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Reference to Properties in Natural Language

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1. Introduction

How exactly does natural language permit reference to properties, and what notions of a property does it permit reference to? These are questions of descriptive metaphysics, more specifically natural language ontology. When such questions are pursued, further, metaontological questions arise, namely how notions of a property that are implicit in the ontology of natural language relate to the 'technical' notions of a property that figure in philosophy and formal semantics. We will see that there are significant discrepancies which raise questions about a core-periphery distinction in the ontology of natural language, with core ontology being part of universal grammar.

There a range of potential property-denoting expressions in natural language (or at least English): First, there are 'quality terms' (as I will call them) like *wisdom* as well as explicit property-referring terms like *the property of being wise*. Furthermore, infinitival clauses and gerund as such as *to be wise* and *being wise* have been regarded as property-referring terms by several semanticists. It is also a common view that predicates like *wise* or *is wise* stand for properties (though perhaps not in the sense of referring to them). Finally, the view has been held that 'special quantifiers' such as *something* when they take the place of infinitival clauses, gerunds, or predicative adjectival or nominal phrases serve as quantifiers ranging over properties.

In this chapter, I will first briefly go through those apparent property-referring terms and some of the views that have been held about them. I will then focus on complex property-referring terms and present a range of new generalizations that challenge received views of properties. Those generalizations also challenge views on which property-referring terms pertain to a technical or 'philosophical' use of language and thus are not part of the core of language in a certain sense.

2. Natural language ontology

Let me start with a few more words about the context of this chapter. The questions this chapters is pursuing are questions within a particular branch of metaphysics. This is natural language ontology, which itself is a specific branch of descriptive metaphysics as Strawson (1950) called it or what Fine's (2017) calls 'naïve metaphysics'. Following Fine (but deviating somewhat from Strawson 1950), descriptive metaphysics can be taken to be the metaphysics of what there appears to be, whether real or not. As such descriptive metaphysics differs from foundational metaphysics, which is about what there really or fundamentally is.[1]. Natural language ontology can be understood as descriptive metaphysics that gives priority to linguistically reflected intuitions (over language-independent metaphysical intuitions), by making full use of the methods of contemporary semantic and syntactic theory. The subject matter of natural language semantics is the ontology that we *implicitly accept* when using natural language. While natural language can be used to formulate all sorts metaphysical views, that use is generally not taken to be evidence for the ontology we implicitly accept when using natural language; only non-technical parts of language and ordinary use is evidence for that ontology, that is, only the core of language not its periphery, in an ontologically relevant sense.[2]

3. Apparent property-referring terms

3.1. Quality terms

There are various candidates for property-referring terms in English that have been discussed in the literature. One of them is terms like *wisdom, happiness,* and *redness* that is, bare (determinerless) adjective nominalizations. They figure centrally in the Aristotelian tradition of the metaphysics of qualities and thus can be called 'quality terms'. Quality terms, as we will see shortly, differ sharply in their semantic properties from 'explicit property-referring

[1] Descriptive metaphysics is not only a valuable pursuit of metaphysics in its focus on metaphysical intuitions. As Fine (2017) emphasizes, it is also presupposed by foundational metaphysics in that it means to clarify the notions presupposed by foundational metaphysics.

[2] For an overview of natural language ontology with its core-periphery distinction see the Moltmann (2022).

terms', such as *the property of being wise, the property of being happy*, and *the property of being red*.

Quality terms also include complex NPs like *the quality of wisdom* and *the virtue of humility*, which, even though they share the same construction as explicit property-referring terms, side with quality terms rather than explicit property-referring terms semantically.

The semantics of quality terms that are bare adjective nominalizations is best understood in terms of correlating NPs that refer to particulars, namely adjective nominalizations with a complement or specifier as in (1a) and (1b):

(1) a. Socrates' wisdom
b. the beauty of the landscape

Those NPs are standardly taken to be trope-referring terms, or to use the more appropriate term, mode-referring terms.[3] Their denotations display the characteristic properties of modes (or tropes):

1. Properties of concreteness such as being perceivable, being relata of causal relations (*Joe noticed Mary's happiness, Joe's nervousness caused him to forget the problem*)
2. Bearer-dependence (??? *Socrates' wisdom is Plato's*, which expresses identity, is false, as opposed to *Socrates' wisdom is the same as Plato's*, which expresses similarity and could be true)
3. Location in time (but not directly in space, cf. Moltmann, to appear) (*John's happiness lasted two years*, ??? *John's happiness is in Munich (where John is)*)
4. Similarity relations based on instantiating the same property (*Socrates wisdom is the same as Plato's wisdom*, *the beauty of this landscape is the same as the beauty of that landscape*).

