistemic modals in Italian (31) — which include Italian future questions (32) — are by default self addressed (see also Eckardt and Beltrama, 2019; Ippolito and Farkas, 2022, *pace*).

(31) Dove possono essere i miei occhiali?
 where might.PRES.3PL be the my glasses
 Where might my glasses be?

(32) Dove saranno i miei occhiali?
 where be.FUT.3PL the my glasses
 Where might my glasses be?⁷

FUT questions are akin to questions with *forse* ‘maybe’ in Italian:

(33) a. È a casa?
 Is at home?
 Is he at home?
 b. È forse a casa?
 Is maybe at home?
 Is he maybe at home?

Previous literature has argued that FUT is an inferential evidential and that the infelicitous future question (34) would be equivalent to (35) which is also odd: the addressee has direct evidence to answer this question and the evidential is not of the right kind.⁸

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

(35) How old are you according to your evidential inference ?

While most of the existing theories are based on the idea that the Italian future features an evidential component, authors diverge as to whether evidentiality of the future is at issue (Mari, 2010; Squartini, 2010; Frana and Menéndez-Benito, 2019; Eckardt and Beltrama, 2019) or non-at-issue (Mari, 2009; Giannakidou and Mari, 2016, 2018b).

If evidentiality is *not* at issue,⁹ (35) cannot be advocated and a different explanation must be provided. Eckardt (2020) proposes an analysis for *wohl*-conjectural questions that triggers the conjectural flavor via ‘pooled evidence’. Recall (4), repeated here:

(36) Wo wohl der Schlüssel ist?
 where PRT the key is?

⁷Greek FUT cannot be used in reflective questions: *#Tha ine spiti tora?* ‘Might he be at home now?’ is quite odd. We assume that Greek FUT is more similar to a biased necessity modal, and, as such, it cannot appear in reflective questions.

⁸See, among many others, Littell et al. (2010); Murray (2010, 2016); Korotkova (2016); San Roque et al. (2017); Bhadra (2017)

⁹See extensive discussion in Mari (2021, 2024).

Where might the key be, I wonder.

The idea is that *wohl* has an evidential presupposition and ‘*wohl p*’ entails that *p* is true according to the knowledge of the speaker and stereotypicality conditions. In questions, according to Eckardt (2020), the knowledge of the speaker and the hearer is pulled together to answer the question leading to a joint speculation.

In this respect, German *wohl* is similar to MUST, a universal and biased modal. (Kratzer, 1991; Portner, 2009; Giannakidou and Mari, 2016). Epistemic MUST, however, cannot appear in conjectural questions as it is a biased modal (Giannakidou and Mari, 2016):

- (37) #Dove devono essere le chiavi ?
Where must.3SG be the keys?
#Where must the keys be ? (#epistemic)

The Italian future, however, is a universal epistemic modal without bias (Bertinetto, 1979; Pietrandrea, 2005; Mari, 2021; Giannakidou and Mari, 2023), and this renders it useable in reflections. We must then add that the use of German *wohl* in questions suggests that it is not actually akin to MUST but to futuro, i.e., it has no inherent bias.¹⁰ Ippolito and Farkas (2022) make a similar observation that in Italian a future question is not felicitous in the second person when the addressee knows the answer, and resorts to the ‘interrogative flip’ whereby the addressee is given authority to answer. The flip is triggered according to them by an evidential component of the Italian future; however, such an evidential layer is not present in the semantics of the expressions under scrutiny here (including the particles), and it is doubtful that it is even present in the semantics of the future— which, as noted in our earlier work, is compatible with mere speculation or guessing (Giannakidou and Mari, 2021c). The pragmatic account we propose here has much larger scope.

- (38) #Quanti anni puoi avere?
how-many year might.2SG have
How old might you be ?

Like in Greek, ‘Who knows’ further evidences the open-endedness of these questions:

- (39) Sarà a casa? Chi lo sa!
be.FUT.3SG at home? Who that knows!
Might he be home? Who knows!

