A Linguistic Framework for Knowledge, Belief, and Veridicality Judgment

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The relation between language and thought has been central in many disciplines including philosophy, linguistics, psychology, and anthropology, to mention just a few.[1] For the ancient Greek thinkers, *logos* (λόγος) refers to both thought (specifically, the ability of humans to think logically) and language, therefore a symmetry is projected in the relation of the two: the ability to think needs language to express thought. Moreover, for thinkers like Aristotle this relation is universal: thoughts do not vary according to language, but language is the universal vehicle for representing thought. For Plato, likewise, as lucidly expressed in *Cratylus*, objects have their essence (*ousia*, ουσία) and the task of name givers is to discover the essence and name accordingly.[2] The Greek view is descriptive and representational: the thought and the world exist independent of language, and language serves to describe it. Language does not by itself create a reality, although rhetoric and sophistical argument may manipulate truth in order to exploit gaps in logic that can lead to flawed conclusions.

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In contrast to this descriptive view, the so-called Sapir-Whorf, or *relativity*, hypothesis stipulates a primacy of language over thought such that thought is determined by the language. This position—epitomized in Wittgenstein's famous attribution "The limits of my language means the limits of my world"—is one of relativism and linguistic supremacy. In its strongest form, the position says that the language spoken by a community (*a*) fully determines the thought frame within which the community understands the world and therefore (*b*) places limitations on how linguistic agents perceive and construct the world. The linguistic supremacy position views language as a world-creating and world-restricting device, in contrast to the Greek view where the function of language is merely to represent and describe the world in pursuit of what is true.

At the same time, the linguistic influence on thought can be viewed as an acceptance that the way I choose, as a speaker, to describe something and the words that I choose reveal my stance toward truth and will influence the message I want to convey to my audience. This use of language can be thought of as *affective*, and it is indisputable because it follows from the communicative function of language: successful communication requires maximum efficiency in the construction of the message, and word choice matters. As speakers choose their words, audiences recognize the intentions behind them and form *veridicality judgments* (i.e., judgments about the truth or not of the content conveyed, its reliability, and the like).[3]

In the present essay, we will approach the question of language, thought, and truth by studying how grammar and the lexicon contribute to the formation of the veridicality judgment. We will address the fundamental categories of knowledge and belief and focus on specific grammatical devices such as mood morphemes (subjunctive and indicative), attitude verbs of knowledge and belief, and expressions of possibility and necessity such as modal verbs (*must*, *may*, *will*,

might) as windows to the veridicality judgment. How much do modal expressions and mood morphemes tell us about the nature of knowing and believing? Is a language such as English, which lacks subjunctive and indicative, missing something crucial compared to languages such as Greek and Italian, which have productive mood morphology? Is the absence of mood a deficiency for knowledge or belief?

We will argue that modal expressions (including mood morphemes and propositional attitude verbs) are *truth manipulators*; they are therefore essential to the formation of veridicality judgment. They indicate whether speakers are fully or partially committed to the truth of a sentence, whether they commit or not to its logical content (the *proposition* π), and whether they do so on the basis of what can be understood as objective (i.e., factual) or subjective criteria, or mixed. In belief formation, for example, the veridicality judgment can be based on both factual and subjective criteria, but it can also be built as a purely subjectively veridical construct that commits a speaker to a subjective reality, not fact—as observed, for example, with dogma, ideological belief, and personal taste.

Knowledge verbs form the only realm that engages truth and the world directly and whose complement sentences can refer to facts. In any other embedding, the world and reality are accessed only privately and indirectly, via subjective representations that individuals construct—which we have called *information states*, *modal bases*, and here more conspicuously, *veridicality bases*. The veridicality basis contains factual information that the speaker has upon entering a conversation, as well as all kinds of beliefs, expectations, desires, experiences, and the like that function as the epistemic source in establishing full veridical commitment to propositional content or only partial or not at all. The veridical basis can also include *emotive* factors such as desires, personal inclinations, aesthetic preferences, and similar attitudes that are not fact based or necessarily rational but interfere substantially

with the veridicality judgment, and allow speakers to commit or not to the propositional content. We offer extensive discussion of the various factors affecting the formation of the veridicality basis and hope to raise questions about how veridicality plays into the formation of trust in a linguistic exchange.

Language thus functions both descriptively—in articulating veridical commitment of knowledge—and subjectively via subjective veridical constructs; some predicates (i.e., the Italian belief verbs that we will describe as conjectural beliefs later) contain both components. Our essay therefore ultimately serves as an argument for the need for careful linguistic analysis in trying to understand the relationship between language, thought, and truth.

The discussion proceeds as follows. We outline the core distinction between veridical and nonveridical on the basis of our recent work in Section I, where we develop a theoretical framework focusing on the English modal verbs that we analyze as *antiknowledge* markers.[4] We then talk about how the veridical judgment is formed in Section II. We distinguish between evidential factual information that is rational, truth based, and exogenous, and what we call "emotive" content that is subjective, private, and therefore less reliable. We move on to the question of mood choice and propositional attitudes in Section III, where we illustrate the basic paradigms of knowledge and belief in Greek and Italian. We establish two kinds of belief in Sections IV and V, the one that we call solipsistic and that is purely subjective, and another one that is suppositional and conjectural and contrasts belief with knowledge.[5] We elaborate on the nature of evidence—endogenous or exogenous—in Section VI and make some additional observations about the direction of fit. We conclude in Section VII that Greek, Italian, and English do not differ fundamentally just because the latter lacks productive mood marking in complement clauses. In English, the effect of mood morphemes is taken up by modal verbs or tense, and the linguistic system has the same expressive power.

I. The Veridicality Principle

Consider the following declarative sentences. One contains a simple past tense, another one has the present tense, two sentences have the modal verbs *must* and *may*, and one contains the future modal *will*:

1. *a*) It is raining.
   b) It rained.
   c) It *must* be raining.
   d) It *may* be raining.
   e) It *will* rain.

Let us call the tensed sentences without modal verbs "bare." In linguistic pragmatics since Paul Grice's (1975) landmark essay, we assume that in cooperative conversation—that is, when interlocutors do not seek to deceive or lie to one another—the assertion of a sentence requires that the speaker follows the principle of quality.[6] Quality demands that the speaker be truthful. Being truthful means that the speaker asserts what they know or believe to be true. We will call this the Principle of Veridicality:

2. Principle of Veridicality for Cooperative Communication[7]
   A sentence *S* can be asserted by a speaker *A* if and only if *A* is veridically committed to the content π of *S* (i.e., if and only if *A* knows or believes π to be true).

The Veridicality Principle is the hallmark of sincere, cooperative conversation where interlocutors enter the exchange with the goal to communicate and not confuse or deceive one another.[8] By uttering the sentence *It is raining*, the speaker knows, or has grounds to believe, that it is raining and wants to share her knowledge or belief with her audience—which in turn also follows Veridicality and acknowledges the speaker's intention to convey truthful content.[9] Sharing information means that the speaker intends the proposition

denoted by the bare sentence to be added to the "common ground" of the conversation. Upon adding the proposition to the common ground, a listener might object if they know or believe otherwise—for example, if they just came back from outside and it is no longer raining. But insofar as the speaker is concerned, and given what she knows or believes at the time of utterance, it is true that it is raining or that it rained.

When the speaker has knowledge or belief of the truthfulness of π, we say that the speaker takes a *veridical stance* toward it (i.e., toward the proposition *It is raining*).[10] We can think of the veridical stance as the mental state or attitude of commitment to truth. The veridical commitment is not commitment to act; veridical commitment is an abstract state of believing (broadly construed) or knowing π to be true and is independent of action since it relies purely on knowledge, belief, evidence, and inner factors. The veridical stance is an attitude of commitment of the speaker to truth motivated by information that the speaker possesses.[11]

Veridical commitment is anchored to the speaker or the hearer, who act as linguistic agents. When we have propositional attitude verbs, as in *Ariadne believes that it is raining*, Ariadne's belief state and knowledge take center stage too. It must also be noted that veridical commitment can be public, as in the bare sentence, or private and purely subjective, as is the case with verbs of imagination, fiction, and personal taste—where veridical commitment can be even knowingly contested. In these cases, the subjective veridical stance replaces knowledge, and we talk about this kind of solipsistic commitment later.