The modes referred to by such terms behave just as the instances of the qualities that quality terms stand for, given the particular readings quality terms display with different predicates. Quality terms differ from explicit property-referring terms in that they show different readings or different degrees of acceptability with respect to five types of predicates. In fact, they show the particular readings typical with bare mass nouns and plurals in general (e.g. *water* and *giraffes*), which have been argued to always denote kinds by Carlson (1977).[4]

[3] For the distinction between modes and tropes see Lowe (2005) and Hakkarainen and Keinänen (2022).

[4] See Moltmann (2004, 2013a, Chapt. 2).

, First, with existence predicates they exhibit a reading existentially quantifying over instances (i.e. modes), rather than stating the existence of a property as an abstract object:

(2) a. Wisdom exists.
b. The property of wisdom exists.

Second, with episodic predicates (or what Carlson (1977) called‘stage-level’ predicates), they display existential quantification over instances rather than the application of the predicate to an abstract property object:

(3) a. John found wisdom.
b. ??? John found the property of wisdom.

Third, with intensional transitive verbs such as *need*, quality terms trigger existential quantification over instances in situations satisfying the need, whereas the abstract property needs to be present in such situations with explicit property-referring terms:

(4) a. Mary needs wisdom.
b. Mary needs to property of being wise.

Fourth, with characterizing predicates (or what Carlson (1977) called ‘individual-level predicates’), quality terms display a reading of generic quantification over instances, whereas explicit property-referring terms display a reading evaluating the abstract object as such:

(5) a. Wisdom is admirable.
b. ??? The property of wisdom is admirable.

Finally, frequency predicates, which count instances over time, are hardly applicable to explicit property-referring terms, but are fine with quality terms:

(6) a. True wisdom is rare.
b. ??? The property of being truly wise is rare.

The readings and the applicability of the five types of predicates suggest that qualities cannot bear a property as a whole; only property objects can. Qualities, it seems, obtain their properties from instances, that is, from modes (or tropes) in the way that corresponds to a particular predicate type.[5] What does this mean for the formal ontology of qualities and properties as abstract objects? There are two options of how to conceive of qualities as opposed to properties as abstract objects:

1. Qualities are entities that cannot bear properties themselves (Moltmann 2004)
2. Qualities are (modalized) pluralities (as many) of modes (Moltmann 2013a).

On the second, more plausible option, quality terms are plural terms, more precisely modalized plural terms, plurally referring to all the actual and possible instances. Only explicit-property-referring terms will refer to single abstract objects.

This relates to a more general issue regarding reference to abstract objects in natural language. The common view in philosophy and linguistic semantics has been that natural language permits reference to a great range of abstract objects: properties, propositions, numbers, degrees, expression types, facts, abstract states. This view was challenged in Moltmann (2013), where the general thesis was put forward that reference to abstract objects in natural language is highly restricted to the effect that natural language permits reference to abstract objects only in its periphery, not its core, where, roughly, the core (in the sense of natural language ontology) is understood as the ontology accepted implicitly through the use of language, whereas the ontology of the periphery is accepted on the basis of (naïve or philosophical) reflection.

Typical expressions belonging to the periphery are sortals as well as reifying terms (which are formed with sortals as head nouns). Explicit property-referring terms themselves belong to the class of reifying terms (Moltmann 2013a). Here are other examples of reifying terms in English:

(7) a. the color red
    b. the truth value true
    c. the concept horse
(8) a. the proposition that John is wise
    b. the fact that John is wise
    c. the possibility that John might be wise

[5] In fact the distinction suggests that qualities are Aristotelian, inherent, universals, whereas properties are conceived as platonic, transcendent universals (Moltmann 2004).

