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Bare Nominals and Reference to Capacities*

Abstract

This paper concentrates on the syntax and semantics of bare nominals in Germanic and Romance languages. These languages do not normally allow nominals to occur without an article. However, some syntactic configurations, including predicative constructions, supplementives and some prepositional phrases, allow bareness of certain nominals. We argue that bare nominals in these constructions refer to *capacities*: professions, religions, nationalities or other roles in society. Capacities are analyzed as entities of type *e*, sortally distinct from regular individuals as well as kinds. We further argue that the capacity interpretation is associated with NP – a layer within the DP that lacks number features. This accounts for the number-neutral status of bare nominals. We also show some patterns in languages other than Romance and Germanic that provide further cross-linguistic support for the postulation of capacities as a separate ontological category, specific to a low position within the DP.

1 Introduction

In many languages, nominals are allowed to be morphologically unmarked and occur in a wide range of argument positions without an article or a determiner. Examples include Chinese, Hindi, Brazilian Portuguese, Slavic languages and several Creole languages. This phenomenon of *Bare Nominals* (henceforth BNs) is cross-linguistically common. In other languages, including the Germanic and Romance languages, in most syntactic environments nominals cannot occur in their bare singular form. These languages typically require nominals to appear with an article or a determiner, or at least with overt marking of number and (possibly) other morphological features. We henceforth refer to such nominals as *Marked Nominals* (MNs), a term that is used here to refer to bare plurals as well. This choice of

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terminology is not accidental. As we shall see below, in Dutch and other languages (see Munn and Schmitt 2005 for Brazilian Portuguese, Déprez 2005 for Haitian Creole), bare "singular" nominals are semantically number-neutral, whereas bare plurals are not.[1]

Despite the strong tendency in Romance and Germanic languages for marking nominals, even these languages allow BNs in certain syntactic configurations. For linguistic theory, these constructions are particularly interesting, since they provide a unique kind of evidence of the syntactic and semantic opposition between BNs and MNs. Some examples of such constructions in Germanic and Romance languages are given in (1) through (5).

(1) a. Il travaille comme professeur dans un collège. [French]
he works as teacher in a high school
He works as a teacher at a high school.
b. Il parle comme un professeur.
he talks like a teacher
He talks like a teacher.

(2) a. Zij heeft de rol van manager. [Dutch]
she has the role of manager
She has the role of manager.
b. Zij heeft de rol van een manager
she has the role of a manager
She has the role of a manager.

(3) a. Es negrero. [Spanish[2]]
He is a trader in black slaves.
b. Es un negrero
He is a slave driver (i.e. makes you work too hard).

(4) a. Informatiker ist ein Beruf mit Zukunft. [German]
computer scientist is a profession with future
Computer science is a profession with a future.
b. *Ein Informatiker ist ein Beruf mit Zukunft
a computer scientist is a profession with future

(5) a. Frank was appointed chairman
b. Frank was appointed a chairman

In these pairs we chose singular indefinites as MNs, which are the most likely candidates among the MNs to be close in meaning to BNs. However, it is evident from the translations given in (1)-(5) that MNs and BNs are not only different in their distribution (as in (4)), but

[1] We do not address in this paper the question of mass terms, which are notable for their cross-linguistic variance, especially in connection to number marking. In line with this restriction, we also do not address the use of abstract BNs, like *motivo* 'reason' in (ia) below. As pointed out by an anonymous reviewer, such abstract BNs may actually be mass terms, analogous to (ib), which are not discussed in this paper.

(i) a. Questo fu motivo di aspre discussioni. [Italian]
this was reason for lively discussions
b. Questa è felicità.
this is happiness

[2] Example from Butt and Benjamin (1988).

also in their interpretation. Where both MNs and BNs are possible, their meanings tend to be different. With respect to the examples in (1) and (3) in particular, it has been observed that BNs have more literal and "stereotypical" meanings than the marked singular indefinites, which may typically receive figurative or approximative interpretations. One of the central aims of this paper is to give a systematic account of these syntactic/semantic differences between BNs and MNs.

The class of nominals in Germanic and Romance languages that can occur bare as shown in (1) to (5) is quite restricted. This has been observed by Broekhuis, Keizer and den Dikken (2003), Matushansky and Spector (2005), Zamparelli (2005a,b), Munn and Schmitt (2005) and Déprez (2005), among others. The nominals in bare constructions are often simple expressions that resist modification. They usually have human referents, and denote specific roles in society: professions, religions or nationalities. Other nominals (non-human or human) that are not related to such roles generally resist taking up a bare nominal position:

(6) a. *Gianni è ragazzo. [Italian, Zamparelli 2005:763]
Gianni is boy
b. *Julie était génie. [French, Matushansky and Spector 2005:243]
Julie was genius
c. *Onze hond Fido is teckel. [Dutch]
our dog Fido is dachshund

To distinguish between the nominals that appear in bare constructions in Romance and Germanic languages and those that do not, we henceforth refer to the former as *capacity nominals*. The facts summarized above immediately raise some non-trivial questions:

(i) Which are the syntactic environments that allow BNs in Romance and Germanic languages?
(ii) How do these environments distinguish between capacity nominals and other nominals?
(iii) Which nominals can be classed capacity nominals and why?
(iv) How can the semantics of BNs and MNs be formally described?
(v) What are the syntactic/semantic principles that trigger these different interpretations of BNs and MNs?