When a linguistic agent chooses to modalize she indicates an epistemic or doxastic state that lacks veridical commitment (i.e., she is taking a *nonveridical stance*). She is now uncertain about whether it is raining or not. This epistemic uncertainty is gradient: with *may* or *might* or an expression such as *It is possible that it rains*, raining is considered a mere possibility, and the commitment is trivial in the sense that the possibility of rain is not excluded. But when a necessity

modal is used, there is *partial* commitment to "It is raining." Rain is considered likely, and with the future modal, one might say, it is to be expected. In these cases, we talk about *bias*: the linguistic anchor is *veridically biased* toward *p* but not committed to it.

Bias is supported by strong evidence in favor of the proposition, but it does not mean that the speaker knows *p* to be true. Modals, as we have argued, are antiknowledge markers.[12] Epistemic modal verbs are always indicators that the speaker reasons with uncertainty and that she leaves open both options, *p* and *not p*. Consider below some attested examples:[13]

3. *a*) This is a very early, very correct Mustang that has been in a private collection for a long time. . . . The speedo[meter] shows 38,000 miles and it must be 138,000, but *I don't know for sure*.
   b) I don't know for sure, sweetie, but she must have been very depressed. A person doesn't do something like that lightly.
   c) It must have been a Tuesday (but I don't know for sure), *I can't remember*.
   d) I have an injected TB42 turbo and don't like the current setup. There is an extra injector located in the piping from the throttle body. . . . Must be an old DTS diesel setup but *I'm not certain*. Why would they have added this extra injector?

Hence, even a "stronger" modal such as *must* still does not entail knowledge of *p*. The use of a modal is always an indication that inference to *p* contains gaps and uncertainty. To further see this point, consider the following case, which has been discussed in the literature quite a lot. Direct visual perception contexts are famously cited as rejecting modalization:[14]

4. Context: *i* is standing in front of the window and sees the rain.
   a) #It must be raining.
   b) #It may be raining.
   c) #It might be raining.

The modals are infelicitous here because if I see the rain, I know that it is raining, and knowledge is veridical; therefore, modalization is prohibited because direct evidence is a reliable path to knowledge. Note that modal sentences can be continued by "but I am not entirely sure," as we pointed out in our recent work:[15]

5. He must/may be home, but I am not entirely sure.

Veridical assertions do not accept such continuation:

6. *a*) #He is at home, but I am not entirely sure.
   b) #I know he is at home, but I am not entirely sure.

Clearly then, modal statements are incompatible with veridical commitment to the proposition *p*. In the nonveridical stance, the commitment state allows both option *p* and its negation *not p*—and in the framework of possible world semantics we use in our theory the nonveridical attitude is formalized as a set of possible worlds that contains worlds *w* where *p* is true, as well as worlds *w*' where *p* is not true. This is the core property of an uncertainty space, we argue, as opposed to the veridical space that only contains worlds *w* where *p* is true, and the *antiveridical* space that contains worlds *w*' where *p* is not true.[16]

One important aspect of veridicality commitment is that veridicality is a *gradient* state.[17] For this, we use the concept of *scale* as is common in linguistic semantics, and we summarize the gist below. Veridical commitment is full commitment: the speaker knows *p* or believes it to be true; she is in a veridical state and therefore fully committed to *p*. Veridical commitment can be purely epistemic if it is based on knowledge, or doxastic if it is based on belief (broadly construed to include memories, expectations, ideologies, religious beliefs, and the like), or as is more natural to assume, it can be a combination of both

knowledge and belief. The scale of epistemic commitment looks as follows (uppercase MUST and MIGHT indicate the family of words that crosslinguistically correspond to the English modals):

7. Scale of veridical commitment:[18]
   <*p*, MUST *p*, MIGHT *p*>; where *i* is the speaker,
   p conveys *full* commitment of *i* to *p*;
   MUST *p* conveys *partial* commitment of *i* to *p*;
   MIGHT *p* conveys *trivial* commitment of *i* to *p*.

The nonveridical stance, in other words, creates weaker commitment, one where the linguistic anchor reasons with uncertainty.

In the case of possibility, there is no bias toward *p*; the two sets of worlds are, as we say, in *nonveridical equilibrium*, a state of "balanced uncertainty."[19] Nonveridical equilibrium also characterizes information-seeking questions, as opposed to *biased* ones:

8. *a*) Did it rain yesterday?
   b) I wonder whether it rained yesterday.
9. *a*) Didn't you turn in your paper already?
   b) Is she really a friend?

A speaker asks a neutral question in example 8 because they are in a state of balanced uncertainty that is similar to that of modals of possibility. *It might have rained yesterday*, *Did it rain yesterday?*, and *I wonder whether it rained yesterday* convey that the two possibilities (rain, not rain) are equal in terms of what the speaker believes or knows to be the case. In example 9, however, we have positively and negatively biased questions: by using devices such as negation and *really*, the questioner indicates that her belief state is not neutral but biased toward a positive and a negative answer, respectively. In this case the equilibrium is broken.[20]

One final point we want to make as a way of background is that when we consider actual information conveyed, veridical commitment entails the following information:

10. Veridical commitment and informativity:[21]
    <*p* >> MUST *p* >> MIGHT *p*>; " >> " means "informationally stronger than:
    Nonmodalized *p* (speaker knows *p*, *p* added to the common ground) >>
    MUST *p* (speaker does not know *p* but is biased toward *p*) >>
    POSSIBLY *p* (there is nonveridical equilibrium)

Only the assertion of *p* adds *p* to the common ground of publicly accepted knowledge; introducing a modal expression creates an informationally weaker sentence. With a possibility modal, we simply don't know whether there is any evidence to support *p*, but we can't exclude it either. Bias toward *p*, finally, is informationally stronger than nonveridical equilibrium but still does not make the audience think that *p* is true—only that it is likely. In other words, only the bare sentence gives actual information about the world.

II. The Formation of the Veridicality Judgment: Evidence and Emotive Content

In this section, we will ponder a little bit more on how the veridicality judgment is formed. Is commitment based on what is true, or is it an evaluation of what is perceived or understood as true by a linguistic agent? Is commitment based on evidence alone? Or can it be influenced by endogenous factors and biases that may create purely solipsistic beliefs, only partially or not-at-all based on reality? Dissecting the state of commitment is key to understanding the nature of veridicality judgment.

Truth is the foundation of logic, the study of linguistic meaning, and axiomatization in science. Aristotle gives a well-known definition of truth in his *Metaphysics* (1011b25): "To say of what is that it

is not, or of what is not that it is, is false, while to say of what is that it is, and of what is not that it is not, is true." Very similar formulations can be found in Plato (*Cratylus* 385b2; *Sophist* 263b). Aristotelian truth serves as the foundation for truth-conditional semantics and Alfred Tarski's correspondence theory of truth—the foundations for linguistic semantic analysis today. Truth, in the correspondence theory, consists in a direct relation of a sentence to reality: the sentence *Snow is white* is true if and only if the snow in the world is white.

This well-motivated understanding is central to natural language semantics and implies metaphysical realism and objective truth. Objective truth correlates with fact but also with time: simple positive present and past sentences such as *Ariadne arrived in Paris last night* or *Ariadne is eating breakfast right now* are true or false objectively, which means that the sentences, if true, denote facts of the world. Future sentences, however, such as *Ariadne will go to Paris next week* are undefined at the time of utterance (since they have not happened yet) but could or must be true—depending on the strength of prediction—at a future time.

When one uses a knowledge predicate, one engages truth directly:

11. Mary knows that Ariadne read *War and Peace*.

The *know* predicate is characterized in the literature as factive:[22] that Ariadne read *War and Peace* is fact. A fact is a true proposition; notice that the negative sentence *Mary doesn't know that Ariadne read War and Peace* still entails that Ariadne read *War and Peace*. The word *know* and its equivalents (uppercase KNOW henceforth) is a propositional attitude predicate: it says that the subject of KNOW stands in the knowing relation to the fact that Ariadne read *War and Peace*. KNOW predicates in language are often characterized as presuppositional because they indeed require that the complement be a fact and therefore true.

