Belief, Intention, and the Grammar of Persuasion

1 Introduction

A form-meaning correlation in the grammar of PERSUASION REPORTS:

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

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

Generalization: When persuade combines with a nonfinite complement, the meaning is ‘cause to intend’; when persuade combines with a finite complement, the meaning is ‘cause to believe’ (cf. Kirkpatrick 1983; Dowty 1985; Jackendoff 1985; Klein and Sag 1985).

A spurious counterexample:

(3) Mary persuaded John₁ that [he₁ should leave]. ← FINITE yet INTENTION-FORMING?

No! Not a genuine counterexample as evidenced by the coherence of:

(4) Mary persuaded John₁ that [he₁ should leave], but failed to persuade him₁ [PRO₁ to leave].

(3) \[\approx\] Mary caused John to form the belief: “I should leave.” (which does not entail that John has the corresponding intention, though it could implicate it!)

Analogously behaving verbs:

(5) a. OBJECT-CONTROL: advise, convince, say, tell, warn
b. SUBJECT-CONTROL: agree, decide, promise, propose, swear

Research questions:

(6) a. Is there just one verb persuade or are there two? (Underspecification or polysemy?)
    b. Why does the belief/intention meaning difference correlate with finiteness/nonfiniteness?
    c. Why does persuade target only belief and intention and not other attitudes (e.g., desire)?

Preview of suggested answers:

(7) a. There is just one verb persuade meaning roughly ‘cause to have an attitude’.
b. Finiteness \[\rightarrow\] information modality; nonfiniteness \[\rightarrow\] preference modality.
c. persuade targets RATIONAL attitudes only, a logically natural class of attitudes including belief and intention but not desire, independently diagnosed via inferential patterns.

Implications:

(8) a. Support for the de-compositional approach to attitude semantics (Kratzer 2006; Moulton 2009; Bogal-Allbritten 2016; and others).
b. A finer-grained typology of attitude predicates (beyond belief and desire, building on Grano 2017 in considering intention as well).


2 Against a polysemy analysis

All else equal, underspecification is preferable to polysemy (Occam’s Razor).

The zeugma test for polysemy vs. underspecification (see e.g. Zwicky and Sadock 1975): When a word is polysemous between two senses, forcing a single token of the word to be understood in both senses sounds funny (‘zeugmatic’), e.g.:

(9) ?John runs marathons (as a race participant) as well as a successful company.

→ run is polysemous between senses ‘race on foot’ and ‘manage’.

(10) John enjoys good food and good music.

→ enjoy is underspecified with respect to the sense category of the stimulus (taste, hearing, etc.).

(11) a. I persuaded John [that the city is in danger] and [PRO to evacuate immediately].
b. I persuaded John [PRO to evacuate immediately] and [that the safest place to be is by the sea].

→ persuade is underspecified along the belief/intention distinction.

3 A decompositional semantics for persuasion reports

Sentence-level semantics:

(12) [Mary persuaded John PRO to leave]
= ∃e∃e′[persuade(e) ∧ Ag(e,m) ∧ Pt(e,j) ∧ CAUSE(e,e′) ∧ ATTITUDE(e′) ∧ Exp(e′,j) ∧ ∀w′ ∈ PREF(e′): ∃e″ [leave(e″) ∧ Ag(e″,j) in w′]]
≈ ‘There was a persuading event with agent Mary and patient John that caused an attitude event with experiencer John, such that all the worlds compatible with the preference set of the attitude event are worlds in which John leaves.’

(13) [Mary persuaded John that it was raining]
= ∃e∃e′[persuade(e) ∧ Ag(e,m) ∧ Pt(e,j) ∧ CAUSE(e,e′) ∧ ATTITUDE(e′) ∧ Exp(e′,j) ∧ ∀w′ ∈ INFO(e′): ∃e″ [rain(e″) in w′]]
≈ ‘There was a persuading event with agent Mary and patient John that caused an attitude event with experiencer John, such that all the worlds compatible with the information set of the attitude event are worlds in which it is raining.’

Isolating the contribution of persuade:

(14) [persuade] = λP(e′) λxλyλe.∃e′[persuade(e) ∧ Ag(e,y) ∧ Pt(e,x) ∧ CAUSE(e,e′) ∧ ATTITUDE(e′) ∧ Exp(e′,x) ∧ P(e′)]

This implies (borrowing event-relative modality from Hacquard 2010)...

(15) [PRO to leave] = λe.∀w′ ∈ PREF(e): ∃e′[leave(e′) ∧ Ag(e,PRO) in w′]

(16) [that it was raining] = λe.∀w′ ∈ INFO(e): ∃e′[rain(e′) in w′]
... (15)–(16) incorporate two partially overlapping strands of research:

- The modal quantification in an attitude report is carried out not by the attitude verb but by a modal in the complement clause: Kratzer 2006, 2013; Anand and Hacquard 2009; Moulton 2009; Bogal-Allbritten 2016; Grano 2016
- (Some) infinitives have a built-in modal semantics: Bresnan 1972; Stowell 1982; Pesetsky 1992; Bhatt 1999; Grano 2016; Gluckman 2018

An apparent problem: If the intention semantics in a persuasion report is contributed by the infinitive, we expect infinitives to always associate with an intention semantics. This is consistent with (17) but not with (18)–(20).

