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Coarse Modality with Italian *magari*[*]

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Abstract Kratzer's (1981a) classic quantificational account of natural language modality relies on premise sets (ordering sources) to derive the preorder on the domain of quantification required to get the truth conditions right. On the basis of novel data from Italian documenting a particular type of epistemic modal statements that come with an "antievidential" character, this paper advances a new argument for employing premise sets as opposed to taking orders as a primitive (Lewis 1981).

Keywords: modality, epistemic modality, premise semantics, ordering sources, Italian

1 Introduction

The empirical focus of this paper is the Italian adverb *magari*, and specifically its use exemplified by (1). That is, we will focus on what *magari* contributes in terms of truth and use conditions when it takes maximal scope in a declarative sentence.[1]

(1) *Magari Anna è a casa.*
MAGARI Anna is at home.
≈ 'Ann might be home.'

As the translation suggests, (1) expresses that the speaker considers it possible that

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1 This delimitation of the empirical domain mainly excludes *magari*'s use in questions, imperatives and exclamatives (see D'Antuono 2020 as to the latter two). A more comprehensive analysis cannot be attempted here for reasons of space. Another aspect of *magari* that will be completely ignored here is the diachronic one: *magari* being a loan from Byzantine Greek, it has a variety of cognates across the Balkan. While its optative contribution in exclamatives is close in meaning to its Modern Greek version, the epistemic use that this paper discusses is nowhere else to be found. A potentially non exhaustive list of languages that have borrowed this expression from Greek comprises Bulgarian *makar* 'although' (Roumyana Pancheva, p.c.), Romanian *mcar* 'even' (Donca Steriade, p.c.), Serbian/Croatian *makar* 'at least' and Slovenian *magari* 'at least/even' (Crnič 2011), Old Spanish *maguer (que)* 'although' and Occitan (Grosz 2012: 290–291). At least Old Spanish, Romanian and Serbian also retain an optative use too. For more discussion of this rich crosslinguistic picture, and of the relation between optativity and *at least* meaning, see Grosz (2012: 149–151, 290–313) and references therein.

Ann is home: the central question to address is how exactly (1) differs from more "standard" epistemic statements such as (2).

(2) *Anna potrebbe essere a casa.*
Anna might be at home.
≈ 'Ann might be home.'

In section 2 we'll identify how exactly (1) and (2) differ. To the best of my knowledge, the only place this question was explored is Ippolito 2020, whose analysis we will discuss in 2.1. The key observation that the epistemic modality contributed by *magari* has an antievidential character[2] is substantiated in 2.2. These data are what informs the analysis in section 3, according to which *magari* imposes a specific condition I call "coarseness" on the conversational backgrounds that define epistemic modality (Kratzer 1981a) and its prejacent proposition.

2 The data

Let's indicate with ⌜*magari p*⌝ and ⌜◊*p*⌝ sentences such as (1) and (2) respectively. There is a strong intuition that the assertions of *magari p* and of ◊*p* are not really equivalent, but it's hard to tell exactly how they differ, mainly because it's hard to find contexts of utterance in which one is acceptable and the other isn't. Coming up with such contexts and understanding their crucial features is the goal of this section. Throughout this section *magari* will be contrasted with the modal verb *potrebbe* 'might' in its epistemic flavor.

2.1 A scalar meaning?

A common intuition expressed by speakers is that by uttering *magari p*, the speaker finds *p* to be possible but somewhat unlikely. This can be regarded as the stepping stone for Ippolito 2020's analysis of *magari* as an epistemic possibility modal with a subjective likelihood/expectedness scalar presupposition, an idea she motivates with a contrast along the lines of (3).

(3) BOXES. Ann and Beth are playing a simple game: there are three closed boxes (A, B, and C) on the table, and in one of them there is a kitten. Nobody knows which box contains the kitten. Beth is supposed to guess, and Ann is explaining the game to her:

2 I owe the label "antievidential(ity)" to Sabine Iatridou. The use of this term here is not meant to suggest any connection with the well studied phenomenon of evidentiality in natural language.

a. *Potrebbe essere nella scatola A.*
might be in the box A
'It might be in box A.'

b. # *Magari è nella scatola A.*
MAGARI is in the box A
'*Magari* it's in box A.'

The relevant feature of the BOXES scenario, obviously, is that the three salient alternatives are equal in terms of how likely or expected they are: this is the feature Ippolito identifies as the reason behind the reported infelicity of (3b). Crucially, the contrast disappears if the prejacent of the modal statement is made less expected than its salient alternatives: in (4), by asserting that box A was moving, Ann intuitively makes the possibility that the kitten be in some other box more expected, and the *magari* statement in (4b) is acceptable.

(4) (in BOXES)

a. *Ho visto muoversi la scatola A, però potrebbe non essere là.*
have seen move the box A but might not be there
'I have seen box A move, but it might not be there.'

b. *Ho visto muoversi la scatola A, però magari non è là.*
have seen move the box A but MAGARI not is there
'I have seen box A move, but *magari* [the kitten] is not there.'