Now, as we said earlier, when the speaker cooperatively utters the sentence in example 12 they follow the Veridicality Principle and are making a claim about what they consider or know to be true (recall the framing in the previous section):

12. Ariadne read *War and Peace*.

Linguistic agents form judgments about veridicality on the basis of what they know, expect, or believe, as well as on what they experience.[23] That such relativization is needed is intuitive: every sentence is interpreted against prior knowledge, belief, or experience. When speakers make assertions or ask questions or assess statements of others, they make veridicality judgments that are not ex nihilo but are rather based on information they have, which forms the basis for the judgment.[24]

There are two types of content in the informational basis that contribute to the veridicality judgment: there is (*a*) declarative informative content corresponding to what a linguistic agent knows or believes to be true on the basis of public or private information, and (*b*) emotive content that draws on privately held beliefs and attitudes, desires, emotions, expectations, and the like. The latter is entirely subjective, as we will call it later *endogenous*. We consider them in turn.

If commitment to truth is sincere, the declarative informative content is *evidential*: it serves as the body of evidence. Evidence can be public or private, and it can be based on prior experience, studies, and information (both firsthand and hearsay from reliable sources). As such, the body of evidence is both factual and rational: it contains logical deductive rules, as well as inductive, stereotypical generalizations that guide rational thought. For instance, if the speaker has heard that Ariadne read *War and Peace* from a reliable source, they will take this hearsay information to be true and convey it as true; but if they hear the same sentence uttered by a pathological liar, rationality

should make the speaker reluctant to commit themselves to the sentence. Likewise, if I wake up in the morning and I see that the streets are wet, I can truthfully report this by saying *It rained last night*, because it is rational to infer, by the wetness of the street, that it rained, and less rational to conclude, for example, that it snowed, or that the neighbors left the water running again. Reasoning with the future also shows the effects of rationality and stereotypicality. Consider:

13. John will be here at 5.

In everyday life, we constantly evaluate whether the actual world follows stereotypical rules. What counts as a normal or reasonable outcome depends on one's knowledge and experience, and human agents make use of expectations relying on knowledge and experience when they reason. Normalcy and reasonability manifest themselves in various forms in language,[25] for instance as when ignoring exceptions with generic statements: the generic statement *Dogs bark* precludes abnormal instances of dogs.[26] Of course, actual outcomes do not always conform to what is expected under normalcy conditions, and the expectation of not conforming to what is "normal" often determines our uncertainty. But when we utter a sentence like example 13, we rely on normalcy conditions and rationally think about the future.

Hence, linguistic agents form veridicality judgments on the basis of information they have and general rules of inference, and choose accordingly to commit fully, partly, or trivially to a content π. Yet, as we mentioned, there is another type of content that may interfere with the body of evidence: *emotive* or affective content. This content is highly subjective and private; it contains the set of desires and hopes of the linguistic agent, as well as their political, ideological, religious, or aesthetic beliefs. This component is not so relevant to whether Ariadne read *War and Peace*, or whether John will be here by 5 p.m.,

and plays no role in the assertability veridicality condition in these innocuous cases. If I hate Russian writers, and I know that Ariadne read *War and Peace*, but I wish she hadn't, I still utter *Ariadne read War and Peace* truthfully.

But the emotive component becomes relevant when the sentence contains a more subjective predicate such as *masterpiece* or *brave*:

14. *War and Peace* is a masterpiece.
15. Donald Trump is brave.

When a highly subjective evaluative predicate is used, the sentence cannot express fact but an opinion. Opinions do not depend on evidence alone and are highly dependent on the emotive component (which, needless to say, need not be rational). For instance, if I dislike Russian writers, most likely I will not utter example 14, and upon hearing it I will object with example 16 below. Likewise, if I am a fan of Donald Trump I will take example 15 to be true—even though my commitment to it may be based on a factual confusion of rudeness with bravery; as we said, the emotive component need not be rational. If I disapprove of Donald Trump, I will disagree (as in example 17):

16. *War and Peace* is not a masterpiece.
17. Donald Trump is not brave.

Here we have what has been called in the literature faultless disagreement.[27] Two agents can be confronted with the same information or set of facts (body of evidence), but they can draw different conclusions on the basis of their differing sets of subjective assumptions about what counts as being a masterpiece and being brave. The disagreement is faultless because the evaluation now rests on the private component and is judged against that, and two speakers

can commit to the one or another direction. It is important to note that the private assumptions also include various kinds of psychological biases, such as confirmation bias or disbelief, when confronted with unfamiliar or undesirable information. With aesthetic and similar predicates that require expertise there may be some additional external, publicly accepted, and established criteria; the application of predicates, however, still remains subject to private consideration and choice.[28] Likewise, what might count as brave can also depend on certain cultural and time dependent norms, but the judgment of applying the predicate to a specific object is still done by a linguistic agent (speaker or hearer) on the basis of mostly private considerations.[29]

In other words, some evaluative predicates can be subject to external norms, but such norms may be absent when we consider predicates of personal taste that seem to rely on private judgment alone. Examples include predicates such as *tasty*, *fun*, *beautiful*, *scary*, etc.:

18. Fish is tasty.
19. That movie was scary.
20. That old house is beautiful.

People may systematically disagree about the "correct" application of these predicates when they express opinion. Opinion is distinct from knowledge; it is private and relies on both experience and the emotive component.[30] Disagreements on personal taste may never be settled because they are not a matter of fact but, as Peter Lasersohn puts it, a matter of opinion. Opinion alone, it must be emphasized, cannot form the basis of knowledge and argument validity because it is not factual but subjective. Two agents can have two differing opinions when confronted with the same set of facts, as we said. Opinions, therefore, cannot be true or false; you just have them, and

they are consistent or inconsistent depending on whether they follow from the agent's internal assumptions or not.[31] Blurring the distinction between knowledge (which is factual) and opinion (which is not) leads to uncooperative argument that Plato would call sophistry and Harry Frankfurt calls bullshit.[32]

Let us now introduce the puzzle of mood. This will allow us to see more workings of the subjective component and its complex interaction with factuality and rationality and add further distinctions about the evidential bases that ground knowledge and belief judgments.

III. Knowledge and Belief Predicates: Indicative, Subjunctive, and Subjective Veridicality

Mood choice is a multidimensional phenomenon, as we illustrate in our recent book, involving interactions between syntax, semantics, and pragmatics, and it raises a number of issues that are literally invisible if we pay attention only to English simply because modern English lacks the morphological category of mood in embedded clauses. Despite this absence, terms such as "subjunctive" and "indicative" continue to be routinely used (e.g., in the discussion of English conditionals) often misleading us to think that we are dealing with a mood phenomenon. (Indicative and subjunctive conditionals are really about tense and not mood.)

Natural languages vary in the vocabulary, form, and grammatical categories that realize mood; yet in addressing the question of language and thought, the philosophical literature overlooks this striking variation and almost exclusively focuses on English. This focus negatively affects the set of data deemed relevant for analysis and in effect diminishes, not to say dismisses, the role of linguistic diversity in revealing aspects of the logic needed in order to handle

accurately and successfully the central questions of truth and knowledge. In our book, we explore the interaction between truth, knowledge, and veridicality and its manifestation in the grammatical phenomenon of mood choice (subjunctive, indicative) in European languages. Our main illustrators are Standard Modern Greek and the Romance language family, with specific emphasis on Italian and French. Here, we will limit ourselves to the very basic variations in order to keep the data manageable.