Any comprehensive theory that aims to answer these questions would need to take into account diverse data about (in)definiteness, inflection patterns, genericity and lexical and structural variation in different languages. In this paper we aim to contribute to the development of such a theory by concentrating mainly on the last three questions above: the lexical semantics of capacity nominals, the different semantic mechanisms with BNs and MNs and their interactions with syntax. The first two questions, although important, fall beyond the scope of this paper. Why we find BNs only under certain lexical and syntactic conditions is not our major concern here. Given that a language has both BNs and MNs, we propose a general account of their interpretation and argue that it covers the essential contrasts that are found between BNs and MNs in Romance and Germanic languages. Furthermore, we show that the proposed account has some important implications for other languages. Our proposal is based on the following three principles:

- **Semantics of capacity nominals:** The interpretation of BNs in Romance and Germanic languages involves reference to semantic entities which we refer to as *capacities.* We argue that capacity interpretations of nominals should be distinguished from property interpretations on the one hand, and from ordinary reference to kinds in the sense of Carlson (1980) on the other hand. Furthermore, we argue that this

distinction also holds in languages like Hebrew, Brazilian Portuguese and Creole languages, which allow BNs in many more situations than (other) Romance or Germanic languages. Capacities are treated as type *e* entities, but they are sortally distinguished from kinds.

- **Mapping from capacities to sets**: Like kinds, we propose that capacities can be systematically mapped to sets of ordinary entities using a covert semantic operator. Our mapping of capacities onto sets of individuals is modeled on Carlson's (1980) realization operator that maps kinds to individual entities.
- **Syntax-semantics interface:** We propose that reference to capacities is ruled out in MNs since the NumP level is always interpreted using sets of entities or properties over entities.

The structure of this paper is as follows. Section 2 demonstrates the capacity interpretation of various BN constructions in Romance and Germanic languages. Section 3 introduces the semantic notion of capacity, provides cross-linguistic evidence for its empirical relevance, and presents an interpretation of BNs using this notion. Section 4 addresses the syntax-semantics interface with BNs and MNs and analyzes the data of section 2 in the proposed account. This is where we will give a detailed analysis of *bare predicate nominals* in Dutch (based on observations made in Haeseryn et al. 1997, section 4.5.6, and Broekhuis, Keizer and den Dikken 2003, section 2.8.2). We choose Dutch as the main language of study because BNs in this language are an especially rich area for exploring our general theoretical claims, due to the systematic manifestation and distribution of *qualifier expressions* (e.g. *van beroep*, "by profession"). The analysis also covers other Germanic and Romance languages, though. Section 5 briefly discusses reference to capacities in English, a language where BN strategies are even less productive than in most Germanic or Romance languages. This section also discusses the possibility of extending the analysis to other constructions and other nouns.

2 Some basic facts about capacity interpretations

Capacity BNs occur in a variety of constructions in both Romance and Germanic languages. We find them most prominently as primary predicates. Consider the following Romance examples (with (7a-c) from Munn and Schmitt 2005):

(7)	a.	Jean est médecin.	[French]
	b.	Juan es medico.	[Spanish]
	c.	João é médico.	[Portuguese]
	d.	Gianni è dottore.	[Italian]
		John is a doctor.	

In reference grammars of various Germanic languages the following examples can be found:[3]

(8)	a.	Olivier var skuespiller.	[Danish]
		Olivier was actor	
		Olivier was an actor.	

[3] Danish examples from Allan, Holmes and Lundskær-Nielsen (1995), Swedish from Holmes and Hinchliffe (1994), Norwegian from Strandskogen and Strandskogen (1986), German from Engel (1996), and the Dutch example (8e) constructed by the authors on the basis of an Internet example.

b. Herr Weber är katolik. [Swedish]
Mr. Weber is Catholic
Mr. Weber is a Catholic.

c. Han er lærer. [Norwegian]
he is teacher
He is a teacher.

d. Er ist praktizierender Katholik. [German]
he is practicing Catholic
He is a practicing Catholic.

e. Ndongo is Malinees van nationaliteit [Dutch]
Ndongo is Malian of nationality
Ndongo is of Malian nationality.

f. She is captain of the high school band. [English]

The class of capacity nouns includes not only professions, but also religions and nationalities, as we can see in (8b,d,e).[4] Capacity nouns can be syntactically complex, as in (8d-f), but modification is typically very restricted. If there is modification, an article is often obligatorily present:[5]

(9) a. Han är *(an) god katolik. [Swedish]
he is a good Catholic
He is a good Catholic.

b. Es *(un) actor que nunca encuentra trabajo. [Spanish]
is (an) actor who never finds work
He is an actor who never finds work.

