Nominalizations

An Interdisciplinary Research Project

Friederike Moltmann (Paris) & Benjamin Schnieder (Hamburg)

1. Summary

Nominalizations figure prominently in both linguistics (syntax and semantics) and philosophy. Nominalizations are of interest to syntacticians because of differences and similarities between the base from which the nominalization is derived and the nominalization (such as its argument structure and syntactic features). Semanticists studying nominalizations are inte-rested in the connection between the semantics of the base expression and the semantics of the nominalization in particular because the nominalization can be used to form a referential term, referring, it appears to some object which is in some way related to the content of the base expression. Nominalizations figure prominently in ontological discussions in philosophy since nominalizations appear to form terms that refer to abstract objects (such as propositions, properties, or facts) or 'minor entities' (such as events, states, or tropes). There is as yet very little interaction, though, between linguists working on the syntax and semantics of nominalizations and philosophers interested in the objects to which nominalizations apparently refer. This project aims to fill that gap, bringing together a number of linguists especially on the French side, some of which are involved already in research groups studying nominalizations, with a group of German philosophers with a focus on ontology. They will systematically explore questions that require the joint contribution of the two disciplines. The questions cover, first, a range of fundamental issues in semantics and ontology (IP1), as well as semantics and meta-ontology (IP2). But analyses of nominalization also have wide-reaching consequences for debates not primarily belonging to ontology which will be examined as well, including debates about mental attitudes (IP3), and philosophical logic (IP4).

2. More Detailed Description

a. Master Project

Nominalizations are of great interest both to linguists and to philosophers. The interest in nominalizations for linguists resides in the similarities and differences in formal and semantic properties of the base expression from which the nominalization is derived and the nominalization itself (its status as a noun).

The interest of philosophers in nominalizations comes the fact that nominalizations can form referential terms that appear to refer to an object that is (generally) of a special sort, an abstract object (such as a property or a proposition) or a minor object, such as an event, state, fact or trope.

There is a significant linguistic literature on the syntax and semantics of nominalizations, especially event nominalizations, as well as nominalizations apparently referring to properties or

propositions. Linguistic semantics in general presupposes two sorts of philosophical backgrounds when analysing nominalizations semantically: First, for event nominalizations, the Davidsonian theory of events, on which events are particulars and already implicit arguments of the verb from which a deverbal nominalization is derived.; second, for nominalizations leading to property- or proposition-referring terms a version of possible worlds semantics, generally within Montague grammar.

Philosophers have long recognized the importance of nominalizations: not only do philosophers generally make essential use of nominalizations when discussing the ontology of abstract objects or or minor entities; nominalizations often feature as philosophical topics themselves, and this from Aristotle on throughout the middle ages and upwards. There is particularly a rich philosophical literature on nominalizations making reference to tropes as well as nominalizations making references to 'thoughts' or 'judgments'.

A lot of historical and contemporary work that relates to nominalizations as well as ontological approaches are ignored in current linguistic semantics, as are ontological approaches that could fruitfully be used for linguistic analyses, such as approaches making use of ontological dependence or abstraction. Conversely, philosophers are insufficiently aware of the linguistic work on nominalizations, both concerning the empirical data and the linguistic and crosslinguistic generalizations. While this is deplorable and sometimes leads too philosophical views based on erroneous views of the linguistic facts, it is to an extent understandable why this situation arises: a lot of the linguistic work, not just the syntactic work, even work in semantics, is simply very hard to access, especially terminologically, for a philosophers without specific linguistic background.

This project aims to bridge the discrepancy between the philosophical and the linguistic traditions that bear on nominalizations. It does so by focusing on a few selected issues where an interaction between linguists and philosophers appears particularly fruitful and indeed urgent. These correspond to the four subprojects of the project. The first subproject aims to build a bridge between on the one hand the philosophical approaches to tropes (both contemporary and historical) and on the other hand the work on deverbal and de-adjectival nominalizations that has been pursued within linguistic semantics, including the tradition of Davidsonian event semantics. The second subproject pursues ontological approaches to abstract entities not generally considered in linguistic semantics, especially approaches of abstraction. The third subproject explores nominalizations in relation to *that*-clauses; in particular it explores the view that the entities we refer to with the nominalization of an attitude report as a whole, such as *John's hope that* S, that is concrete mind-dependent objects, should replace propositions as abstract objects. The view finds important historical relatives in early analytic philosophy, which will be explored as part of that subproject. The fourth subproject is dedicated to socalled non-nominal quantification, quantification into a syntactic position other than that of an NP, which have been argued involve a form of semantic nominalization. This subproject includes both a linguistic characterization of different kinds of non-nominal quantifiers and an exploration of novel semantic approaches and their ability to avoid semantic paradoxes.