Observe the basic contrast in French and Italian in the examples below; we follow standard practice in linguistics and include glosses and translations (* signals ungrammaticality):

21.	*a*)	Marc sait	que	le printemps	est/*soit	arrivé.
		Marc knows	that	the spring	be.IND.3sg/SUBJ.3sg	arrived
		Marc knows that spring has come.				
	b)	Marc veut	que	le printemps	*est/soit	arrivé.
		Marc wants	that	the spring	be.IND.3sg/SUBJ.3sg	arrived
		Marc wants spring to come.				
	c)	Le printemps	est/*soit	arrivé.		
		The spring	be.IND.3sg/SUBJ.3sg	arrived		
		Spring has come.				
22.	*a*)	Marco sa	che	la primavera	è/*sia	arrivata.
		Marco knows	that	the spring	be.IND.3sg/SUBJ.3sg	arrived
		Marco knows that spring has arrived.				
	b)	Marco vuole	che	la primavera	*è/sia	lunga.
		Marco wants	that	the spring	be.IND.3sg/SUBJ.3sg	long
		Marco want the spring to be long.				
	c)	La primavera	è/*sia	arrivata.		
		The spring	be.IND.3sg/SUBJ.3sg	arrived		
		Spring has arrived.				

The verb of knowledge *savoir/sapere* (know) selects the indicative in both French and Italian (examples 21*a* and 22*a*), but the volitional verb *vouloir/volere* (want) selects the subjunctive in both languages

(examples 21*b* and 22*b*). The indicative is the default mood of unembedded sentences, as indicated in examples 21*c* and 22*c*. This is a typical pattern in all European languages, and in the cases above, the mood morphemes are in parallel, or, as we say, complementary distribution;[33] one mood excludes the other. Although the indicative-subjunctive pattern has been most extensively described in Indo-European languages, it is by no means restricted to these and appears in many of the world's languages, including Native American languages.[34] The contrast between subjunctive and indicative also correlates with the grammatical phenomenon of evidentiality, especially in languages that have only one indirect evidential morpheme.[35]

Interestingly, in Greek, as well as French, verbs of belief (called doxastic) pattern with knowledge in selecting the indicative. We illustrate with Greek:

23.	O Pavlos	kseri	oti/*na	efije	i Roxani.
	the Paul	know.PRES.3sg	that.IND/*SUBJ	left.3sg	the Roxani
	Paul knows that Roxanne left.				
24.	O Pavlos	pistevi	oti/*na	efije	i Roxani.
	the Paul	know.PRES.3sg	that.IND/*SUBJ	left.3sg	the Roxani
	Paul knows that Roxanne left.				

Nomizo (think) and *pistevo* (believe) take indicative *oti*—complements, not subjunctive—even though the complement may be objectively false, as we will soon see. The same is true of French:

25.	Je sais	que Marie est	enceinte.	
	I know.PRES.1sg	that Mary be.IND.3sg	pregnant	
	I know that Mary is pregnant.			
26.	Je crois	que Marie est	enceinte.	
	I believe/think.PRES.1sg	that Mary be.IND.3sg	pregnant	
	I believe that Mary is pregnant.			

It seems to be a robust generalization that in Greek and French epistemic and doxastic attitude verbs pattern on a par in selecting indicative. This is a problem for the traditional characterization of mood being dependent on the traditional categories of *realis* versus *irrealis*, because clearly the complement of belief verbs is not *realis* but selects indicative.[36]

The doxastic verbs can be thought of as solipsistic: they rely on the private veridicality judgment of the attitude holder's beliefs, ignoring what is in the common ground and lacking entirely factual commitments.[37] Consider more closely the case below:

27. I Ariadne pistevi/theori oti/*na to Milano ine i
the Ariadne believe/consider.PRES.3sg that.IND/*SUBJ the Milan is
protevousa tis Italias.
the capital the.GEN Italy.GEN
Ariadne believes that Milan is the capital of Italy. / Ariadne considers Milan to be the capital of Italy.

That Milan is the capital of Italy is objectively false; however, the speaker can use this sentence to report Ariadne's contested belief, and the speaker would have to use the indicative mood, designated by the mood particle *oti* (which in Greek surfaces as a subordinator equivalent to *that*), even if, obviously, the speaker knows otherwise. The Greek subjunctive particle *na* is, crucially, excluded. The fact that indicative and not subjunctive is used to convey this obviously false belief indicates that, despite what the speaker knows to be the case and what is objectively the case, when it comes to mood selection, there is no choice other than using the indicative. The selection of indicative with belief and doxastic verbs is observed not just in Greek and French but seems to be the rule in most Romance languages (with the exception of Italian and some varieties of Portuguese and Spanish that we will present next).

Indicative extends further to other fictional classes such as attitudes of dream, imagination, and deception:

28. I Ariadnie onireftike oti/*na to Milano ine i protevousa
the Ariadne dreamt.3sg that.IND/*SUBJ the Milan is the capital
tis Italias.
the.GEN Italy.GEN
Ariadne dreamed that Milan is the capital of Italy.

29. I Ariadne ksejelastike/fantastike oti/*na
the Ariadne was.deceived.3sg/imagined.3sg that.IND/*SUBJ
to Milano ine i protevousa tis Italias.
the Milan is the capital the.GEN Italy.GEN
Ariadne was deceived/imagined that Milan is the capital of Italy.

The use of indicative in fictional contexts and with doxastic verbs to convey objectively false beliefs forces us to distinguish truth—as a matter of fact—from the subjective veridicality judgment, where truth is assessed relative to the internal attitudes of linguistic agents. It is this type of belief that we call solipsistic. Solipsistic belief is pure subjectivity; it does not conflict with what is actually the case because it does not relate to it, and the indicative is the vehicle of "pure subjectivity."[38] The indicative is thus the mood of veridicality, both objective (with respect to fact or knowledge) and subjective.

Italian and Portuguese allow us to see a different construal of belief with subjunctive. Consider Portuguese first (examples original to R. Marques):[39]

30. Acredito que a Maria está doente.
believe.1sg that the Mary be.IND.3sg ill
I believe that Mary is ill.

31. Acredito que a Maria esteja doente.
believe.1sg that the Mary be.SUBJ.3sg ill
I believe that Mary *might* be ill.

Marques says that the selection of one or another mood is related to the "degree of belief" being expressed: the indicative signals a high degree of belief and the subjunctive a lower degree. The difference is reflected in English with the use of the modal *might* in lieu of subjunctive.[40] In Italian, we observe a similar pattern:

32.	Credo/Penso	che	Maria	sia	incinta.
	Believe/Think.PRES.1SG	that	Mary	be.SUBJ.3SG	pregnant
	I believe that Mary *might* be pregnant.				
33.	Credo/Penso	che	Maria	è	incinta.
	Believe/Think.PRES.1SG	that	Mary	be.IND.3SG	pregnant
	I believe that Mary is pregnant.				

Again, notice that the effect in English is produced with the use of the modal verb *might*. The use of the subjunctive and the modal can be taken to indicate some form of weakness in the doxastic commitment (e.g., creating a nonveridical doxastic space containing both option *p* and its negation). But verbs of certainty and conviction can also select subjunctive, and when one is certain or convinced, one is doxastically committed to *p* (i.e., there are no non-*p* possibilities allowed in the subject's doxastic state):

34.	Sono	sicura	che	Maria	sia/è	incinta.
	Be.PRES.1SG	certain	that	Mary	be.SUBJ/IND.3SG	pregnant
	I am certain that Mary is/might be pregnant.					
35.	Sono	convinta	che	Maria	sia/è	incinta.
	Be.PRES.1SG	convinced	that	Mary	be.SUBJ/IND.3SG	pregnant
	I am convinced that Mary is/might be pregnant.					

We have previously argued that the contrast between the indicative and modal/subjunctive shows that veridicality can be purely subjective (with indicative) or suppositional/conjectural as is the case with the subjunctive.[41] The subjunctive serves as the diagnostic for this latter kind of suppositional, conjectural belief. What distinguishes the two

is that, unlike solipsistic belief, the conjectural one engages with knowledge and reality (i.e., with what is the case). It is a belief that conveys something like "I believe but do not know," and in our recent book, we argue that the "do not know" component is a presupposition of suppositional doxastic verbs. It adds, just as with modals, nonveridicality to the lexical entry. We take up this distinction in the next two sections.

