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Stative Verbs and Lexical Decomposition

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Plan of the talk

1. Refining event semantics: the distinction between events, tropes, attitudinal objects, concrete states, and abstract states and facts
 2. Discuss semantic challenges for the notion of an abstract states
 3. Present new generalizations about explicit property reference in natural language
 4. Propose analysis of the data based on decomposition of verbs
 5. Draw conclusions for natural language ontology and the question of reference to abstract objects in natural language
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1. Concrete and abstract states, events, attitudinal objects and tropes

1.1. Standard criteria for concreteness

- Having a spatio-temporal location
- Being able to enter causal relations, being potential objects of perception
- Being fully specific (or involving a particular manifestation)

1.2. Events and facts

- Events but not facts have a spatio-temporal location.
- Events but not facts enter causal relations, can be object of perception
- Events but not facts are fully specific

Both events and facts can be objects of mental attitudes

1.3. Abstract and concrete states (Kimean and Davidsonian states)

The Stative Adverb Gap (Katz 2003)

Most stative verbs (*own, owe, believe, know, resemble, have, be, reside in*) do not accept adverbials (e.g., location and manner adverbials) except for temporal adverbials and adverbials of mental attitude.

- (1) a. ??? John knows French in Munich / with the help of Mary.
 b. ??? Bill owns the house with a lot of effort / visibly.
 c. I saw Bill own the house

Yet anaphoric reference to states is possible:

- (1) c. John owes Bill money. That has been so for a long time.

Certain stative verbs (*lie, stand, sit, wait, kneel, sleep*) allow for adverbials of various sorts, just like eventive verbs:

- (1) d. John is standing there / with a lot of effort / with the help of Mary.
 e. I saw Bill sleep on the sofa.

Maienborn's (2007) proposal

Stative verbs not permitting the greater class of adverbials describe *Kimian states*

Stative verbs describing bodily positions take *Davidsonian states* as implicit arguments.

'Kimian states' fall under Kim's conception of events (derived abstract entities);

'Davidsonian states' are on a par with Davidsonian events (underived concrete entities).

Common view about Kim's account: gives the notion of a fact.

Facts obtain – states obtain at a time.

(1) Kimean notion of an abstract state (as an open-ended state)

For properties P and P' and objects o and o',

- a. The state $s(P, o) = \text{the state } s(P', o')$ iff $P = P'$ and $o = o'$.
 b. The state $s(P, o)$ exists at a time t iff o has P at t.

Ontological explanation of the Stative Adverb Gap

Kimian states lack a spatial location and a particular manifestation, and cannot be objects of direct perception.

Davidsonian states come with a spatio-temporal location, concrete manifestation, enter causal relations, can be objects of perception.

Moltmann (2013b)

Abstract states = Kimean states

Concrete states = Davidsonian states

The problem with the Kimian definition of an abstract state

Overgenerates: P could be the content of an eventive predicate.

The question is: why can't eventive predicates describe abstract states and thus resist the relevant types of adverbials?

The semantic challenge for the Kimian account of abstract states

Integration into Davidsonian event semantics

The Kimian account requires two meanings of abstract state verbs:

Underived meaning: no Davidsonian argument

Derived meaning: state argument introduced on the basis of the property / relation expressed by the underived verb.

(2) a. *own*(John, the house)

b. *own'*(s([*own*], John, the house), John, the house) iff *own*(John, the house).

Neo-Davidsonian event semantics with abstract states on a Kimian account is unavailable:

own(e): e would have to be defined in terms of a relation expressed by *own*.

1.4. Tropes

Evidence for adjectives taking tropes as arguments (Moltmann 2013a):

Range of adjective modifiers constitutes typical properties of tropes (not (just) of degrees):

intensely, deeply, strikingly, obviously

Davidsonian semantics for adjectives:

(3) a. John is happy

b. $\exists t(\text{happy}(t, \text{John}))$

Neo-Davidsonian semantics for adjectives?

(3) c. $\exists t(\text{BEARER}(\text{John}, t) \ \& \ \text{happy}(t))$

Bearer-relation as the thematic relation connecting an entity to a trope of which it is the bearer.

1.5. Attitudinal and modal objects

Attitudinal objects

beliefs, claims, assumptions, impressions, ideas, proposals, requests

Modal objects

needs, offers, invitations, permissions, obligations, ...