The general structure of the first type of reifying terms can be taken to be: definite article – sortal noun – direct quote (nonreferential(ly used) linguistic material). This structure naturally goes along with some form of abstraction or reification of an entity on the basis of a non-referential expression (with its conceptual meaning and perhaps its contexts of use). This may take the form of Fregean abstraction (Hale 1987) or a 'something-from-nothing transformation' in the sense of Schiffer (1996).

Likewise it is tempting to pursue such a semantics for the second type of reifying terms, assuming that embedded clauses are not referential terms. (8a-c) would thus involve reification yielding a proposition, a fact, or a possibility on the basis of a sentential content.

One way of pursuing such as strategy for the semantics of complex property-referring terms would be to make use of the introduction of an object (by abstraction) on the basis of a concept or a predicate obtained by 'denominalization', imposing the following conditions on the so introduced object:[6]

(9) [1] [*the property of being A*] is instantiated by (is had by) d in case [A] is true of d.
[2] [*the property of being A*] is identical to [*the property of being B*] iff A and B have the same meaning or application conditions.

This, however, is not the analysis I will later adopt for explicit property-referring terms. One reason is that this analysis would not conform with standard constraints on compositionality; a more important reason is that it would not be able to account for the constraints on the clausal modifier of explicit property-referring terms to be discussed later.

If the general semantics of reifying terms is the introduction of an abstract object on the basis of expressions or meanings, then reifying terms involve a form of ontological reflection (even naïve), and thus belong to the ontological periphery, not the core of the natural language This is part of the Abstract-Objects Hypothesis of Moltmann (2013):

(10) <u>The Abstract-Objects Hypothesis (Moltmann 2013)</u>
Natural language does not involve reference to abstract objects in its core, but only in its

[6] Alternatively, on a something-from-nothing transformation (Schiffer 1996), a pleonastic entity would be introduced whose nature is exhausted by pleonastic equivalences such as:

(i) John has *the property of being happy* iff John is happy.

periphery.[7]

We will later see that the actual semantic behavior of explicit property-referring terms in fact poses a problem for their classification as part of the ontological periphery of natural language.

4. Predicates and special quantifiers like *something*

It is a common assumption that predicates stand for properties. However, there are different views of how to understand the semantic relation of 'standing for' and how to understand the properties predicates are supposed to stand for ontologically. Some philosophers hold that predicates stand to properties in a different relation than property-referring terms, by 'expressing' rather than 'denoting' them. Others take there to be an ontological difference between properties that predicates stand for and properties that property-referring terms stand for. Thus Frege took predicates to stand for concepts, unsaturated entities, rather than objects, the denotations of all referential terms (including explicit concept-referring and property-referring terms). Reference to properties as saturated objects is possible, on Frege's view, only through the use of singular terms like *the concept horse* or *the property of being wise*. While the Fregean view has a large following (Chierchia/Turner 1988, Jones 2016), there are also philosophers such as Bealer (1982) who take predicates to stand for properties as saturated objects, with a predication relation ensuring the relation of a property to its bearer.

Certain quantifiers such as *something* as well as pronouns like *what* and *that* can take the place of predicative adjectives or nouns and thus appear to range over or stand for the very same sorts of properties that adjectives and nouns stand for:

(11) a. John is courageous.
b. John is something admirable.
c. Bill is that too.
(12) a. John is a father.
b. Bill is what John is, a father.

[7] As part of the elaboration of the Abstract-Objects Hypothesis of Moltmann (2013), various putative expressions in the core of language referring to abstract objects were reanalyzed, as expressions referring to particulars (in particular modes), as expressions referring to pluralities of (actual or possible) particulars, as expresand as expressions that fail to have a referential function.

Such quantifiers and pronouns in fact appear to act as second-order quantifiers or variables ranging over properties as predicable entities (Rayo/Yablo2001, Wright 2007). However, there is evidence that such quantifiers instead range over first order entities, and that those are best viewed as tropes or kinds of tropes (Moltmann 2003) or abstract states (Moltmann 2004). If the quantifier SOMETHING is taken to be two-place relational predicate applying to two predicates A and B (SOMETHING(A, B)), then the observation is that A must be a first-order predicate, but B a second order predicate, as is the case in (13b, c):

(13) a. John is courageous.
b. John is something admirable
c. John is something I like e.