On the basis of this fact, Ippolito (2020) suggests that *magari* is an epistemic possibility modal that comes with a presupposition that its prejacent is on the lower end of some subjective scale. In the normal case, illustrated by BOXES, this scale is one of likelihood or expectedness, and depending on whether the presupposition is taken to be universal or existential (a choice not settled by cases like BOXES), we have the denotations in (5) as options, where C is a set of salient propositional alternatives, and $<_i$ a "less expected than" relation relative to the epistemic anchor i:

(5) $[\![\text{magari}]\!]^{w,C} :=$

$\lambda p : \forall q \in C[q \neq p \rightarrow p <_i q].\, \mathrm{B}_w(i) \cap p \neq \emptyset$ (universal presupposition)

$\lambda p : \exists q \in C[q \neq p \wedge p <_i q].\, \mathrm{B}_w(i) \cap p \neq \emptyset$ (existential presupposition)

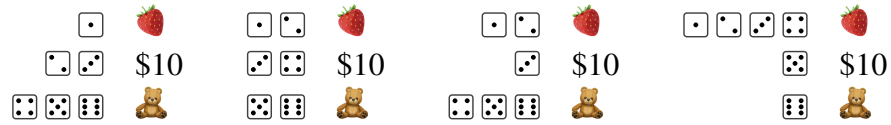
The possibility that the scale be underspecified and context sensitive and thus, for example, possibly tied to things like preference (rather than likelihood) is entertained by Ippolito to account for cases in which *magari p* is felicitous despite there not being a salient set of alternatives to p that would verify either presupposition in (5).

The problem with this idea is that it's quite easy to come up with cases that falsify it. Take for example (6): contrary to what we'd expect if either entry in (5) were correct, (6a) is felicitous and true no matter what the probability distribution of the game is — any of the scenario specifications in (6c) will verify (6a).

(6) STRAWBERRIES. There's a game at the fair in which you win prizes by casting a die (either a box of strawberries, $10 or a teddy bear). Since Ann loves strawberries, Beth encourages her to play: *Look, Ann, you should play this game…*

a. *magari vinci le fragole!*
MAGARI you win the strawberries
'maybe you win the strawberries!'

b. *ma magari vinci* {*dieci dollari* / *l'orsacchiotto*}.
but MAGARI you win ten dollars the teddy bear
'but maybe you win $10 / the teddy bear.'

c. 

Furthermore, note that in STRAWBERRIES winning the strawberries is stipulated to be the desired outcome. The fact that both (6a) and (6b) are equally true and felicitous in STRAWBERRIES in any of the probability distributions in (6c) makes the idea that *magari* comes with a scalar presupposition of the kind Ippolito suggests hard to defend. As long as winning *x* is a possibility, *magari you win x* is felicitous and true regardless of where *x* stands in relation to the other salient possibilities with respect to anyone's subjective preference or expectedness.

While I take data like (6) to show that (5) is not on the right tracks, we need to understand what's going on with the contrast in (3). I don't have a good answer to that, but I will note that according to the judgments I collected, it's enough to add something to the assertion (3b) to make it perfectly acceptable in the given scenario. For example, both (7a) and (7b) are felicitous and true in BOXES, although that scenario supports neither of the presuppositions in (5).

(7) a. *Per esempio, magari è nella scatola A.*
for example MAGARI is in the box A
'For example, *magari* it's in box A.'

b. *Facciamo che scegli questa: magari il gatto è qui e vinci.*
let's do that choose this MAGARI the cat is here and win
'Let's pretend you choose this one: maybe the kitten is here and you win.'

I suspect the reason why (3b) is slightly dispreferred is that it's a fundamentally unnatural assertion to make in describing the game, presumably because it singles out and draws attention to one particular box for no clear reason (a more natural description of the game would be something along the lines of *It could be in any of these boxes*). To be clear, (3a) retains some of this oddity in my judgment, but the verbal modal *potrebbe* can more easily be understood as expressing a logically possible state of affairs and thus preferred over the *magari* version when it comes to making an assertion this unnatural. What makes the *magari* examples in (7) perfectly acceptable is then the simple fact that they are more natural utterances in the given context where the rules of that simple game are being explained.

2.2 The antievidential effect

I will now argue that *magari* is an epistemic possibility modal that is antievidential, in the sense made explicit in (8).

(8) The antievidential condition:

A speaker who utters *magari p* conveys that they deem *p* epistemically possible but nothing in what they know counts as evidence that *p* might be in fact the case.

Another way of expressing (8) is to say that by uttering *magari p*, the speaker signals that they would not be able to answer a question of the sort *why do you think p might be the case?*. If this hypothesis is correct, it's clear why the first intuition about *magari* is that it marks its prejacent as a somewhat unlikely possibility — the intuition encoded by Ippolito's (2020) account. However, not having reasons to suspect that *p* is indeed the case is not the same as knowing *p* to be a relatively unlikely state of affairs. We are going to see this, and substantiate the claim that something like (8) is what characterizes *magari*, with two types of examples.

First, let's consider a type of conversation that is subject to a stricter set of pragmatic conventions than ordinary conversations, namely the dialogue that occurs between an eyewitness and an attorney in a courtroom in front of a jury. In such a scenario, using *magari* to express epistemic uncertainty as to a fact that the witness is supposed to inform the jury about results in an infelicitous assertion:

(9) WITNESS-1. Ann is testifying at trial as an eyewitness. She's supposed to tell the jury where exactly Beth, a coworker of hers, was on a particular day at 7pm.

a. *Poteva essere nel suo ufficio.*
might be in her office
'She might have been in her office.'

b. # *Magari era nel suo ufficio.*
MAGARI was in her office
'*Magari* she was in her office.'

