Themes from the Philosophy of Stephen Yablo

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Object-Based Truthmaker Semantics for Different Clause Types

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1. Introduction

Sentence-based truthmaker semantics (Yablo, Fine):

Fine-grained notion of content for sentences, notions of subject matter, partial content, partial truth

Truthmakers: states and actions (Fine)

Object-based truthmaker semantics (Moltmann2017, 2020):

Truthmaker-based content for mental, illocutionary, and modal objects, which are taken to play a central role in attitude reports and modal sentences

Sentences treated as semantic predicates of such content bearers.

Aims

[1] Outline object-based truth maker semantics for doxastic attitude reports and modal sentences, against the background of sentence-based truthmaker semantics

[2] Show how it can be extended to attitude verbs with different sorts of complement clauses by

- adding content bearers (non-worldly facts and states of affairs, questions)

- extending the range of truthmakers /satisfiers

- adding different kinds of truthmaker-based sentential meanings

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2. Sentence-based truthmaker semantics

<u>Aims</u>

Fine-grained notion of content for sentences, allowing for notions of aboutness, partial content, partial truth

<u>Some basics of truthmaker semantics</u>

Exact verification ⊩ and falsification ⊪

Truthmaking (satisfaction) as a relation between situations or actions and sentences (declarative or imperative sentences)

Truthmaking conditions for complex sentences:

(1) a. s ⊩ S *and* S' iff for some s' and s'', s = sum(s', s'') and s' ⊩ S and s'' ⊩ S'.

    b. s ⊩ S *or* S' iff s ⊩ S or s ⊩ S'.

    c. s ⊩ ∃x S iff s ⊩ S[x/d] for some individual *d*.

    d. s ⊩ *not* S iff s ⊪ S.

Falsification conditions for conjunctions and disjunctions:

(2) a. s ⊪ S *and* S' iff s ⊪ S or s ⊪ S'.

    b. s ⊪ S *or* S' iff for some *s'* and *s''*, s = sum(s', s'') and s' ⊪ S and s'' ⊪ S'.

<u>Sentence</u> meanings as *bilateral contents*:

Content of a sentence S = <pos(S), neg(S)>, with pos(S) the set of verifiers of S and neg(S) the set of falsifiers of S.

<u>Notion of partial content (Yablo 2015, Fine 2017a)</u>

(3) For sets of situations or actions A and B, B is a *partial content* of A iff every satisfier of A contains a satisfier of B and every satisfier of B is contained in a satisfier of A.

E.g. the content of S, but not of S *or* S' is a partial content of the content of S *and* S'''

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3. Object based truthmaker semantics

3.1. The ontology of attitudinal and modal objects

Observation

Notions of partial content, partial truth or satisfaction, and aboutness also apply to other objects than sentences:

Part of, *about*, *partly true / fulfilled / satisfied / taken up / accepted / carried out* apply to things like beliefs, claims, assumptions, desires, requests, decisions, obligations, offers, invitations, needs

Attitudinal objects: beliefs, claims, assumptions, desires, claims, requests, decisions
Modal objects: obligations, needs, offers, invitations

What are attitudinal and modal objects?

Intuitively, things we refer to as claims, requests, thoughts, assumptions, beliefs, judgments, desires, intentions, decisions, hopes, impressions, guesses, obligations, needs, permissions, possibilities, abilities, options, etc.

Their properties are reflected in the predicates applicable to those entities, such as predicates of truth and satisfaction and expressions of parthood.

Distinctions among attitudinal objects

 [1] Act-related attitudinal objects:

- cognitive and illocutionary *products:* assumptions, decisions, claims, requests, promises
- *results*: conclusions, recognitions, persuasions

[2] State-related attitudinal objects:

- beliefs, desires, hopes, fears, intentions

Importance of attitudinal objects

[1] Crosslinguistic generalizations:

Nouns that correspond to attitudinal predicates generally stand for attitudinal objects, not propositions or events.

[2] Cognitive role of attitudinal objects:

Attitudinal objects, not propositions, play roles in our mental life.

We remember thoughts, desires, experiences, not propositions.

Desires, intentions, decisions play a causal role, not propositions.