IV. Ways to Relate to the Outer World: Fictional Predicates

Flexible mood choice is a powerful diagnostic to identify the two different interpretations of epistemic, doxastic, and fictional attitude verbs, unveiling the two different manners by which linguistic agents form attitudes. Fictional predicates are particularly revealing.

As mentioned earlier, fictional attitudes like "dream" and "imagine" are crosslinguistically described as selecting indicative. They convey subjective veridicality: the mental space of the attitude holder is homogeneous and contains only the *p* possibility. The semantics for fictional attitudes thus mimics what is known in philosophical discussion as Hintikkean belief (i.e., the belief that conveys full commitment to *p* and that we described as solipsistic).

Interestingly, fictional predicates can also license the subjunctive in Italian:[42]

36. Immagino che Maria sia incinta.
    Imagine.1sg that Mary be.SUBJ.3sg pregnant
    I imagine that Mary might be pregnant.
37. Immagino che Maria è incinta.
    Imagine.1sg that Mary be.IND.3sg pregnant
    I imagine that Mary is pregnant.

There is a difference in the interpretation triggered by the use of the two moods. When the indicative is chosen, *immaginare* describes a

purely subjective attitude of imagination, completely dissociated from reality. When the subjunctive is chosen, *immaginare* conveys a supposition or a conjecture. The same distinction exists with English *imagine*.

38. Mary is silent, open eyes dreaming. Mary is imagining that she is a top model.
39. I imagine you are ill because you are shivering.

Example 38 reports a pure state of imagination of Mary, but example 39 reports a conjecture by considering reality: *p* can be either true or false in the context of utterance. Only in the latter case is knowledge at stake. In the conjectural use, the speaker does not know but estimates that her interlocutor is ill. In Italian, this difference is made visible by mood: the conjectural use is triggered by the subjunctive; the solipsistic use, by the indicative. In a context where Mary is explaining to Susan why John was silent and sad the solipsistic use surfaces:

40. Immaginava che andava in Italia.
    Imagine.PAST.IMP that go.IND.3sg in Italy
    He was imagining that he was going to Italy.

Example 41 is another example illustrating that subjunctive triggers a conjectural interpretation of *immaginare* (imagine).

41. Immagino che tu sia arrivato in ritardo questa
    Imagine.IND.1sg that you be.SUBJ.2sg arrived in late this
    mattina a scuola.
    morning to school
    I imagine you *must* have arrived late this morning at school.

Intuitively, here, an "I do not know" component is active, reflected in English with the modal verb, here *must* (although it could also be *might*). The use of a modal as equivalent to subjunctive appears to

be a general crosslinguistic strategy. The sentence states that the speaker does not know whether *p* is true, but she is reporting that in possibilities that are compatible with what she knows that comply also with her imagination and include the actual world, her interlocutor has arrived late at school.

With the solipsistic imagination, the attitude holder is committed to a reality that is not believed to be actual. With suppositional, conjectural imagination, the attitude holder entertains what the actual reality can be like. Solipsistic imagination uses emotive or endogenous evidence—that it is to say, it conveys a representation that has an entirely private, inner source. Conjectural imagination, however, uses exogenous evidence—that it is to say, evidence rooted in the actual world. We come back to this distinction extensively in Section VI.[43]

V. Solipsistic and Suppositional Belief

The consideration or not of knowledge and what is actually the case allows us to distinguish, therefore, two kinds of belief. The indicative is belief that does not engage knowledge but is based purely on a subjectively veridical attitude. This solipsistic attitude can be grounded on emotive evidence or faith, and we can think of solipsistic belief as a *credence*.[44] Very typically and expectedly, then, indicative (which has a very restricted use with belief in Italian) is found in religious discourse and prayers.

42. Apostolato della sofferenza (Apostolate of suffering):[45]

Credo	che il dolore	distacca,		
Believe.PRES.IND.1SG	that the pain	detach.PRES.IND.3SG,		
disillude,	purifica,	migliora,		
disilluse.PRES.IND.3SG,	purify.PRES.IND.3SG,	improve.PRES.IND.3SG,		
conduce	l'anima alla	più	alta	perfezione.
guide.PRES.IND.3SG	the soul to-the	most	high	perfection

I believe that pain detaches, reveals truth, purifies, improves, and indeed guides the soul to the highest perfection.

Credence can be based on rational arguments resting on knowledge, but it is mostly based on private premises such as opinion and emotive/bouletic premises, and it can therefore be irrational. In credence, the knowledge component and the body of evidence may play very small roles; solipsistic belief can thus turn into dogma in all possible cases where truth does not matter but credence does.

When belief engages with knowledge, Italian chooses subjunctive, as we noted earlier, and English employs a modal:

43. Credo che Maria sia incinta.
Believe.1sg that Mary is pregnant
I believe that Mary must/might be pregnant.

Belief now contains an "I do not know" component and is a supposition or conjecture. While in every language the conjectural use of belief is present, only some languages manifest it as a systematic choice (subjunctive-indicative) in the grammatical system. An important question to ask is what module of grammar may be responsible for this sensitivity. In languages with productive mood distinctions where the use of one or another mood is obligatory (such as Greek and the Latin-descending Romance languages) the sensitivity to the two kinds of belief is a matter of core grammar (i.e., morphology, syntax, and semantics) since it is inescapable. In these languages, the encoding of mood is on a par with that of tense and aspect, which are also obligatory categories. However, in a language such as English the equivalent strategy of using a modal to indicate conjecturality is only optional—we must say, therefore, that sensitivity to two kinds of belief is not encoded in the core grammar but is a matter of the semantics-pragmatics interface. In English and languages like it, even when no modal is used the interpretation of conjectural belief is still possible. There are various kinds of phenomena in this realm that parametrize crosslinguistically in this way, most notably temporal and aspectual distinctions that some languages encode in the grammatical tense or aspectual

system and others delegate to pragmatic inferencing. In the latter case, there are always optional devices to disambiguate. (We thank a reviewer for raising this important question.)

These two types of belief—solipsistic veridical belief or credence, and conjectural nonveridical belief—are informative of two different manners whereby linguistic and epistemic agents engage with reality. With solipsistic belief, they "project" a reality that can ignore the actual world. With the conjectural use, they "reconstruct" the actual reality based on external clues. The communicative goals of solipsistic and conjectural belief are thus not the same: with the solipsistic use the speaker wants to make the credence of the attitude holder known; with the conjectural belief the attitude holder proposes a view of what the world can be like and, in particular, proposes that *p* might be true.[46]

In closing, it is worth clarifying that the solipsistic representation is a representation that does not need "verification"; it is a representation that the attitude holder holds without considering the truth conditional status of the content π (i.e., without consideration of the external reality). This is what we mean by saying that the attitude holder doesn't engage with reality, and it is important to remember that his disengagement is characteristic of sentence embedding: with unembedded (main) sentences, even when modals are used, engagement with reality is inescapable. With knowledge verbs and suppositional/conjectural belief the attitude holder does consider the truth conditional status of π—but, crucially, we show that such consideration is not always necessary. The two types of beliefs are grounded in different types of evidence to which we now turn.

VI. Direction of Fit and Evidential Underpinnings

It is useful at this juncture to consider the "direction of fit." Initially used for speech acts by John Searle, this notion can be extended to

attitudes and the types of evidence in which attitudes are rooted.[47] According to common wisdom, belief follows from the world, whereas desire, for instance, projects a world. We have unveiled here two different types of beliefs: belief that follows from the world (the conjectural belief) and engages with objective reality, and belief that projects a world (the solipsistic belief) that need not engage reality.

There is inner to outer direction of fit with solipsistic attitudes: the agents represent the reality on the basis of an internally born representation. They can consider this inner representation as a faithful representation of the real world or just withdraw their commitment about whether their own representation can be taken to be a faithful one for the outer world.

