

## 3

## The Semantics of Special Quantifiers in Predicate Position

“Special quantifiers” in English are quantifiers like *something*, *everything*, *nothing*, and *several things*. They are special in their ability to replace various kinds of non-referential complements, complements that do not refer to an object that is to act as an argument of the predicate. Thus, the special quantifier *something* replaces a predicative complement in (1b), a clausal complement in (2b) (a non-referential complement as well, as I will later argue), a complement of a transitive intensional verb in (3b), and a measure phrase in (4b):

- (1) a. John became wise.  
b. John became something.
- (2) a. John thinks that Mary is happy.  
b. John thinks something.
- (3) a. John needs a secretary.  
b. John needs something.
- (4) a. John weighs 100 pounds.  
b. John weighs something.

Special quantifiers also include certain definite NPs, such as *the same thing*. They have the same ability to replace non-referential complements:

- (5) a. John is the same thing as Joe, namely a schoolteacher.  
b. John thinks the same thing as Joe, namely that it might rain.  
c. John needs the same thing as Joe, namely two competent secretaries.

Special quantifiers need not contain the morpheme *-thing*. The relative pronoun *what* and the anaphoric pronoun *that* have the same ability to replace non-referential complements:<sup>1</sup>

<sup>1</sup> Special NPs do not include definite plural pronouns such as *they*, since such pronouns cannot anaphorically relate to predicative complements even when they are conjoined and thus would define a plurality of

- (6) a. Mary is what John is, namely very happy.  
 b. Mary thinks what John thinks, namely that it might rain.  
 c. John needs what Joe needs, namely two competent secretaries.  
 d. John weighs what Mary weighs, namely 100 pounds.
- (7) a. Mary is very wise. John is that too.  
 b. Mary thinks that it might rain. John thinks that too.  
 c. John needs two secretaries. Joe needs that too.  
 d. John weighs about 100 pounds. Mary weighs that too.

In what follows, when talking about special quantifiers, I mean to include those special pro-forms as well.

Special quantifiers in the various constructions in which they may occur are of great interest philosophically. Special quantifiers have been at the center of debates as to whether natural language allows reference to and quantification over abstract meanings (such as properties, concepts, propositions, or functions of various sorts). Let me call the approach that takes special quantifiers to range over abstract meanings the *Abstract Meaning Theory* of special quantifiers. The Abstract Meaning Theory takes special quantifiers to range over entities that are the meanings or referents of the expressions whose place the special quantifiers take. Given a standard, Quinian, view of ontological commitment (which ties ontological commitment to an object to its being the value of a variable), special quantifiers carry an ontological commitment to entities that are abstract meanings, that is, to properties, concepts, propositions, or functions of various sorts.

The Abstract Meaning Theory contrasts with a position that I will call the *Non-Objectual Theory* of special quantifiers. The Non-Objectual Theory denies that special quantifiers range over objects of any sort. The Non-Objectual Theory can be spelled out in various ways, as substitutional quantification, as the view on which the semantic contribution of quantifiers exhausts itself in the inferential potential of the quantificational sentence, and in a view on which quantification is taken to be primitive, not to be defined formally at all.

I will argue that both the Abstract Meaning Theory and the Non-Objectual Theory are inadequate as analyses of special quantifiers in natural language. I will argue for an analysis of special quantifiers that differs fundamentally from both. This analysis is what I will call the *Nominalization Theory* of special quantifiers. On the Nominalization Theory, special quantifiers act as *nominalizing expressions*, in addition to being quantifiers. In their nominalizing function, they introduce a domain of objects that consist of possible referents of the relevant sorts of nominalizations. Thus, the special quantifier

properties. It is only when properties are referred to by referential NPs that they go along with plural pronouns:

- (i) a. John became wise and calm. Mary would never become that/??? them.  
 b. John has the property of wisdom and the property of calm. Mary does not have them.

*something* ranges over things like “John’s wisdom” or “wisdom” in (1b), over things like “thoughts” in (2b), over things like “needs” in (3b), and over things like “weights” in (4b), rather than over properties, propositions, intensional quantifiers (or properties), or numbers (or “degrees”). The entities the special quantifiers range over are just the kinds of entities one would refer to with familiar nominalizations, such as *John’s wisdom* or *wisdom*, *John’s thought that S* or *the thought that S*, *John’s need for a secretary* or *the need for a secretary*, *John’s weight of 100 pounds* or *the weight of 100 pounds*. The objects so introduced serve the purposes of quantification, modification, and demonstrative or anaphoric reference, but not that of the satisfaction of a predicate.

The Nominalization Theory does not generally conform to Neutralism (MacBride 2006), the view that denies that quantificational sentences are grounds for more of an ontological commitment than the corresponding non-quantificational sentences. Given neutralism, quantifiers range over objects and thus are ontologically committing to entities of a certain sort *only* if the corresponding non-quantificational sentences are themselves ontologically committing to such entities. The Nominalization Theory takes special quantifiers to be objectual and to introduce their own domain of entities. Still it may be that those very same entities would also be involved in the semantic evaluation of the substitution instances of the relevant quantificational sentences. This will in fact be the case for special quantifiers taking the place of predicative “complements”.

In this chapter, I will focus on special quantifiers when they take the place of predicative complements—*pro-predicative special quantifiers*, for short. Special quantifiers in that function are highly interesting philosophically. When they take the place of predicative complements special quantifiers generally figure in examples that are central in philosophical discussions regarding the meaning and semantic role of predicates, the ontological status of properties, and the status of higher-order logic. However, in those discussions not much attention has been paid to the actual linguistic properties of *pro-predicative special quantifiers*. A closer look at their linguistic properties will in fact shed a significantly different light on how such quantifiers in natural language should be analyzed. I will argue for an analysis according to which the quantifiers in question are nominalizing quantifiers: they have both a quantificational and a domain-introducing function. For the domain of quantification they make available the same entities that nominalizations of predicates refer to, that is, noun phrases like *John’s wisdom* or *wisdom*, noun phrases which refer either to tropes (*John’s wisdom*) or to kinds of tropes (*wisdom*). In fact, in general the objects introduced by special quantifiers are tropes or kinds of tropes.

Even though this chapter focuses on special quantifiers when they take the place of predicative complements, as in (1b), the analysis that it develops is designed to be carried over to other kinds of non-referential complements as well, and in the subsequent chapters, we will see how this can be achieved.

Special quantifiers were already mentioned in relation to plural noun phrases and kind terms. Recall that special quantifiers can replace plurally referring terms while

preserving the acceptability or the same reading of the predicate. At the same time, they can have count occurrences, apparently counting pluralities, as in (8):

- (8) John compared two things, the beans and the rice/beans and rice.

Special quantifiers, recall, have a nominalizing function here as well: they apply to a plurality “as many” and map it onto a single collective entity, a plurality as one.

Special quantifiers occur in many languages, in different forms. In many languages, they are formed without a special morpheme, such as *-thing* in English. The morpheme *-thing* is a morpheme that occurs as a bound morpheme with certain quantifiers (*something, nothing, everything*) and as an independent word with others (*several things, many things*). It is a “special” morpheme that helps form complex expressions that may be used as special quantifiers. However, special quantifiers need not involve a special morpheme. For example, in German *alles* “everything” and in French *tout* can act as special quantifiers.

In English, there are other morphemes, though, with which complex expressions can be formed which can act as special quantifiers. In particular, the noun *way* as well as the nouns *color, height, and length* can act that way, and I will turn to those briefly at the end of this chapter.