Finally, in Italian and cross-linguistically, the reflection can be enhanced by temporal particles like *mai* (‘never’), as well as expressions of remote possibility such as *cavolo* (lit. *cauliflower*) (similar to *the hell* in English or *fichtre* in French):

- (40) Dove saranno mai i ragazzi?
where be.FUT.3SG never the boys?
Where might the boys ever be?

¹⁰On the future as universal unbiased modal, see extended discussion in Mari (2021); Giannakidou and Mari (2023)

- (41) Dove cavolo sono ragazzi?
 where cauliflower be.PRES.3PL the boys?
 Where the hell are the boys?

We can thus see that we are dealing here with aporetic questions, just like in Greek and Korean. The use of *the hell* expressions adds the negative attitude of disbelief (Den Dikken and Giannakidou, 2002).

3 Reflection as *aporia*: three strategies

By now it is clear that a reflective question does not have the discourse function of the information question which is to request an answer from an epistemically authoritative addressee. The categorical barrier between an assertion and a question in this case seems to be relaxed (and it worth noting here that the speech act analysis of exclamatives has also been challenged (Trotzke and Giannakidou, 2024)). Going back to the distinction between asking and posing a question, the central issue is: what does it mean to merely pose a question?

We will argue that reflection is an attitude of expressing *aporia*, which is enhanced inquisitiveness in the Socratic sense (see also Mascarenhas (2008); Ciardelli et al. (2015, 2018) for more discussion). Reflection is, in other words, posing a question while knowing that inquisitiveness will persist, and this in turn entails that upon entering aporetic mode, the requirement of epistemic authority on the part of the addressee is suspended. The speaker, in fact, chooses to enter reflective/aporetic mode because there is no addressee other than herself— or, if there is one, she does not think that the addressee is an authority in giving a correct answer. If this is the case, then it follows that in choosing the aporetic mode the speaker primarily enters a “conversation” with herself namely an introspection: the speaker becomes the addressee. This doesn’t mean, as we noted earlier, that a third party cannot pick up a response to the issue raised with a specific answer; but it does mean that when the aporetic mode is chosen the question is not directed to an external addressee understood as an authority in answering it. *Aporia* or reflection is therefore a notional category that blurs the boundary between assertions and questions, whereby questions do not perform acts of seeking information but rather of introspecting.

To distinguish between assertion and question, (Rudin, 2022, 345) proposes the following test. An assertion allows the addressee to raise another related issue without reacting directly to the issue raised. Thus, after a statement *It is raining*, one can continue with *Do you usually stay at home?*— which is not possible, crucially, after the utterance of a biased rising declarative *It is raining?*. This suggests, according to Rudin (2022), that rising declaratives are questions and not assertions. We think that this test applies to reflective questions and shows that they lose their interrogative force:¹¹

- (42) A: What might the nature of justice be?
 B: Who knows? / Do you think that someone knows it? / Might it have to do with proportional distribution of goods?

According to Rudin’s test, then, reflective utterances are not even questions, and we will

¹¹We thank one reviewer of the paper for suggesting this test and for offering important discussion.

take this to mean that there is no question speech act operator in the structure; for if there had been one, the question operator would have to be ambiguous (one for information seeking, one for reflection), or of ‘relaxed’ illocutionary force. Relaxing the illocutionary force, however, as we argued elsewhere (Giannakidou and Mari, 2021b), without being able to predict when and why this happens, cannot be stated meaningfully if we assume that a question operator is present in the question. We will propose here that a special speech act operator is not necessary for reflective sentences, as they are not acts in the communicative sense. Reflection is akin to expressing a topic for introspection. The difference between them and information seeking is at the perlocutionary level: while the latter expects the addressee to give an authoritative answer, with the reflective question the speaker presumes that aporia (enhanced inquisitiveness) to persist.