The same noun can be used with or without an article, with subtle but clear differences of meaning that are the same across Germanic and Romance languages. In contrast to the literal professional use of Danish *skuespiller* 'actress' in (8a), we find the figurative use in (10a):

(10) a. Din lille pige er en skuespiller. [Danish]
your little girl is an actress
Your little girl is an actress.

b. Henriëtte is (een) manager. [Dutch]
Henriëtte is (a) manager
Henriëtte is a manager.

c. Gianni e (un) macellaio. [Italian]
Gianni is (a) butcher
Gianni is a butcher.

Similarly, in the Dutch example (10b), the sentence without the article is false, because the first author of this paper is a university professor, not a manager, according to her job description. The version of (10b) including the article, on the other hand, is true, because

[4] Some languages also allow kinship nouns as bare predicates, but this seems more restricted. In Dutch, for instance, nouns like *opa* 'grandpa' require a complement (*opa van drie kleinzoons zijn* 'to be grandpa of three grandsons'), a perfect participle (*opa geworden zijn* 'have become grandpa'), or another marker of a change in state (*al opa zijn* 'already be grandpa'), but they cannot easily appear alone in predicative construction (?*opa zijn* 'be grandpa').

[5] Spanish examples (9b) and (16c) below from Butt and Benjamin (1988).

university professors in the Netherlands spend a considerable part of their time on administrative duties, without being considered 'managers' in the professional sense of the word. Likewise, in the Italian sentence (10c), without the article the sentence claims that Gianni is a professional butcher, but with the article it can also mean that he is a cruel villain.

In addition to these primary predicative BNs, another context where capacity interpretations are found is with certain uses of a 'prepositional copula' (*as* in English, *als* in Dutch, *comme* in French). Broekhuis, Keizer and den Dikken (2003) refer to this construction as *supplementive*:

(11) a. In her role as linguist, Sue avidly defends the use of dialects. [English]
b. She was appointed as lecturer.
c. (i) Jan spreekt als dominee. [Dutch[6]]
Jan speaks as minister
Jan speaks in his capacity as a minister.
(ii) Jan spreekt als een dominee.
Jan speaks as a minister
Jan speaks like a minister.
d. (i) Il travaille comme professeur dans un collège. [French]
he works as teacher in a high school
He works as a teacher at a high school.
(ii) Il parle comme un professeur.
he talks like a teacher
He talks like a teacher.

In English we do not know of any semantic difference between the versions with and without the article (*as linguist* - *as a linguist*).[7] In Dutch and French, however, the bare construction has a professional capacity reading ('in his/her capacity as'), while the MN involves comparison ('like'). Thus, the distinction between BNs and MNs in supplementive constructions is very similar to the one we already saw in predicative constructions and we can treat the complement of *as*/*als*/*comme* as a predicate nominal.

Some languages allow BNs, but not MNs, to be used as subjects with a higher-order predication:

(12) a. (*Een) Leraar is een mooi beroep. [Dutch]
(a) teacher is an admirable profession
Teaching is an admirable profession.
b. (*Ein) Informatiker ist ein Beruf mit Zukunft. [German]

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[6] Examples taken from Broekhuis, Keizer and den Dikken (2003:907).

[7] An anonymous reviewer points out that the Italian example (i) is ambiguous, even though it involves a MN: Jan and Karel might have spoken in the way vicars usually speak (possibly without actually being vicars), or they could be vicars who are speaking in this capacity.

(i) Jan e Karel hanno parlato come vicari.
Jan and Karel have spoken as vicars
(ii) Jan ha parlato come un vicario.
Jan has spoken as a vicar

However, (ii) is not ambiguous in this way. The presence of the indefinite article blocks the capacity reading. Our analysis does not distinguish between bare plurals and indefinite singulars as marked nominals. We leave the contrast in (i) and (ii) open for further research.

(a) computer scientist is a profession with future
Computer science is a profession with a future.

This construction seems somewhat more limited than the other constructions in which capacity nouns figure. Nevertheless, it is interesting because of the clear grammaticality contrast it triggers between bare and marked nominals.

Capacity nouns can also be embedded in phrases like *the role of*, *the function of*, *the profession of*, and their counterparts in other languages (13).

(13) a. Norman was not happy in his role of chief. [English]
b. Het beroep van kunstzinnig therapeut is nog in volle ontwikkeling. [Dutch]
the profession of artistic therapist is still in full development
The profession of art therapist is still rapidly developing.
c. In qualità di preside di questa scuola,
in capacity of president of this school
il professor Rossi non può permettere questo comportamento [Italian[8]]
the professor Rossi not can allow this behaviour
As headmaster of this school, Professor Rossi cannot allow this behaviour.
d. En tant que citoyenne de l'Europe je dois vous dire VOTEZ OUI! [French[9]]
in as that citizen-FEM of the Europe I have you say VOTE YES
As citizen of Europe, I have to tell you to vote yes!