Admirable is a first-order predicate (**courageous is admirable*) and *like* is a first-order relational predicate, taking only individuals in its object position (**I like courageous*). Special quantifiers like *something* might instead be regarded as a nominalizing quantifier introducing a domain of entities that a corresponding nominalization would stand for ('happiness', 'fatherhood') (Moltmann 2003, chap. 3).

5. Infinitival clauses and gerunds

Infinitival and gerundive clauses such as *to leave the party* and *leaving the party* have been argued to denote properties rather than propositions (Cierchia1984, Chierchia / Turner 1988). One reason is the validity of the inferences below:

(14) a. John wants to leave the party.
b. Mary wants the same thing, to leave the party / * for John to leave the party.
(15) a. John regretted leaving the party.
b. Mary regretted what John regretted, leaving the party / John leaving the party.

A second reason is the obligatory *de se* reading of infinitival complements of attitude verbs, which would follow if such complements denote properties rather propositions and attitude de se consist in the self-ascription of a property (Lewis 1979):

(16) a. John hopes [PRO to be talented]

b. hope(John, λx[talented(x)])

Also gerundive clauses can provide the content of a *de se* attitude, thus motivating the same sort of analysis:

(17) John remembers being ill at the time.

If infinitival and gerundive clauses are analysed as property-denoting, the notion of a property is that of abundant property in the sense of Lewis (1986) or that of a concept (as opposed to a quality) in the sense of Bealer (1982). First of all adjectives and nouns that figure in infinitives and gerunds generally may fail to stand for a sparse property (and they generally don't) . Moreover, the properties denoted may be logically complex and quantificational:

(18) a. being heavy or red

b. being round and square

c. being proud of someone

d. being admired by everyone

Here the logical connectives and quantifiers themselves contribute to the property being denoted.[8]

6. Explicit property-referring terms

We can now take a closer look at the semantics of explicit property-referring terms. In English explicit property-referring terms are formed with gerunds, as in (19b) though they may be formed with infinitival clauses in other languages, for example, in French, as in (19b):

[8] Quality terms, by contrast, may not be logically complex, as seen in the contrast below:

(i) a. Being heavy or red is a disjunctive property.
b. ??? Heaviness or redness is a disjunctive quality
(ii) a. Being round and square is a contradictory property.
b. ??? Roundness and squareness is a contradictory quality.

The reason is a morphological one, though one may argue that this is also part of the nature of qualities.

(19) a. the property of being wise.

b. la propriété d'être sage

the property to be wise

Explicit property-referring terms display a notion of a property sharply distinct from the abundant notion of a property, on which every predicate in natural language, or logic, expresses a property. This is remarkable also because they are formed with gerundive or infinitival clauses, which are themselves not subject to any restrictions.

The discrepancy has nothing to do with the Lewis' (1986) distinction between sparse and abundant properties or Armstrong's (1978) distinction between natural and non-natural properties. Rather the notion of a property is tied to a particular notion of an abstract state – in contrast to that of a concrete state or an event.

As mentioned in Section 3, it is a common view that all predicates and open sentences stand for properties, representable by lambda terms, as illustrated below, making use of Davidson's (1967) event semantics for verbs:

(20) a. long or green

b. λx[long(x) v green(x)]

(21) a. meeting a person

b. λx[∃e∃y(meet(e, x, y) & person(x))]

It is thus tempting to assume that the clausal modifier of *property* in explicit property-referring terms is to be represented by lambda terms as well, denoting a property that is to be identified with an argument of the noun *property*:[9]

(22) a. die Eigenschaft, weise zu sein.

the property to be wise

b. the d[property(d) & ident(d, λx[wise(x)])

However, such an analysis could not give justice to the constraints on the clausal modifier of *property*. Here are the generalizations.

[9] The relation could not just be identity, as this would lead to wellknown paradoxes. See, for exqmple, Chierchia/Turner (1988) for a different proposal .

First, *property* does not permit eventive predicates in its clausal modifier. Thus, the following examples are excluded:

(23) a. ??? the property of walking home
b. ??? the property of writing a book
c. ??? the property of meeting Mary

This also holds for the copula verbs *become* and *remain*:

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

Become is clearly eventive, and *remain* arguably as well, as it describes an alternative to a contextually entertained change.

The passive appears better than active eventive verbs:

(25) ??? the property of being hit by Joe

This may have to do with a reading of the passive participle as an adjectival passive with the the modifier being of the form *being*+AP as well.