In what follows, we describe the state of the art in more specific areas related to our project.

b. Individual Project IP1: Nominalizations and Minor Entities – Tropes, Events, and States

There is a range of nominalizations referring to entities that are generally considered to be *ontologically dependent* on objects (cp. Schnieder 2006); we will called them *minor entities*. Three important categories of minor entities are: tropes, events, and states. These categories appear to be correlated with particular types of nominalizations: nominalizations derived from adjectives refer to tropes (*Mary's beauty*, *the heaviness of the stone*), nominalizations derived from eventive verbs refer to events (*John's walk, John's walking*), and nominalizations derived from stative verbs refer to states (*John's sleep, Mary's being beautiful*). While tropes have been the object of attention primarily in philosophy, there is a rich linguistic semantic literature on events and states.

The philosophical literature on tropes typically uses adjective nominalizations to refer to tropes, to discuss their ontological properties, and to test our intuitions about them. Crucial properties of tropes should be reflected in acceptable sentences involving adjective nominalizations: for instance, tropes can act as objects of perception (*John noticed Mary's beauty*), tropes can be causally efficacious (*Mary's beauty caused astonishment*), and they are dependent on a particular bearer (?? *John has the happiness of Mary*). Tropes played a major role in ancient and medieval Aristotelian philosophy, and they have received renewed interest in contemporary philosophy, in particular due to the aim of reducing entities of other kinds to tropes (by, e.g., regarding individuals as bundles of co-located tropes and universals as classes of exactly similar tropes) (Williams 1953). Contemporary philosophy (contrary to medieval philosophy) has paid little attention, though, to the way reference to tropes is made in natural language. Thus, the contemporary discussion has often disregarded the fact that natural language predicates generally do not express 'natural' properties whose instances are exactly similar, but rather determinable, nonspecific, or even quantificational properties (Moltmann 2009). The question then is: what are the tropes that nominalizations of such predicates denote? For example, is an apple's redness the same trope as its color or its coloredness? Furthermore, contemporary trope theory has largely disregarded the fact that many adjectives are gradable (*tall, heavy*). But gradable adjectives allow for two kinds of (semantic) nominalization: compare *tallness* and *height*. *John's height* is a trope of a different kind from *John's tallness*, in allowing a direct comparison with other tropes of the same sort. Trope theory also has disregarded the fact that adjectives may come in *polar pairs* (*weak–strong, heavy–light*) (Moltmann 2009). Assume John is both kind of strong and kind of weak; then John's strength involves the same physical condition as John's weakness, and yet they cannot be the same. But why? A semantic account is required. Contemporary trope theory also fails to draw a clear distinction between qualitative and sortal properties: the former are generally expressed by adjectives, whereas the latter are generally expressed by nouns. Normally, only adjectives appear to allow for nominalizations referring to tropes. There are further challenges to standard trope theory: some linguistic data apparently show the possibility of tropes lacking a unique bearer (the sharpness of the knife is intuitively the same trope as the sharpness of the blade of the knife), or even the possibility of tropes without bearer (as when one adds 'red' to the panting) (Schnieder 2004). Furthermore, tropes do not seem to have the spatial location that is generally attributed to them ('John's happiness was in France' sounds hardly acceptable).

Events have received a lot of attention in linguistic semantics in recent years and a great amount of work has been done on event nominalizations. This work generally presupposes a Davidsonian approach to events on which events are concrete particulars acting as implicit

arguments of the verb from which the event nominalization is derived. The main motivation for the Davidsonian approach comes from adverbial modification: the adverbial modifiers acceptable with a given verb appear to reflect the properties of the corresponding event, and they generally correspond to predicates that are possible with the corresponding nominalization. Also, significant *syntactic* work has been done on event nominalizations (from Chomsky (1970) onwards) focusing on the argument structure and aspectual features of event nominalizations in relation to the base verb.