Finally, there are many cases where a capacity BN is part of the complement of a preposition or verb:

(14) a. John was appointed (a) teacher. [English]
b. Bush for president!
c. Hij is benoemd tot (*een) buitengewoon hoogleraar. [Dutch]
he is appointed to (a) extraordinary professor
He has been appointed to the position of endowed professor.
d. Pierre croit Marie (*une) physicienne. [French[10]]
Pierre believes Marie (a) physicist
Pierre believes Mary to be a physicist.
e. Chirac è stato eletto presidente della Francia. [Italian]
Chirac has been elected president of-the France
Chirac has been elected president of France.

Verbs of appointment or elections typically relate to nouns denoting a profession or political position; a verb like *croire* ('believe') allows a wider range of capacity interpretations.

3 The semantics of capacities

Since the possibility of BNs in normal argument positions in languages like Dutch, German, French and English is severely restricted by the syntax, there must be something special

[8] Examples (13c) and (14e) are from Maiden and Robustelli (2000).

[9] Example (13d) is from the internet.

[10] Example from Matushansky and Spector (2005).

about the predicative construction and the other syntactic environments discussed above that allows the use of BNs. However, a purely syntactic account of the facts illustrated in the previous section would hardly be sufficient as a theory of bare nominals. As we saw earlier, BNs in Romance and Germanic languages have an interpretation that should be distinguished from the interpretation of MNs in these languages. In contrast to MNs, the BNs we discussed all carry a meaning that is related to a profession, a religion, a nationality, or more generally: a role in society. It is therefore natural to assume that all the BNs in (7)-(14) refer to the same kind of semantic entities. For the sake of the discussion, let us refer to these entities as *capacities*. Without pre-judging their semantic nature, we would like to know how capacities are related to other elements of semantic theory. In this section we argue that capacities have special semantic features that distinguish them from some well studied semantic primitives, especially *kinds* and *properties*. We propose to view capacities as entities of type *e*, similar to kind-denoting nominals. These type *e* entities can be mapped to sets of entities and to kinds using semantic operators. The exact circumstances in which these operators are used will be addressed in section 4.

3.1 On the lexical semantics of capacity nominals

As is clear from the data in sections 1 and 2, the set of nouns that can occur in predicative, supplementive or other bare nominal constructions is lexically quite restricted. What is it in nominal concepts as in (15a) that makes them refer to capacities, in contrast to those in (15b)?

(15) a. teacher, manager, slave trader, computer scientist, chairman, doctor, actor, Catholic, Malian, captain, butcher, linguist, vicar, chief, artistic therapist, headmaster, citizen, physicist, president, professor, priest, carpenter, mason, lawyer, Belgian, Christian, herdsman, journalist, nurse, …

b. boy, genius, braggart, sneak, woman, child, hero, impostor, reader, smoker, …

This question is directly addressed in Matushansky and Spector (2005), Munn and Schmitt (2005) and Déprez (2005), who arrive at very different conclusions. Matushansky and Spector claim that BNs need to be what they call non-*scalar*, and propose that a degree argument needs to be bound by an overt article. It is true that when the noun has a more subjective, "gradable" meaning, it invariably requires an article:[11]

(16) a. Han er en luring. [Norwegian]
He is a sneaky person.

b. Er ist ein Aufschneider. [German]
He is a braggart.

c. Eres un genio. [Spanish]
be.2SG a genius

[11] This might also explain why we get indefinite articles in the so-called 'N of an N' construction:

(i) Hij is *(een) idioot van *(een) dokter
He is an idiot of a doctor

The scalar and subjective semantics of the epithet *idiot* seems to force the articles here, even though we have a capacity nominal.

The example above is thanks to Marcel den Dikken (p.c.), referring to his recent book *Relations and Linkers* (MIT Press 2006), which unfortunately was not available to us while working on this paper.

You are a genius.

Munn and Schmitt argue that capacity nouns like those in the list in (15a) are *eventive* (stage-level), whose *event argument* cannot be bound by the determiner and must be bound by Tense, which explains why the determiner must be absent. Déprez (2005) follows this idea, but connects it to the option of moving directly into the head of the functional position Pred or Asp in predicative constructions. These three proposals are very different from each other. However, none of them is fully adequate in explaining the lexical properties of capacity nominals. Let us see why.

Consider the properties *human*, *non-scalar* and *institutional* that seem necessary to characterize the class of nominals in (15a). That capacity nominals always have human reference is unchallenged (though see the remarks in section 5 below). That they are non-scalar is a common feature, which rules out 'subjective' nouns like *genius, braggart,* etc. However, it is unclear whether lack of scalarity or eventivity can rule out *boy, woman, child, smoker* (cf. the illicit example in (6a) with the noun *ragazzo* 'boy'). We need something extra, namely that the noun is conceived of as denoting some role or function in society. Professions, occupations, nationalities, and religious denominations count as being in that class, other nouns like *smoker* or *hero*, do not. It is clear that the fact that capacities are institutional means that they do not depend on the inherent, natural properties of a person or what the person actually does, but on the social or cultural status of that person. It remains difficult to determine this feature of capacity nominals precisely, but we assume that the three elements mentioned here are a good way to begin. An extra degree or event argument in the theta grid is clearly not enough to capture the institutional aspect of the meaning of capacity nominals. We therefore do not attempt here to fully characterize this class of nominals, but rather study the semantic properties of the entities they refer to, which we call *capacities*.

