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Properties and the Ontology of Natural Language

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Plan of the talk

1. Clarify the project of natural language ontology
 2. Introduce and motivate a core-periphery for natural language ontology
 3. Present new generalizations about property reference and draw conclusions for natural language ontology, in support of a view on which the ontology implicit in natural language is part of universal grammar in the Chomskyan sense
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1. Natural Language Ontology

The subject matter of natural language ontology

The ontology *implicit* in natural language, not any ontology that can be described *by using* natural language

Two-related notions of natural language ontology – two facets of the same discipline that is a branch of both linguistics and philosophy

[1] An emerging discipline that is part of both linguistics and philosophy:

the study of categories of entities and their formal relations as part of compositional semantics

[2] A practice throughout the history of philosophy:

philosophers’ appeal to natural language in order to clarify metaphysical intuitions

2. The Core-Periphery Distinction for Natural Language Ontology

Fact about natural language ontology

(as a subject of study of philosophers and linguists and as a practice pursued by philosophers through history)

Technical expressions and philosophical, non-ordinary uses of expressions do not count for natural language ontology: they are part of the (ontological) periphery of language.

Examples

- Frege (1884) did not appeal to expressions like *the number eight* to motivate numbers as objects (but to sentences like *the number of planets is eight*).
- Frege did not motivate truth values being objects by appealing to terms like *the truth value true* in natural language.
- Link (1983) did not motivate sums as part of the ontology of natural language from the presence of terms like *the sum of John and Mary* in natural language, but plurals like *the children* and conjunctions like *John and Mary*.
- Philosophers that argue for properties being objects generally do not appeal to constructions like *the property of being wise*, but to *wisdom* or *being wise* (e.g. Hale 1987)

Semantic Universals only pertain to the core, not the periphery of natural language

Example:

The Abstract-Objects Hypothesis of Moltmann (2013a, 2020b)

Natural Language permits reference to abstract objects only in its periphery, not in its core.

'Content' of the core-periphery distinction

Implicit acceptance vs reflective acceptance

Uses of language in the periphery

1. '*Philosophical*' nouns like *entity*, *set*, *number*, *property*, *existence* by themselves can be used in various ways, having different philosophical concepts in mind
2. Philosophers can introduce new technical terms, e.g. *the nothing* (Heidegger)

'Ordinary Language Philosophy' (Austin, Moore, Wittgenstein, ...)

Advocates discarding philosophical uses, to instead focus on ordinary uses of philosophically relevant expressions (and philosophical problems may disappear).

But non-ordinary uses are linguistically legitimate, within limits (and they also require a semantic analysis).

Observation

Not all expressions or parts of language can be used in a non-ordinary way.

Examples

[1] Noun vs. verb*Existence vs. exist*

- (1) a. the existence of anything there is, people, material objects, events
 b. ??? The event / party / catastrophe did exist.
 c. The event / party / catastrophe did take place.
 d. ??? The rain still exists.
 e. The rain is still going on

Meaning vs. mean

- (2) a. The meaning of 'rouge' is a property / concept / set / ...
 b. 'Rouge' means 'red'.
 c. ??? 'Rouge' means the property of being red / a set / an entity.

Generalization about nouns

All nouns, by themselves, can be used by particular philosophers (and others), having specific notions in mind (non-ordinary use of language), but not so verbs.

[2] Plural vs singular count

- (3) a. The children are large.
 b. The sum / group of the children is large.
 (3a) cannot mean 'the group of children is large'.

Syntactic features and categories do not allow for a non-ordinary use.

Apparent generalization

1. Nouns permit a non-ordinary use, but not verbs.
2. The functional part of grammar (e.g. syntactic features) does not permit for a non-ordinary use.

3. Reifying terms (Moltmann 2013a)Type 1 reifying terms

Close appositions

- (4) a. the number eight
- b. the concept horse
- c. the truth value true
- d. the color blue

Reifying terms that are close appositions seem to clearly belong to the periphery of language.

Suggested semantics

Reification of an entity on the basis of what is conveyed by the (nonreferential) linguistic material following the sortal, e.g. introduction of an entity by abstraction.

Reifying terms seem to involve philosophical reflection as part of their semantics, the hallmark of the periphery (?).

Type 2 reifying terms

- (5) a. the proposition that it is raining.
- b. the fact that it is raining
- c. the property of being wise

Same semantics? Part of the periphery?

4. Property Reference**4.1. Explicit property-referring terms vs adjectival nominalizations**

[1] NPs referring to qualities (*quality terms*)

wisdom, happiness, redness, beauty (not derived from an adjective)

NPs with the sortals *quality* and *virtue*: *the quality of gentleness, the virtue of humility*

[2] NPs standing for property objects (*property terms*)

the property of being wise

Qualities and property objects bear different sorts of properties (Moltmann 2003a).