(10) Why did you think she might have been there?

Asserting the prejacent to be unlikely doesn't save the acceptability of *magari* statement either:

(11) *Magari era nel suo ufficio, ma probabilmente era già tornata a casa.*
MAGARI was in her office but probably was already gone back to home
'*Magari* she was in her office, but probably she had already left.'
in WITNESS-1

Furthermore, note that *magari* is not in itself incompatible with a courtroom register: we can easily construct examples such as (12b) where *magari p* is a true and felicitous assertion by the eyewitness.

(12) WITNESS-2. Ann is testifying at trial as an eyewitness. She has described a person she saw with great detail. The attorney asks her: *How come you looked at that person with such great attention?*. She replies: *I had never seen that person in the neighborhood...*

a. *poteva essersi perso.*
might.IMPERF be himself lost
'he might have been lost.'

b. *magari si era perso.*
MAGARI himself was lost
'*magari* he was lost.'

(13) Why did you think he might have been lost?

The crucial question is thus what the critical difference between (9b) and (12b) is, in their respective scenarios. As (9a) illustrates, it's perfectly acceptable for an eyewitness to express uncertainty about some factual circumstance — in fact, they arguably have to express uncertainty if they are uncertain. A natural reaction to (9a) is a question along the lines of (10). The intuition about (9b) is that it's infelicitous precisely because it conveys that (10) could not be answered: with (9b), the eyewitness is perceived as venturing a guess, which is not something she's supposed to do as an answer to that question. The question Ann is asked in WITNESS-2 is very different in this regard, and so is her answer: she is not informing

the jury about some factual circumstance but rather about what she was wondering at that time. The possibility that the person in question was lost need not be supported by any evidence whatsoever; all Ann is doing with (12b) is expressing that since that was a possibility for all she knew at that time, she behaved in a certain way. To understand the difference between the two scenarios, again, imagine how Ann replying *I don't know, it was just a guess* to the attorney asking (10) or (13) would be perceived: it would be completely fine for her to say that in WITNESS-2, but extremely weird in WITNESS-1.

Finding the hallmarks of antievidentiality is somewhat harder to do with ordinary conversations. Part of the reason is that unlike statements of epistemic necessity (see e.g. von Fintel & Gillies 2010; Mandelkern 2019), statements of epistemic possibility are not usually linked to requirements that relate to the existence of evidence or the nature thereof. The scenario in (14) is designed to make the existence of evidence in support of the prejacent necessary in order for the speaker's behavior to be rational.

(14) CREDIT CARD-1. Ann is trying to pay at a coffee shop with her credit card, but the payment doesn't go through. This could be because the card was blocked, or because the reading device is faulty. She pays with the little cash she has and after leaving the shop she bumps into a friend and asks her where the closest ATM is. The friend asks *Why do you need cash?*

a. *Potrebbero avermi bloccato la carta di credito.*
they might have to me blocked the card of credit
'They might have blocked my credit card.'

b. # *Magari mi hanno bloccato la carta di credito.*
MAGARI to me they have blocked the card of credit
'*Magari* they blocked my credit card.'

(15) Beth: *Why do you need cash?*
Ann: *They might have stolen my card, although I have no reason to suspect that that might be the case.*

In other words, (14b) is bizarre for the same reason Ann's reply in (15) is. Absent evidence to the contrary, anyone's credit card could be blocked at any given time, but normally this isn't taken to be good enough a reason to rush to an ATM machine to get cash. The scenario in (16) forms in some sense a minimal pair with (14), from which it differs only in that the expectation of the speaker having some evidence in favor of the prejacent of the epistemic statement is removed. As expected, *magari p* and $\Diamond p$ become thereby indistinguishable:

(16) CREDIT CARD-2. Ann and Beth are waiting outside for Chloe to leave a store. They observe her leaving and going directly to an ATM nearby. Beth asks *Why is she going to the ATM?*, and Ann replies:

a. *Potrebbero averle bloccato la carta di credito.*
they might have to her blocked the card of credit
'They might have blocked her credit card.'

b. *Magari le hanno bloccato la carta di credito.*
MAGARI to her they have blocked the card of credit
'*Magari* they blocked her credit card.'

Finally, consider the contrast in (17). If Ann replies with (17a), Beth is surely expected to react in some way, perhaps with another question. But communicating the possibility of being pregnant with *magari* as in (17b) is highly weird and can be at best be accommodated as Ann evading the question with some humor.

(17) PREGNANT. Ann and Beth are friends, neither is known to be a teetotaler. At a party, Beth offers to pour some wine for Ann, but she refuses. Beth asks *do you not feel well?*; to which Ann replies:

a. *Potrei essere incinta.*
I might be pregnant

b. # *Magari sono incinta.*
MAGARI am pregnant

This makes sense if, once again, (17b) conveys that she thinks it's not impossible that she's pregnant, but at the same time she has no reason to suspect that she's actually pregnant — not an epistemic state that makes a rational person who would otherwise consume alcohol refuse a glass of wine.