3.2 Capacities, kinds and properties

Let us first show that capacities cannot be treated as sets of entities. The argument is routine in semantic theories of intensionality. Consider for instance sentence (1), repeated here as (17a), in a situation where the set of teachers is identical with the set of priests.

(17) a. Il travaille comme professeur dans un collège. [French]
he works as teacher in a high school
He works as a teacher at a high school.
b. Il travaille comme prêtre dans un collège.
he works as priest in a high school
He works as priest in a college.

If one of the priests is teaching, but does not perform religious duties at any school, we have a situation in which sentence (17a) is true, but (17b) is false. This could not be the case if the meaning of capacity nouns was equated with the set of entities in its extension, certainly not in situations like we assume, where the set of teachers is the same as the set of priests. Similar arguments can be made using the other examples in (1)-(5).

In order to avoid such extensional identity problems, we might assume that capacity nouns denote *properties*. Properties, the Fregean "senses" of natural language predicates, are often treated, following Montague (1974), as functions from possible worlds to sets of entities (or one-place predicates). Properties are used in semantic theories for a wide range of semantic phenomena, including the following:

(18) a. This ring is made out of fake gold. - non-intersective adjectives

b. John seeks a teacher. - *de dicto* interpretations of indefinites

Obviously, the objects that are fake gold as in (18a) are not a subset of the gold objects. Thus, the semantics of adjectives like *fake* is often modeled in terms of intensions, rather than extensions. Similar arguments hold for the de dicto interpretation of (18b): if John seeks a teacher, it obviously does not entail that he also seeks other concepts that happen to be materialized in the actual world by the set of teachers (e.g. imagine as above, that the set of teachers is the set of priests). Thus, the object of (18b) cannot be defined in terms of sets of entities alone. Zimmermann (1993) proposes that sentences like (18b) are treated using the following argument-predicate relations: **seek'(j',T)**. Here **seek'** is a relation between entities and properties, and **T** is the property denoted by the indefinite *a teacher*. An important argument in favor of this analysis is the observation that unlike indefinite expressions, quantificational expressions like *every teacher* do not give rise to de dicto interpretations when embedded under an intensional verb like *seek*.

If we take capacity nominals to denote properties, we may expect to find that in languages like Dutch, German, French, Spanish and English, capacity nominals as in (1)-(5) are interchangeable with property-denoting nominals. This is clearly not the case. The environments discussed above in section 1 indicate syntactic oppositions between bare and marked nominals as in (12) and (14), and semantic contrasts between bare and marked nominals as in (1)-(5). The syntactic contrasts extend to bare plurals, which also count as marked nominals under our definition, as illustrated in (19).

(19) a. Leraar is een mooi beroep. [Dutch]
teacher is an admirable profession
Teaching is an admirable profession.
b. *Een leraar is een mooi beroep.
a teacher is an admirable profession
c. *Leraren is/zijn een mooi beroep.
teachers is/are an admirable profession

Whether we follow the type-shifting approach that assigns property denotations to all NPs/DPs involving a weak quantifier as claimed by Partee (1987), Zimmermann (1993), or we apply Krifka's (2004) narrower definition of property-denoting nominals, the contrast between the well-formed (19a) and the ill-formed (19b)/(19c) is hard to explain by assuming that capacities are to be equated with properties.

The semantic contrasts observed with respect to (1)-(5) extend to plurals, as illustrated in (20).

(20) a. Jan sprak als dominee. [Dutch]
Jan spoke as minister
Jan spoke in his capacity as minister.
b. Jan sprak als een dominee.
Jan spoke as a minister
Jan spoke like a minister.
c. Jan en Karel spraken als dominee.
Jan and Karel spoke as vicar
Jan and Karel spoke in their capacity of vicar.
d. Jan en Karel spraken als dominees.
Jan and Karel spoke as vicars
Jan and Karel spoke like vicars.

The main contrast between the capacity reading of BNs and the more metaphorical reading of MNs has been exemplified in (11) above, and is repeated in (20a) and (20b). Sentence (20c) produces the bare singular form of the supplementive for a plural subject, with the same capacity interpretation as (20a). Switching to the bare plural in (20d) has the same effect as switching to the singular indefinite in (20b), and leads to a metaphorical interpretation. The compatibility with a plural subject in (20c) supports the number-neutral status of BNs, also in supplementive constructions. The fact that the bare plural behaves like a marked nominal supports our claim that bare singulars and bare plurals are significantly different in the contexts studied in this paper. Once more, these distinctions cannot be established in current theories by making use of property-denoting nominals.

The hypothesis entertained in De Swart, Winter and Zwarts (2005) is that capacities are equated with *kinds*. According to Carlson (1980), reference to kinds is needed for describing the semantics of sentences like the following.

(21) a. The bear is a strong animal.
b. Bears are strong animals.

(22) a. The dinosaur is extinct.
b. Dinosaurs are extinct.