(17) John intends [(for Bill) to leave]. ← EXPECTED
(18) John wants [Bill to be happy]. ← PROBLEMATIC
(19) John believes [Bill to be happy]. ← PROBLEMATIC
(20) John claims [PRO to be happy]. ← PROBLEMATIC

A partial solution: Infinitives come in several varieties (Bresnan 1972; Wurmbrand 2014, and many others), and one subtype is detectable in that under some conditions, it can be introduced by for (“for-to infinitives”). Grano (2016) (cf. Portner 1997) proposes that for-to infinitives exclusively target PRIORITY (aka PREFERENCE) modality in the sense of Portner 2007 whereas finite clauses target DOXASTIC (aka INFORMATION) modality:

(21) a. Mary wants/intends [for John to be happy].
    b. *Mary believes/claims [for John to be happy].

(22) a. *Mary wants/intends [that John is happy].
    b. Mary believes/claims [that John is happy].

Interim conclusion: Only for-to infinitives contribute preference modality.

Independent evidence that intend and want form a natural class to the exclusion of believe: behavior w.r.t. ANANKASTIC CONDITIONALS (Condoravdi and Lauer 2016; Grano 2017, and references therein):

(23) If you want to get good grades, you have to study.
    ≈ You have to study to get good grades.
(24) If you intend to get good grades, you have to study.
    ≈ You have to study to get good grades.
(25) If you believe you’ll get good grades, you have to study.
    ⊤ You have to study to get good grades.

I’ll call attitudes that feed anankastic interpretations PREFERENCE-BASED ATTITUDES.

Also relevant: Cross-linguistically, ‘want’ and ‘intend’ pattern unlike ‘believe’ w.r.t mood choice: See e.g. Giannakidou 2013.
4 Persuasion and rational attitudes

A remaining shortcoming: Preference is too general a category to pick out intention to the exclusion of desire. And yet *persuade*+NONFINITE COMPLEMENT exclusively targets intentions, not desires:

(26)  
   a. CONTEXT: I’m trying to get John to quit smoking by pointing out all the advantages of doing so. Finally he says, “These are all good points. You’ve really made me want to quit. But I’m sorry, I have no intention of doing so.”
   b. I persuaded John to quit smoking. ← FALSE!

(27)  
   a. CONTEXT: I’m trying to get John to quit smoking by pointing out all the advantages of doing so. Finally he says, “These are all good points. I still don’t want to quit. But I will. I fully intend to quit tomorrow.”
   b. I persuaded John to quit. ← TRUE!

More supporting evidence:

(28)  
   a. #I persuaded John to quit smoking, although he still doesn’t intend to.
   b. I persuaded John to quit smoking, although he still doesn’t want to.

Suggested solution: *persuade* targets a natural class of attitudes that I call RATIONAL ATTITUDES:

![Figure 1](image.png)

Rational attitudes are diagnosable based on logical behavior: closure under entailment and closure under conjunction (see Grano 2017 and references therein):

CLOSURE UNDER ENTAILMENT (see Asher 1987; Heim 1992; von Fintel 1999; Crnič 2011; Grano 2017, 2018)

(29) John doesn’t want to teach next semester, but given that he has to, he wants to teach Tuesdays and Thursdays.

(30) #John doesn’t believe he’ll teach next semester, but given that he has to, he believes he’ll teach Tuesdays and Thursdays.

(31) #John doesn’t intend to teach next semester, but given that he has to, he intends to teach Tuesdays and Thursdays.
CLOSURE UNDER CONJUNCTION (see Levinson 2003; Condoravdi and Lauer 2016; Grano 2017)

(32) 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.

(33) #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.

(34) #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.

Grano’s (2017) suggestion: The status of intend as a rational attitude stems from the fact that we use it to talk about action plans that an agent has committed to (cf. Bratman 1987). Action plans need to be coherent in ways that make them similar to beliefs.

Informal summary of analysis:

(35) a. persuade ≈ cause to have a rational attitude
    b. \(\phi_{finite}\) ≈ information that \(\phi\) is true
    c. \(\phi_{for-to}\) ≈ preference for \(\phi\) to be true

(36) RATIONAL + PREFERENCE = INTENTION

Still to be done (another time): Formalize what it means for an attitude to be ‘rational’ and restrict persuade accordingly; get intention semantics to fall out compositionally from the ingredients ‘rational’ + a preference modal base.

5 Conclusions

• persuade targets a natural class of attitudes independently detectable based on logical properties (closure under entailment and conjunction).

• In making sense of this we enrich our typology of linguistically significant attitude types, beyond the confines of belief and desire that typically dominate in the literature.

• We also lend support for the Kratzer-Moulton de-compositional approach to attitude reports.

• A remaining puzzle: Verbs that allow both finite and for-to complements but with no apparent meaning difference:

  (37) a. Kim hopes for Sandy to leave.
       b. Kim hopes that Sandy will leave.

  (38) a. Kim expects for Sandy to leave.
       b. Kim expects that Sandy will leave.

• A possible clue: Only the nonfinite variants are felicitous in anankastic conditionals, suggesting there may be a meaning difference after all:

  (39) If you hope/expect to get grades, you have to study.

  (40) ??If you hope/expect that you will get good grades, you have to study.
References


