

What is mood “*about*”?

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Introduction



- In languages that distinguish mood, negated Neg-raising predicates are generally observed to select a subjunctive complement clause.
- In languages like Farsi, French, and Spanish, both subjunctive and indicative moods are permitted under certain negated Neg-raising predicates, such as ‘*think*’.
- In Farsi, *think*, even when it is not negated, can take both indicative and subjunctive complements.

(1) *Context: Ali receives a bouquet of flowers. There is no information about the sender.*

Ali fekr mi-kon-∅-ad ke in golha ro
 Ali thought IMPF-do-PRES-3SG that this flower-PL RA
 maman-eš ferest-ade {baš-ad /ast}
 mother-their send-PP be.∅-3SG/ be.PRES-3SG
Ali thinks that his mom sent these flowers.

- The subjunctive mood in Farsi does not combine with tense morphology, as evidenced by the absence of a paradigm for the past subjunctive (Mirrazi, 2022, 2024). Instead, Farsi features three subjunctive forms, which are distinguished by properties of the aspectual head. I mark subjunctive forms with \emptyset in glosses to indicate the lack of deictic tense (Ferreira 2017, a.o.).

	“Indicative”		“Subjunctive”
	Present	Past	\emptyset -tense
Perfective	raghs- id - \emptyset -am verb-PERF-PRES-1SG	raghs- id -am verb-PERF-PST-1SG	raghs- id -am verb-PERF- \emptyset -1SG
Imperfective	mi -raghs- \emptyset -am IMPF-verb-PRES-1SG	mi -raghs- id -am IMPF-verb-PST-1SG	be -raghs-am IMPF-verb- \emptyset -1SG
Perfect	raghs-ide \emptyset -am verb-PP AUX.PRES.1SG	raghs-ide bud -am verb-PP AUX.PST.1SG	raghs-ide baš -am verb-PP AUX. \emptyset .1SG

Table: Morphological representations of tense and aspect in Farsi

- I make the novel observation that impossible beliefs can only be reported using the indicative mood in the complement.



- (2) *Context: I have a meeting with Sara at 2. It's one o'clock now but she is calling me on zoom.*

Sara fekr mi-kon-ad alan sa'at do {#baš-ad/
Sara thought IMPF-do.PRES-3SG now clock two be-∅-3SG/
ast}

be.PRES-3SG

Sara thinks it's two o'clock now.



- (3) *Context: Sara has lost her memory and mistakenly believes she is Adele.*

Sara fekr mi-kon-ad Adele {#baš-ad/ ast}
Sara thought IMPF-do.PRES-3SG Adele be-Ø-3SG/ be.PRES-3SG
Sara thinks she is Adele.



- Crucially, the contrast persists even when *think* is negated.

(4) *Context: Sara has regained her memory and is now aware of her true identity.*

Sara dige fekr ne-mi-kon-ad Adele

Sara anymore thought NEG-IMPF-do.PRES-3SG Adele

{#baš-ad/ ast}

be-∅-3SG/ be.PRES-3SG

Sara no longer thinks she is Adele.



- A similar contrast appears to exist in French as well.¹

(5) Marie ne pense plus qu'elle {est
Marie NEG think-PRS.3SG no-longer COMP.3SG.F be-PRS.3SG.IND
/#soit} Adele
/be-PRS.3SG.SUBJ Adele
Marie no longer thinks she is Adele.



¹My consultant believes that such a contrast does not exist in Italian.

Challenges for theories of Mood



- Farsi data challenges the two main approaches to verbal mood selection:
 - The comparison-based theory
 - The truth-based theory



The comparison-based theory

- The subjunctive is used to mark the argument of a verb that is comparative or evaluative. These concepts are formally modeled with an ordering relation over worlds or propositions (Giorgi et al. 1997; Villalta 2008; Portner & Rubinstein 2020, among others).
- This approach cannot account for the contextual variation in mood selection with a single predicate, such as the Farsi verb *think*, which is intuitively non-comparative.



The truth-based theory

- The indicative is used with predicates that imply commitment, certainty, or related concepts (Farkas 1985; Quer 1998; Homer 2007; Giannakidou & Mari 2013, 2021; Silk 2018, among others).
- This approach fails to explain why the indicative is required for reporting impossible beliefs.