Since tropes, however, have been neglected in the recent semantic literature, there is little work exploring how events ontologically relate to tropes (an exception is Bennett 1988); also the ontology of events as reflected in event nominalizations has not been properly understood yet. Many questions about the ontology of events are left up for debate in the current discussion in linguistic semantics, e.g.: should events be viewed as particular or as generic objects (or should both types be posited)? is the Davidsonian approach, on which events act as implicit arguments of verbs, really tenable? Moreover, certain distinctions among events have been made by linguists without thoroughly clarifying what the distinctions amount to ontologically. An example from recent semantics is a distinction between perfective and imperfective nominalizations (Ferret, K. & Soare, E. & Villoing, F. (2010)), which recalls Twardovksy's (1912) ontological distinction between *actions* (walking, screaming, dancing) and *products* (walks, screams, dances). A particularly important case of that distinction is the one between thoughts and thinkings (see SP3).

States have also been intensively studied in linguistic semantics; they are often the referents of nominalizations of gerunds (*John's knowing, John's being happy*). An important topic in the current semantic discussion of states is whether states are on a par with events and act as Davidsonian arguments of stative verbs. There is the so-called 'stative adverb gap' (Katz 2003): stative predicates such as *know, own,* and *be*+adjective do not allow for the range of modifiers that eventive verbs allow for. In particular, they do not allow for location modifiers and manner modifiers, and they cannot form the arguments of infinitival complements of perception verbs. This has been taken to show that stative verbs lack an event argument (requiring a different semantics for the corresponding state nominalizations). Recent work by Maienborn (2007) explains the stative adverb gap by arguing that the relevant verbs take *abstract* states as arguments, which fall under Kim's (1976) account of events as opposed to Davidson's (1967). Some stative verbs (e.g. *sleep, stand, sit*), as Maienborn shows, do allow for the relevant modifiers and can form an infinitival complement of perception verb, and thus take concrete states ('Davidsonian states') as arguments.

c. *Individual Project IP2: Abstractionist Approaches to Nominalizations and Meta-ontological Considerations*

Given the Davidsonian view of events and a corresponding view of tropes, deverbal and deadjectival nominalizations form terms whose referent is already an implicit argument of the verb or adjective from which the nominalization is derived. Such nominalizations, if the Davisonian view is right, thus do not enrich the ontology as such. There are other types of nominalizing constructions in natural language, however, that appear to introduce new entities into the ontology, entities that would not already have been present in the semantic structure of sentences without such nominalizations. Such entities are generally abstract, and include facts,

possibilities, properties, and perhaps directions, colors, truth-values, fictional characters, and numbers. There are two types of such 'reifying expressions', as we will call them:

Type 1: the fact that Socrates is wise, the state of being happy, the possibility that Soctaes might be wise, the property of being wise

Type 2: the direction north, the color red, the truth-value TRUE, the fictional character Hamlet, the number two

Type 1 reifying expressions consist of an abstract sortal noun followed by an embedded clause (infinitival or *that*-clause); type 2 reifying terms consist of a (generally) abstract sortal followed by a nonreferential occurrence of an expression. Note that what follows the sortal in expressions of either sort (e.g. <u>of being wise</u>; <u>Hamlet</u>) could not be replaced, salva congruitate, by a co-referential expression (* *the property* <u>the property of being wise</u>; * *the fictional character* <u>the fictional character Hamlet</u>).

If events, states and tropes are not considered implicit arguments of the base expression, there will be an even greater range of reifying expressions.

The existence of such reifying expressions is of great interest to philosophers concerned with ontology: they pose not only the challenge of finding an ontological account of the wealth of entities such expressions seem to introduce; they also raise important meta-ontological questions, concerning the ontological status of such entities and their epistemic accessibility.