Semantically and syntactically, reflection is a polymorphic phenomenon that mobilizes different strategies depending on the nature of the trigger. We will suggest three strategies: (a) the possibility strategy, where the question is about the possibility of p ; (b) the Italian strategy of FUT scoping above the question (Mari (2021, 2024)) by creating epistemic restriction (without bias introduction); and (c) the enhanced modal base strategy illustrated with Greek particles (and we believe, also Korean). In all cases the result is increasing inquisitiveness, but there are subtle differences between the reflection types produced. In our analysis below, we build on the theoretical framework of Giannakidou and Mari (2016, 2018b, 2021a,c),¹² recalling only the main building blocks of the theory. The Giannakidou and Mari framework expands on the Kratzerian notion of modal base (Kratzer, 1981) as a set of worlds restricted by consideration of specific contextual criteria— and adds the notion of metaevaluation in replacement of the more standard ordering source (Kratzer, 1991). This will allow us to capture strategy (c) which is performing epistemic widening as an effect that occurs, semantically, at the level of the metaevaluation node.¹³

3.1 Strategy 1: Asking about the possibility of p

The first analysis of the reflective effect capitalizes on the use of possibility modals in questions and is formulated in Giannakidou (2016) who argued that the reflective question contains a possibility modal, and that, in Greek, possibility modals and the subjunctive are equivalent. In both cases, we have a question with MIGHT and the answer set contains MIGHT propositions:

- (43) $\llbracket \text{Who came to the party?} \rrbracket = \{\text{Bill came to the party, Marina came to the party, Ariadne came to the party, Nicholas came to the party, ...}\}$
- (44) $\llbracket \text{Who might have come to the party?} \rrbracket = \{\text{it is possible that Bill came to the party, it is possible that Marina came to the party, it is possible that Ariadne came to the party, it is possible that Nicholas came to the party, ...}\}$

This analysis says that the possibility question is still information seeking, but instead of reflecting about p , the speaker now asks about the possibility of p which requires much

¹²All the definitions in section 3.2.1 are from Giannakidou and Mari (2021c).

¹³The precise definition is presented in the sequel of this section, specifically in subsections 3.2 and 3.3.

less in terms of truth commitment. If we include this option in the reflective family— as we think we should— the reflective effect is a kind of speculation.

3.2 Strategy 2: FUT > QUES, the scope strategy

3.2.1 Background notions and analysis of Italian future

Our starting notion is the epistemic state of an individual anchor i , which, for Italian future, is always the speaker.

- (45) *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.

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

FUT uses a primary epistemic modal base, $M(i)$ encoding the assumption that lack of knowledge is due to partial or corrupted evidence, or lack of evidence that leaves the speaker in uncertainty (Giannakidou and Mari, 2016).

$\text{Ideal}_{\mathcal{S}}$ delivers the worlds in the modal base in which all the propositions in $\mathcal{S}$ are true.

- (47) $\text{Ideal}_{\mathcal{S}} M(i) = \{w' \in M(i) : \forall q \in \mathcal{S} (w' \in q)\}$

$\mathcal{S}$ is a set of heterogeneous propositions that correspond to common ground norms but also personal convictions etc. $\text{Ideal}_{\mathcal{S}}$ can encode i 's beliefs, but not necessarily only mere credences (see Mari (2016); Giannakidou and Mari (2021c)). One's beliefs can also rely on considerations of stereotypicality conditions or normalcy conditions. Note that $\text{Ideal}_{\mathcal{S}}$ is a secondary modal base and does not provide ranking: $\text{Ideal}_{\mathcal{S}}$ worlds are not ranked as higher than $\neg \text{Ideal}_{\mathcal{S}}$ ones (Mari (2021); Giannakidou and Mari (2023)).¹⁴ With $\text{Ideal}_{\mathcal{S}}$ in place, the analysis for Italian future is as in (49) (see Giannakidou and Mari (2016, 2018b)).¹⁵

Recall from example (32), which we repeat here, that Italian future, just like epistemic modals can embed a present (or a past).

- (48) Flavio sar  a casa ?
 Flavio be.FUT.3SG at home
 Might Flavio be at home ?
- (49) $\llbracket \text{FUT}(\text{PRES}(p)) \rrbracket^{M, \text{Ideal}, i, \mathcal{S}}$ 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.

¹⁴ $\text{Ideal}_{\mathcal{S}}$ is thus not an ordering source in the Kratzerian sense (Kratzer, 1991).

¹⁵Note that this analysis does not yet feature the metaevaluative layer. However, for the purposes of the analysis of Italian future questions, the metaevaluative layer does not play any role and we do not consider it here. For more details, see Giannakidou and Mari (2023) in reply to Ippolito and Farkas (2022).