(6) Veridical Information State

An information state $M(i)$ is veridical about p iff:

$\forall w[w \in M(i) \rightarrow w \in \{w \mid p(w)\}]$. (Giannakidou & Mari, 2021)

- A veridical state conveys absolute certainty of the agent that the sentence is true. It is homogenous, therefore **entails p**.
- The indicative will be licensed in the complement of a propositional attitude that is veridical objectively (i.e., factive) or **subjectively**.



- Giannakidou & Mari (2021) argue that the regulating factor for mood choice cannot be *truth*. They propose this subjective notion of veridicality to explain why doxastic, dream, and fiction verbs in Greek and most Romance languages take indicative complements.

(7) O Nicholas Nicholas nomizi oti/*na to Milano ine i
 the Nicholas Nicholas thinks.3sg that.IND/SUBJ the Milan is the
 protevousa tis Italias.
 capital of Italy
'Nicholas thinks Milan is the capital of Italy.'

(8) O Nicholas Nicholas pistevi oti/*na efije i
 the Nicholas Nicholas believes.3sg that.IND/SUBJ left.3sg the
 Ariadne.
 Ariadne
'Nicholas believes that Ariadne left.'

- Remember that both positive and negative *think* in Farsi can, in principle, take both subjunctive and indicative complements.
- However, they require the indicative mood when their complement expresses an impossible belief.
- Subjective veridicality does not explain (i) why *think* can take a subjunctive complement in the first place, or (ii) why negated *think*, which generally prefers a subjunctive complement, requires the indicative mood when the complement expresses an impossible belief.



Farsi conditionals



- Farsi makes a morphological distinction between hypothetical and factual conditionals.

(9) [if p-**PRES**, q]: factual

(10) [if p- \emptyset , q]: hypothetical



- Conditionals whose antecedents are marked with the **present tense (indicative)** yield a factual interpretation. A factual conditional is assertable only if the antecedent is presupposed to be true (usually by someone other than the speaker (Bhatt & Pancheva, 2017; Iatridou, 1991)).



- (11) *Speaker A: My friend Joe, whom you haven't met, is very smart.*
Speaker B: Oh yeah?...

agar enqadr bahuš {**ast/** #**baš-ad**}, čera puldar
if so smart be.PRES.3SG/ be.∅-3SG why rich
n-ist?

NEG-be.PRES.3SG

If he's so smart, why isn't he rich?

- (12) Agar do ta jang-e jahani ettefagh oftaade
if two CL war-EZ worldwide occurrence fall.PP
{**ast/** #**baš-ad**}, jang-e jahani-e sevvom
AUX.PRES.3SG/ AUX.∅-3SG war-EZ worldwide-EZ third
ham mi-tavan-∅-ad ettefagh be-oft-ad
also IMPF-can-PRES-3SG occurrence IMPF-fall-∅-3SG
If two world wars have happened, a third world war can also happen.

- Conditionals whose antecedent are marked with the **subjunctive (zero tense)** yield a hypothetical interpretation and are felicitous only if the truth of their antecedents is an open issue.



- In the following context only a conditional marked with subjunctive is felicitous.

(13) agar sekke šir {#mi-y-ad/ be-y-ad},
 if coin head IMPF-come.PRES-3SG/ IMPF-come-∅-3SG},
 team-e abi mi-bar-∅-ad
 team-EZ blue IMPF-win-PRES-3SG
If the coin comes up head, the blue team will win.

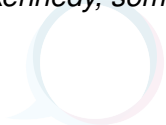
(14) *Context: Police is investigating the speculation that Oswald might not be the murderer, but nothing is certain.*

Agar Oswald Kennedy ro na-košte #ast/
 if Oswald Kennedy RA NEG-kill-PP AUX.PRES.3SG/
baš-ad, kas-e digar-i ou ro košte
 AUX.SUBJ.3SG, person-EZ another-INDF him RA kill.PP
 ast
 AUX.PRES.3SG
'If Oswald didn't kill Kennedy, someone else did.'

- In the context below, both factual and hypothetical conditionals are felicitous.