But reifying expressions are extremely interesting also to the semanticist and even syntactician. Type 1 reifying expressions have long been the subject of attention for syntacticians, since the relation between the sortal and the complement appears to be neither that of argumenthood nor that of an attribute, but appears to be of a third kind. The syntactic structure of reifying expressions of the second type is even less clear and has as yet not been thoroughly investigated. What is peculiar in this construction is that what follows the sortal need not be referential, and it need not even be a syntactic unit (in fact even a morpheme or sound can follow *the morpheme* or *the sound* in the very same construction). Hence, the construction seems closely related to quotation and alternates with sentential constructions of the sort *TRUE is a truth-value*. Obviously a serious semantic analysis can be developed only once the syntactic structure of such expressions has been clarified.

The standard tools of linguistic semantics (intensions, events) do not help much for the analysis of reifying terms. Rather the constructions invite an exploration of philosophical approaches that have as yet found little entrance into linguistic semantics. What appears especially promising as an account of the semantics of reifying expressions is an abstractionist approach. This is an approach first pursued in the context of philosophy of mathematics by Frege and later Neofregeans such as Hale and Wright, in the interest of deriving numbers from logical concepts only.

On such an approach, entities are introduced by *Abstraction Principles* (Wright 1983, Hale 1987, Hale/Wright 2001). An Abstraction Principle is a principle of the following form: '$\varphi(a) = \varphi(b)$ iff aRb' (where a and b are familiar entities, R is an equivalence relation, and '$\varphi(a)$' a canonical designator for abstract entities of a certain kind). Abstraction principles are attracttive for an account of abstract entities of a kind *K*, since they provide *criteria of identity* for *K*s. Thereby, they can partly explain our grasp of the relevant sortal concept. While Frege and Neofregeans concentrate on abstraction principles for natural numbers, an abstractionist approach can also be pursued for other abstract entities for which criteria of identity can be stated via equi-

valence relations between already accepted entities, such as directions (parallelism of lines; see Frege 1886), properties (co-intensionality of general terms), and facts (equivalence of true sentences).

Related to the abstractionist approach is the pleonastic approach of Schiffer (1996, 2003). According to that approach, abstract entities may be introduced as pleonastic entities by what Schiffer calls *Something-From-Nothing Transformations*. These are inference schemata that allow us to infer statements involving a canonical designator of an abstract entity from statements in which no reference is made to such an entity. For example, the following is a something from nothing transformation that introduces properties as pleonastic entities:

a is *F* ∴ *a* has the property of being *F*.

According to Schiffer, our use such inference schemata constitutes our mastery of the sortal concept of a property, and the nature of properties is completely exhausted by what can be derived about them in this way.

The pleonastic account is particularly suited for abstract objects introduced by reifying expressions: reifying expressens are formed from non-referential expressions and a sortal; in that construction, different sortals would then specify different strategies of abstraction, that is, indicate different inference schemata.

Both the Neo-Fregean and the pleonastic theorist claim that their account of abstract objects explains our epistemic access to them and renders them metaphysically innocent. They are metaphysically innocent because they are *light-weight* in the sense that all truths about them supervene on the truths that form the basis of our epistemic access to them.

Abstractionist and pleonastic theories are not unproblematic, however. Two important problems discussed in the literature are: (i) The bad company problem: we can formulate pleonastic inference schemata and abstraction principles which would generate unwelcome entities that are, in the extreme case, paradox generating (such as naïve sets) (Linnebo (ed.)), (ii) The status of the knowledge acquired: can we, on the basis of the principles, really acquire knowledge about the objects in question, or can we just acquire knowledge *conditionalised* on the *existence* of such objects?

The latter problem directly leads to the general question about the existence of abstract objects. Are there any abstract objects, and if so, *what sorts* of abstract objects are there? A meta-ontological position prominently figuring in the recent debate is *Plenitudinous Platonism* (Bolzano 1837: III, §352, Schnieder 2007, Linsky & Zalta 1995, Balaguer 1998). The idea of Plenitudinous Platonism is, roughly, that there are all the abstract entities that there *could* be, a position that appears to be congenial to any ontology heavily relying on abstraction principles (Balaguer 1998, Eklund 2006). The position as formulated raises two immediate problems, however. First, it has to be specified what sort of *modality* is involved: for the position to make a substantial point, it should in its formulation not involve metaphysical modality (if, as commonly assumed, abstract objects exist necessarily), but some sort of epistemic or logical one. A second problem is that it conflicts with the view that some abstract entities exist only contingently because they *depend* on contingent entities, such as fictional characters, if viewed as entities dependent on their creators (Thomasson 1999).