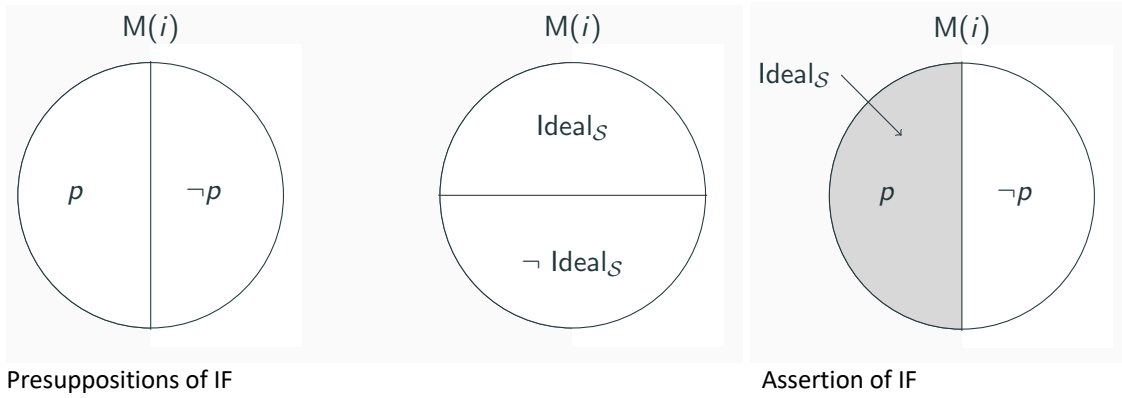
If defined,

$$\llbracket FUT(PRES(p)) \rrbracket^{M, Ideal, i, \mathcal{S}} = 1 \text{ iff } \forall w' \in Ideal_{\mathcal{S}} : p(w', t_u)$$

Paraphrase: (presupposition) The modal base $M(i)$ is partitioned into p and $\neg p$ worlds as well as into $Ideal_{\mathcal{S}}$ and $\neg Ideal_{\mathcal{S}}$ worlds. i has potentially no clues for p . (assertion). All Ideal worlds are p worlds.

Note that the Italian future is compatible with mere guesses which do not require that the speaker has any particular evidence. This is encoded as a presupposition of a potential absence of evidence (see Mari (2021, 2024) and Giannakidou and Mari (2023) for extended discussion).

The following picture summarizes our analysis of future as a non-veridical and unbiased universal epistemic modal. Note, indeed, that there is no notion of ordering at play, an issue discussed at length in Giannakidou and Mari (2023).



3.2.2 Reflective questions with future

We propose that the type of reflection that the universal modal enhances in questions derives from a scope-taking strategy, whereby the modal *FUT* scopes over *QUES* and thus over a set of propositions rather than a proposition.

- (50) $\llbracket FUT (QUES (p)) \rrbracket^{\mathcal{O}, M, i, \mathcal{S}}$ is defined only if:
 $M(i)$ is nonveridical and is partitioned into $Ideal_{\mathcal{S}}$ and $\neg Ideal_{\mathcal{S}}$ worlds.
 $\llbracket FUT (QUES (p)) \rrbracket^{\mathcal{O}, M, i, \mathcal{S}} = \forall w' \in Ideal_{\mathcal{S}} : p(w', t_u) \vee \neg p(w', t_u)$

Crucially, *QUES* is not a speech act operator, as we said earlier in the section; it is merely a nonveridical operator akin to disjunction as we show here. Second, reflection is derived because the inner mental state is represented as partitioned. Third, the question is unaddressed, relativized to a state of mind. Finally, the question is considered potentially unanswerable by the speaker: adding information through $Ideal_{\mathcal{S}}$ does not resolve the issue.