3 The analysis

We have now substantiated the hypothesis put forward in (8): *magari p* comes with an antievidential condition. The next section sets the stage with a brief overview of the fundamental ingredients of Kratzer 1981a's doubly relative account of modality. Antievidentiality is defined in this rather conservative framework in 3.2, and in 3.3 we'll consider the advantages of going about it this way.

3.1 Premise sets in the semantics of modals

Kratzer 1977's seminal account of natural language modality relies on two fundamental ingredients: a view of modal expressions as quantifiers over possible worlds and the idea that their domain of quantification is not lexically encoded but provided by an independent parameter whose value can be supplied by the context. As a consequence of the latter, the fact that a single modal expression like *must* can be

interpreted under different modal flavors (e.g. epistemic, deontic…) is a matter of underspecification rather than ambiguity: *must p* and *can p* assert that *p* respectively follows from and is compatible with a set of premises (later called "modal base"). A significant development of this premise semantics account is put forward in Kratzer 1981a, where the domain of quantification is taken to be determined by the interaction of two parameters, rather than one: the modal base and the ordering source — which are collectively referred to as the "conversational background".

A version of Prior's (1958) Samaritan paradox will suffice to illustrate how one grave empirical shortcoming of Kratzer 1977's analysis is overcome by the addition of the ordering source parameter. The deontic statement in (18) is true in our world, but the intuitive idea that its truth conditions are directly derived simply through universal quantification over deontically accessible worlds has counterintuitive consequences. The truth of (18) should follow from the fact that the set of deontically accessible worlds is a subset of the set of worlds in which Ann the jaywalker is fined (i.e. the prejacent proposition), but in fact the two sets are disjoint: the worlds that comply with the law are all such that there aren't jaywalkers in the first place.

(18) In view of the law, Ann the jaywalker must be fined.
prejacent = $\{w : \mathsf{jaywalk}_w(\mathsf{ann}) \wedge \mathsf{fined}_w(\mathsf{ann})\}$

When judging (18) true we make two very distinct types of considerations to select which worlds *must* quantifies over: on the one hand, we look at what the law is (because we are making a deontic statement), on the other we look at what the facts are — in this case, we will deal only with worlds in which Ann jaywalked. So, what (18) asserts is that all the worlds where the facts are what they are and that are deontically as good as it gets given the laws on the books, are such that Ann is fined. The facts about the law matter insofar as they provide us with a way of ordering worlds in terms of deontic idealness: this is why Kratzer 1981a introduces the ordering source as an additional modal parameter. Given a set O of propositions (premises), u is better/more ideal than w with respect to the ideal encoded by O (that is, $u \prec_O w$) if the set of premises verified by u is a proper superset of the set of premises verified by w.

(19) $\forall O, u, w : u \preceq_O w \longleftrightarrow \{p \mid p \in O \wedge p(u) = 1\} \supseteq \{p \mid p \in O \wedge p(w) = 1\}$
$u \prec_O w \longleftrightarrow u \preceq_O w \wedge \neg[w \preceq_O u]$
$u \approx_O w \longleftrightarrow u \preceq_O w \wedge w \preceq_O u$

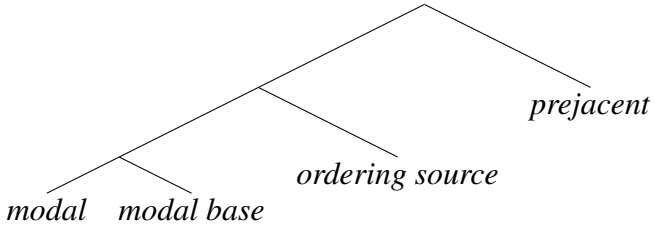
The denotation of *must* given in (21) maps the two conversational backgrounds and the prejacent proposition to true in w iff all the worlds in grand intersection of the modal base returned in w that are most ideal given the ordering source returned in

w[3] are worlds that verify the prejacent proposition. The deontic flavor is determined by the conversational backgrounds being a modal base that encodes the facts of the world and an ordering source that encodes what the laws and regulations prescribe.

(20) $\forall b, o: \quad \mathsf{Best}(b,o) \coloneqq \{w \mid w \in b \wedge \neg\exists u[u \in b \wedge u \prec_o w]\}$

(21) $[\![\text{must}]\!]^w \coloneqq \lambda b.\lambda o.\lambda p.\mathsf{Best}(\bigcap b_w, o_w) \subseteq p$
$:: ((\mathsf{s}\to\mathsf{t})\to\mathsf{t})\to((\mathsf{s}\to\mathsf{t})\to\mathsf{t})\to(\mathsf{s}\to\mathsf{t})\to\mathsf{t}$

(22)



What the ordering source determines is a preorder (an order that is only reflexive and transitive). For any domain of worlds, however, the mapping between ordering sources and preorders is many-to-one: distinct ordering sources can order the domain in the same way. In this sense, ordering sources contain "surplus information" (Lewis 1981: 223), for instance because they encode both ties and incomparabilities between worlds. Concretely, this means that given a preorder such that $u \approx_O w$, the source could be either such that u and w verify the same set of premises (u and w are tied), or such that the sets of premises verified by u and the one verified by w are not in a subset relation with one another (u and w are incomparable).