The clausal modifier of *property* allows for certain stative verbs:

(26) a. the property of owning an apartment
b. the property of owing someone money
c. the property of resembling a film star
d. the property of knowing a foreign language

These describe what Maienborn (2007) calls ‘Kimean states’ or why I prefer to call ‘abstract states’ (Moltmann 2015), in contrast to ‘Davidsonian states’ (as Maienborn calls them) or ‘concrete states’, as I would call them. Concrete state verbs are generally verbs describing physical positions (*sit, stand, lie down, kneel*) and physical states (*sleep, wait, gleam*). They are generally excluded as predicates of clausal modifiers of *property*:

(27) a. ??? the property of sleeping / standing / sitting / kneeling
b. ??? the property of standing in the corner
c. ??? the property of sitting in the chair

Concrete state verbs and abstract state verbs are sharply distinguished semantic types. Concrete state verbs, in contrast to abstract state verbs, permit spatial modifiers, manner modifiers, and comitatives, and they can act as naked infinitival complements of perception verbs:

(28) a. ?? Mary knows French in that room
b. Mary is sleeping in that room.
(29) a. ??? John owes Bill money in Germany.
b. ??? John knows French with effort.
(30) a. John was sitting with Mary.
b. ?? John owes Bill money with Mary.
(31) a. John saw Mary sit on the chair.
b. ?? John saw Mary resemble Sue

What matters may not just be the type of verb, but also the relevant reading of the verb. In particular, verbs on a dispositional reading side with abstract state verbs:

(32) a. the property of speaking French
b. ??? the property of speaking right now
(33) a. the property of eating meat
b. ??? the property of eating that piece of meat

Similarly, *living* + location modifier, in the sense of 'residing' is to be distinguished from living as a concrete state:

(35) a. the property of living in Munich
b. ?? the property of living

Exist also classifies as an abstract state verb, as opposed to the eventive existence verbs *occur*, *happen*, and *take place*:

(36) a. the property to exist
b. ??? the property of occurring / happening / taking place

Full verbs thus need to meet particular semantic conditions in order for being acceptable in clausal modifiers of *property*: they need to describe abstract states.

Full verbs contrast in that respect not only with modifiers of the form *being*+AP, but also modifiers of the form *being*+NP or *having*+NP. The copula verbs *be* and *have* followed by an NP are always acceptable in clausal modifiers of *property*:

(37) a. the property of being a father
b. the property of having a father
(38) a. the property of being a player at the game
b. the property of having wisdom
c. the property of having siblings
d. the property of having solved an important mathematical problem

Of particular interest is the fact that *being*+NP may describe, it seems, the very same ongoing as an eventive VP, yet be acceptable as a clausal modifier of *property*. Here are some minimal pairs:

(39) a. the property of being the cause of a commotion
b. ??? the property of causing a commotion
(40) a. the property of being the initiator of an investigation
b. ??? the property of initiating an investigation
(41) a. the property of being an experience of pain
b. ?? the property of experiencing pain
(42) a. the property of being the object of torture
. b. ? the property of being tortured

Eventive verbs contrast similarly with *being*+AP, even if the latter appears to describe the same ongoing. Minimal pairs in English are given in (43) and (44), (45) and (46) are crosslinguistic examples from French and English:

(43) a. the property of being asleep
b. * the property of sleeping
(44) a. the property of being alive
b. ?? the property of living
(45) a. la propriété d'être debout
b. * the property of standing
(46) a. la propriété d'être assis
b. * the property of sitting

It is not plausible that the difference with respect to eventive verbs is due to the content of the relevant adjectives and nouns. Rather, more plausibly, the reason is that the copula verbs *have* and *be* classify as abstract state verbs, as Maienborn (2019) in fact argued (for *be*), and thus that the clausal modifier of *property* generally needs to describe abstract states. Let us call the constraint on the clausal modifier of property-referring terms the abstract-state Constraint:

(48) The Abstract-State Constraint
The clausal modifier of *property* must describe abstract states.