However, there is an outer to inner direction of fit with conjectural attitudes: the agents form a representation of the reality on the basis of external clues and try to form a faithful representation of the outer world. These two directions (inner to outer and outer to inner) have important evidential underpinnings again when we consider flexible mood choice in Italian (described in Mari's earlier work that we rely on here):[48]

44. A group of friends is looking for a restaurant. One of them suggests:
    a) Andiamo lì, credo che è buono.
    Go.IMP.1pl there, believe.IND.1sg that be.IND.3sg good
    Let's go there! I believe it is good!
    b) Andiamo lì, credo che sia buono.
    Go.IMP.1pl there, believe.IND.1sg that be.SUBJ.3sg good
    Let's go there! I believe it will be good!

Notice the use of the epistemic future modal in English. Likewise, in Greek, the future particle produces the same effect:

45. Pame! Nomizo oti to estiatorio tha ine kalo!
    Go.IMP.1pl there, believe.IND.1sg that.IND the restaurant FUT be.3sg good
    Let's go there! I believe the restaurant will be good!

The future is a form of epistemic judgment, as we have recently argued.[49] Well-known purely epistemic futures in English are discussed in Palmer:[50] *That will be the postman* on hearing a knock on the door, and *Oil will float on water* as a general rule with no temporal meaning since it is a definitional generic statement. We see in the Greek example that despite the use of the indicative subordinator, the future particle enables conjectural belief. Hence, we reiterate that the transition from one type of belief to the other does not rely exclusively on mood but on modality expressions more broadly, as evidenced also by English. The absence of the mood category in English or in any other language, therefore, is not deficiency.

By choosing the indicative, the speaker reveals her own credence or preference for a particular restaurant that relies on some internal perception (she has already eaten at that restaurant, she likes how it looks). The evaluation is subjective in a proper way; it is based on some subjective experience. This type of subjective judgment is incommensurable with the one that could be expressed by other speakers and relies on their endogenous beliefs. Emotive material is always endogenous (as we noted above in relation to the solipsistic fictional interpretation of "imagine" predicates). Endogenous material can also be rational. However, as we said earlier and discuss further below, endogenous material is never sufficient—by its very nature of being inner and private—to form a reliable picture of reality, hence the unresolved situation of "faultless disagreement." One could even say that the endogenous material cannot be "evidence," strictly speaking, since evidence always makes reference to what is the case (i.e., it always makes reference to the world). Hence all purely inner motivations for belief, such as religious or highly ideological political beliefs (which, one could argue, are of similar nature to religious beliefs), cannot be evidential.[51] Political beliefs can be motivated by what is the case and sociocontextual factors generally, but the emotive

component—which includes various biases including confirmation bias—strongly affects their strength as evidence. It would be fascinating to study the relation between religious and political beliefs in the framework we have developed here—a task that we will have to leave for a future occasion, unfortunately.

In choosing modalization, the speaker signals that she is engaging with knowledge, relying on some external or exogenous evidence: in examples 44*b* and 45, for instance, she is signaling that she has heard or read about the restaurant and that there are "objective" criteria for judging restaurants (pretty much like how there are objective standards to judge a wine).[52] Exogenous evidence is a body of knowledge that includes "facts" (what it is known, seen, heard, etc.). These facts are objective or at least shareable; *p* can be "known" relatively to this body of knowledge, and, relatively to this type of evidence, the evaluations of the participants are commensurable with one another.

We thus obtain the following picture. With attitudes that engage with endogenous evidence—such as solipsistic belief and solipsistic fictional attitudes—the epistemic agent is in a veridical state. Endogenous evidence is never partial and creates a homogenous state that excludes the negation of a proposition. As for belief, we call this veridical mental state doxastic. With conjectural belief and imagination, however, the epistemic agents acknowledge "lack of full knowledge." The evidential basis of conjectural belief is facts that are verifiable by other epistemic agents. These facts are the exogenous evidence. However, the very use of the attitude reveals that exogenous evidence is never total. Exogenous evidence is always partial when it comes to epistemic attitudes other than "know." Exogenous evidence is also present, we must note, in the case of personal taste and psychological predicates (such as *tasty*, *scary*, *fun*, etc.) since they rely on experience and personal experience is empirical, hence part of the world.[53]

VII. Conclusion: Evidence, Reliability, and Veridicality versus Truth

As we conclude our discussion, it is important to emphasize that the source of evidence also determines different degrees of reliability, trust, and commitment to the "objective truthfulness" of *p*. Endogenous "evidence," while it enhances a veridical mental state, is not informative enough to allow one to draw a reliable picture of the reality. Exogenous evidence, however, even if partial, is more reliable by the very fact of relying on external or factual clues. We thus obtain a picture where it is not only the veridical-nonveridical distinction that determines the level of commitment or trust to the truthfulness of content π but also the source of the evidence.

With solipsistic belief (credence), the linguistic agent is fully committed to π on the basis of doxa (belief). With conjectural belief, the speaker is at least partially committed to π on the basis of facts relevant to sociocontextual premises that are taken into consideration. We can think of this as partial public commitment that, albeit partial, is more reliable than the one based on purely endogenous subjective assumptions: for example, imagination or dreaming are veridical commitments but far from being reliable or trustworthy.[54] Credence and a fortiori religious and political dogma are of the same type—that is, veridical because they establish full commitment of the linguistic agent but are unreliable. Knowledge is the only attitude that reveals exogenous and total evidence on behalf of the attitude holder. It thus conveys full public commitment. Let us summarize this in table 1.

As we see, attitudes are rooted in evidence, and the evidence determines not only their status with respect to veridical commitment, establishing a distinction between private and public commitment that was absent in the initial characterization of commitment in example 10. When evidence is exogenous, it is shareable, and the attitude enters the realm of knowledge. Knowledge can be total ("know")

Table 1. Types of Beliefs and Types of Evidence

Type of Attitude	Solipsistic Belief	Conjectural Belief	Knowledge
Evidence type	Endogenous and total	Exogenous and partial	Exogenous and total
Reliability	Nonreliable	Partially reliable	Totally reliable
Commitment	Full private commitment	Partial public commitment	Total public commitment

or partial ("conjectural belief"). Exogenous evidence engages with public commitments, whereas endogenous assumptions do not allow engaging publicly (again, recall that all languages have a distinction between solipsistic and conjectural belief predicates, it is just not made visible by mood and modality). In our view, commitments (public or private) are always grounded in evidence, but of course only exogenous evidence is reliable. When speakers make assertions or ask questions or assess statements of others, they make veridicality judgments that are not ex nihilo but rather based on their own evidential perspective. But when this perspective is purely private and endogenous, it is not actual evidence but inner *projection*.

We offered concrete suggestions of how to define the ingredients and model the structure of the veridicality judgment, and both the structure and the ingredients are universal (i.e., they remain independent of the specific language tools used). As we showed, Greek and English do not mark the conjectural belief via the subjunctive but resort to the use of a modal verb, and Greek may also use a modal particle (the Greek future particle). The absence of the specific grammatical category of subjunctive in English complement clauses does not entail that the semantic category of conjectural belief (or imagination or dream) does not exist in this language. We have thus shown language to be resilient and not confining, contrary to what would be expected by the deterministic strong linguistic relativity hypothesis.

Finally, notice that at no point did we talk about relative truth. Rather, it is the veridicality judgment that is relative. Truth is objective and independent of the veridicality forming factors (the exogenous and the endogenous privately projecting emotive assumptions). Truth, therefore, cannot be relativized. What is relativized is an individual's assessment of truth, which relies on subjective veridicality states, as we explained. Objective truth, in other words, is indeed a matter of fact. Caution is therefore advised in using common expressions such as "my truth" and "your truth": these can only be understood as shorthand for an agent's veridicality judgment and the experiences that formed it (which can be highly subjective), not as referencing truth itself. Subjective veridicality is an inner to outer direction of fit from language to world, while truth (partial or total) reflects an outer to inner direction from world to language.