Consider (48). When *FUT* scopes over the disjunction, it quantifies over all the worlds of the modal base with none of the subsets in the partition standing out as an $Ideal_{\mathcal{S}}$ set. Both p (*Flavio is home*) and $\neg p$ (*Flavio is not home*) worlds are $Ideal_{\mathcal{S}}$. Inquisitiveness persists, no matter what supplementary information (as $\mathcal{S}$) I happen to resort to. The analysis also

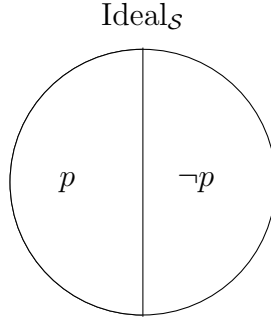


Figure 1: Scope strategy: FUT > QUES

predicts that biased universal modals cannot appear in reflective questions, as in this case one option would have to be favored over the other.¹⁶

3.3 Strategy 3: epistemic widening via meta-evaluation

Recall the cases where the particle called for the speaker to entertain possibilities beyond what is currently known or assumed. Giannakidou and Mari (2018a) introduce the notion of meta-evaluation to account for the apparent differences in the strength of modals. The main divide that metaevaluation produces is between biased and non-biased modals: necessity modals can be biased (MUST) or underspecified for bias (future morphemes, Giannakidou and Mari (2023)); possibility modals, on the other hand, convey non-veridical equilibrium and confer no bias. In the case of possibility modals then, the meta-evaluation is empty. Here are two core examples:

- (51) a. She might possibly be at the office.
b. She must definitely be in the office.

The default bias can be manipulated producing variable "strengths" of modality. The function of a possibility adverb is to consistently weaken the statement by "emptying" the bias, as we see in the example below from Giannakidou and Mari (2018a):

- (52) 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.

Here the addition of *maybe* produces a weaker necessity statement. We will not go into details here, but summarize the structure below:

¹⁶For extended discussion of why MUST cannot appear even in biased questions, see Giannakidou and Mari (2021b).

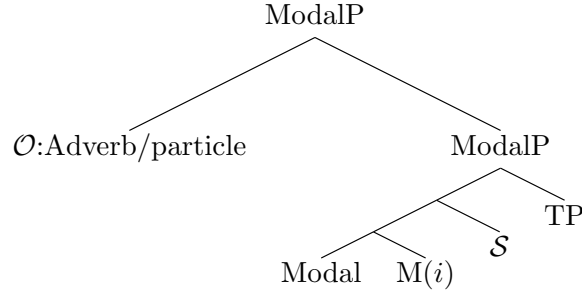


Figure 2: Modal skeleton with metaevaluation

In this framework, the reflective effect of the particle will take place in the meta-evaluation layer. In the question, the meta-evaluation is repurposed to perform, we will argue, *epistemic widening* which is enlarging the spectrum of the possibilities: the set of the possibilities considered attract attention to p , but seek p in a larger set, as can be recalled by the Greek (53) and Italian (54) examples discussed earlier and which we repeat here:

- (53) Na edosan araje ston Jani ti thesi?
 SUBJ gave.3PL PRT to-the John the position
 Could they have possibly given the position to John?
- (54) Possono aver dato il posto a Giovanni?
 can.3SG have given the position to John?
 Could they have possibly given the position to John?

Recall that this is a context where my information prior to asking the question was that John's rival would get the job. My reflective question expresses incredulity, questioning my own background assumptions. In opting to formulate a reflective question, I need to widen my assumptions and add the previously unlikely one.

Here is how we suggest to go about that: we add the adverb *reflectively*, as an umbrella for all the elements that can be hosted for reflection.

Recall that $M(i)$ is the epistemic state of the speaker, which, for every modal, is non-veridical, that is to say, it is partitioned between p and $\neg p$ worlds.

- (55) $\llbracket \text{QUES Refl (PRES } (p)) \rrbracket^{\mathcal{O}, M, i}$ is defined only if
 (i) $M(i)$ is nonveridical and partitioned into $\{p, \neg p\}$ worlds.
 (ii) $M(i) \subset \cap \mathcal{O}$
 $\llbracket \text{QUES Refl (PRES } (p)) \rrbracket^{\mathcal{O}, M, i} = \{p, \neg p\}$

With the reflective function, the set of possibilities extends beyond the epistemic state of the speaker into a larger set $\cap \mathcal{O}$ — thus making it harder for the speaker to think of what would be a ‘correct’ answer. The epistemic state of the speaker entertains a broader set of potential answers. The effect of widening the modal base $\cap \mathcal{O} \supset M(i)$ is presuppositional.