## 1. Non-Objectual and Abstract Meaning Theories of special quantifiers

### 1.1. *The Non-Objectual Theory*

The main philosophical interest in special quantifiers in predicative position has been whether pro-predicative quantifiers are ontologically committing, and if such quantifiers are ontologically committing, what kinds of entities they range over and in what sort of semantic relation such entities stand to the predicates the quantifiers may replace.

There are three non-objectual views of special quantifiers in predicate position that can be distinguished: the substitutional analysis, Prior’s view, and Wright’s account. All three views share fundamental problems of empirical adequacy concerning the linguistic properties of pro-predicative special quantifiers. In addition, they have particular problems of their own. The most obvious ones I will only briefly mention, since they are rather familiar.

On a substitutional analysis, an existentially quantified sentence is true just in case some substitution instance is true, and a universally quantified sentence is true just in case every substitution instance is true.<sup>2</sup> Substitutional quantification suffers from a well-known problem in that it makes the truth of a quantificational sentence

<sup>2</sup> See Barcan Marcus (1972, 1978) for the notion of substitutional quantification.

dependent on the existence of predicates in the language, whereas a sentence like *John is something Mary isn't* is true even if the only properties John has but Mary does not are inexpressible in English.

Prior (1971), for this reason, rejects substitutional quantification. On Prior's view, pro-predicative quantifiers should not be given any formal definition at all; all that can be said about them is that the existence of substitution instances is a necessary, but not a sufficient, condition for the truth of the quantificational sentence. This version of the non-objectual view of quantification is generally considered unsatisfactory.

Wright's (2007) version of neutralism emphasizes the inferential potential of special pro-predicative quantifiers: the semantic contribution of pro-predicative quantifiers consists solely in their inferential potential, which licenses inferences such as universal instantiation and existential elimination.<sup>3</sup> Crucially for Wright, the inferential potential concerns not just sentences, but also Fregean thoughts, viewed as structured complexes of concepts. Thus, on Wright's view, the semantic role of a pro-predicative quantifier is exhausted by the various inferential relations that sentences containing it bear to other sentences or thoughts.

There is one major problem of empirical adequacy that arises for the substitutional account and in a related way, for Wright's account. This is that special quantifiers do not care about syntactic and semantic requirements in the way they would have to if they were substitutional. Consider the special quantifier *something* in (9a) and (9b):

- (9) a. John became something that caused Mary great distress (namely addicted to drugs).  
 b. John became something I never expected (namely a pianist).  
 c. John is something I admire.
- (10) a. John became something nice (namely a ballet dancer).  
 b. John remained something that is highly admirable, namely completely calm.
- (11) a. What John is is nice.  
 b. I admire what John has become.

In (9a), being a complement of *become*, the special quantifier *something* would require a predicative NP or an AP as substituent; but at the same time, binding a variable that acts as the subject with respect to *caused*, it would also require a clause or referential noun phrase as substituent. Clearly, no expression can satisfy these two conditions simultaneously. In (9b) and (9c), *something* would require its substituent to be a predicative complement (an adjective or predicative NP) and at the same time the object of *expect*

<sup>3</sup> See also Hofweber (2005b) for the view that the semantic contribution of some quantifiers is exhausted by their inferential potential.

or admire, which is impossible since *expect* and *admire* do not select predicative complements ( $\star$  *I expect wise*,  $\star$  *I admire wise*).<sup>4</sup>

(10a) shows the same thing. Here *something* would require its substituent to be a predicative expression (as complement of *become*) and at the same time a referential NP (as complement of *expect*), which is impossible ( $\star$  *I expected wise*). In (10b), *something* requires a predicative NP or an AP on the one hand and a referential NP (subject with respect to *nice*) on the other hand. The same point is made by the free relative clause constructions in (11a, b).

Special quantifiers may relate to syntactic positions that impose incompatible syntactic and semantic requirements on the substituent, and therefore they cannot be substitutional.

A related problem arises for Wright's version of the Non-Objectual Theory, a problem it shares with the Abstract Meaning Theory (which I will turn to shortly). Wright's version presupposes a notion of a Fregean thought as a structured complex of concepts. Wright is not very explicit about how such thoughts are to be understood. If they involve a distinction between objects and concepts, the same problem arises as for any abstract meaning theory that makes the distinction, a problem I will discuss in the next section.

An alternative would be to incorporate a proposal made in Wright (1998). According to that view, a referential term like *the concept horse* and the predicate *is a horse* involve the same entity, a property; but they involve it in different semantic relations: reference in the former case and attribution in the latter case. Given this proposal, the variables that the pro-predicative quantifier binds are to be replaced by constituents involving the same property, but with the property acting as an object of reference in one case and as an object of the attribution relation in the other case. On this view, the problem of type discrepancy would be solved: the quantifier can relate to syntactic positions with different semantic roles, as long as these roles may involve one and the same property.

What is unsatisfactory about this elaboration of Wright's account is that it undermines the motivation of the neutralist view that Wright (2007) tries to pursue. If the inference requires properties which may themselves act as objects of reference and arguments of first-level predicates, then having the quantifier range over properties directly would be as neutralist as the inferentialist account that Wright proposes.

The conclusion therefore has to be that special quantifiers are objectual. Given the standard view about quantifiers, this means that they must range over potential

<sup>4</sup> One might argue that (9b) involves an elliptical clause, as below:

(i) John became something that I never expected [him to become].

However, ellipsis would hardly be an option in (9a) (*cause* does not take a clause in subject position) and (9c) (*admire* does not take clausal complement). Ellipsis is also not a plausible option for (10a) and (10b). *Nice* and *admirable* here do not evaluate facts about John (but things like "being a ballet dancer" or "complete calm").

arguments of the predicate. However, this is not so on the Nominalization Theory of quantifiers that I will elaborate later.

## 1.2. *The Abstract Meaning Theory*

1.2.1. *The Abstract Meaning Theory and its problems* On the Abstract Meaning Theory, special quantifiers are objectual, and what they range over are the entities that predicative complements stand for, namely properties or concepts.

Two approaches to what predicates stand for need to be distinguished. On one approach, the Fregean approach, predicates stand for entities fundamentally different from objects. For Frege these are concepts, unsaturated entities whose role is to be applied to objects to yield a truth value. On Frege's view, predicates refer to concepts; but the Abstract Meaning Theory may alternatively take predicates not to refer like names, but rather to "express" or "mean" concepts.

There are various internal problems with the view that predicates stand for concepts, as entities fundamentally distinct from objects, and moreover, for the view that predicates refer to them.<sup>5</sup> What is also subject of a debate is the question of the semantic status of the copula: is the copula redundant or is it in fact responsible for the unsaturatedness of the meaning of the combination of copula and predicative complement? Moreover, it is a subject of a major debate in philosophical logic whether second-order logic carries an ontological commitment to sets.<sup>6</sup> For now let us focus first on the following simple question: given a view on which predicates express or denote concepts (or whatever entities distinct in type from individuals), do special pro-predicative quantifiers range over them rather than over objects?

The answer must be negative. There is clear evidence that special quantifiers do not respect any distinction in type between concepts and objects. Special quantifiers may at the same time bind predicate variables and object variables or even bind a single variable that has both the status of a predicate variable and an object variable. For example, pro-predicative special quantifiers can take first-level predicates as restrictions, that is, predicates of objects:

- (12) a. John became something that is admirable.  
 b. John has become something that Mary has become too, which is something admirable.  
 c. John has become something admirable.

