Believing and asserting: evidence from mood shift.
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Question and proposal According to the influential line of analysis stemming from Lewis (Lewis, 1975; Bach and Harnish, 1979 and see for a recent proposal Lauer, 2013), the speech act of assertion consists in expressing a belief. As a consequence, the assertion of the belief that \(p\) (1-a) and the assertion of \(p\) (1-b) amount to one and the same act (see also discussion in Krifka, 2015,2017).

(1) a. I believe that it is raining. - b. It is raining.

However, as argued by Hawthorne et al. 2016, the minimal pair in (2) shows that belief is weaker than bare assertion: only the belief-statement can be continued with ‘I am not sure that \(p\).’ The question thus arises of whether belief is strong (as strong as assertion) or weak.

(2) a. It is raining, #but I am not sure that it is raining.  
    b. I believe that it is raining, but I am not sure that it is raining.

We add new elements to the debate from the standpoint of mood choice in languages that allow both indicative and subjunctive under ‘believe’-predicates, and Italian in particular. Mood shift with ‘believe’-predicates cannot be explained by current theories (a.o. Giannakidou, 1999/2016; Farkas, 2003; Villalta, 2008; Anand and Hacquard, 2013) which (i) postulate a Hintikkean semantics for belief (3) featuring a homogeneous doxastic modal base \(\text{Dox}_\alpha(w)\) and (ii) consider that the subjunctive is triggered by non-homogeneity.

(3) ‘\(\alpha\) believe \(p\)’ is true in \(w\) iff \(\forall w' \in \text{Dox}_\alpha(w), p\) is true in \(w'\).

We consider mood shift as key entry point for addressing the semantics of belief, and we ask whether belief-statements are weak or strong and in what respect. The main novelty of our account is that epistemic attitudes, besides describing the mental state of the attitude holder, feature an update instruction that indicates how (and whether) the common ground (specifically, the negotiation space, cf. *infra*) is to be updated.

Data and discussion Our empirical investigation starts with the observation that the subjunctive is chosen when \(p\) is knowable, i.e. can be assigned a truth value in the context of utterance. To prove this, we privilege contexts where \(p\) is not knowable such as futurity (Condoravdi, 2002) (Even for metaphysical determinists the future is not knowable). Truthfulness of \(p\) cannot be assessed at the time of utterance, unless plans/decisions are accommodated. Note that, unless a plan is accommodated in (4-b), only the indicative - plus future tense - is admitted.

(4) a. Credo che le Olimpiadi del 2020 si svolgano.SUBJ a Tokyo.  
    I believe that the Olympics of 2020 will take place in Tokyo.  
    b. Credo che la Francia (#)perda.SUBJ/perderà.IND.FUT domani.  
    I believe that France will loose tomorrow.

This contrast was firstly pointed out in Mari, 2016; however, as we argue, the interpretation of the facts by Mari (*ibid.*) is erroneous, and does not rely on ‘knowability’, but rather on ‘lack of knowledge.’ Mari argues that, by using the subjunctive the speaker signals that s/he does not know whether \(p\) is true, without explaining the ban against the subjunctive in (4-b). New data show that the possibility of settling the truthfulness of \(p\) is crucial to understand mood choice. Indeed, the subjunctive is preferred when a question is posed in the conversation, and the participants attempt to determine whether \(p\) is true.

(5) a. Gianni crede che esistono.IND i Marziani.  
    ‘Gianni believes that the Martians exist.’  
    b. Gianni crede che esistano.SUBJ i Marziani.  

By uttering (5-a), the speaker reports a mental attitude of Gianni (also suggesting that Gianni is on the wrong track in believing that martians exist). By choosing to use the subjunctive (5-a), the speaker reports Gianni’s credence, and reports Gianni’s attitude as a possible answer to the open question of whether martians exist. Note that the mental state of Gianni is at-issue, as the possibility to reply ‘No, this is not true, he does not believe that’ to (5-b), shows. Moreover, note that that the main predicate in (5-b) does not have a parenthetical use (Simons, 2007; AnderBois, 2016) as (6) shows (note that there is no main clause subjunctive in Italian).

(6) *I Martiani esistono..SUBJ, crede.  
    The Martians exist, believe.3SG.PRES