3.2. Semantic role of attitudinal and modal objects

Standard view about propositional attitudes

Propositional attitudes (beliefs, hopes, desires) are relations between agents and *propositions*, abstract, shareable truth bearers that are also meanings of sentences

The new view

Attitudinal objects take on the role of propositions, but in somewhat different ways.

Modal objects are at the center of the semantics of modals

Clausal complements are treated as *semantic predicates* of attitudinal and modal objects

Linguistic motivation for clauses being *semantic predicates* of attitudinal or modal objects

Advantages

[1] Avoiding *conceptual problems for the notion of a proposition*:

semantics of attitude reports without abstract propositions and without regarding actions (action types) as truth bearers (Soames, Hanks)

[2] Accounting for *empirical problems for the standard view*

- the semantic behavior of special quantifiers like *something, everything*

- the substitution problem and the objectivization effect (* John thought the proposition that S, ?? John fears the proposition that S)

3.3. Truthmaker-based content for modal and attitudinal objects

Truthmaking (satisfaction) (also) as a relation between situations (or actions) and attitudinal or modal objects

Truthmaker semantics as a *general theory of content*, including the content of mental and illocutionary objects

Further motivations for object-based truthmaker semantics

Explanation why different *types of truth/satisfaction predicates* are applicable to different types of modal and attitudinal objects (Moltmann 2021)

Applying truthmaker sematics to modal and attitudinal objects

[1] Modal and attitudinal objects that have *truth conditions* (can be said to be'true', 'correct', or 'false')

- have a word/mind- world direction of fit (Searle 1969, 1983)

- come with a set of verifiers (pos(d)) and falsifiers (neg(d))

[2] Attitudinal and modal objects that have *fulfilment conditions* rather than truth conditions

(can be said to be 'satisfied', 'fulfilled', 'ignored', or 'violated'):

requests, demands, desires, hopes, needs, obligations

- have a world-word/mind direction of fit

- come with a set of satisfiers and a set of violators

[3] Attitudinal and modal objects that have a world-to-word/mind direction of fit can be

'satisfied' or 'fulfilled' only if their modal force is that of necessity.

Modal and attitudinal objects with the *modal force of possibility* (permissions, proposals,

invitations, offers, possibilities, options) come with a set of truthmakers / satisfiers, but only

an empty set of falsifiers or violators.

Take different satisfaction predicates:

an offer may be 'taken up' and an invitation 'accepted', but neither can be 'violated', …

Thus:

Attitudinal and modal objects of *necessity* come with a set of satisfiers and a nonempty set of

violators.

Attitudinal and modal objects of *possibility* come only with a set of satisfiers and an empty set

of violators.

(4) <u>General truthmaker-based meaning of sentences as predicates of attitudinal</u>

   <u>and modal objects (of different directions of fit and with different forces)</u>

   For a sentence S, cont(S) = λd[pos(d) = pos(S) & (neg(d) ≠ Ø → neg(d) = neg(S))]

<u>Logical form of simple attitude reports and modal sentences</u>

(5) a. John thinks that S.

   b. ∃e ∃d(think(John, e) & R(e, d) & [S](d))

(6) a. It is necessary that S.

   b. ∃d(necessary(d) & [S](d))

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4. Compositional Semantics of attitude reports with attitudinal objects

The present approach:

Focus on *complex attitude predicates*: light verb – noun

(7) a. John claims that S.

 b. John makes the claim that S.

 c. ∃d(make(John, d) & claim(d) & [*that* S](d))

Harves and Kayne (2015) and Arsenijevic (2009):

(Certain) modal sentences and (certain) attitude reports involve clausal complements that are in fact (special) relative clauses modifying a noun in an underlying light verb-noun construction.

(8) a. John needs to leave.

 b. John have-need [to leave] (Harves and Kayne 2015)

(9) a. John claims [that he is French]

 b. John make-claim [$_{DP}$ ~~claim~~ [$_{CP}$that [$_{FP}$ ~~claim~~ (+assert) [$_F$+assert] [he is French]]]] (Arsenijevic 2009)

Special quantifiers and pronouns

do not stand for propositions, but rather for attitudinal objects or kinds of them

(10) a. John claimed *something* shocking.

 b. John made a shocking claim.

 c. John [claim$_i$-make [e$_i$-thing]]

 d. ∃e ∃d(make(e, John, d) & claim-thing(d) & shocking(d))