(15) *Context: Investigation is complete. It is confirmed that Oswald wasn't the murderer.*

- a. Agar Oswald Kennedy ro na-košte **ast/**
 if Oswald Kennedy RA NEG-kill-PP **AUX.PRES.3SG/**
baš-ad, kas-e digar-i ou ro košte
AUX.SUBJ.3SG, person-EZ another-INDF him RA kill.PP
 ast
 AUX.PRES.3SG
 ‘*If Oswald didn't kill Kennedy, someone else did.*’



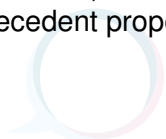
- The conditional with a subjunctive antecedent implies that despite the police's statement, the antecedent is still an open issue.
- Conditional with indicative present tense are felicitous if and only if the antecedent proposition is *settled* in a context set relative to which the utterance is made:

(16) **Settledness**

A proposition p is **settled** relative to a context C if and only if either p is entailed in C or $\neg p$ is entailed in C .

$$(\forall w : w \in C \rightarrow w \in P) \vee (\forall w : w \in C \rightarrow w \in \neg P)$$

- Conditionals with subjunctive (zero tense) antecedent are felicitous if and only if that the antecedent proposition is **not settled**.



Mood & aboutness



- I provide an analysis that formalizes and integrates four existing insights about mood in the literature:
 - Mood selection is regulated by the **settledness** of the proposition in the context (Mari & Portner, 2018).
 - Indicative mood is presuppositional, whereas subjunctive mood lacks a presupposition and derives its contribution through pragmatic competition with the indicative mood (**Maximize Presupposition!**) (Schlenker, 2005).
 - The presupposition of the indicative mood does not need to be met in the global context but rather **relative to a discourse participant's beliefs** (broadly speaking) (Farkas, 1985; Giannakidou & Mari, 2021).
 - *Subjunctive* forms, at least in some languages, lack deictic temporal features and are the morphological realization of **zero tense** (Demirdache & Lungu 2008, 2011; ?, a.o.).

- Following ideas by Windfuhr & Perry (2013) and Darzi & Kwak (2015), I posit that the so-called *subjunctive* forms in Farsi lack deictic temporal features. That is, the distinction between indicative and subjunctive moods in Farsi is in the presence or the absence of deictic tense.
- Deictic tenses introduce a presupposition about the temporal location of a situation variable.

(17) $\llbracket \text{present}_i \rrbracket^g = \lambda P_{\langle s, t \rangle}. \lambda s : \tau(s) \geq \tau(s_i). P(s) = 1$, where s_i is the speech situation by default.

(18) $\llbracket \emptyset \rrbracket^g = \lambda P_{\langle s, t \rangle}. P$

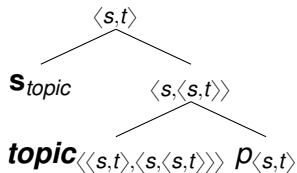


- Following Portner (1992); Kratzer (2021); Schwarz (2009); McKenzie (2012), among others, I assume that clauses with deictic tenses (i.e. indicatives) contain an (Austinian) topic situation (Austin, 1950; Kratzer, 2021), which are the situations that the sentences are about (Lewis's *subject matter*).



- I follow Schwarz (2009) in assuming that the topic situation is introduced by a syntactically represented topic operator.

(19)



(Schwarz, 2009, p. 94)

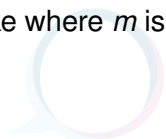


- Semantically, the topic operator anchors the proposition to the context of utterance by introducing the actual situation that the proposition is *about*.

$$(20) \quad \llbracket \text{topic} \rrbracket = \lambda P. \lambda s' : \underline{P \text{ is } \textit{about} s'}. \lambda s. P(s) = 1$$

- The topic operator takes a proposition P and the topic situation, whose value always comes from the context of the utterance, as arguments and introduces **an aboutness presupposition**. In Lewis's term, the topic situation (his subject matter) induces partitions, which are ways of grouping worlds.

(21) *A subject matter m is a relation on worlds; w is grouped with w' if they are just alike where m is concerned.* (Yablo, 2014)



- A proposition is *about* a topic situation iff the truth value of that proposition supervenes on that situation (Lewis, 1988). In other words, a proposition P is about a topic situation s if each cell of a partition M induced by s either implies or contradicts P (Lewis, 1988). That is, the truth value of the proposition never varies in worlds that are similar with respect to the topic situation (i.e. worlds that contain a counterpart of the topic situation).