Analysis Newly approaching mood shift in the light of how knowledge is interactively built in conversations
(Stalnaker, 1978; Roberts, /19962012), we submit that, with the subjunctive, \( p \) becomes a question (Ginzburg, 1996; Roberts, 1996/2012) and the belief-statement does no longer only describe the mental state of the attitude holder. To implement this idea, we distinguish (along the lines of Hamblin, 1970; Gunlogson, 2001) between two types of belief states (as sets of worlds): mental states \( s \) (i.e. private spaces) and negotiation spaces \( \mathcal{N} \) (i.e. public spaces). \( \mathcal{N} \) s are supersets of common grounds (see the \( ps \) in Farkas and Bruce, 2010; also Portner, 2007). With Farkas and Bruce (2010:88) we assume that assertions (by adding \( p \) to \( \mathcal{N} \)) project a future \( C \) that includes the asserted proposition, whereas a question (by adding at least two alternatives to \( \mathcal{N} \)) projects a set of \( Cs \), each containing only one of the possible answers to the question. We do not take for granted any relation between \( s \) and \( \mathcal{N} \) as this relation is precisely mediated by mood (for a first insight, see Giorgi and Pianesi, 1996). The two facets of the attitude. On the assumption that the illocutionary makeup of a bare assertion is ASSERT, we propose that the illocutionary makeup of a belief sentence is as in (7).

\[
(7) \quad \text{ASSERT} \quad \text{John believes-PRESENT} \quad p
\]

While the higher ASSERT updates \( \mathcal{N} \) with the proposition \([\alpha \text{ believe } p]\), PRESENT is in charge of adding \( p \) to \( \mathcal{N} \). PRESENT is what we call a an update instruction. Update instructions are triggered lexically by the attitude (we use a different font for speech act proper and lexically triggered update instructions) and they provide an instruction as to how to move \( \mathcal{N} \) forward. We propose that epistemic attitudes feature a static and a dynamic meaning: they describe the doxastic state of the speaker (this is the private facet of belief) and they instruct as how to update \( \mathcal{N} \) (this is the public facet of belief). Given a model \( M = \langle W, V \rangle \), let \( \mathcal{N} \subset W \) be the negotiation space and \( s \subset \mathcal{W} \) the doxastic state of the attitude holder. Let \( p \subset W \).

\[
(8) \quad \left[ \text{credere} \right] \equiv \lambda p. \forall \mathcal{W}' \in s(p(w')) \quad \text{– Update instruction. Update } \mathcal{N} \text{ to } \mathcal{N} \cup p \text{ (see Portner, 2007 on modals)}
\]

\( s \) is a Hintikkean doxastic space. We overtly code that, when updating \( \mathcal{N} \) with \( p \), \( \neg p \) worlds are not eliminated from \( \mathcal{N} \). Mood. We do not consider mood on the verb in the embedded clause as a polarity item (see Giannakidou, 2016 for the most recent account in this direction). We rather assign to verbal mood the ability to instruct as to how to update the (local) context, maintaining the insight that subjunctive enhances a non-assertive update (see Farkas, 2003; Giannakidou and Mari, 2017). For any \( W' \subset W \) (\( p_{subj/ind} \) are propositions whose main predicate is in the subjunctive/indicative):

\[
(9) \quad \text{a. Update } \mathcal{W}' \text{ to } \mathcal{W}' \cup p \text{ (non-assertive update)}
\]

\[
(9) \quad \text{b. Update } \mathcal{W}' \text{ to } \mathcal{W}' \cap p \text{ (assertive update)}
\]

When \text{credere} composes with the embedded proposition, both the static and the dynamic meaning are computed. When \text{credere} combines with \( p_{subj} \), \( \mathcal{N} \) is updated as instructed.

\[
(10) \quad \text{Inquisitive-belief. } \left[ [\alpha \text{ credere } p_{subj}] \right]^s = 1 \iff \forall \mathcal{W}' \in s(p(w')) \quad \text{– Update instruction. } (\mathcal{N} \cap p) \text{ & } (\mathcal{N} - p \neq \emptyset)
\]

When the update instructions of the attitudes and the embedded proposition clash (as when the indicative is used), \( \mathcal{N} \) is not updated. Only the static meaning is computed, as last resort.

\[
(11) \quad \text{Expressive-belief. } \left[ [\alpha \text{ credere } p_{indicative}] \right]^s = \forall \mathcal{W}' \in s(p(w'))
\]

This analysis predicts the distributions of moods. By using the subjunctive the mental state of the attitude holder is described and a question is posed: e.g. in (4-a) where the Olympics will take place. When the indicative is chosen, the solipsistic mental state of the attitude holder is described, and no question is posed. Further predictions and perspectives 1. We explain the multiple discrepancies between belief and assertion and are able to distinguish: public and private commitment (sincere assertion); private commitment only (expressive-belief); partial public commitment (inquisitive-belief); public commitment only (lies). Belief, we argue, is privately strong but publicly weak. 2. We can safely spell out patterns of denials: assertions are denied with "it is not true"; expressive-belief gives rise to faultless disagreement; inquisitive belief supports a "you are wrong" type of denial, which seems to be conventionalized for modal expressions. 3. We will propose that epistemic (non-factive) attitudes across languages introduce update instructions. In languages that lack mood, the choice between partial update or lack of update of \( \mathcal{N} \) is driven contextually.

Selected References
- Mari, A. 2016. Assertability conditions of epistemic (and fictional) attitudes and mood variation. SALT 26, 61-81.