Adopting the Davidsonian view of verbs on which verbs have an additional argument for events, as in (49b), abstract states will be implicit arguments of stative verbs like *own* and *owe*, of verbs on a dispositional reading, and of the the copula verbs *have* and *be*. Thus, *be* will denote a three place relation between abstract states, individuals and properties, as in (50b):

(49) a. John walked
b. ∃e(walk(e, John))
(50) a. John is happy
b. ∃d(is(d, John, [*happy*]))

Abstract states, like events, are particulars that depend ontologically on a particular agent. This means that they cannot themselves be properties, which are not dependent on particular individuals, but can be shared. Thus, gerundive and infinitival clauses themselves should stand for kinds of events or abstract states. This is independently plausible given the fact that

gerundive and infinitival clauses as subjects accept typical kind predicates like *rare* and *widespread*:

(51) a. Winning the lottery is rare.
b. Getting a cold in winter is widespread.

Thus, we can assume that gerundive and infinitival clauses are interpreted with the help of a kind-forming operator **k** and existential quantification with respect to the subject position, as below, where PRO occupies the empty subject position of the gerundive clause: [10]

(52) [PRO V-*ing*] = **k** e[∃x(V(e, x))]

The construction of explicit property-referring terms tself will involve reifying a kind of abstract state as a property, as below:

(53) [*the property of* PRO V-*ing*] = ιd[property(d) & d = reif([PRO V-ing])]

How should abstract states be conceived ontologically? If abstract states are Kimean states, this means that they are introduced by an implicit definition of the sort Kim (1976) had proposed for events:

(53) <u>The Kimean notion of an event</u>
For properties P and P', objects o and o', and times t and t',
a. The event s(P, o, t) = the event s(P', o', t') iff P = P', o = o', and t and t'.

[10] The empty subject of gerunds and infinival clauses might be taken to be what syntacticians call 'arbitrary PRO', standardly taken to be the subject of infinitival clauses or gerunds in generic sentences such as those below, where the empty subject co-varies with generic *one*:[10]

(i) a. PRO to love one's parents is a good thing.
b. PRO_b resembling one's parents is normal.
(ii) a. the property of PRO_{arb} loving one's parents
b. the property of PRO_{arb} resembling one's parents

Arbitrary PRO, however, is generally restricted to human beings, or more appropriately, conscious beings, and thus cannot generally be present in complex property-referring terms, which are unproblematic in application to inanimates (*the table has the property of breaking under a weight more than a kilo*). In fact, an empty subject of clausal modifiers of *property* co-varying with *one(self)* is rather bad in application to inanimate objects:

(iii) the property of being identical with ?? oneself / ?? itself / ok of being self-identical.

b. The event s(P, o, t) exists at a time t iff o has P at t.

Abstract states, unlike events, should not depend on a particular time (a state can obtain at different times, but an event cannot occur at different times)). This means that a Kimean account of a state should look like this:

(54) The Kimean notion of a 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) obtains at a time t iff P holds of d at t.

The Kimean account of abstract states appears particularly plausible as an account of the abstract state arguments of *be*, which would be obtained from an individual and the relation of bearerhood with respect to a property (and similarly for *have*). However, the account hardly sheds any light on abstract states that are dispositions, debts, ownerships, beliefs etc, What is more, the Kimean account presupposes a notion of a property that already excludes the sorts of properties denoted by eventive verbs like *walk* and concrete state verbs like *stand*.

However, whether or not a unified definition of abstract states can be given, what is important is that abstract states share characteristic properties, such as lack of a spatial location and a specific manifestation, being the object of perception etc, The fact that abstract states are distinguished from other categories in terms of their characteristic properties justifies the use of the notion of an abstract state in the formulation on the constraint of clausal modifier of explicit property-referring terms.

7. Final remarks: explicit property-referring terms, learnability and the core-periphery distinction in natural language ontology

Given the Abstract Object Hypothesis, complex property-referring terms, like all reifying terms should be part of the periphery of language, the place for reflective or nonordinary uses of language. However, explicit property-referring terms are strictly subject to the Abstract-State Constraint, which cannot be overridden by non-ordinary use. No speaker, philosopher or non-philosopher, could use explicit property-referring terms having a notion of property in mind that violates the Abstract-State Constraint. The constraint, which pertains to the

constructional meaning of a complex expression, would still need to be classified as part of the ontological core of language.