In these examples, the NPs/DPs in subject position do not refer to individual bears or dinosaurs, but are used generically to refer to the species. The leading assumption in semantic theory is that such DPs denote special entities that are referred to as *kinds*. There are well known differences between the interpretation of singular definites as in (21a) and (22a), and the interpretation of bare plurals as in (21b) and (22b). Chierchia (1998) and Dayal (2004), for instance, assume that two different notions of kinds are involved. For our present purposes, the intricate differences between kind readings of singular definites and bare plurals can be ignored, and we use the basic notion of kind as an entity of type *e* as introduced by Carlson (1980). Under this assumption, sentences (22a) and (22b) can both be represented as in (23):

(23) **extinct'**(**d'**),

where **d**' is the dinosaur kind, of type *e*, and **extinct**' is a predicate ranging over kinds.

In De Swart, Winter and Zwarts (2005), which deals mainly with Dutch bare predicate nominals, capacity nominals are viewed as kind-referring. This may also seem the right semantic perspective for the wider range of data in (1)-(5), (7), (12)-(14). For instance, it may seem natural to treat (12a) in an analogous way to the analysis of (22a,b) in (23), using the predication in (24).

(24) Leraar is een mooi beroep. [Dutch]
teacher is an admirable profession
admirable_profession'(**t**'),

Here **t**' is the teacher kind of type *e* and **admirable_profession**' is a predicate over kinds. However, upon a closer look on the data it becomes clear that capacities cannot be ordinary kinds. A more fine-grained analysis of capacities than the account given in De Swart, Winter and Zwarts (2005) is called for. In (19b and c), we already observed that singular indefinites

and bare plurals are not felicitous in this syntactic environment. (25) illustrates that we cannot use a definite singular either (Broekhuis, Keizer and den Dikken 2003:908):

(25) *De leraar is een mooi beroep. [Dutch]
the teacher is an admirable profession.

If the bare noun *leraar* in (24) is treated as referring to the kind teacher, it becomes unclear why (19c) and (25), as opposed to (24), are unacceptable, given that we know that bare plurals and definite singulars can be kind referring. Conversely, we would expect the environments in (22), where we find direct reference to kinds, to be acceptable with a bare nominal in subject position. This is clearly not the case:[12]

(26) a. De dinosaurus is uitgestorven. [Dutch]
the dinosaur is extinct
b. Dinosaurussen zijn uitgestorven.
dinosaurs are extinct
c. *Dinosaurus is uitgestorven.
dinosaur is extinct.

In sum, although definite singulars and bare plurals have generic interpretations and denote kinds in environments such as (21) and (22), that does not make them interchangeable with capacity nominals. In environments like (24), where BNs are felicitous with a capacity reading, bare plurals and definite singulars cannot appear. Conversely, BNs cannot occur in environments like (26c), in which definite singulars and bare plurals are felicitous with a kind-referring interpretation. We conclude that capacities cannot be equated with kinds, even though the two seem to be closely related.[13] We resolve this situation by assuming that capacities and kinds both denote in the domain of type *e* expressions. However, we assume that they are sortally distinct. Thus, there is a type e_K of kinds and a type e_C of capacities, both of which are subtypes of the more general type *e*. This assumption is similar to the postulation of many other *e* sorts for events, degrees, pluralities and other *e*-type semantic objects.

3.3 Reference to capacities in other languages

Evidence to support a distinction between capacities and kinds comes from languages in which bare singulars are far more common than is the case for most Romance and Germanic languages. We discuss three sets of data, from Hebrew, Brazilian Portuguese, and Haitian Creole. In all three languages, we find bare nominals used quite freely in a variety of argument positions. Nevertheless, there are restrictions with respect to the syntactic constructions presented above that refer to capacities.[14] We take these restrictions to support

[12] We could have illustrated the same phenomenon with a Romance example, but reference to kinds in Romance languages typically requires a definite article both in the singular and the plural (cf. Farkas and de Swart 2006 for discussion). In order to avoid further complications, we give here a Dutch example, but the argument is valid for German, English and Romance as well.

[13] We are grateful to an anonymous reviewer for remarking on this point.

[14] The same is true for Norwegian, for which the distribution of bare singular nouns was extensively discussed in Borthen (2003). Even though the distribution of bare singulars seems much wider in that language than in other Germanic languages, still the predicative use of bare singulars shows the same restrictions that we saw for other Germanic (and Romance) languages (Borthen 2003:62-63, 80-82).

our claim that capacity nominals are expressions of type *e* that involve reference to capacities, where capacities are sortally distinct from both regular individuals and kinds.

In Hebrew, as in other Semitic languages, bare singulars can receive an existential reading, which is virtually non-existent in Romance and Germanic languages. Consider the following examples.

(27) a. dan ra'a namer. [Hebrew]
Dan saw tiger
Dan saw a tiger.

Doron (2004) observes that Hebrew allows kind reference with bare singular nominals as well as with singular definites:

(28) namer/ha-namer hu xaya torefet. [Hebrew]
tiger/ the-tiger is animal carnivorous
The tiger is a carnivorous animal.