Plenitudinous Platonism obviously is in opposition to any ontology driven by *Ockham's Razor* ('entities are not to be multiplied beyond necessity'). This principle is far from precise, though, and how it might bear on Platonism crucially depends on its exact formulation. Any

application of the principle has to deal with the reasons adduced in the first place for accepting a particular ontology (Balaguer 1998). A common view is that the principle applies to only one sort of entity, namely real entities, as opposed to lightweight entities, entities introduced by abstraction. A very interesting question is whether natural language makes a distinction between real objects and light objects in the kinds of terms and quantifiers it uses. Reifying expressions of type 1 seem, due to their form, restricted to act as canonical designators of light entities. This is different, though, for reifying expressions of type 2; their form is shared by terms like the *poet Goethe* (which could be regarded as involving a form of trivial abstraction). Moreover, abstract states, for which an abstractionist approach would be most plausible, do not require canonical designators, if Maienborn is right: they can themselves already act as implicit arguments of stative verbs, and thus would be introduced on the basis of implicit conditions given by the lexical meaning of the verb.

d. Individual Project IP3: Embedded Sentences and their Nominalizations

Embedded sentences, in particular *that*-clauses, have often been considered as a form of referentially used nominalization: unlike independent sentences, which 'have a propositional content' or 'express' a proposition, *that*-clauses appear to *denote* a proposition that can then act as an argument of the embeddding predicate. This is the common view of the function of *that*-clauses in attitude reports as in (1a), but also with other sentence-embedding predicates, such as 'is possible' in (1b):

(1)   a.   John thinks that S.
       b.   That S is possible.

The standard view in contemporary philosophy of language about attitude reports is the *Relational View*, according to which attitude verbs express two-place relations between agents and propositions, while *that*-clauses denote the propositions acting as the relata (presumably by acting as singular terms referring to the proposition expressed by the embedded sentence). A variant of the relational view, the *Modified Relational View*, allows *that*-clauses to stand for various proposition-like objects: not just for propositions, but also for facts or possibilities. The attitude verb then expresses a relation between agents and a particular type of proposition-like object. So, while on the standard Relational View 'that S' denotes just what 'the proposition that S' refers to, on the Modified Relational View, 'that S' has the same function as *some* corresponding nominalization and it can denote, e.g., what 'the fact that S' or 'the possibility that S' refer to.

   The Relational View of attitude reports and the corresponding view of *that*-clauses as singular terms has been the subject of intense debate in recent philosophy of language. One of the main problems that the view faces is the *Substitution Problem:* a *that*-clause cannot generally be substituted by a term making explicit reference to a proposition or a proposition-like object. Thus replacing 'that S' in (1a) or (1b) with 'the proposition that S', 'the fact that S', or 'the possibility that S' leads to unacceptability. At the same time, non-nominal quantification into the position of the *that*-clause is possible, as shown below:

(2)   a.   John thinks something.
       b.   Something is true.

This indicates that the reason for the unacceptability of an NP in place of a *that*-clause cannot be a syntactic one (for, 'something' behaves as an NP in all syntactic respects). Besides the Substitution Problem, there are other serious problems for the Relational View, having to do with the notion of a proposition itself. For instance, identifying propositions with sequences of properties and objects (as on the most plausible view of propositions as structured propositions) gives rise to the problem of the truth-directedness of propositions as well as to the problem of the unity of propositions (Jubien 2001).