The Abstract-State Constraint obviously is not influenced by any philosophical views about properties a speaker may have been exposed to or have arrived at. Moreover, the constraint can hardly have been learned through experience: a child is unlikely to have ever been exposed to uses of explicit property-referring terms, let alone having been corrected in how to use them. What is remarkable is that even though exposure to such terms and their use is highly limited, we have robust intuitions about the constraints they are subject to. This constraint, which concerns an ontological category, thus appears to have the same status as universal grammar on the generative view and should best be considered part of it.

References

Armstrong, D. (1978): *A Theory of Universals* (Volume 2: *Universals and Scientific Realism*), Cambridge University Press, Cambridge.

Bealer, G. (1982): *Quality and Concept*, Oxford: Clarendon Press

Carlson, G. N. (1977): *Reference to Kinds in English*. Ph.D. thesis. University of Massachusetts at Amherst. Published 1980, Garland. New York.

Chierchia, G. (1984): *Topics in the Syntax and Semantics of Infinitives and Gerunds*. Ph.D. Dissertation, University of Massachusetts, Amherst.

Chierchia, G. and R. Turner (1988): 'Semantics and Property Theory'. *Linguistics and Philosophy* 11.3., 261-302.

Davidson, D., (1967): 'The Logical Form of Action Sentences', in N. Rescher (ed.): *The Logic of Decision and Action*, Pittsburgh: Pittsburgh University Press, 81–95.

Dummett, M. (1973): *Frege. Philosophy of Language*. Vol. 1. Duckworth, London.

Fine, K., (2017): 'Naïve Metaphysics'. *Philosophical Issues* 27.1., 98-113.

Hakkarainen, J. and M. Keinänen (2022): 'Bradley's Relation Regress and the Inadequacy of the Relata-Specific Answer', *Acta Analytica*, online first.

Hale, B. (1987): *Abstract Objects*. Blackwell, New York.

Jones, N. (2016): 'A higher-order solution to the problem of the concept *horse'*, *Ergo: An Open Access Journal of Philosophy* 3: 6: 132-166

Kim, J., (1976): 'Events as Property Exemplifications', in M. Brand and D. Walton (eds.): *Action Theory*, Dordrecht: Reidel, 310-326.

Lewis, D. (1979): 'Attitudes *de dicto* and *de se*'. *Philosophical Review* 88. 4., 513-543.

---------- (2001): *On the Plurality of Worlds*. Blackwell, New York.

Lowe, J. (2005): *Four-Category Ontology*, Oxford UP, Oxford.

Maienborn, C. (2007): ‘On Davidsonian and Kimian States’, in I. Comorovski and K. von Heusinger (eds.), *Existence: Semantics and Syntax*. Springer, 107-130.

---------- (2019): ‘Events and States’. In R. Truswell (ed.): *Oxford Handbook of Event Structure.* Oxford UP, Oxford.

Moltmann, F. (2004): ‘Properties and Kinds of Tropes: New Linguistic Facts and Old Philosophical Insights’. *Mind* 113, 1-43.

---------- (2013a): *Abstract Objects and the Semantics of Natural Language*. Oxford UP.

---------- (2013b): 'On the Distinction between Abstract States, Concrete States, and Tropes'. In A. Mari / C. Beyssade / F. Del Prete (eds): *Genericity*. Oxford University Press, Oxford, 292-311.

---------- (2020): 'Abstract Objects and the Core-Periphery Distinction in the Ontological and Conceptual Domain of Natural Language'. In Falguera, J. L. / C. Martínez (eds.): *Abstract Objects. For and Against*. Synthese Library, Springer, Dordrecht, 255-276.

---------- (2022): ‘Natural Language Ontology’. *Stanford Encyclopedia of Philosophy*, online.

---------- (to appear): 'Modes, Disturbances, and Spatio-Temporal Location'. In C. Rossi / A. Moran (eds.): *Objects and Properties*. Oxford UP, Oxford.

Rayo, A. / S. Yablo (2001); ‘Nominalism through Denominalization. *Nous* 35:1 , 74–92

Schiffer, S. (1996): ‘Language-Created, Language-Independent Entities’. *Philosophical Topics*

Skiba, L. (2021): ‘Higher-Order Metaphysics’. *Philosophy Compass* 16 (10), 1-11.

Wright, C. (2007): ‘On Quantifying into Predicate Position’. In M. Potter (ed.): *Mathematical Knowledge.* Oxford UP, Oxford.