(22) **Aboutness topic** (adapted from Lewis 1988)

P is **about** s iff $\forall w : w \in C \ \&$

$w \in \text{Counterpart}(s_{\text{topic}}) \rightarrow (w \in P) \vee \forall w : w \in C \ \&$

$w \in \text{Counterpart}(s_{\text{topic}}) \rightarrow (w \in \neg P)$



(23) It's raining. (about Paris)

- The topic situation *Paris* is the current temporal slice of Paris, and it groups worlds in such a way that all the worlds that are alike with respect to *Paris* assign the same truth value to the proposition *it's raining*.
- *it's raining* is either true in all of these worlds that or it is false across these worlds.
- Asserting *it's raining* resolves this disjunction by removing the second disjunct: all the world selected by the topic situation *Paris* are worlds in which *it's raining* is true.



- 'Aboutness' contributed by the topic operator is equivalent to the *settledness*.

(24) **Settledness**

A proposition p is **settled** relative to a context C if and only if either p is entailed in C or $\neg p$ is entailed in C .

$$(\forall w : w \in C \rightarrow w \in P) \vee (\forall w : w \in C \rightarrow w \in \neg P)$$

- The topic situation whose value rigidly depends on the context of utterance refers to a salient situation *in the context*, which can be the content of a salient proposition within the context (i.e. to the situation exemplifying that proposition).
- Therefore, the intersection of the context worlds and the context worlds containing a counterpart of this topic situation remains identical to the context worlds themselves.

- Depending on the value of the topic situation – whether it represents a salient fact or the content of a previously uttered salient proposition – the context worlds will either be the initial context set or a context set temporarily updated by a proposition under negotiation.



Subjunctive lacks a presupposition

- Note that the 'aboutness' contributed by the topic operator, projected in the syntax when the tense head is **deictic**.
- Since the subjunctive mood is the realization of zero tense, subjunctive clauses lack a topic layer and therefore do not carry an 'aboutness' presupposition.



Maximize Presupposition!

- When such a topic situation is salient, the indicative is required by Maximize Presupposition.

(25) **Maximize Presupposition**

If ϕ and ψ are contextually equivalent alternatives, and the presuppositions of ψ are stronger than those of ϕ , and are met in the context of utterance, one must use ψ in c .
(Heim, 1991)

- The use of the subjunctive, which is presuppositionally weaker, gives rise to the inference that the *aboutness* presupposition is not satisfied.
- As *aboutness* amounts to *settledness*, the use of the subjunctive triggers the implicature that the proposition is not settled.

Back to impossible beliefs



- Now, let us return to the examples of impossible beliefs, where we observed that only the indicative is felicitous.

(26) Sara fekr mi-kon-ad alan sa'at do {#baš-ad/
 Sara thought IMPF-do.PRES-3SG now clock two be-Ø-3SG/
ast}
 be.PRES-3SG
Sara thinks it's two o'clock now.

- In this context, the temporal specification of topic situation, here and now of the speaker, settles the falsity of the antecedent. In all the worlds with a counterpart of the topic situation, the proposition '*it's two o'clock now*' is false.



(27) Sara fekr mi-kon-ad Adele {#baš-ad/
 Sara thought IMPF-do.PRES-3SG Adele be-∅-3SG/
ast}
 be.PRES-3SG
Sara thinks she is Adele.

- The sentence above is *about* Sara, and this salient topic situation settles the falsity of the antecedent. In all the worlds with a counterpart of Sara, the proposition ‘*Sara is Adele*’ is false.
- The subjunctive, when used felicitously, implies that the presupposition of the stronger alternative is not satisfied, i.e., the proposition is not settled.



Conclusion and future direction



- Farsi provides evidence that mood alternation is not solely determined by lexical semantics or predicate type. Instead, it reflects an interaction between syntactic structure (the presence of a topic layer), temporal reference (deictic vs bound tenses), and contextual interpretation.
- The infelicity of the subjunctive mood in expressing impossible beliefs challenges both comparison-based and truth-based approaches to mood selection, and lends support to the role of *settledness* as a key presuppositional component in mood selection.
- The contrast between the indicative and subjunctive in expressing impossible beliefs seems to vary cross-linguistically, with Farsi and French differing from Italian. I aim to investigate the hypothesis that this variation correlates with the presence or absence of a past subjunctive paradigm in a language.

Thank you!



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