Notes

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1. Notice that we talk about "thought" and not cognition or the "mind." The reason we do this is that we adopt what R. Jackendoff calls the "philosophical view" of the relation between thought and the world—and not a psychological one that would frame the relation in terms of mental states and the brain ("The Problem of Reality," *Noûs* 24 [1991]: 411–33). We are not interested in how the brain encodes the linguistic representations and attitudes we discuss here and side with J. Fodor in assuming that "truth, reference, and the rest of the semantic notions aren't psychological categories" ("Methodological Solipsism Considered as a Research Strategy in Cognitive Psychology," *Behavioral and Brain Sciences* 3, no. 1 [1980]: 63–73, at 71). The philosophical perspective we take grows out of questions of epistemology and is succinctly summarized by Jackendoff as follows: "Philosophical version: What is the relationship of the mind to the world, such that we can have knowledge of reality, such that we can have beliefs and desires

about things in the world, and such that our sentences can be true or false?" ("Problem of Reality," 411). See also R. Jackendoff, *Patterns in the Mind: Language and Human Nature* (New York: Basic Books, 1994).

2. H. N. Fowler, ed. and trans., *Plato: Cratylus, Parmenides, Greater Hippias, Lesser Hippias*, Loeb Classical Library (Cambridge, MA: Harvard University Press, 1926).

3. See our recent book, A. Giannakidou and A. Mari, *Truth and Veridicality in Grammar and Thought: Mood, Modality and Propositional Attitudes* (Chicago: University of Chicago Press, 2021). In our discussion here we build heavily on the ideas about truth and veridical judgment developed in the book and our recent work and clarify further some concepts. Our goal here is not limited to offering a formal semantic theory (which was the emphasis in our book) but to extend the theory and develop a framework for rhetorical pragmatics that is needed for the analysis of linguistic messages in discourse.

4. A. Giannakidou, "Inquisitive Assertions and Nonveridicality," in *The Dynamic, Inquisitive, and Visionary Life of φ, ?φ, and Possibly φ, A Festschrift for Jeroen Groendijk, Martin Stokhof, and Frank Veltman, M. Aloni, M. Franke, and F. Roelofsen* (Amsterdam: ILLC, 2013), 115–26; A. Giannakidou and A. Mari, "Epistemic Future and Epistemic MUST: Nonveridicality, Evidence, and Partial Knowledge," in *Mood, Aspect, Modality Revisited: New Answers to Old Questions*, ed. J. Błaszczak, A. Giannakidou, D. Klimek-Jankowska, and K. Migdalski (Chicago: University of Chicago Press, 2016); A. Giannakidou and A. Mari, "A Unified Analysis of the Future as Epistemic Modality: The View from Greek and Italian," *Natural Language and Linguistic Theory* 36, no. 1 (2018): 85–129; A. Giannakidou and A. Mari, "The Semantic Roots of Positive Polarity: Epistemic Modal Verbs and Adverbs," *Linguistics and Philosophy* 41 (2018): 461–87; Giannakidou and Mari, *Truth and Veridicality*.

5. A. Mari, "Belief and Assertion: Evidence from Mood Shift" (workshop, "Questioning Speech Acts," Kostanz, Germany, September 14–16, 2017).

6. H. P. Grice, "Logic and Conversation" (1975), in *The Semantics-Pragmatics Boundary in Philosophy*, ed. M. Ezcurdia and Robert J. Stainton (Peterborough: Broadview, 2013), 47.

7. A. Giannakidou and A. Mari, "The Semantic Roots of Positive Polarity: Epistemic Modal Verbs and Adverbs," *Linguistics and Philosophy* 41 (2018): 623–64; Giannakidou and Mari, *Truth and Veridicality*; Giannakidou, "Inquisitive Assertions."

8. There are, of course, noncooperative conversations, such as advertising, propaganda, and so-called bullshit (H. G. Frankfurt, *On Bullshit* [Princeton, NJ: Princeton University Press, 2005]), as well as types of political speech and interactions on social media platforms (Twitter, Facebook) where the Veridicality

Principle is not required or followed. These cases deserve full consideration, and we hope to work on these in the near future. The framework we propose here offers a number of tools that will be helpful for the analysis of noncooperativity and deceptive language. For some recent discussion on deviations from the Veridicality Principle, see A. Giannakidou, "Αλήθεια, χειριστική γλώσσα και αληθειακή εκτροπή" [Truth, manipulative language, and veridicality violations], Λόγιος Ερμής (forthcoming).

9. K. Bach, "Applying Pragmatics to Epistemology," *Philosophical Issues* 18 (2008): 68–88; T. Williamson, "Knowing and Asserting," *Philosophical Review* 105 (1996): 489–523.

10. Giannakidou and Mari, "Unified Analysis of the Future"; Giannakidou and Mari, "Semantic Roots of Positive Polarity"; Giannakidou and Mari, *Truth and Veridicality*; A. Giannakidou, *Polarity Sensitivity as (Non)veridical Dependency* (Amsterdam: John Benjamins, 1998); Giannakidou, "Inquisitive Assertions."

11. We must note therefore that our veridical commitment differs from Krifka's "commitment state," which is "modelled as a set of propositions, containing the propositions that are *publicly shared by the participants*" (emphasis ours). M. Krifka, "Bias in Commitment Space Semantics: Declarative Questions, Negated Questions, and Question Tags," *Proceedings of Semantics and Linguistic Theory* 25 (2015): 328–45, at 328–29. Krifka's commitment state corresponds to common ground assumptions, and the goal of speech acts is to "change a commitment state." Speaker commitment in our view can be entirely private, even solipsistic, as we discuss in the essay.

12. Still *pace* K. von Fintel and A. S. Gillies, "Still Going Strong," *Natural Language Semantics* 29 (2021): 91–113.

13. D. Lassiter, "Must, Knowledge, and (In)directness," *Natural Language Semantics* 24 (2016): 117–63; R. Trnavac and M. Taboada, "The Contribution of Nonveridical Rhetorical Relations to Evaluation in Discourse," *Language Sciences* 34 (2012): 301–18.

14. This observation extends to all "representational" attitudes (except *know*) as well as evidential attitudes like SEEM. Indeed, SEEM is possible in front of the window, only if one cannot distinguish the rain properly. Otherwise—if the SEEM sentence (*It seems to be raining*) is uttered in front of the rain—an effect of irony is obtained. We thank an anonymous reviewer for this remark. For recent discussions, including earlier literature, see Kai von Fintel and Anthony S. Gillies, "*Must* . . . Stay . . . Strong!," *Natural Language Semantics* 18, no. 4 (2010): 351–83, and "Still Going Strong"; Giannakidou and Mari, "Epistemic Future and Epistemic MUST."

15. Giannakidou and Mari, "Epistemic Future and Epistemic MUST"; Giannakidou and Mari, "Semantic Roots of Positive Polarity"; Giannakidou and Mari, *Truth and Veridicality*.

16. We thank a reviewer of this essay for pointing out quite insightfully that SEEM predicates can "act like" modals. We agree and offer more discussion in Giannakidou and Mari, *Truth and Veridicality*, chap. 5, where we show that semblance predicates can also be interpreted solipsistically as purely doxastic predicates. *It seems/appears to be raining* is felicitous in front of the window, just like *I think/believe it is raining* would be in the same context. The contrast with MUST suggests that while MUST, like all modals, engages with knowledge—i.e., it is evaluated with respect to a nonveridical epistemic modal base *M* that contains, as we just said, the *not p* option and is therefore incompatible with knowing *p* (which has a veridical *M* containing only the *p* possibility)—semblance and belief predicates can express a purely doxastic judgment that is not sensitive to what is known. Notice that *I know it is raining* in the same context is odd. We focus on this purely doxastic judgment in Sections III and IV.

17. M. Liu very succinctly uses the term "elastic nonveridicality" to capture the gradience of commitment, in "The Elastic Nonveridicality Property of Indicative Conditionals," *Linguistics Vanguard* 5, no. S3 (2019), https://doi.org/10.1515/lingvan-2019-0007.

18. See esp. Giannakidou and Mari, "Epistemic Future and Epistemic MUST." See also the characterization "elastic nonveridicality" in Liu, "Elastic Nonveridicality Property."