Intensional objects

searches, purchases, debts, resemblances, lacks, offers

Characteristic properties

1. Content-related properties:

Have satisfaction conditions

Have a part structure based on partial content

Enter similarity relations based on shared content only

2. Properties of concreteness:

Being able to enter causal relations (*a shocking claim*)

Being perceivable (*the remark that was overheard*)

Being fully specific (*a strong claim / belief*)

Attitudinal objects vs. facts and abstract states

(4) a. John's belief that the world is round is strong.

b. ??? John's believing / having the belief that the world is round is strong.

c. John strongly believes that the world is round.

Attitudinal and modal objects as implicit arguments of verbs?

Criteria:

1. Application of adverbials:

(4') a. John strongly / truly believes that S.

b. Mary strongly / closely resembles Bill.

c. Sue greatly lacks understanding the the topic.

2. Application of *that*-clauses, intensional complements: as predicates of attitudinal or modal objects?

Decompositional analysis of attitude verbs and modal verbs (Arsijenevic 2009, Harves/Kayne 2012, Moltmann 2021, forthcoming...): (*that*-)clauses as special relative clauses

(5) a. John believes that p - John has the belief that p

b. John needs to work - John has need to work.

(6) a. John knows that p - John has knowledge that p.

b. John owns a house - John has ownership of a house

c. John owes money – John has debt of money.

Decomposition of verbs involving tropes (on a standard understanding):

- (7) a. John resembles Joe.
 b. John has resemblance to Joe.
- (8) a. John's close / strong resemblance to Mary
 b. John closely / strongly resembles Mary.
- (9) a. John's resemblance of Mary is strong / close.
 b. ??? John's resembling of Mary is close / strong.

Decomposition of verbs involving intensional objects

- (7') a. Sue lacks understanding.
 b. Sue has a lack of understanding
- (8') a. Sue's great lack of understanding
 b. Sue greatly lacks understanding.
- (9') a. Sue's lack of understanding is great.
 b. ??? Sue's lacking understanding is great.

Attitude verbs

(8'') John's strong / true belief that p

Generalizations

1. All abstract states are underlyingly complex predicates HAVE – nominal root.
 2. Modifiers of concreteness when applying to abstract state verbs apply to the noun for a concrete trope-like entity in the underlying complex predicate.
 3. HAVE does not have an event argument, but is a two-place predicate.
 4. 'Eventive attitude verbs (*assume, offer, seach*): underlyingly MAKE / GIVE – nominal root. Dynamic light verbs come with a Davidsonian event argument.
 5. Concrete state verbs, like eventive verbs, are one-predicates of events (given the Neo-Davidsonian view).
 6. The Kimian account is no longer needed for abstract state verbs (or eventive verbs).
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2. Explicit property-referring terms

2.1. The construction of explicit property-referring terms

The property of XP

XP in English: gerund

- (10) a. the property of being wise
 b. the property of having wisdom

XP in French, German, Italian: infinitival clause

- (10) a. La propriété d'être rouge
 b. die Eigenschaft, rot zu sein
 c. la proprietà di essere rosso

A common view about explicit property-referring terms (e.g., Chierchia/Turner 1988)

Explicit property referring terms refer to the property denoted by the predicate following *of*. 'The property of walking refers to the property denoted by *walk*' (Chierchia / Turner 1988). Thus, explicit property-referring terms involve the notion of a property as an abundant property (Lewis 1986) or nonnatural property (Armstrong 1978).

The generalization is wrong

1. Explicit property-referring terms do not allow for eventive predicates:

- (11) a. ??? the property of walking / laughing / jumping / speaking / thinking
 b. ??? The property of meeting / kissing / watching someone

2. Explicit property-referring terms do not permit concrete-state verbs

- (12) ??? the property of standing / sitting / kneeling / sleeping / waiting

Explicit property-referring terms permit the full range of abstract-state verbs:

- (13) a. the property of believing that the world is round
 b. the property of resembling Napoleon
- (14) the property of owning a house / of owing someone money / of needing money / of residing in Munich / of expecting the worst / of weighing 10 kilo / measuring 2 meters

The copula verb *be* classifies with abstract-state verbs, regardless of the predicate it takes (Maienborn 2007).