Reflection thus, as epistemic widening, is a manipulation of a nonveridical space, specif-

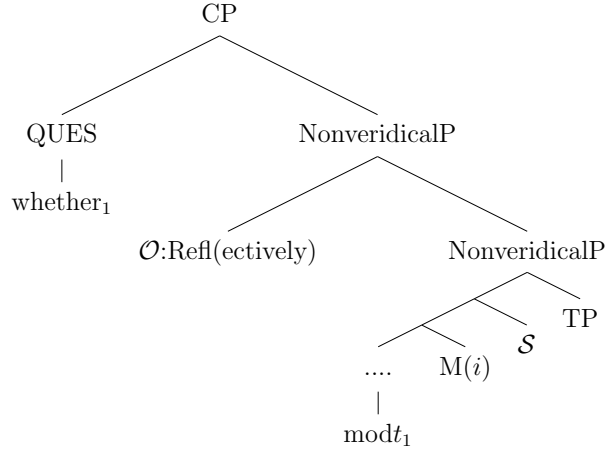


Figure 3: Modal skeleton with metaevaluation

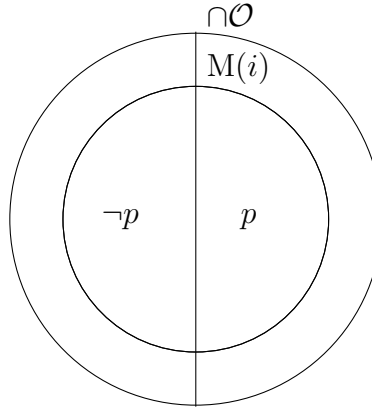


Figure 4: Widening strategy

ically the speaker's epistemic space. This explains also the highly monologic nature of this case. When there is a specific unexpected alternative, epistemic widening will result in belief revision; in other cases, it will result in vagueness because it enhances the set of envisioned possibilities.

4 Conclusion

In this paper, we argued that information seeking is not the only function an interrogative sentence can do. Asking a question, we argued, can also be a manifestation of *aporia*: a state of enhanced Socratic style inquisitiveness that resumes no epistemic authority on the matter raised by the apparent question. An aporetic question's main discourse function is

to reflect and introspect; whether with an addressee or not, the nature of reflection is such that it presumes that neither the speaker nor the addressee (which could be the speaker in self-reflecting) are epistemic authorities in the sense that they can give a precise complete answer. Reflective interrogatives reveal also no preference for possible answers, and are thus intrinsically anti-biased and open-ended.

We discussed a variety of aporetic structures across languages and identified three grammatical strategies including using possibility modals, the non-biased future modal, and discourse particles and modal adverbs. The key in all cases is the absence of modal bias, and we provided accordingly three different analytical options resulting in different nuances of reflections, from speculation about the possibility to epistemic widening and disbelief. Our theory makes clear predictions about what types of modals participate in aporia crosslinguistically, and future research will show if the suggested typology of possible strategies needs to be expanded. In all cases, aporia emerges as a category that reshuffles assertions and questions—whereby questions lose their speech act force to rather convey speculative meaning.

As a final note, we wanted point out that there is an intuition that bias in questions may not be a uniform phenomenon either. While in earlier work we viewed bias and reflection as distinct cases, it appears that polar questions formed with high negation can be used also reflectively while polar questions with a positive bias formed with a tag question are impossible. Jozina van der Klok suggested to us that *It rained yesterday, didn't it?* requires a response from an addressee and cannot be used as a self-posed question, while that *Didn't it rain yesterday?* can be more speculative and indeed be self addressed—an intuition shared also by other speakers. This distinction with the different height of negation suggests that reflective questions, perhaps necessarily, have a larger syntax-semantics than polar questions formed with tags, in line with what we have suggested here. Experimental work Liu et al. (2021) has highlighted the role of modalization in producing bias, and it is only reasonable to expect (at least) some minimal convergence between the two phenomena.

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