It thus becomes an empirical question whether a rich resource such as the ordering source is required for an adequate semantic account of linguistic phenomena or not. Kratzer (1981b, 2012) answers this question in the affirmative on the empirical basis of counterfactual conditionals, as premise sets are there taken to be crucial in accounting for the characteristic variability and vagueness of their truth conditions. The analysis put forward in Kratzer 1981b relies on the fact that states of affairs p and q can be "lumped together" as a conjunctive premise $p \cap q$, or kept separate as distinct premises in the ordering source, a distinction that is lost in the corresponding preorder. The antievidential character of *magari* can be seen as an additional argument for the usefulness of the premise set itself, under the specific analysis proposed in the next section.

3 This way of stating the truth conditions, as well as the definitions in (20) and (21) require that we make what Lewis 1973 calls the "Limit Assumption", namely that such a subset of most ideal worlds exists (that is, that the preorder induced by the ordering source is guaranteed to have a maximum). Kratzer 1981a doesn't make this assumption, but I will as it makes the exposition simpler.

3.2 Antievidentiality as coarseness

The deontic example from the previous section makes the need for an ordered domain of quantification evident. Kratzer 1991 describes the epistemic flavor (which is the one that is of interest here) as the combination of an epistemic modal base, containing all the propositions that are known by the relevant epistemic anchor, and a stereotypical ordering encoding normality assumptions.

(23) For all worlds w and individuals x, the stereotypical ordering source $o^{\mathrm{st}}_{w,x}$ is the set of propositions that correspond to x's normality expectations in w.

It's quite intuitive to model the notion of epistemic idealness as compliance with normality: given two worlds w and u that both conform with knowledge (i.e., both are included in the grand intersection of the epistemic modal base), we can say that w is epistemically better than u if w satisfies all the normality assumptions that u does, and some more.

The stereotypical ordering source has had two main applications in the literature, both stemming from Kratzer's seminal work. One concerns the longstanding puzzle that epistemic necessity is perceived as expressing a weaker commitment than the assertion of the bare prejacent (Karttunen 1972): an assertion like *Ann must be home* is weaker than *Ann is home*[4] because it conveys that all the worlds w that are epistemically best are such that Ann is home in w, whereas the universal quantification in the latter is presumably over the entire domain of epistemically accessible worlds. Another notable use a modal parameter like (23) was proposed in Kratzer 1981a in order to account for graded modality.[5] For example, a definition along the lines of (24) is proposed to model the empirically needed distinction between what's a (mere) possibility and what's a good possibility. According to (24), (25) is true if and only if there is a maximum in the preorder over the epistemically accessible worlds that is made up only of worlds in which Ann is home.

(24) For all propositions p, modal bases b and ordering sources o, p is a good possibility with respect to b, o iff $\exists w \in \bigcap b \forall u \in \bigcap b : u \preceq_o w \rightarrow u \in p$.

(25) There's a good possibility that Ann is home.

Both these applications have been subject to critical scrutiny over the years (among others, von Fintel & Gillies 2010; Yalcin 2010; Klecha 2014; Pasternak 2016; Goodhue 2017; Lassiter 2017; Mandelkern 2019)—I take no position here on

4 See however von Fintel & Gillies 2010 for a very different characterization of the contrast, and consequently a different take on the semantics of epistemic *must*.

5 There have also been attempts to account for gradability employing the tools of premise semantics that go beyond the epistemic case: see Katz, Portner & Rubinstein 2012; Portner & Rubinstein 2016 for concrete proposals.

the substance of any of these criticisms. The goal is to show how the stereotypical ordering source can be used in a novel way to adequately model the *magari*'s antievidential character.

To see what the connection is, let's go back to the most elementary characterization of the conditions under which *magari p* is odd. As we saw in 2.2, *magari p* signals the inability to answer a question that asks for evidence in support of *p*. The key that connects the stereotypical ordering source to antievidentiality is that any reply to such a question implicitly relies on normality assumptions. This becomes apparent if we consider a concrete dialogue such as (26) that could take place in WITNESS-1. The witness is probed on the possibility statement she asserted and provides evidence in favor of it, and then presents evidence against it when she is challenged to commit to a stronger assertion (after all, her epistemic state is compatible with either state of affairs).

(26) A: Beth might have been in her office. $\Diamond_{\text{ep}}\ \mathsf{office(b)}$

C: Why do you think that?

A: Well, the light of her office was on.

C: So you're saying she must have been there?

A: No, because it was 7pm and Beth normally leaves before 6pm.

Why is something like *the light was on* accepted as an answer to that question? We can imagine that if A's answer had been something like *I was having heartburn* it wouldn't have been accepted in the same way. The reason is that in the context under consideration, A and C agree on some normality assumption about the lights in a room being on (note that, incidentally, A's second reply states such a normality assumption explicitly). More concretely, we can say that A's answer satisfies C because their stereotypical ordering sources share two premises like those in (27). Now the question is how this relates to the antievidential inference that comes with *magari*.