Restrictions on *reports of a shared content of different attitudes*:

(11) a. ?? John expects *what* Mary claims, namely that Sue will study harder.

 b. ?? John's expectation is Mary's claim.

 c. John has expectation that ~~expectation~~ Mary has ~~expectation~~

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5. Clausal complements as predicates of facts, states of affairs, and truthmakers

So far, the *same sentential content* assigned to sentences, applicable to attitudinal and modal objects with different directions of fit, with or without violators:

(12) [+cont S] = λd[pos(d) = pos(S) & (neg(d) ≠ Ø → neg(d) = neg(S))]

Sentences may impose semantic restrictions on attitudinal or modal objects, indicated by mood or sentence type (e.g. imperatives, subjunctive)

5.1. Factive verbs

Substitution sometimes possible:

(13) a. John regrets that S.

    b. John regrets the fact that S.

Partially relating to partial content:

(14) a. John partly thinks that S.

    b. John partly regrets that S.

Nominalization of factive predicates does not lead to 'new' attitudinal object:

(15) a. That S was unexpected.

    b. the unexpectedness (of the fact) that S

Factive complements as nominal complements? (Kastner 2015)

Presence of silent (perhaps nominal) [+fact]-feature:

(16) regret [[+fact] [that S]]

What are facts, i.e. non-worldly facts?

Applicability of *partially* indicates that they have a partial content:

'The fact that S':

the modal object whose satisfiers are the actual situations that are truthmakers of S and that does not have violators

(17) $[\textit{the fact that } S] = \iota d \, [pos(d) = pos(S) \cap \{s \mid s < w_0\} \, \& \, neg(d) = \varnothing\}]$

Factive complements as semantic predicates:

(18) $[[+fact] \, S] = \lambda d \, [pos(d) = pos(S) \cap \{s \mid s < w_0\} \, \& \, neg(d) = \varnothing]$

States of affairs

(19) a. That S is likely.

    b. the likelihood (of the situation in which) (that) S

The state of affairs in which S (the situation in which S):

a modal object whose satisfiers are just the situations that make S true.

(20) [*the situation in which* S] = ɿd [pos(d) = pos(S) & neg(d) = ∅}]

5.2. Occurrence verbs

Clausal complements acting as predicates of truthmakers

Verbal and nominal constructions (Moltmann 2007, 2015, 2021, Bondarenko, SALT talk 2021):

(21) a. It has never *occurred* that John was late

    b. It has once *happened* that John was late.

    c. Could it *be* that John is late? That *is* so.

(22) The case in which John was late.

(23) [[+id] S] = λs[s ∈ pos(S)]

In a particular context of embedding, the truthmaker-based content of a sentence is mapped onto a property of attitudinal/modal objects by one of the functions conveyed by [+cont], [+fact], [+id], [+soas]

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6. Possible extensions to wh-clauses and infinitival clauses

Assumption:

A wh-clause such as *who won the race* has as its satisfiers not situations/actions, but locutionary objects, or, more generally, truth-directed objects whose satisfiers in turn are the truthmakers of *a won the race* for a relevant entity a.

Who won the race as a semantic predicate of objects:

Who won the race as a predicate of questions:

(25) a. John asked who came. [+cont],

Who won the race as a predicate of states of inquiry whose verifiers are mental states (of knowledge) whose verifiers are actual situations (of the sort 'a won the race')

(25) b. John wondered who came. [+fact']

Who won the race as a predicate of verifiers of questions

(25) c. John told me who came. [+id]

<u>Extension to infinitival clauses</u>

<u>Simplifying assumption:</u>

 Infinitival clauses have as satisfiers sets of actions.

To run as a predicate of illocutionary objects whose satisfiers are actions

(24) a. John requested to run. [+cont]

To run as a predicate of actions, i.e. truthmakers of the sentence

(24) b. John managed to run. [+id]

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7. Conclusion

Clauses can always be viewed as semantic predicates:
-   of attitudinal and modal objects
-   of facts and states of affairs (special modal objects)
-   of truthmakers (situations or actions, or illocutionary objects)
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The talk has focused on the formal options provided by object-based truthmaker semantics. To a significant extent, linguistic support is needed in order to defend these options against their alternatives.

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