The same holds for *have*: *have* is acceptable with property-referring terms, regardless of the content of its complement:

- (15) a. the property of being wise / angry / nervous / sleepy / upright / asleep / alive / the

cause of a commotion / an agent

- b. the property of having a sister / a house / a vacation / pride / wisdom
- c. the property of having a migraine / backpain / a nervous feeling / fear

Stative copula verbs contrast with dynamic ones:

- (16) a. the property of *being* sick / cancer free
- b. ? the property of *remaining* sick / cancer free
 - c. ??? the property of *becoming* sick / cancer free

Existence predicates:

- (17) a. the property of existing / being
- b. ??? the property of taking place / happening / occurring

Always possible: *the property of being* NP, *the property of being* AP

Some striking minimal pairs with concrete state verbs:

- (18) a. ??? the property of sleeping.
- b. the property of being asleep
- (19) a. ??? the property of suffering
- b. the property of being in pain
- (20) a. the property of being alive
- b. ?? the property of living (as opposed to being dead)

Crosslinguistic examples:

German:

- (21) a. die Eigenschaft, krank zu sein
- b. ??? die Eigenschaft, zu kraenkeln
- ‘the property of being sick’

‘Light’ verbs and thematic relations:

- (22) a. ??? the property of causing a commotion
- b. the property of being the cause of a commotion
- (23) a. ??? the property of acting
- b. the property of being active / having an activity
 - c. the property of being an agent

- (24) a. the property of being the initiator of an investigation
 b. ??? the property of initiating an investigation

Dispositional (readings of) verbs:

- (25) a. the property of speaking French
 b. ??? the property of speaking right now
 (26) a. the property of eating meat
 b. ??? the property of eating that piece of meat

2.2. Evaluation and analysis of the data

1. What matters is not the situations described, but the compositional semantics of the complement/modifier of *property*.
2. The notion of a property as an abstract predicable state is distinction from the notions of properties discussed in contemporary metaphysics (Lewis' (1986) sparse properties vs abundant properties; Armstrong's (1978) natural properties vs. non-natural properties).
3. The distinction between abstract states and concrete states seems to matter.

Hypothesis 1

Property applies only to abstract states:

(31) The Abstract-State Constraint

The modifier / complement of *property* must describe abstract states (but as predicable entities).

The problems:

1. Abstract states could be obtained from eventive relations.
2. *The property of wisdom* is not that bad.

Hypothesis 2

Property applies to bearer relations to trope-like entities and reifies them.

Tropes:

Have wisdom: being bearer of a wisdom trope

Be wise: being bearer of a wisdom trope

The property of resembling Paul: the property of having resemblance to Paul

Attitudinal objects:

The property of believing p: the property of having a belief that p

The property of knowing p: the property of having knowledge that p.

Modal objects:

The property of needing help: the property of having need of help

The property of owning a house: the property of ownership of a house

The property of lacking understanding: the property of having a lack of understanding

Generalization

Property selects abstract state predicates, that is, predicates that are overtly or underlyingly HAVE – N – modifier, for N a nominal root describing a trope or satisfiable object.

Generalization is not yet correct

(32) the property of having a sister / a house / a nightmare / a house.

Explicit property-referring terms involve a more general relation, the HAVE-relation

The HAVE-relation: includes bearerhood, kinship, possession, experiencer relations.

The semantics of explicit property-referring terms

Properties: reifications of the HAVE-relation when applied to some entity

(33) a. For an entity p, PROPERTY(p) if $p = \text{reif}(\lambda x[\text{HAVE}(x, t)])$, for an entity t.

b. [*the property of XP*] = $\iota p[\text{property}(p) \ \& \ p = \text{reif}([XP])]$

Why reification?

Differences between explicit property reference and gerunds:

(16) a. ??? Being nice is evaluative / complex.

b. The property of being nice is evaluative / complex.

3. Further remarks

Semantic constraints on complex property-referring terms

- cannot have been ‘imported’ from philosophy.
 - can hardly have been learned from exposure to data
- a poverty of the stimulus argument in natural language ontology?

The Abstract Objects Hypothesis (Moltmann 2013)

Natural language does not permit reference to abstract objects in its core.

May be able to accommodate explicit property-referring term

Refer to reifications of the HAVE-relation applied to a particular entity (e.g., trope, attitudinal or modal object).

HAVE as the only relational verb.

Nouns vs. nouns-in-construction

Why can the noun *property* as such be used in a non-ordinary way by a particular philosopher, e.g., having the notion of an abundant property in mind or the notion of a sparse property?

Distinguish nouns from ‘nouns-in-construction’

Noun-in-construction: noun with clausal modifier, noun as complement of a light verb

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