(27) $p \coloneqq [\![$If the light is on in a room, it is occupied$]\!]$

$q \coloneqq [\![(\forall x)$If an office with x on its nameplate is occupied, x is inside$]\!]$

In other words, what is the difference between an epistemic state that is evidential, such as (29a), and one that is antievidential, such as (29b)? As illustrated by (31) and (32) the difference is all in the relation that exists between the order induced by the two premises in (27) and the prejacent proposition (28).

(28) $[\![$Ann was in the office$]\!] = \{w_1, w_4\}$ (prejacent)

(29) a. $\bigcap b^{\text{evid}} = \{w_0, w_1, w_2\}$

b. $\bigcap b^{\text{antiev}} = \{w_0, w_1, w_2, w_3, w_4, w_5\}$

(30) $p = \{w_1, w_2, w_3, w_4, w_5\}, \quad q = \{w_0, w_1, w_3, w_4\}$

(31) "Evidential" state: $\mathsf{Best}(\bigcap b^{\text{evid}}, \{p, q\}) = \{w_1\} \subseteq$ (28)

	office empty	Ann in office	someone else in office
light on	w_0 (q)	w_1 (p, q)	w_2 (p)

(32) "Antievidential" state: $\mathsf{Best}(\bigcap b^{\text{antiev}}, \{p, q\}) = \{w_1, w_3, w_4\} \nsubseteq$ (28)

	office empty	Ann in office	someone else in office
light on	w_0 (q)	w_1 (p, q)	w_2 (p)
light off	w_3 (p, q)	w_4 (p, q)	w_5 (p)

The epistemic state in (29a) is evidential insofar as all of the worlds in it that are most ideal with respect to the ordering source $\{p, q\}$, highlighted in the table, also verify the prejacent. This is not the case with the antievidential epistemic state: uncertainty about the light being on or off crucially determines the inclusion of w_3, a world in which the office is empty and the light is off. Such world is also ideal with respect to both p and q, because it verifies both, but it's not in the intension of *Ann was in the office*, the prejacent clause. If we generalize this reasoning to all possible collections of premises, we arrive to the definition in (33): conversational backgrounds being coarse with respect to a proposition p means that all the sets of most ideal worlds that are carved from the grand intersection of the modal base by all the subsets the ordering source are "too large to fit" in p — i.e., they don't entail it. We can then define *magari* as in (34), as an epistemic possibility modal that contributes a presupposition that the conversational background is coarse with respect to the prejacent.

(33) $\mathsf{coarse} \coloneqq \lambda b.\lambda o.\lambda p.\neg\exists o' : o' \subseteq o \wedge \mathsf{Best}(b, o') \subseteq p$

$:: (\mathsf{s}{\to}\mathsf{t}){\to}((\mathsf{s}{\to}\mathsf{t}){\to}\mathsf{t}){\to}(\mathsf{s}{\to}\mathsf{t}){\to}\mathsf{t}$

(34) $[\![\text{magari}]\!]^w \coloneqq \lambda b.\lambda o.\lambda p : \mathsf{coarse}(\bigcap b_w, o_w, p).\bigcap b_w \cap p \neq \emptyset$

$:: ((\mathsf{s}{\to}\mathsf{t}){\to}\mathsf{t}){\to}((\mathsf{s}{\to}\mathsf{t}){\to}\mathsf{t}){\to}(\mathsf{s}{\to}\mathsf{t}){\to}\mathsf{t}$

With these ingredients in place, antievidentiality is a direct consequence of the coarseness presupposition being satisfied. The ordering source is used in order to draw an inference about the modal base — namely, that it doesn't contain any information that could be considered evidence in favor of the state of affairs described by the prejacent.

It should be noted that coarseness with respect to p is not the sort of property that can be read off the preorder induced by the ordering source, at least in the general case. There are only two special cases in which we can tell whether a given preorder $\preceq_i^W$ on W has to, or cannot be derived from conversational backgrounds that are

coarse with respect to some proposition $p \subseteq W$, and both are fully determined by the relation between the maximum of $\preceq_i^W$ and p. Suppose that all the worlds in W that are in the maximum of $\preceq_i^W$ are also in p: in this case we know that all possible premise sets $O \subseteq \mathscr{P}(W)$ that induce $\preceq_i^W$ are also such that $\mathsf{coarse}(W, O, p) = 0$. This directly follows from the definition in (33): one subset of the ordering source that determines a set of best worlds that entails p is the ordering source itself. If instead the maximum of $\preceq_i^W$ and p are disjoint, there is no ordering source that induces $\preceq_i^W$ without also verifying the coarseness predicate with W and p. To see why that is the case, suppose that this is false: no world in $\preceq_i^W$'s maximum is in p and yet we have an $O \subseteq \mathscr{P}(W)$ such that $\mathsf{coarse}(W, O, p) = 0$. By definition, that means that there's at least one $o \in O$ such that $o \cap W$ is a subset of p. But for every $o' \in O$, there is at least one world w in the maximum of $\preceq_i^W$ such that $w \in o'$, and thus there is such a w that is also in p.

In all other cases, the information contained in the preorder is too little. While of course there is no function that maps preorders to ordering sources that induce them, we can define a recipe such as (35) that will deliver, for any given preorder $\preceq_i^W$ on W, a premise set $O \subseteq \mathscr{P}(W)$ that induces $\preceq_i^W$.