A promising approach to those problems consists in concentrating on nominalizations corresponding to a whole attitude report. Whereas the term 'the proposition that S' is a rather technical term and probably not truly part of ordinary speech, there are nominalizations corresponding to an attitude report as a whole, as, e.g., the nominalization 'John's thought that S' to (1a). Other nominalizations of this sort are 'John's claim that S', 'John's hope that S', or 'John's imagination that S'. Let us call the entities to which such nominalizations refer *attitudinal objects*. They incorporate the "attitudinal mode" expressed by the attitude verb, but they also have a propositional content: they can be true or false (thoughts, beliefs), or more generally satisfied or not satisfied (desires, hopes). Attitudinal objects thus share important properties with propositions: they essentially have truth- or, more generally, satisfaction-conditions. But unlike propositions they seem to be particular to an agent and his mental state; thereby they give rise to the Fregean worry that thoughts (the things we think and which are true or false) have to be sharable in order to be communicable. The worry can be met, though: there are two ways in which attitudinal objects can be said to be shared by different agents. First the attitudinal objects involving different agents may be said to be exactly similar (which is what the sentence 'John's thought is the same as Mary's' arguably states). Second, attitudinal objects come in kinds, kinds whose instances are distinct only in that the agents involved are different. Natural language has nominalizations that straightforwardly correspond to such kinds of attitudinal objects, namely nominalizations of the form 'the thought that S' or 'the hope that S'. It is such kinds of attitudinal objects that are said to be shared in sentences like 'John and Mary share the hope that S'. Attitudinal objects or kinds of them, as Moltmann (2003a, b, 2004b) has argued, may also be the semantic values of non-nominal quantifiers in sentential position (see SP4).

If attitudinal objects rather than propositions are taken to play the role of propositional-content-bearing entities, the question is how to analyse simple attitude reports such as (1a). One approach, pursued by Jubien (2001) and Moltmann (2003b), is to regard the attitude verb as a multigrade predicate, taking the propositional constituents as arguments (a revival of Russell's Multiple Relations Analysis). But there are other approaches that may be compatible with propositional content being tied to attitudinal objects only, approaches that take the *that*-clause to be non-referential, forming a complex predicate with the attitude verb. The present focus will be on the nature of attitudinal objects themselves.

For the notion of an attitudinal object it is extremely illuminating to go back into the history of philosophy, especially the Austrian school of Brentano, Husserl, and Meinong, as well as early analytic philosophy (Twardovsky, Bolzano), where the notion of a judgment took centre stage.

An important question about attitudinal objects is their ontological status. Attitudinal objects seem to be entities in between events and propositions. This is why contemporary philosophers of language and semanticists alike tend to take nominalizations like 'John's belief that S' or 'John's hope that S' to be ambiguous between an event-referring and a proposition-referring interpretation. This view is problematic, though, since *John's belief that S* does not seem to have

certain properties which propositions, as *abstract* objects, have. Moreover, unlike events which have no truth- or satisfaction-conditions, 'John's belief that S' fails to have a reading on which it resists predicates of truth and falsehood. Thus a novel ontological approach to attitudinal objects is required. A look back into the history of philosophy is helpful: the Polish philosopher Twardovski (1912) drew a general distinction between *actions*, which are events like walkings or thinkings, and *products*, which are entities like walks or thoughts. The two sorts of entities are distinguished by the kinds of properties they can have, even though they exist at the same time under the same conditions. This distinction, as already mentioned, finds similarities in recent linguistic work on nominalizations (Ferret/Soare/Villoing 2009), and it will be interesting to explore in what way the aspectual distinction can itself subsume the distinction between mental events and attitudinal objects, within a unified ontological account.

e. Individual Project IP4: Non-Nominal Quantification and Semantic Nominalizations

This subproject deals with non-nominal quantification, approaches to them in terms of semantic nominalization, and the role that nominalizations play for the classic paradoxes of self-reference.

Non-nominal quantification is quantification into a position other than that of an NP. It appears in formal languages of higher order which contain variables occupying the position of predicate and/or sentential constants. And it appears in natural languages, for example in English in the form of expressions such as 'something' or 'somehow', as illustrated below:

a. Quantification into predicate position: Socrates is something I would like to be (namely *wise*).

b. Quantification into sentential position: She knows something you like to know too (namely *that she loves you*).

c. Quantification into adverbial position: She escaped somehow (namely *by digging a tunnel*).

Non-nominal quantifiers in natural languages are often of a special class. Thus in English they are generally formed with *–thing* as a bound morpheme (as in 'something'), as opposed to the ordinary noun 'thing', as in the ordinary quantifier 'some thing'.

Non-nominal quantifiers directly relate to nominalizations if the standard view is correct which holds that non-nominal quantifiers *range over* the kinds of things that correlated nominalizations may stand for, such as properties in *a.*, propositions in *b.* and again properties in *c.* On such a view, it is debatable about what sorts of entities the quantifiers range: non-nominal quantifiers are considered to be nominalizing devices themselves in Moltmann (2003a, 2004b), that is, they do not range over entities that a replacing predicate or sentence already denotes and that would become arguments of the embedding predicate; rather besides their quantificational role, they first of all have the function of introducing a new range of objects over which they will then quantify.