In (12a), *something* would bind both a predicate variable (in the main clause) and an object variable (in the relative clause). In (12b), *something* binds two predicate variables as well as an object variable. In (12c), *something* binds a predicate variable whose restriction is a predicate of objects.

<sup>5</sup> See MacBride (2006) for discussion and further references.

<sup>6</sup> See Boolos (1984, 1985) for discussion.

Special relative clauses make the same point: they may act as referential terms that would refer to a concept while at the same time allowing for a first-level predicate, a predicate predicable only of objects:

- (13) What John has become is admirable.

In (13), *what John has become* should refer to a concept, but *is admirable* is predicable only of objects. (Note the ungrammaticality of \**wise is admirable*.)

Thus, the view that special quantifiers range over concepts as type-distinct from objects is untenable. Special quantifiers rather range over entities in a way that is “beyond types.”

Suppose then that pro-predicative special quantifiers range over properties, but not in the sense of entities type-distinct from objects, but rather over properties that are objects. Such properties would also be the referents of explicit property-referring terms like *the property of being wise* or *the property of wisdom*. The view that pro-predicative quantifiers range over property objects is compatible with a view on which properties are not the referents of predicates, but rather bear a different semantic relation to the predicate, such as being “expressed by” or being “attributed by” the predicate. In whatever way that view may be elaborated, it is problematic as well.

One problem for the view is that special NPs can relate to two syntactic positions at once, one of which does not require a property:

- (14) a. John became something Mary never imagined (namely wise).  
b. ?? Mary never imagined the property of being wise.
- (15) a. John became something Mary never thought possible, namely extremely athletic.  
b. ?? Mary never thought the property of being athletic possible.
- (16) a. John became something unusual, namely a harpsichord maker.  
b. ?? The property of being a harpsichord maker is unusual.
- (17) a. John is everything Mary despises.  
b. Mary despises the property of being wise.
- (18) a. John has become everything Bill aspires to.  
b. ?? Bill aspires to the property of wisdom.

In (14a), *something* relates to the argument position of a predicate requiring a property and the argument of a predicate not naturally allowing for properties as arguments, as seen from (14b). Also in (15a), *something* relates to an argument position requiring a property and another one not naturally allowing for a property, as seen in (15b).

Similarly for (16)–(18). The special quantifiers here clearly cannot quantify over objects that could fit the two syntactic positions the quantifier relates to.<sup>7</sup>

There are restrictions, though, on what kinds of syntactic positions pro-predicative special quantifiers can relate to. It depends on both syntactic requirements and the lexical context of predicates. For example, the following sentences are unacceptable:

- (19) a. ??? John became something Mary did not say.  
b. ??? John is something Mary was thinking.

*Say* and *think* in (19) selects both NPs (*Mary said these words*, *John thought that*) and *that* clauses, just like *imagine* and *expect*. Yet pro-predicative quantifiers cannot bind variables in the object position of those verbs.

The condition on the verbs to whose object position pro-predicative special quantifiers may relate is not that they allow for *that*-clauses. Rather those verbs also must allow for NP complements. *Complain* is a rare verb that takes *that* clause complements, but not NP-complements (*John complained that S*, \**John complained something*). However, *complain* does not allow pro-predicative special quantifiers to bind a variable in its object position. Only *complain about* does:

- (20) a. \* John is something Mary complained.  
b. John is something Mary complained about.

Thus, pro-predicative quantifiers must introduce an object of reference to fill in the argument position of the verb, and, as we have seen, this object cannot be a property. It could not be a proposition or fact either, because of cases like (14a) (??? *Mary imagined the proposition/fact that S*), or a possibility, because of cases like (15a) (?? *Mary never thought the possibility that S possible*). The only object suited for all the cases in (14a–18a) is the referent of a nominalization, such *John's wisdom* or *wisdom*, that is, a trope or a kind of trope. This is what will motivate the Nominalization Theory of special quantifiers, which I will discuss in the next section.

Besides special pro-predicative quantifiers being able to relate to syntactic positions one of which would not require a property, there are further problems for the view that pro-predicative special quantifiers range over properties. The things that pro-predicative special quantifiers range over have simply different sorts of properties or trigger different sorts of readings of predicates than is expected for property objects (that is, for entities that could be the referents of explicit property-referring terms).

<sup>7</sup> Again, one might argue in some of the cases that ellipsis is involved. For example, (14a) might be elliptical for (ia) and (18a) for (ib):

- (i) a. John became something Mary never imagined [him to become e].  
b. John has become everything Bill aspires [PRO to become e].

However, it is not plausible that ellipsis is at stake in (16a) and (17a) (*despise* does not take *that*-clauses as complements, but requires extraposition as in *Mary despises it that S*).

First, pro-predicative special quantifiers range over things that can have perceptual and causal properties:

- (21) a. John is something I had never noticed before, namely very diligent.  
b. John is everything that can make Mary upset.

This is of course not surprising if *something* ranges over tropes.

Moreover, evaluative predicates evaluate the entities pro-predicative special quantifiers range over differently from the way they evaluate property objects:

- (22) a. John became something admirable, namely wise.  
b. The property of being wise is admirable.
- (23) a. John has become something surprising, namely fluent in Chinese.  
b. The property of being fluent in Chinese is surprising.

Whereas (22a) and (23a) are perfectly natural, with *admirable* and *surprising* evaluating “what John has become” (namely John’s wisdom or John’s fluency in Chinese), (22b) and (23b) are strange.

The sorts of predicates acceptable with pro-predicative special quantifiers thus indicate that such quantifiers range over tropes or kinds of tropes (that is, possible referents of adjective nominalizations), rather than properties as standardly understood.

*1.2.2. The Relational Analysis and its problems* The Abstract Meaning Theory of pro-predicative special quantifiers raises another important problem, which concerns the logical form of sentences. If special quantifiers range over property objects, it is reasonable to assign a particular semantic role to the copula, rather than leaving it semantically vacuous, namely the role of attributing the property in question of the referent of the subject.<sup>8</sup> That is, the copula would express the relation of attribution, a relation between objects (as denoted by the subject) and properties (that is, property objects). The view that special quantifiers range over properties thus naturally goes along with a *Relational Analysis* of the semantic relationship between copula and predicative complement. On the Relational Analysis, predicative APs and NPs denote properties that provide arguments for a relation expressed by the verb, as in (24a) and (24b), for (1a) and (1b):

- (24) a.  $\text{become}(\text{John}, \lambda x[\text{wise}(x)])$   
b.  $\exists x(\text{become}(\text{John}, x) \ \& \ \text{admirable}(x))$

The Relational Analysis, however, faces serious problems of its own.

One major problem for the Relational Analysis is certain striking differences in linguistic behavior between referential NPs and predicative complements. Referential

<sup>8</sup> Wiggins (1984) in fact argues that it is the copula that ensures unsaturatedness, and that the adjective alone contributes a concept that as such is not unsaturated.

NPs generally allow for substitution by co-referential NPs in extensional contexts. Whenever the NP is replaced by a co-referential NP, the same truth value for the entire sentence will be preserved (even if some awkwardness may result). Thus, the sentences in (25) have the same truth value, as long as Mary is the mother of Sue, whom Sue likes, or the entity that . . . (any description to follow):

- (25) a. John likes Mary.  
 b. John likes the mother of Sue.  
 c. John likes whom Sue likes.  
 d. John likes the entity that . . .

However, predicative complements do not generally allow for a replacement by a referential or quantificational NP. The result is either unacceptability or a different reading of the verb:

- (26) a. John became wise.  
 b. ??? John became the property of being wise/some property.  
 c. ??? John became the same property as Mary, namely a lawyer.  
 d. ??? John became every property Mary is—nice, beautiful, intelligent.  
 e. ??? John became every property he wanted to become.

(26a) (*John is wise*) does not imply (26b), which, like the sentences (26c–26e), is unacceptable (that is, could not possibly be true, except in certain contexts of metaphysical fantasy). Let me call this the *Substitution Problem*.

When a predicative complement is replaced by a referential NP such as *every property*, the reading of the verb changes, resulting in the reading the verb would have when taking ordinary referential NPs—such as the identity reading in (27):

- (27) John became Bill.

Let me call this the *Objectivization Effect*.

Failure of substitution of a predicative complement such as *wise* by *the property of being wise* could not be explained by something like the ordinary speaker's lack of knowledge that the denotation of a predicate is a property, or her lack of knowledge of the proper use of such metasemantic terms as *property*. Even when a particular speaker knows that the denotation of a predicate is a property, the sentences in (26b–e) are infelicitous: they are just as bad for a philosopher or semanticist as for anyone else. There is always a clear difference between the kind of unacceptability arising from substituting a non-referential complement by a metasemantic description of its denotation and the kind of unacceptability below arising from the replacement of a referential NP such as *the tree* by something like *the object referred to by . . .*:

- (28) a. John saw the tree.  
 b. John saw the object referred to by my previous utterance of *the tree*.

Even if not entirely felicitous, (28b) is still acceptable in a technical extension of English (and as such is a valid inference from (28a)). There are, moreover, needless to say, many contexts in ordinary English in which an NP with *property* as head noun is perfectly acceptable. Finally, failure of substitution can be observed also with descriptively empty nouns such as *entity*, *object*, or *thing*, the latter hardly requiring any technical semantic knowledge:

- (29) ??? John became some entity/some object/some thing (namely wise).

The reason for the unacceptability of referential NPs on the relevant reading also cannot be that the verbs do not select such NPs syntactically. The same verbs can take special quantifiers as complements, which do not display the Substitution Problem or the Objectivization Effect:

- (30) a. John became something Mary already is.  
b. John became nothing interesting.

The contrast between special and ordinary NPs is displayed in a particularly striking way by the pair of sentences below, where *become* in (31a) has a predicative reading and in (31b) displays the Objectivization Effect:

- (31) a. John became something admirable.  
b. John became some admirable thing.

There appears to be no straightforward syntactic explanation of the Substitution Problem and the Objectivization Effect. Special quantifiers behave like ordinary NPs in all purely syntactic respects. For example, they must be assigned case and cannot occur in positions where only clausal complements or other non-NPs can appear for syntactic reasons.

Let us then consider possible semantic explanations. One might try to explain the Substitution Problem and the Objectivization Effect by appealing to a distinction in semantic relations, namely that between referring and expressing. Predicative complements do not *refer* to entities in the way referential NPs do, but instead *express* them, and what copula verbs require is that their argument is expressed rather than being referred to by their complement. This explanation is unsatisfactory, however: once an entity *d* acts as an argument expressed by the predicate, the relation between *d* and the expression that denotes or refers to *d* could not make any difference to the logical form of the sentence which is of the type  $R(a, d)$ . The difference in semantic relations could only manifest itself in the nature of the predicate itself: if the complement must express the property, rather than refer to it, then this can mean only that the copula requires a complement with a particular semantic function, that of expressing a property. A complement of this sort must be syntactically identified as having predicative status. This means that the requirement is a syntactic condition imposed by the copula on its complement, namely that the complement be of predicative type. Thus, the Substitution Problem and the Objectivization Effect would be accounted for by a syntactic

requirement imposed by the copula, requiring a predicative complement. Special quantifiers would be exempt from that requirement.<sup>9</sup>

*1.2.3. Second-order logic and the type-theoretic approach* Another semantic approach to predicative complements is that of second-order logic and type theory. This approach is a dominant one both in philosophical logic and in linguistic semantics. It should also be counted as a Fregean approach, in that it draws a distinction between objects and predicate denotations. That is, predicates and singular terms are assigned distinct types associated with different domains from which they take their semantic values. Whereas singular terms take their denotation from the domain of objects (which itself may include properties), the denotation of predicates is construed as a set or a function from entities to truth values. Distinguishing the denotation of the predicate from the denotation of a singular term serves the purpose of compositionality: it ensures that by function application, the denotation of the sentence consisting of the predicate and the term is a truth value. The denotation of a predicate as a set or function thus captures its semantic contribution to the compositional semantics of the sentence. Such a denotation may coincide as an entity with an element in the domain of objects, but in fact it must be understood as representing the semantic function of the syntactic category of predicates, rather than as a particular kind of object. Sets or functions in the domain are among the objects the language is committed to, but sets or functions as predicate denotations need to be understood as representing the role of predicates in the semantic composition of the sentence.

<sup>9</sup> Note also that predicative complements differ from referential ones also with respect to syntactic properties. Unlike referential complements and like adjuncts, they cannot be extracted from weak islands such as *that*-clauses in the scope of negation, as seen in the contrast between the ambiguous (ia) and the unambiguous (ib) and the contrast between (iia) and the unacceptable (iib) (cf. Rizzi 1990):

- (i) a. It is for this reason that I believe that he was fired *t*.
- b. It is for this reason that I do not believe that he was fired *t*.
- (ii) a. It is unhappy that I think John became.
- b. It is unhappy that I do not think John became.

Predicative complements are unlike adjuncts, though, not because they are obligatory. Adjuncts can be obligatory, like *badly* in (iia) or *until everyone had left* in (iii), or optional, like *slowly* in (iva) or *until she was exhausted* in (ivb):

- (iii) a. John behaved badly.
- b. The party lasted until everyone had left.
- (iv) a. John walked slowly.
- b. Mary walked until she was exhausted.

Moreover, (optional and obligatory) adjuncts generally do not allow extraction of *wh*-phrases, as in (v) but predicative complements do, as in (vi):

- (v) a. \* Who did the party last until Mary talked to *e*?
- b. \* Who did John do while Mary talked to *e*?
- (vi) Who is John proud of *e*?

It is for this reason that non-referential complements are generally taken to be assigned theta roles (cf. Chomsky 1981).

This is even more obvious with type theory. The distinctions among the types of type theory represent in fact distinctions among the semantic contributions of different sorts of syntactic categories (or syntactic functions) to a proposition. Type theory establishes a close correspondence between syntactic categories and denotations, by specifying that an expression belonging to a category of a given type must have a denotation that comes from a particular domain of entities, the domain that corresponds to that type. There are basic types, such as  $e$  and  $t$ , which, even though they are distinct as types, may have overlapping domains. For example, truth values can be the semantic values of both sentences and noun phrases (*the truth value true*). Complex types such as  $\langle a, b \rangle$  consisting of types  $a$  and  $b$  have a domain that consists in functions from entities in the domain of  $a$  to entities in the domain of  $b$ . The syntactic operation of combining expressions is generally matched with the semantic operation of function application. That is, if an expression  $A$  is of type  $\langle a, b \rangle$  and another expression  $B$  of type  $a$ , then the denotation of the combination of  $A$  and  $B$ ,  $A^{\wedge}B$ , will be the application of the function denoted by  $A$  to the semantic object denoted by  $B$ , that is,  $[A]([B])$ . As a result,  $A^{\wedge}B$  will be of type  $b$ .

An expression of a category that corresponds to type  $e$  will have as its denotation an element of the domain  $D$  of entities. An expression of (a category that corresponds to) type  $\langle e, t \rangle$  will have as its denotation an element of the domain of functions from  $D$  to the set of truth values  $\{1, 0\}$ . An expression of type  $\langle s, t \rangle$  will have as its denotation an element of the domain of functions from the set of possible worlds  $W$  to  $\{1, 0\}$ .

Applying type theory to natural language requires assigning particular types to syntactic categories. It is well known, however, that it is not possible to establish a one-to-one correspondence between natural language syntactic categories and types (cf. Williams 1983). For example, NPs can be of type  $e$  (referential NPs, which take individuals as denotations), of type  $\langle \langle e, t \rangle, t \rangle$  (quantificational NPs, which take as denotations functions from sets of individuals to truth values), or of type  $\langle e, t \rangle$  (or  $\langle s, \langle e, t \rangle \rangle$ ) (predicative NPs, which take as denotations functions from (worlds to functions from) objects to truth values). What is required therefore is an assignment of types to syntactic categories when they play a particular semantically relevant syntactic role.

The type-theoretic perspective would account for the substitution problem and the Objectivization Effect in the following way. If a predicative complement is substituted by a referential NP, unacceptability or a different reading results because the referential NP is of a different type from that of the predicative complement. Type theory does not (or rather does not on all versions) say that this means that the predicate or a particular meaning associated with it requires one object rather than another. The acceptable and the unacceptable sentence (or the one with a different reading of the predicate) may involve exactly the same object as the argument of the predicate. This is because the same object may belong to the domains of two different types. For example, type theory specifies that all referential NPs—including *the property of being P*—are of type  $e$ , but it does not prevent an object actually denoted by such an NP

being exactly the same as that denoted by a particular sentence (a proposition)—even though a sentence will be of type  $\langle s, t \rangle$ . Types, in other words, do not serve to distinguish objects, but rather objects together with the categories of the expressions that denote them. To look at the differentiation among types as an ontological distinction would be a misguided projection of syntactic categories onto ontology.

This means, however, that a type-theoretic account of the Substitution Problem has to assume that the predicate does not really denote a two-place relation (which could be defined in terms of how objects themselves relate to each other). Instead, it has to adopt one of two alternatives. The first alternative is that the predicate denotes a three-place relation taking two objects and a syntactic category as arguments. The second alternative is that only the predicate together with the denotation of the complement and its syntactic category expresses a one-place relation or property. This is, in fact, saying, though, that the predicate and the complement by themselves have the status of syncategorematic expressions, that is, expressions that do not have an independent meaning, but rather make a semantic contribution to the sentence only relative to the syntactic context in which they occur.

Type theory also fails to explain the Objectivization Effect. Type theory would say that a verb like *imagine* is ambiguous, being specified for type  $\langle e, \langle e, t \rangle \rangle$  ( $\langle \langle \langle e, t \rangle, t \rangle, \langle e, t \rangle \rangle$ ) as well as for type  $\langle \langle s, t \rangle, \langle e, t \rangle \rangle$ . However, as a matter of fact, *imagine* may take exactly the same objects as arguments in the two cases. Moreover, on both the content-related and the object-related reading, *imagine* syntactically selects NPs as arguments. Thus, the two lexical meanings cannot just be tied to semantic selection or in purely syntactic selectional requirements. Which meaning of *imagine* to choose when interpreting a sentence would rather depend on the semantic role associated with the syntactic categories of the complement, that is, on a partly syntactic object.

Type theory also does not account well for special NPs. To account for special NPs, it would require the assignment of types to be based not only on syntactic categories, but also on lexical choice. As mentioned, special NPs behave like ordinary quantificational NPs in all syntactic respects and thus should not form a separate syntactic category. However, since special NPs do not block substitution and do not lead to the Objectivization Effect, they would have to be of a different type than ordinary referential or quantificational NPs, namely of the same type as the predicative complement.

Type theory thus represents a reification of semantic roles associated with particular syntactic (syntactically and lexically identified) functions of expressions in a sentence. It does not provide a solution to the Substitution Problem and the Objectivization Effect of its own.

The type-theoretic account of predicate denotations as functions from objects to truth values (possibly relative to a world and a time) faces a problem in itself. If predicate denotations are construed as functions in that way and nominalizations of predicates are taken to refer to such functions, then this leads to the problem of the self-application of functions, in examples such as (31a, b) (Chierchia and Turner 1988, Turner 1989):

- (32) a. To be nice is nice.  
 b. Everything has the property of being self-identical.  
 Thus, the property of being self-identical is self-identical.

If infinitival clauses such as *to be nice* are taken to denote the same function as is supposed to be denoted by the predicate *nice*, then (32a) expresses self-application of a function to itself, which is impossible given the set-theoretical notion of a function. The same holds for (32b) if *the property of being self-identical* is to denote the same function as the predicate *is self-identical* is supposed to denote.

The following general strategy has been proposed as a solution to the problem of the self-application of properties (cf. Chierchia and Turner 1988, Turner 1989). When a predicate applies to a property, it does not apply to a higher-order object, a function. Instead, it applies to a primitive object, which only “corresponds” to that function. Such an object is made available by positing a *nominalization function* that maps functions onto primitive objects. Since, mathematically, there are always more functions than primitive objects, the nominalization function can map only a subset of the functions onto primitive objects.

Such an account, however, faces the concept-horse problem—as does any account that reifies the semantic role of predicates and introduces a distinction between such denotations and “objects of reference” (thus we would get “the function denoted by *p* is not a function”). The problem does not arise for the present account for several reasons. First, neither *to be nice* nor *the property of being self-identical* is taken to refer to a function. *To be nice* plurally refers to states, and *the property of being self-identical* refers to a property not conceived as a function (see Chapter 1). Thus, there is no need to reify functions. Furthermore, the semantic role of predicates is not considered that of standing for an entity, a function, available for reference by a referential term.

However, if the copula demands that the complement have a predicative function, this function should play a role within the complex predicate consisting of copula and complement. This semantic function would be more transparently displayed by an analysis of the copula–predicate relation on which the copula is taken to act as a temporal operator shifting the index of evaluation of the predicative complement, as roughly below:

$$(33) \text{ [remain a lawyer]} = \lambda t \lambda d [\forall t'(t' < t \rightarrow \text{lawyer}_{t'}(d)) \ \& \ \text{lawyer}_t(d)]$$

That is, the copula verb would be considered a syncategorematic expression.<sup>10</sup> Note that this does not require it to be treated as an index-shifting operator, just as modal

<sup>10</sup> The distinction between syncategorematic and categorematic expressions is a very old one going back at least to medieval times (where it seemed to have played a central role in philosophical discussions about language). Modern semantics tends to blur the distinction because of the dominating type-theoretic outlook.

The distinction, however, seems to have a correlate in the more recent generative syntactic literature. Within generative syntax, generally a distinction has been made between functional and lexical heads. Auxiliaries are functional heads dominated by I, whereas verbs like *remain* or *see* are lexical heads headed

operators need not be treated as quantifiers ranging over possible worlds. On a modalist view, they act as primitives, subject only to general conditions governing their inferential behavior (see, for instance, Forbes 1985).

## 2. The Nominalization Theory of special quantifiers

We can now turn to the Nominalization Theory of special pro-predicative quantifiers. Let me first summarize the situation we have arrived at. Special pro-predicative quantifiers must be objectual, but what they range over cannot be concepts (as opposed to objects), nor can it be objects that are properties. What kinds of entities special quantifiers range over is revealed by the sorts of predicates that can be the restrictions of those quantifiers. Special pro-predicative quantifiers range over entities that can have perceptual and causal properties and are evaluated in a way that is distinct from the way abstract property objects are evaluated. The kinds of entities that meet these conditions are just the kinds of entities that corresponding nominalizations refer to. More precisely, special pro-predicative quantifiers range over objects that would be referents of nominalizations of predicates whose place the quantifiers take. These nominalizations would be either nominalizations that refer to specific tropes, as in (34) and (35), or nominalizations that stand for kinds of tropes, as in (36) and (37):

- (34) a. John is something Mary never imagined, namely wise.  
b. Mary never imagined John's wisdom.
- (35) a. John has become something Mary never thought possible, namely very athletic.  
b. Mary never thought John's athleticism possible.
- (36) a. John is everything Mary despises, dishonest, unhelpful, and immodest.  
b. Mary despises dishonesty, unhelpfulness, and immodesty.
- (37) a. John has become everything Bill aspires to, wise, diligent, and excellent.  
b. Bill aspires to wisdom, diligence, and excellence.

by V. It is sometimes assumed that the distinction between the two consists in that only lexical heads assign theta roles, whereas functional heads do not. Clearly, many lexical heads can take non-referential complements and thus would not assign a theta role to it. The status of an expression as syncategorematic clearly is not limited to functional heads in the sense of generative syntax.

The possibility of predicates and complement together having a syncategorematic meaning also undermines the notion of semantic selection as independent of syntactic selection in the generative syntactic literature (cf. Grimshaw 1979). Semantic selection consists in what kinds of objects a predicate requires, whereas syntactic selection consists in what kinds of syntactic categories a predicate requires its complements to be of. Grimshaw argued that the two requirements are independent of each other. Pesetsky (1982) argued that syntactic selection could be reduced to case assignment, leaving semantic selection as the only requirement to be specified by the lexicon. However, for syncategorematic constructions, the syntactic category of a complement is semantically significant, rather than just required for formal reasons.

Tropes as well as kinds of tropes are also of course suitable arguments of perceptual and causal predicates.

The way evaluative predicates are understood supports the view that special pro-predicative quantifiers may range over kinds of tropes. Consider (38) and (39):

- (38) a. John is something admirable, namely wise.  
 b. Wisdom is admirable.  
 c. ?? The property of being wise is admirable.
- (39) a. John is something nice, namely generous.  
 b. Generosity is nice.  
 c. ?? The property of being generous is nice.

In (38a), *admirable* is not predicated of the property of being wise, and also in (39a), *nice* is not predicated of the property of being generous. Rather what *admirable* is predicated of in (38a) is wisdom, and what *nice* in (39a) is predicated of is generosity, that is, generous behavior or the manifestation of the property of being generous in human activities. Note that (39a) does not even allow for a reading on which *nice* would be predicated of “the property of being generous.”

If pro-predicative quantifiers range over tropes or kinds of tropes, they should admit just the kinds of predicates that are acceptable with tropes or kinds of tropes. We have seen that this is the case for perceptual and causal predicates as well as predicates of evaluation (and also the attitudinal predicates in (34)–(36)). But tropes should also accept predicates of description and of extent. However, those predicates do not behave as expected. Recall that such predicates are applicable to tropes, but not to states:

- (40) a. ?? John described Mary’s being very beautiful.  
 b. John described Mary’s great beauty.
- (41) a. ? John’s being wise is greater than Bill’s being wise.  
 b. John’s wisdom is greater than Bill’s.

What is puzzling is that in relative clauses restricting pro-predicative special quantifiers, predicates of description and of extent are unacceptable:

- (42) a. ??? Mary became something that is difficult to describe, namely very beautiful.  
 b. ??? What Mary is is hard to describe; namely she is very beautiful.  
 c. ??? What John became exceeds what Joe became (John became more athletic than Joe).  
 d. ??? John became something that is greater than what Mary became.

One might take this to be evidence that pro-predicative special quantifiers stand for states, rather than tropes (as I did in Moltmann 2003b). However, there are reasons to

maintain the trope-quantificational view for pro-predicative special quantifiers. First, there are special quantifiers that clearly must range over tropes and in fact allow for predicates of description and extent, namely special quantifiers with *how* and *way*:

- (43) a. The way John behaves is difficult to describe—John behaves very unusually.  
b. The way John has improved exceeds the way Bill has improved.

Second, predicates of evaluation (of quality, not of extent) behave with special quantifiers as they do with trope terms, not with state terms:

- (44) a. John is something Mary admires.  
b. Mary admires wisdom/John's wisdom.  
c. ?? Mary admires John's being wise.

The way *admires* in (44a) is understood corresponds to the way it is understood in (44b), not to the way it is understood in (44c).

Thus, some special quantifiers certainly do quantify over tropes or kinds of tropes. Therefore, a different explanation is needed for why predicates of extent and of evaluation of extent are impossible with special quantifiers.

The reason why special quantifiers with *-thing* do not allow for predicates of description and extent is, it appears, that such predicates care about the particular way reference is made to the entity to which they apply. Thus, (45a) and (45b) mean different things even if the subjects of the two sentences refer to the same entities; and so for (46a) and (46b):

- (45) a. John's wisdom is hard to describe.  
b. John's quality is hard to describe.  
(46) a. John's wisdom is greater than Bill's.  
b. John's quality is greater than Bill's.

Referring to a trope in an unspecific way, by using a term like *John's quality* or the quantifier *something*, triggers a different understanding of a predicate of description than describing the particular kind of trope, as with the term *John's wisdom*. Similarly, predicates of extent cannot easily be applied to a trope referred to unspecifically, as with *John's quality*, but only when the trope is referred to specifically, using a nominalization derived from a gradable adjective, such as *John's wisdom*.

The same observations in fact can be made with specific as opposed to unspecific descriptions of objects:

- (47) a. The book John bought is difficult to describe.  
b. The object John bought is difficult to describe.  
(48) a. The book John bought is more interesting than the book Bill bought.  
b. The object John bought is more interesting than the object Bill bought.

In (47a) and (48a) the predicate focuses on the kind of book that is its argument, whereas in (47b) and (48b) it focuses on the kind of object that is its argument, and that while the arguments may be the very same.

Let us then turn to pro-predicative quantifiers when they range over kinds of tropes. It is expected that four classes of predicates characteristic of kinds of tropes should be acceptable with those quantifiers. We have already seen that evaluative predicates are acceptable. Recall that evaluative predicates classify as characterizing (individual-level) predicates and thus apply to the various instances of the kind generically. Instance-distribution predicates as well as some intensional predicates are fine too:<sup>11</sup>

- (49) a. John has become something that is very rare, namely a world-class chess player.  
 b. John has become something Mary also aspired to, namely a world-class chess player.

To summarize, the entities pro-predicative quantifiers range over behave like tropes or kinds of tropes with respect to different classes of predicates applicable to tropes or kinds of tropes.

We can now give a formal semantic analysis of pro-predicative special quantifiers. Pro-predicative special quantifiers always relate to a predicative syntactic position and they may in addition relate to a referential syntactic position. On the Nominalization Theory of special quantifiers, special quantifiers perform two functions simultaneously: they nominalize and they quantify or refer. They nominalize with respect to the predicative syntactic position and they introduce objects that will form the quantification domain and may fill in the referential positions the quantifier relates to. Special quantifiers thus enter an additional syntactic relation besides the syntactic relation to a scope and to a variable they bind. Special quantifiers in addition enter a syntactic relation to what I will call a *nominalization domain*, which will form the point of departure for the semantic nominalization operation. The nominalization domain will contain a trace of the quantifier with which it will be co-indexed. The quantifier itself will be co-indexed with another index, an index assigned to the nominalization domain. Thus, the Logical Form of (50a) will be as in (50b).<sup>12</sup>

<sup>11</sup> In general, episodic predicates and some intensional verbs are significantly worse with pro-predicative quantifiers than with explicit trope-referring terms:

- (i) a. ? John has become something that I have never encountered before, namely extremely wise.  
 b. ?? John is something Mary has found too, namely happy.  
 (meaning: "John is happy and Mary has found happiness")  
 c. ?? John has become something Mary is looking for too, namely very happy.

It remains to be explained why such predicates behave differently.

<sup>12</sup> In Moltmann (2003b), I attributed the nominalizing function of special quantifiers to the morpheme *-thing* and their quantificational or referential function to the quantificational morpheme (*some-*, *no-*, *every-* etc.). The proposal was as follows. When a special quantifier replaces a non-referential complement, the morpheme *-thing* will move and adjoin to the verb, forming a unit with it. That is, *-thing* will be incorporated at the level of Logical Form, where Logical Form is understood in the sense of generative grammar, as the

- (50) a. John became something admirable.  
 b. John [something admirable]<sub>i</sub> [became [<sub>ik</sub> t<sub>k</sub>]]

Pro-predicative quantifiers, as Williams (1983) has noted, always take narrow scope with respect to the subject. Thus, *everything* below cannot take scope over *some student*:

- (51) Some student is everything that Mary is.

Therefore, I will take the scope of *something* to be just the VP, rather than the entire sentence.

The nominalization domain of a special quantifier will be interpreted as the set of entities over which the special quantifier ranges. In (50a), the nominalization domain is just the trace left by the quantifier. In later chapters, we will see that the nominalization domain may be greater than that, including, in particular, the verb or a lexical part of it as well.

For pro-predicative quantifiers, the quantification domain consists of tropes or kinds of tropes. How are such entities obtained from a trace in predicate position that the quantifier leaves behind? The nominalization function might operate on a predicative complement the quantifier could replace. However, this carries the same problem of expressibility that is the mark of substitutional quantification. The tropes or kinds of tropes that the special quantifier ranges over include those for which there is no predicative expression. However, for special pro-predicative quantifiers there is a simple alternative account available. Given that possible adjective meanings are functions from possible worlds and times to relations between tropes and individuals, the nominalization functions associated with pro-predicative special quantifiers can operate directly on functions from circumstances to relations among individuals and tropes.

syntactic representation of a sentence that is input to semantic interpretation and possibly distinct from the sentence's surface form. Syntacticians generally take incorporation to involve head movement, that is, movement in which a lexical category moves to a sufficiently close head in a higher position and adjoins to it. Overt incorporation of a noun into the verb can be found across many languages (cf. Baker 1988). However, it has also been advocated as an operation at logical form only (for example by van Geenhoven 1998). With incorporation of *-thing* into the verb, the representation of (ia) will be as in (ib):

- (i) a. John remained something admirable.  
 b. John[thing[remained]<sub>v</sub>] [<sub>some</sub> [e]<sub>N</sub> admirable]]<sub>NP</sub>

The complex predicate *thing-remained* will then be interpreted either as a relation between individuals and tropes or kinds of tropes, as below:

- (ii) a. [*thing<sub>1</sub>-remain*] =  $\lambda x \lambda y [ \exists W (W \in \text{Pred(ENGL)} \ \& \ [\textit{remain } W](x) \ \& \ y = S(x, W)) ]$   
 b. [*thing<sub>2</sub>-remain*] =  $\lambda x \lambda y [ \exists W (W \in \text{Pred(ENGL)} \ \& \ [\textit{remain } W](x) \ \& \ y = S_k(W)) ]$

However, the problem is that the movement that *-thing* would undergo does not obey conditions on head movement: *-thing* is not the head, rather *every* is.

Another problem for the account is that it very often has to posit implicit occurrences of an abstract morpheme *-THING* as in (iiib) for (iiia):

- (iii) a. John remained what Mary is.  
 b. John THING-remained [what Mary THING-is e]

For this reason, the analysis in terms of ordinary quantifier raising and assignment of both scope and nominalization domain is to be preferred.

One nominalization function, the one that will yield particular tropes, will apply to such a function and just yield a relation between individuals and tropes. The other nominalization function will operate on the same function and will make available the entire range of tropes for quantification over kinds of tropes.

I will follow the type-theoretic approach in construing the copula as expressing a relation between individuals and possible adjective meanings, that is, functions from circumstances to relations between tropes and individuals. However, as in type theory this is to be understood as meaning simply that the second argument of the relation expressed by the copula represents the semantic role of a possible predicative complement, rather than acting as an object standing in a relation.

The nominalization domain will be interpreted as a relation between individuals and tropes when the particular trope interpretation is at stake, as in (52a), where “C” ranges over (one-place) adjectival concepts:

- (52) a.  $[\textit{ki} \textit{ became } t_i] = \lambda i \lambda x \lambda d [\exists C(\textit{become}_i(d, C) \ \& \ x = f_1(C, i, d))]$   
 b.  $f_1(C, i, d) = \max x [C_i(x, d)]$   
 c.  $[\textit{something admirable}] = \lambda i \lambda x [\exists x(\textit{admirable}_i(x) \ \& \ X_i(x))]$   
 d.  $[\textit{something admirable}_1] [\textit{ki} \textit{ became } t_i] = \lambda i \lambda d [\exists x(\textit{admirable}_i(x) \ \& \ \exists C(\textit{become}_i(d, C) \ \& \ x = f_1(C, i, d)))]$

However, it will be interpreted as a relation between individuals and pluralities of tropes on the kind interpretation, by using in place of  $f_1$  the function  $f_2$  below, which maps possible adjective meanings to modalized pluralities:

- (53)  $f_2(C) = \max xx [\exists i \exists d C_i(xx, d)]$

More complicated is the analysis of a sentence involving two nominalization domains, such as (54a), which will have the Logical Form in (54b):

- (54) a. John became something Mary is too.  
 b. John  $\textit{something}_i$  [ $O_j$  Mary [ $_{jk}$  is  $t_{oo}$ ]] [ $_{ik}$  became  $t_i$ ].

Here *something* has as its nominalization domain [*become t*], but it also has a restriction *that Mary is t too*, which involves itself a relative-clause operator that has its own nominalization domain, namely [*is t too*]. That the relative-clause operator acts as a nominalizing operator is plausible given the reasonable assumption that it inherits (optionally) a nominalization feature from the quantifier *something* whose restriction it forms. Thus, the interpretation of (54a) will be as in (55c), based on the interpretations of the nominalization domains in (55a) and (55b):

- (55) a.  $[\textit{became } t] = \lambda i \lambda x \lambda d [\exists C(\textit{become}_i(d, C) \ \& \ x = f_2(C))]$   
 b.  $[O_j \textit{ Mary } [_{jk} \textit{ is } t_k]] = \lambda i \lambda x [\exists C(\textit{is}_i(\textit{Mary}, C) \ \& \ x = f_2(C))]$   
 c.  $\exists d([\textit{Mary is } t_i](d) \ \& \ \exists C(\textit{become}_i(\textit{John}, C) \ \& \ d = f_2(C))]$

### 3. Special nouns

Special quantifiers formed with *-thing* as well as the pronouns *what* and *that* are not the only special quantifiers in English. There are other special quantifiers, or better special NPs.

As mentioned, the morpheme *way* may form special quantifiers. Such quantifiers can take the place of adverbials:<sup>13</sup>

- (56) a. John walks the same way as Mary.  
b. John works in a way that I do not understand.

Special quantifiers with *way* range over higher-level tropes, that is, tropes of tropes (which, recall from Chapter 2, include tropes of events). They carry a sortal restriction to higher-level tropes. Special NPs with *way* allow for the range of predicates naturally considered predicates of tropes of events, including evaluative and causal predicates, and they enter the relevant sorts of similarity relations to other tropes of events, as expressed by *is the same as*:

- (57) a. The way John works is unusual/is the cause of the delay.  
b. The way John works is almost the same as the way Mary works.

Special quantifiers need to be distinguished from ordinary NPs with a trope-referring noun as head. The noun *manner* appears to form such NPs, but not special quantifiers. An NP with *manner* as head cannot as such occupy an adverbial position, but requires a preposition:

- (58) John works  $\star$ (in) the same manner.

Special NPs also need to be distinguished from indexical adverbials or predicates that do not introduce an entity available for predication. An example is *somehow*:<sup>14</sup>

- (59) a. John did it somehow.  
b.  $\star$  John did it somehow strange/somehow that I do not understand.

*Somehow* involves quantification over tropes, but not in a way that would make them available in the semantic structure for predication by adjectives or relative clauses.<sup>15</sup>

<sup>13</sup> Copula verbs allow both for special quantifiers with *-thing* and with *way/how*.

(i) a. John is something, namely a teacher.  
b. John is always the same way.

However, there are differences: whereas *something* in (ia) stands for a quality of John, *the same way* in (ib) stands for a quality of John's behavior. (ib) is in fact understood like (ii):

(ii) John behaves that way.

<sup>14</sup> *Somewhere* is different from *somehow*. English *somewhere* does allow for predicates predicated of a location:

(i) John lives somewhere nice/somewhere I cannot remember.

<sup>15</sup> *Somehow* behaves in that respect like type demonstratives such as *thus* or *so*, which do not introduce an entity available for predication either.

*Some way* as in (60a) will also take a scope and a nominalization domain, the VP, as in (60b):

- (60) a. John sleeps some way.  
b. some way<sub>i</sub> John [<sub>ik</sub> sleeps t<sub>k</sub>]

The interpretation of the Logical Form in (60b) will be similar to that of a sentence with a pro-predicative quantifier, as in (60c):

- (60) c.  $\exists x(\text{way}(x) \ \& \ \exists R \ \exists e \ \exists x'(\text{sleep}(e, j) \ \& \ B(e, x') \ \& \ x = f_1(e, \lambda x'[\text{R}(e, x')]))$   
d.  $f_2(R) = \max_{xx} [\exists i \exists e \text{R}_i(e, xx)]$

Aside from special pro-predicative quantifiers, there are certain other NPs in English that can replace predicative complements without leading to the Objectivization Effect. These NPs contain certain *special nouns* as head.<sup>16</sup> In English, special nouns include *kind*, *color*, *size*, *shape*, and *height*, as in the following examples:

- (61) a. John's house is red.  
b. Mary's house is the same color.
- (62) a. The shirt became much smaller.  
b. The shirt became the same size as the other one.
- (63) a. The vase is cylindrical.  
b. That vase is the same shape.
- (64) a. John is ten feet tall.  
b. John is the same height as Mary.

I will call noun phrases with a special noun as head *special full noun phrases*.

Whether or not a noun can act as a special noun cannot be a matter of lexical meaning as such, but rather must be a matter of lexical particularity. Languages differ greatly regarding which nouns can be used as special nouns and which ones cannot. Thus *shape* in German is not a special noun, (*\* Die Kiste ist dieselbe Form* "the box is the same shape"), and *color* is not in Italian (*\* la casa est la stessa colore* "the house is the same color").

In English, also the *kind-of* construction leads to special full NPs:

- (65) a. The house is brown-red  
b. That house is the same kind of color.
- (66) a. The container is cylindrical.  
b. The other container is the same kind of shape.

<sup>16</sup> The observation that NPs of this sort can replace predicative complements has been made by Williams (1983).

Special nouns, it appears, are always nouns that allow for modalized plural reference with definite NPs, showing the characteristic kind term behavior:

- (67) a. This color/size/shape is rare.  
 b. Mary has never seen this color/size/shape.  
 c. This color/size/shape is nice.  
 d. Mary needs this color/size/shape.

*This color*, *this size*, or *this shape* are terms that stand for kinds of tropes. They do not stand for particular tropes. Rather, it is the relational form as in *the color of the house* and *the shape of the box* that forms NPs standing for a particular trope (cf. Chapter 2).

Not all definite NPs that allow for modalized plural reference can act as special noun phrases. German displays the same evidence for modalized plural reference with NPs with *Form* “shape” as head, as in (68a), but they do not form special noun phrases, as seen in (68b):

- (68) a. Diese Form ist selten.  
 “This shape is rare.”  
 b. Die Vase ist ??? dieselbe Form/ok von derselben Form.  
 “The vase is the same shape/of the same shape.”

Allowing for modalized plural reference appears to be a necessary, but not a sufficient, condition for being a special noun.

Special full NPs can be analyzed just like special quantifiers, taking a scope as well as a nominalization domain. However, what distinguishes them from special quantifiers is that they involve a particular restriction to certain kinds of tropes. *Some color* ranges only over color tropes, and *some shape* only over shape tropes. Thus, the content of the head noun acts as a restriction of the quantifier ranging over kinds of tropes, as in the analysis below:

- (69) a. The house is some color.  
 b. The house [*some color*<sub>i</sub>] [*is* t<sub>k</sub>]  
 c. [*is t*] =  $\lambda i \lambda xx \lambda d [\exists C(is_i(d, C) \ \& \ xx = f_2(C))]$   
 d. [*some color*<sub>i</sub>] [*is* t<sub>k</sub>] =  $\lambda i \lambda d [\exists xx(color_i(xx) \ \& \ \exists C(is_i(d, C) \ \& \ xx = f_2(C)))]$

#### 4. Conclusion

In this chapter, I have argued that quantification into predicate position in natural language should be understood as a form of nominalization. Only certain kinds of quantifiers can replace predicates in natural language, namely special quantifiers, and these quantifiers must be understood objectually, not substitutionally or in terms of their inferential potential. The kinds of entities that special quantifiers range over have, with one exception, just the kinds of properties that tropes or kinds of tropes have. The one exception, predicates of description and extent, do not apply with special

quantifiers as with explicit trope-referring terms because such predicates always require a particular kind of descriptive content of the term used to refer to their arguments.

The nominalizing pro-predicative function of special quantifiers is only one of a range of nominalizing functions that special quantifiers can have. Another function, the one of replacing a plurally referring term and reifying a plurality as a single entity, was already discussed in Chapter 1. In the next chapter, we will discuss another important nominalizing function of special quantifiers; that of taking the place of clausal complements and introducing proposition-like objects for their domain of quantification.