(35) $\quad \{\{w : w \preceq_i^W u\} : u \in W\}$

As long as the maximum of $\preceq_i^W$ is compatible but doesn't entail p (that is, as long as we are not in one of the two special cases we just discussed), the premise set (35) is coarse with respect to W and p. It's easy to see why that is. All the worlds in the maximum of $\preceq_i^W$ are collected into a single premise in (35), and they are contained in all other premises. By assumption, only some of these worlds verify p: thus, no combination of premises can be intersected together with W to obtain a subset of p. The simplest modification of (35) that would leave the induced preorder unaltered but make the premise set itself non-coarse with respect to p would be add to it the premises from the set $\{\{w\} : w \in W \wedge \neg\exists u[u \in W \wedge u \prec_i^W w]\}$.

Beside the antievidential inference, there's another thing the coarseness presupposition of *magari p* tells us about the status of p with respect to the epistemic state of the modal anchor: p cannot be a good possibility in the sense of (24). It is arguably the unavailability of a "good possibility" construal that is the source of Ippolito's intuition that *magari* signals a low likelihood of the prejacent being the case. In 2.1 we saw good reason to discard that characterization, but it's not obvious that the "guess" status of *magari p* and a low degree of expectation shouldn't go hand in hand: the crucial point is that in certain circumstances (precisely those of an antievidential epistemic state) possibilities can have the status of a mere guess despite being more likely to be the case than not, as (6) illustrated. Of course, this doesn't mean that every proposition p that is not a good possibility is such that the relevant epistemic state is coarse with respect to it. This just highlights the fact that,

whatever the merits of Kratzer's (1981a) account of graded modality, the property encoded by coarseness is a fundamentally different one, which in fact cannot be stated through quantification over the ordered domain of possible worlds alone. Ultimately, ordering semantics just doesn't have the tools to model the antievidential requirement as we have defined it: premise semantics does, precisely because we can make novel use of the "surplus information" that ordering semantics lacks.

3.3 Coarseness in context

The newly defined property of coarseness, and thus the antievidential requirement, was assumed without argument to be part of a presuppositional component of the meaning of *magari*. While it's clear that antievidentiality is not at-issue (assertion of the existence of evidence for p doesn't falsify *magari p*), we'd like to see to what extent modeling antievidentiality as a presupposition conforms with our expectations regarding the role of presuppositions in conversation. This is of course a very large and complex domain of inquiry, but certain problematic data can provide a lead to a deeper understanding of the role the epistemic conversational backgrounds play in conversation.

One case that is perhaps problematic is STRAWBERRIES. We saw that *magari p* can be employed to highlight the possibility of p even in those scenarios in which p is in fact the likeliest outcome. However, to the extent that A's question is acceptable in STRAWBERRIES (a scenario in which B is not involved with the game but is just a spectator), B's reply is intuitively an appropriate one, offering one reason to think that winning the strawberries is a possible outcome.

(36) A: Why do you think I could win the strawberries?
B: Well, it's the most likely outcome.

As a general point, the role of a stereotypical ordering source O is to encode what's epistemically ideal. Now, depending on how the reasoning about chance and probability fits in the larger picture of epistemic reasoning, (36) might represent a (superficial) counterexample to the antievidential generalization. To be more explicit, the problem arises if we take the role of the stereotypical ordering source to be also making sure that between two worlds w and u differing only in the outcome of a particular chance game, if w's outcome is more probable than u's outcome, $w \prec_O u$ is the case. If we decide this should be the case, then the premises collected in (37) should be included in any rational person's stereotypical ordering source.

(37) $\{[\![\text{Every outcome with probability of at least } q \text{ occurs}]\!] : 0 < q < 1\}$

While what I will say below would take care of this issue anyway, I'd like to advance some speculation that bears on the question of what evidence is in

the context of antievidentiality. It's not clear that the application of probabilistic reasoning encoded in a somewhat clunky way by (37) to known facts such as the probability distribution of a game ought to be equated with the other types of evidence we have been using to test the properties of *magari* (for example, the connection between the light being on in a room and someone being inside). If an outcome is determined by pure chance, the occurrence of a less likely outcome intuitively doesn't license the same type of surprise that one experiences when a state of affairs occurs which contradicts the combination of knowledge and normality assumptions. In this sense, the reply in (36) doesn't provide evidence for the possibility that the interlocutor wins strawberries in the same way as informing that the light of an office was on provides evidence to suspect someone was inside.

The more genuinely problematic case is in (38), where *magari p* is preceded by an assertion that would seem to provide some reason to suspect that *p* might be the case. In other words, B in (38) seems to be violating the antievidential requirement.

(38) A: Where is Chloe?

B: La sua macchina non è a casa, (*quindi*) *magari è al lavoro.*
the her car not is at home so MAGARI is at work

'Her car is not in the driveway, (so/thus) maybe she's at work.'

There is reason to think, however, that the antievidential character is not removed altogether. For example, we see that in a scenario similar to WITNESS-1, the strategy of (38) doesn't rescue *magari p*. The infelicity of (39b) is again resulting from the perception that Ann is just venturing a guess there — and consequently, that she doesn't consider the light being on a relevant enough circumstance to elevate the status of her possibility statement beyond a mere guess.