19. For the concept of equilibrium, see original formulation in Giannakidou, "Inquisitive Assertions." The literature also features other views on possibility, of course. To mention just two among the recent ones, for S. Yalcin the prejacent must be an issue and for Willer it must be a live possibility; see S. Yalcin, "Epistemic Modals," *Mind* 116 (2007): 983–1026; M. Willer, "Dynamics of Epistemic Modality," *Philosophical Review* 122 (2013): 45–92.

20. We offer more discussion of these phenomena in A. Giannakidou and A. Mari, "Modals, Questions and Bias" (paper presented at the Workshop on Questions and Bias, Humboldt University, Berlin, 2021).

21. Giannakidou and Mari, "Epistemic Future and Epistemic MUST."

22. P. Kiparsky and C. Kiparsky, *Fact* (Bloomington, IN: Linguistics Club, Indiana University, 1968).

23. A. Giannakidou, "Affective Dependencies," *Linguistics and Philosophy* 22 (1999): 367–421; Giannakidou, *Polarity Sensitivity*; M. de Marneffe, C. Manning, and

C. Potts, "Did It Happen? The Pragmatic Complexity of the Veridicality Judgement," *Computational Linguistics* 38 (2012): 300–333. A. Mari, C. Beyssade, and F. Del Prete, *Genericity* (Oxford: Oxford University Press, 2012).

24. See esp. Giannakidou, *Polarity Sensitivity*; Giannakidou, "Inquisitive Assertions and Nonveridicality"; A. Mari, "Disambiguating the Italian Future," in *Proceedings of the 5th International Conference on Generative Approaches to the Lexicon* (University of Pisa, Italy, 2009), 209–16; Giannakidou and Mari, "Epistemic Future and Epistemic MUST." De Marneffe, Manning, and Potts, "Did It Happen?," confirms this complexity with corpus data.

25. D. Dowty, *Word Meaning and Montague Grammar* (Dordrech: Kluwer, 1979).

26. Mari, Beyssade, and Del Prete, *Genericity*.

27. P. Lasersohn, "Context Dependence, Disagreement, and Predicates of Personal Taste," *Linguistics and Philosophy* 28 (2005): 643–86. For a more recent discussion, see also Christopher Kennedy and Malte Willer, "Subjective Attitudes and Counterstance Contingency," *Proceedings of Semantics and Linguistic Theory* 26 (2016): 913–33.

28. Many thanks to Ken Warren for raising this point to us and the Franke Fellows discussion circle in winter 2021 for many useful reactions to this discussion.

29. Mari and Portner distinguish questions that can be answered from questions that cannot be answered. Predicates of personal taste can be used to answer a question when external or public criteria are relevant in the context of a conversation. They are not otherwise used to answer a question and to ultimately establish truth. For extended discussion, see A. Mari and P. Portner, "Mood Variation with Belief Predicates: Modal Comparison in Semantics and the Common Ground" (unpublished manuscript, Institut Jean Nicod Paris and Georgetown University, 2020).

30. On experience and acquaintance, see F. Moltmann, "Relative Truth and the First Person," *Philosophical Studies* 150 (2010): 187–220; D. Ninan, "Taste Predicates and the Acquaintance Inference," *Proceedings of Semantics and Linguistic Theory* 24 (2014): 290–309.

31. This has led scholars to assume that these predicates have an internal syntactic argument for the experiencer; see R. Jackendoff, *Semantic Interpretation in Generative Grammar* (Cambridge, MA: MIT Press, 1972).

32. Frankfurt, *On Bullshit*.

33. We must clarify that we follow standard syntactic practice in using the term complementary distribution to mean mutually exclusive. Words of the

same class (i.e., mood morphemes or, say, case markers) share the same distributional pattern (i.e., they appear in the same position), but they are in complementary distribution when the presence of one excludes the other. We do realize that there may be differences of opinion coming from other levels of analysis, specifically from phonology, but here we follow standard practice in describing the mood contrasts in terms of complementary distribution. We appreciate a reviewer's commentary on this point.

34. L. Matthewson, "Cross-Linguistic Variation in Modality Systems: The Role of Mood," *Semantics and Pragmatics* 3, no. 9 (2010): 1–74; M. Wiltschko, "The Essence of a Category: Lessons from the Subjunctive," in Błaszczak et al., *Mood, Aspect, Modality Revisited*, 218–54.

35. S. E. Murray, *The Semantics of Evidentials* (Oxford: Oxford University Press, 2016); A. Smirnova, "Evidentiality in Bulgarian: Temporality, Epistemic Modality, and Information Source," *Journal of Semantics* 30, no. 4 (2013): 479–532.

36. A. Giorgi and F. Pianesi, *Tense and Aspect: From Semantics to Morphosyntax* (Oxford: Oxford University Press, 1996). *Realis* indicates objective truth, and *irrealis* indicates lack of objectivity (both possibility or impossibility).

37. On a related discussion on subjectivity and its evidential status, see Jan Nuyts, "Subjectivity as an Evidential Dimension in Epistemic Modal Expressions, *Journal of Pragmatics* 33, no. 3 (2001): 383–400.

38. A. Mari, "Assertability Conditions of Epistemic (and Fictional) Attitudes and Mood Variation," *Proceedings of Semantics and Linguistic Theory* 26 (2016): 61–81.

39. R. Marques, "Modality, Context Change Potential and Mood Selection in European Portuguese," in *Modality and Mood in Romance: Modal Interpretation, Mood Selection, and Mood Alternation*, ed. M. G. Becker and E.-M. Remberger (Tübingen: Niemeyer/de Gruyter, 2010), 133–61.

40. Marques, "Modality, Context Change Potential and Mood Selection."

41. Mari, "Assertability Conditions"; Giannakidou and Mari, *Truth and Veridicality*.

42. Mari, "Assertability Conditions."

43. We want to emphasize the fact that the meaning of the predicates does not change across languages. However, languages are sensitive to different aspects of meaning for mood selection. We can distinguish two types of languages: type-π languages, in which mood choice is driven by both presuppositional and assertive content, and type-α languages, in which mood choice is driven by assertive content only.

44. Mari, "Assertability Conditions."

45. Mari and Portner, "Mood Variation with Belief Predicates."

46. Mari, "Belief and Assertion."

47. J. R. Searle, *Expression and Meaning: Studies in the Theory of Speech Acts* (Cambridge: Cambridge University Press, 1985).

48. Mari, "Assertability Conditions."

49. A. Giannakidou and A. Mari, "A Unified Analysis of the Future as Epistemic Modality: The View from Greek and Italian," *Natural Language and Linguistic Theory* 36, no. 1 (2018): 85–129; A. Giannakidou and A. Mari, "A Two Dimensional Analysis of the Future: Modal Adverbs and Speaker's Bias," *Proceedings of the Amsterdam Colloquium* (2013): 115–22. See also L. De Saussure and P. Morency, "A Cognitive-Pragmatic View of the French Epistemic Future," *Journal of French Language Studies* 22, no. 2 (2012): 207–23.

50. Frank Robert Palmer, *Mood and Modality* (Cambridge: Cambridge University Press, 2001).

51. Our view is in contrast with typological views according to which *endophoric* evidence counts as direct evidence. V. A. Plungian, "The Place of Evidentiality within the Universal Grammatical Space," *Journal of Pragmatics* 33 (2001): 349–57.

52. Mari, "Assertability Conditions"; Mari and Portner, "Mood Variation with Belief Predicates."

53. For recent discussion on the experiential foundation of psychological predicates, see P. J. Munoz, "On Tongues: The Grammar of Experiential Evaluation" (PhD diss., University of Chicago, 2019).

54. The use of imagination predicates as outlining a vision for the future offers an interesting case. Consider Martin Luther King Jr.'s speech famously known as the "I Have a Dream" speech. In this speech, dream is used to designate an aspiration for the future, a destination of a path. This use does not fall under the category of what we describe as imagination/dream predicates. It suggests that even with fiction predicates, nonsolipsistic construals engaging the world are possible and receive, as expected, a conjectural/suppositional interpretation just like belief predicates. Importantly, the future orientation plays a key role in licensing the conjectural component.