The interpretations of the definite DP and the bare singular nominal in such Hebrew examples are similar. However, the parallelism between the behavior of Hebrew bare singulars and Hebrew definites disappears when it comes to capacity nominals. Consider the following example, in contrast to (28).

(29) more/*ha-more hu mikcoa tov. [Hebrew]
teacher/*the-teacher is profession good
Teaching is a good profession.

The example in (29) mirrors the Germanic construction in (12) above. It indicates that kind reference of Hebrew definites should be distinguished from reference to capacities, which requires bare singulars. This is not what we would expect if capacities are viewed as kinds, as we observed with respect to the data in (25) and (26) above. At face value, the semantics of the bare singular in Hebrew examples such as (28) and (29) may seem completely parallel. But clearly, these two bare appearances of a bare singular must be treated differently, just as in the Romance and Germanic languages we have discussed so far. The important thing is that Hebrew capacity nominals show syntactic and semantic regularities that go beyond their bareness.

Brazilian Portuguese establishes a similar distinction between properties, kinds and capacities. Munn and Schmitt (2005) show that Brazilian Portuguese (BrPort) is more liberal than most other Romance languages in allowing bare singulars both in generic contexts as in (30) and in episodic contexts like (31):

(30) a. Criança lê revistinha. [BrPort]
child read-3SG comic book
Children read comic books.
b. Beija-flor é raro em São Paulo.
Hummingbird is rare in São Paulo
Hummingbirds are rare in São Paulo.

(31) a. Ele comprou computador.
he bought computer

He bought a computer.

b. Chegaram criança.
arrived child
A child arrived.

The generic statement in (30a) and the kind-referring sentence in (30b) would be impossible in English with a bare singular. The way to express these meanings in English would be with a bare plural. In the episodic contexts in (31), the bare singular in BrPort gets a meaning close to the singular indefinite in English. Munn and Schmitt (2005) build on the Free Agr parameter advanced by Bobaljik (1995) to explain the contrast between the two languages. They argue that in English, Arg is fused with the Num Phrase whereas in Romance Agr and Num are independent heads. In Romance languages, Num can be missed out in contexts in which it is not semantically necessary, but in English, it cannot be omitted, because it is fused with Agr. Munn and Schmitt use the Free Agr parameter not only to account for the occurrence of bare singulars in argument position, but also in predicative position. In French (32a), Spanish (32b) and BrPort (32c), bare predicate nominals are grammatical, but in English the insertion of an indefinite article is required (32d):

(32) a. Jean est médecin. [French]
b. Juan es médico. [Spanish]
c. João é médico. [BrPort]
d. John is *(a) doctor.

Munn and Schmitt only compare Romance to English, but it is clear that Dutch would raise a problem to their analysis of predicate nominals. On the one hand, Dutch is similar to English in not allowing bare singulars in regular argument position, neither in generic (26c, 33a, b) nor in episodic environments (33c). On the other hand, it patterns with the Romance languages in allowing bare predicate nominals (10b, 33d):

(33) a. *Kat drinkt graag melk. [Dutch]
cat drinks PART milk
b. *Kolibri is zeldzaam in Nederland.
hummingbird is rare in Netherlands
c. *Zij kocht computer.
she bought computer
d. Jan is dokter.
Jan is doctor

The Dutch data show that the FreeAgr parameter does not extend to predicative positions. Furthermore, this parameter is not sensitive to the lexical semantics of the noun in question. The nouns we find in examples like (30) and (31) are not the ones we labeled above as capacity nouns. Interestingly, Munn and Schmitt observe that there are lexical restrictions on the nouns that can occur bare in predicative nominal constructions in Brazilian Portuguese as well as other Romance languages:

(34) a. *Ceci est chaise. [French]
b. *Esa es silla. [Spanish]
c. *Essa é cadeira. [BrPort]
this is chair

Bare singulars in French are extremely rare in argument position (cf. Roodenburg 2004a,b). They occur after certain prepositions (*avec plaisir* 'with pleasure'), in idiomatic verbal locutions (*avoir faim* 'have hunger', i.e. 'be hungry'), and in bare predicate position (32a). The contrast between (32a) and (34a) illustrates that only capacity nouns are allowed as predicative BNs. In Spanish, bare singulars in argument position are used more liberally than in French (Munn and Schmitt), but BNs are limited to episodic contexts and existential interpretations. However, the restrictions on predicative BNs are the same as for other languages. The most striking case is the ungrammaticality of the BrPort example in (34c). As pointed out by Munn and Schmitt (2005), the fact that bare singulars are freely allowed in argument position in BrPort, but are restricted in predicative positions indicates that the factors that govern the distribution of bare NPs in argument position are not directly transferable to predicative positions. In this paper, we are not concerned with bare singulars in argument position, so we will not try here to assess their account using the FreeAgr parameter. But we conclude that the data from BrPort confirm the distinction that we have drawn between capacity interpretations and other interpretations that appear with BNs.