(39) WITNESS-3. Ann is testifying at trial as an eyewitness. She's supposed to tell the jury where exactly Beth, a coworker of hers, was on a particular day at 7pm. Ann says: "The light was on…"

a. … (*quindi*) *poteva essere nel suo ufficio.*
so might.IMPERF be in her office

'…she might have been in her office.'

b. #… (*quindi*) *magari era nel suo ufficio.*
so MAGARI was in her office

'…*magari* she was in her office.'

All this can be made to follow directly from the implementation of antievidentiality as a consequence of the coarseness presupposition. One very influential way of modeling the effect of presuppositions on assertion is in terms of Stalnaker's

Bridge Principle (Soames 1989; von Fintel 2008) defined in (40). The simplest Stalnakerian model of conversation (Stalnaker 1974, 1978) holds that the role of assertions is to subtract possible worlds from the Context Set (CS), which is the set of all worlds that are compatible with what the participants to the conversation take for granted that everyone else believes. The acceptance of an assertion denoting the proposition p has the effect that all the worlds that are not in p are removed from the CS, and we say that the CS has been updated by p. Under this view, a conversation is successful insofar as the CS is progressively restricted and more and more facts are taken for granted in the conversation. The Bridge Principle simply says that if an assertion comes with presuppositions it can only successfully update the CS if these presuppositions are satisfied throughout the CS.

(40) The Bridge Principle:

A proposition p can update a context set c only if for every world w in c, either $p(w) = 1$ or $p(w) = 0$ is the case (that is, only if the presuppositions of p are satisfied in w).

Under this view, accommodation (Lewis 1979) is simply the result of the cooperative interlocutors silently adjusting their beliefs (and consequently the CS) so that the update proposed by the speaker is in compliance with (40). Simplifying a complicated empirical and theoretical terrain considerably, we can assume that cooperative listeners will do their best to accommodate so that the assertions they are confronted with are felicitous. The question we face is how coarseness is accommodated in a conversation.

Suppose a speaker S asserts *magari* p: the effect is that listener L understands that S considers p possible but at the same time doesn't have any knowledge of facts that, in their view, would count as evidence in favor of p. This is the result of accommodating the coarseness presupposition of *magari*. There's an important difference between this case and, for example, the accommodation of the existence presupposition that is associated with definites. When accommodating coarseness, there are two arguments, and not just one, about which L can adjust their beliefs. This is because the two world dependent arguments of the coarseness predicate—the speaker's modal base and the speaker's stereotypical ordering source—are independent of each other. Consequently, there are in principle two routes that lead to the accommodation of the coarseness presupposition. These routes, however, are not equivalent, due to a significant difference between the epistemic modal base and the stereotypical ordering source.

In any conversation, we start with the assumption that others' knowledge or beliefs differ from our own. In the Stalnakerian model mentioned earlier, this assumption is central to the concept of making assertions. When it comes to the stereotypical ordering source, however, we operate on the opposite expectation:

initially, we assume that what is typical for us is also typical for our interlocutors. Throughout the conversation, these assumptions about what each person sees as normal or typical can be adjusted — but we begin with the presumption that their sense of normality aligns with ours. In other words, while we default to assuming ignorance of others' specific knowledge, we start with the assumption that they share our sense of what is normal or stereotypical.

This difference is reflected directly on how coarseness is accommodated. The first epistemic adjustment L attempts is one about S's epistemic state: concretely, this means that L injects enough ignorance in what they assume to be S's epistemic state so that $\mathsf{coarse}(B_S, O_{S,L}, p)$ comes out true. This is the origin of the antievidential effect: the effort of satisfying coarseness by adjusting our assumptions about what the speaker knows, while leaving the ordering source unmodified (that is, unrestricted). Sometimes, this route is unavailable, either because the information that makes the coarseness presupposition fail is entailed by the context, as is the case with the probability distribution in STRAWBERRIES, or because the speaker themselves contributed it, as in (38). In these cases, L has no other way of accommodating than choosing to interpret S's statement under a restricted ordering source, excluding those premises that make coarseness fail. In other words, contextual domain restriction applies to the ordering source just like it always applies when interpreting any quantified statement. Importantly, this second route doesn't cancel the antievidential character of *magari*: coarseness still holds of S's epistemic modal base, the restricted ordering source and p. Even when the second route to accommodation is taken, the *magari* statement still has the flavor of a guess, which is what makes (39b) infelicitous. For example, what B conveys in (38) is that she thinks the car not being in the driveway is a reason to merely entertain the possibility that Chloe is at work — a possibility she cannot however substantiate.

4 Conclusion

This paper has sought to make two contributions, one empirical and one theoretical. First, we have documented a novel type of expression of epistemic possibility, which is characterized by what we called antievidentiality. The theoretical contribution is the argument that antievidentiality can be derived in an empirically adequate way just with the ingredients made available by what is arguably the standard account of natural language modality (Kratzer 1981a, 1991), as long as one of the framework's distinctive features — the premise set, which Condoravdi 2022 describes as a "mostly untapped" resource — is used in a novel way.

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