Not all approaches, though, take non-nominal quantifiers to range over objects. On one such view, non-nominal quantifiers are *substitutional* quantifiers (Geach 1951; 1980), on another view, they are *sui generis* devices of generalisation which do not range over entities of a designated category, but which is not dependent on any linguistic resources either (Prior 1971, Rayo & Yablo 2001, Wright 2007).

If the first sort of approach is taken, non-nominal quantifiers threaten to yield *self-referential paradoxes*. Such paradoxes are one of the central topics in the philosophy of logic. Probably, the most well-known examples are Russell's paradox of the set of all sets not containing themselves, and the liar paradox of the proposition that claims itself to be false. As Rayo and Yablo (2001) have shown, variants of Boolos's (1984, 1985) arguments against taking plural quantification as quantification over sets are available for quantification into predicate position taken as ranging over properties. More generally, taking non-nominal quantifiers to range over entities introduced by nominalization relates them to the paradoxes since semantic assumptions about nominalizations play a central role for many standard presentations of self-referential paradoxes. The property variant of Russell's paradox, e.g., uses nominalizations such as 'the property of not exemplifying itself', the set variant uses set abstracts such as '$\{x: x \notin x\}$', and variants of the Liar paradox for propositions use nominalizations such as 'the proposition that this proposition is false'. In some cases, nominalizations still appear but less visibly: sentential variants of the Liar, e.g., often use assumptions to the effect that an involved sentence expresses *the proposition that p*, or that it says *that p*.

The triple link connecting non-nominal quantifiers, the paradoxes, and nominalizations can also be seen from how non-nominal quantifiers have been used to state plausible principles about membership, exemplification, or truth linking such notions to nominalizations:

(1) $\forall x \forall y (x \in y \leftrightarrow \exists zz (y=\{x: x \prec zz\}$ & $x \prec zz))$ ['zz' is a plural variable, '$\prec$' reads 'is one of']

(2) $\forall x \forall y$ (x exemplifies y $\leftrightarrow \exists F$ ((y=the property of being F) & Fx))

(3) $\forall x$ (x is true $\leftrightarrow \exists p$ ((x=the proposition that p) & p))

But such principles can lead to paradox. Whether they do or not, depends on the semantics of the involved nominalizations ('$\{x: Fx\}$', 'the property of being F', 'the proposition that p'). The danger is that the principles imply *collapse principles*, on which every non-nominal quantifier corresponds to a nominal one—see Linnebo (forthcoming):

(4) $\forall F \exists x \forall y (y \in x \leftrightarrow Fy)$

(5) $\forall F \exists x \forall y$ (y exemplifies x $\leftrightarrow Fy$)

(6) $\forall p \exists x$ (x = the proposition that p)

Such principles generate paradoxes on very weak assumptions.

Now, even if *many* presentations of semantic paradoxes make use of nominalizations, some others do not. A thorough investigation of the role that nominalizations play for the paradoxes has to consider both cases. Depending on whether the *Uniformity Thesis* is correct, which says that all semantic paradoxes must allow for a uniform solution (Priest 1994), there are three possibilities concerning the role of nominalizations. If that thesis is correct, there are two possibilities: (i) Nominalizations play a genuine role in the cases in which they are used; hence—because of the *Uniformity Thesis*—they must play that role even in those cases in which no explicit use is made of them. This can be the case if the nominalization-free presentations of paradoxes always involve linguistic and conceptual resources which are strong enough to mimic the use of nominalizations. (ii) There are paradoxes which are *essentially* independent of nominalizations and any equivalently strong linguistic or conceptual resources; hence—because of the *Uniformity Thesis*—nominalizations can only play a superficial role for the cases in which they are used. But it is not clear that the Uniformity Thesis, in a sufficiently precise and strong

formulation, indeed holds (Grattan-Guinness 1998 and Smith 2000). If it does not, there is a last possibility: (iii) Nominalizations play a genuine role for *some* though not for all paradoxes.

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