Explicit (complex) property-referring terms

- (6) *The property of XP*

XP in English: gerund

(7) the property of being red

In French, German, Italian: infinitival clause

(8) a. La propriété d'être rouge

b. die Eigenschaft, rot zu sein

c. la proprietà di essere rosso

4.2. Constraints on complex property-referring terms

Semantic constraints on verbs in the clausal modifier

1. No eventive verbs, wrt any thematic role

(9) a. ??? the property of walking (pace Chierchia / Turner 1998)

b. ??? the property of meeting Joe

c. ??? the property of being hit by Joe

2. No concrete state verbs (verbs describing bodily positions or states)

(10) a. ??? the property of sleeping / standing / sitting / kneeling

b. ??? the property of living

c. the property of living / residing in Munich

Maienborn (2007)

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

Other stative verbs (including *have* and *be*) take 'Kimean states' as implicit arguments.

Explains the 'stative adverb gap' (Katz 2003) ontologically: Kimean states lack a spatial location and a particular manifestation, and they cannot be objects of direct perception.

Moltmann (2013b)

abstract states = Kimean states , concrete states = Davidsonian states

3. Abstract state verbs always permitted

(11) a. the property of owning an apartment

b. the property of owing someone money

c. the property of resembling one's parents

d. the property of knowing a foreign language

Dispositional (readings of) verbs:

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

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

Nouns vs. verbs

- (14) a. the property of being the cause of a commotion
 b. ??? the property of causing a commotion
- (15) a. the property of being the initiator of an investigation
 b. ??? the property of initiating an investigation
- (16) a. the property of being the object of perception
 b. ?? the property of being perceived

Adjectives vs. verbs

- (17) a. the property of being asleep
 b. ??? the property of sleeping
- (18) a. the property of being alive
 b. ?? the property of living (as opposed to being dead)

French:

- (19) a. la propriété d'être debout
 b. ??? the property of standing

German

- (20) a. die Eigenschaft, krank zu sein
 b. ??? die Eigenschaft, zu kraenkeln
 'the property of being sick'

5. Stative vs. eventive copula verbs

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

6. Existence predicates

- (22) a. the property of existing

b. ??? the property of taking place / happening / occurring

Evaluation of the data

[1] The distinction between abstract states and concrete states matters.

(23) Kimean notion of an abstract state

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

- a. The state $s(P, o)$ = 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.

The problem with the Kimean definition of an abstract state:
overgenerates when P is the content of an eventive predicate.

Abstract states are implicit argument of:

- stative verbs that do not convey bodily positions
- verbs on a dispositional / generic reading
- the verbs *be* and *have*

(24) The Abstract-State Constraint

The clausal modifier of *property* must describe abstract states, but as predicable entities.

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 (properties that match the content of predicates)

Armstrong's (1978):

natural properties vs. non-natural properties

4.3. Sketch of a semantics of complex property-referring terms

Remark about the semantics of gerunds

The empty subject of gerunds or infinitival clauses: PRO

Arbitrary PRO correlates with generic *one*, is restricted to conscious beings:

(25) a. PRO To love one's parents is a good thing.

b. PRO resembling one's parents is normal.

(26) a. the property of loving one's parents

b. the property of resembling one's parents

But properties of inanimate objects?

(27) the property of being identical with ?? oneself / * itself / ok of being self-identical

k: a kind-forming operator

(28) [PRO V-ing] = $\mathbf{k} e[\exists x(V(e, x))]$

Reifying a kind of abstract state as a property:

(29) [*the property of* PRO V-ing] = $\text{id}[\text{property}(d) \ \& \ d = \text{reif}([\text{PRO V-ing})]$

4.4. 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

5. General points and conclusion

[1] Complex property-referring terms are not part of the periphery (only ordinary use possible).

Thus the Abstract-Objects Hypothesis cannot be quite right.

[2] 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?

Hypothesis:

The notion of a property as an abstract predicable state is part of an ontology that goes along with universal grammar, and in fact is part of universal grammar in an extended sense.

[3] Core ontology being part of grammar would explain the inability of speakers to reject that ontology when using the language.

[4] Potential issue for Chomsky

Chomsky's view

Universal grammar pertains to the language faculty a distinct from the rest of the cognitive system

Should the ontology of the core be viewed as part of the language faculty or is it a challenge to Chomsky's view ?

Should core ontology be viewed as innate as grammar or is core ontology rather shaped by how the world actually is ?

But core ontology could only be selection of the ontology of the real, viewed as a plenitudinous or permissive view of reality.

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