The third language we consider here is Haitian Creole, as studied by Déprez (2001, 2005). Haitian Creole is a French lexifier creole, but it behaves quite differently from French as far as its nominal structure is concerned. Nouns do not have morphology for singular/plural, and they occur quite freely in regular argument position, with existential as well as kind-referring interpretations. Déprez (2005) provides the following examples:

(35) a. Moun koumanse app ran baton. [Haitian Creole]
People started taking sticks.
b. Jan ap danse ak tifi
Jan is dancing with (some) girl/girls.
c. Elefan ap vin ra.
Elephants are/the elephant is becoming rare.
d. Edison (te) envante anpoul elektrik.
Edison invented the lightbulb.

Déprez (2001, 2005) proposes an analysis of these data in terms of what she labels the Plural Parameter. The idea is that NPs are expressions of type *e* and that they denote kinds. The NumP is of type *et*. It introduces a realization of a kind (object level individuals or sub-kinds), as well as a counter of object units or kind units. Languages vary in whether the NumP is overtly realized with the help of classifiers (in languages like Chinese) or with the help of morphology on the noun (Germanic, Romance). In the absence of classifiers or morphology on the noun, Num remains empty, and it projects just the Carlsonian realization operator REL, without a counter. This yields the existential reading of bare nouns that are underspecified for number. Haitian Creole is an example of a language that does just that. Déprez assumes that bare nominals with existential readings in regular argument position have to have a null Num projection, because they need to have a property denotation. Thus, in Déprez's analysis the seemingly bare nominals in the examples in (35a,b) are actually NumPs. Déprez claims that independent support in favor of the null NumP comes from predicative constructions. Predicative constructions in Haitian Creole are normally direct, i.e. they do not make use of a copula. As shown in (36), when the predicate is an adjective or a (locative) preposition, the presence of the element *se*, often analyzed as a copula, is blocked:

(36) a. Jan (*se) entelijan. [Haitian Creole]

John is intelligent.

b. Jan (*se) nan lakou a.
John is in the courtyard.

However, when the predicate is a full noun phrase with an overt determiner, the reverse is observed. The element *se* is required, and direct predication by simple juxtaposition is impossible:

(37) a. Jan *(se) frè m. [Haitian Creole]
Jan is my brother.

b. Jan *(se) yon pwofesè/pwofesè a.
Jan is a teacher/the teacher.

Given this distribution of the element *se*, the question arises what happens in predicative sentences with bare nominals. Déprez observes a split between sentences that require *se* (38a, b), and sentences that allow the optional dropping of *se* (38c,d):

(38) a. Chen se bet ki jape. [Haitian Creole]
Dog is an animal that barks.

b. *Jan tigason.
John is boy.

c. Jan (se) chapantje.
Jan (is a) carpenter.

d. Michel (se) mason.
Michel (is a) mason.

According to Déprez (2005), who cites Pompilus (1976), in Haitian Creole bare nominal predication is only possible without *se* with a restricted class of nominal predicates, as shown in (38c,d). With other types of nominals, direct predication is judged quite poor, as illustrated in (38b). For the nominals that allow the alternation illustrated in (38c,d), there is a difference in meaning between the two constructions. The version without *se* has a more adjectival and temporal interpretation, whereas the version with *se* has a more nominal and permanent interpretation. Déprez (2005) assumes that the predicative constructions involving bare nominals without *se* do not project a NumP but contain a bare NP that moves into a predicative functional projection. With overt determiners, the movement of the predicate to this predicative phrase is blocked because of the Num projection, and *se* needs to be inserted.

Obviously, the distinction between bare NPs and null NumPs is a technical one in Déprez's system, but it matches our views quite closely. The observation that we find the special properties of capacity nominals even in a language like Haitian Creole that allows bare nominals in the absence of an overt morphological number distinction is quite striking. We differ from Déprez in isolating the capacity interpretation as a sortally distinct ontological category from kinds, but our analysis agrees with hers in relating the NP projection to a type *e* denotation, and the NumP projection to a type *et* denotation. The relation between capacities, kinds and sets of individuals will be spelled out more formally in the next subsection.

3.4 Relations between capacities, kinds and sets of individuals

On the basis of the evidence provided so far, we conclude that reference to capacities should be distinguished from reference to kinds, even in languages that allow many other BNs beside capacity nominals. We assumed that capacities, like kinds, are entities of type *e*, but that they are sortally distinguished from kinds. However, since capacity nominals behave like other nominals when they appear as MNs, we need to specify the semantic relationships between the capacity reading of such nominals when they appear as BNs, and their kind/property/set reading when they appear as MNs of various forms – in/definite singulars and plurals. For the purpose of this paper, which does not focus on problems of intensionality, we will ignore the interpretation of nominals using properties, and concentrate on their interpretations as capacities (in special BN constructions), kinds (in generic environments) and sets of entities (in predicative environments).[15]

We assume that the operations shown in Figure 1 connect capacities, kinds and sets. In this diagram, capacity nouns have a basic denotation as capacities. From there, they can be either mapped to kinds, using an operator that we call *kind* coercion, or to sets of entities, using an operator that we call *CAP*. The CAP operator is similar to the *realization* operator REL of Carlson, mapping kinds to sets of entities. