Belief, Intention, and the Grammar of Persuasion

Thomas Grano — Indiana University

Introduction: The verb persuade accepts both NONFINITE complements that instantiate object-control structures, giving rise to INTENTION-based meanings (1), as well as FINITE complements giving rise to BELIEF-based meanings (2) (see e.g. Dowty 1985; Jackendoff 1985).

1) Mary persuaded John1 [PRO1 to leave]. NONFINITE
   ≈ Mary caused John to form the intention: “I will leave.” INTENTION-FORMING

2) Mary persuaded John [that it was raining]. FINITE
   ≈ Mary caused John to form the belief: “It is raining.” BELIEF-FORMING

(Analogous facts hold for advise, convince, and tell; as well as for subject-control verbs agree, decide, promise, propose, and swear. Here, for reasons of space, I focus on persuade only.)

These facts raise at least the following questions:

(a) Is there just one verb persuade or are there two (i.e., is it underspecified or polysemous)?
(b) Why does the belief/intention meaning difference correlate with finiteness/nonfiniteness?
(c) Why does persuade target only belief and intention to the exclusion of (e.g.) desire?

In what follows, I propose that (a) there is just one verb persuade (meaning roughly ‘cause to have an attitude’); (b) finiteness contributes epistemic modality whereas nonfiniteness contributes priority modality; and (c) persuade targets RATIONAL attitudes only, defined as attitudes that are closed under conjunction and entailment, which include belief and intention but not desire. Taken together, these proposals support the decompositional approach to attitude semantics (Kratzer 2006; Moulton 2009; Bogal-Allbritten 2016), and they contribute to a more fine-grained typology of attitude types, beyond the confines of belief and desire that typically dominate in the formal semantics literature.

(a) Against polysemy: A standard test for distinguishing underspecification from polysemy or ambiguity is to use the item in a way that forces both of the relevant meanings (see e.g. Zwicky & Sadock 1975); if the result is felicitous, this argues for underspecification, whereas if the result iszeugmatic, this argues for polysemy or ambiguity. For the case at hand, this can be achieved by embedding under persuade a coordination of a finite clause and a nonfinite clause, as in (3) or (4).

3) I persuaded John [that the city is in danger] and [to evacuate immediately].
4) I persuaded John [to evacuate immediately] and [that the safest place to be is by the sea].
Both (3) and (4) are felicitous and do not sound playful orzeugmatic, which suggests that persuade is underspecified rather than polysemous or ambiguous along the senses ‘cause to form an intention’ and ‘cause to form a belief’; cf. e.g. (5) which suggests that run is polysemous or ambiguous rather than underspecified along the senses ‘race’ and ‘conduct’.

5) #Yesterday John ran five miles and a phonology experiment.

(b) The semantics of (non)finiteness: Kratzer (2006) proposes that these modality in an attitude report is contributed not by the attitude verb itself but rather by a functional head in the left periphery of the complement clause. Building on this as well as Bresnan’s (1972); Portner’s (1997) and Grano’s (2016) work on the semantics of infinitives, I propose that for-to clauses (which include all infinitives introduced by overt for and most control infinitives) encode priority modality, as in (6) (where PRIORITY contributes a circumstantial modal base and a priority [=bouletic/teleological/deontic] ordering source [Portner 2007, 2009]), whereas finite clauses encode epistemic modality, as in (7).

(6) [[PRO to leave]] = λe.∀w’ ∈ PRIORITY(e): ∃e’ [leave(e’) ∧ Ag(e’,PRO) in w’]
(7) [it is raining]] = λe.∀w’ ∈ EPISTEMIC(e): ∃e’ [rain(e’) in w’]

Evidence for associating finiteness with epistemic modality (or more generally, modalities that quantify over information states in the sense of Anand and Hacquard 2013) and for-to infinitives with priority modality comes from the observation that representational attitudes tend to co-occur with the former (8) and non-representational or priority-related attitudes with the latter (9). (I gloss over many nuances here; see Hacquard 2014; Grano 2016 for more discussion. Note that believe can combine with ECM infinitives, consistent with Moulton’s 2009 proposal that ECM infinitives encode epistemic modality; and claim can combine with control infinitives, showing that not all control infinitives have priority semantics.)
(8) a. John believes {that it is raining / *for it to rain}. 
b. John claims {that it is raining / *for it to rain}.

(9) a. John wants {"that it is raining / for it to rain"}.
b. John intends {"that Bill leaves / for Bill to leave"}.

(6)-(7) work in concert with the proposed denotation for persuade in (10) to yield the truth conditions in (11)-(12) for (1)-(2) respectively.

(10) \[ \text{[persuade]} = \lambda e \lambda y \lambda x \lambda e' \lambda e''. \exists e' \text{[persuade(e)} \wedge Ag(e,y) \wedge Pt(e,x) \wedge CAUSE(e,e') \wedge \text{attitude(e')} \wedge \text{Exp(e',x)} \wedge P(e')] \]

(11) \[ \text{[[1]]} = \exists e' \text{[persuade(e)} \wedge Ag(e,m) \wedge Pt(e,j) \wedge CAUSE(e,e') \wedge \text{ATT(e')} \wedge \text{Exp(e',j)} \wedge \forall w' \text{[EPISTEMIC(e')]} \exists e'' \text{[leave(e'') in w']}] \]

(12) \[ \text{[[2]]} = \exists e' \text{[persuade(e)} \wedge Ag(e,m) \wedge Pt(e,j) \wedge CAUSE(e,e') \wedge \text{ATT(e')} \wedge \text{Exp(e',j)} \wedge \forall w' \text{[EPISTEMIC(e')]} \exists e'' \text{[rain(e'') in w']}] \]

(c) Persuasion and rational attitudes. A shortcoming of (11) is that priority modality is a more general semantic category than intention; and yet persuade in combination with an infinitive can only mean ‘cause to form an intention’ and not (say) ‘cause to form a desire’, as brought out by (13)-(14).

(13) CONTEXT: I’m at a party with John. I’m trying to get him to leave by pointing out all the advantages of doing so. Finally he says, “These are all good points. You’ve really made me want to leave. But I’m sorry, I have no intention of doing so.” SENTENCE: I persuaded John to leave. JUDGMENT: false

(14) CONTEXT: I’m at a party with John. I’m trying to get him to leave by pointing out all the advantages of doing so. Finally he says, “These are all good points. I still don’t want to leave. But I will. I fully intend to leave after I finish this drink.” SENTENCE: I persuaded John to leave. JUDGMENT: true

To rein in the semantics accordingly, I propose that persuade contributes a presupposition that the caused attitude is a rational one, where rational attitudes are defined as attitudes that are closed under conjunction and entailment. As seen in (15)-(16), believe and intend both name rational attitudes whereas want does not. (Data taken from Grano 2017, building on Heim 1992; Levinson 2003; Condoravdi & Lauer 2016, and others.)

(15) CLOSURE UNDER CONJUNCTION
a. John wants to go to Paris this summer, and he wants to go to Rome this summer, but he doesn’t want to go to both Paris and Rome this summer.
b. John believes he’ll go to Paris this summer, and he believes he’ll go to Rome this summer, but he doesn’t believe he’ll go to both Paris and Rome this summer.
c. John intends to go to Paris this summer, and he intends to go to Rome this summer, but he doesn’t intend to go to both Paris and Rome this summer.

(16) CLOSURE UNDER ENTAILMENT
a. John doesn’t want to teach next semester, but given that he has to, he wants to teach Tuesdays and Thursdays.
b. John doesn’t believe he’ll teach next semester, but given that he has to, he believes he’ll teach Tuesdays and Thursdays.
c. John doesn’t intend to teach next semester, but given that he has to, he intends to teach Tuesdays and Thursdays.

The end result is that a logically natural class of attitudes that include belief and intention but not desire turns out also to be a grammatically natural class, lexically encoded on verbs like persuade.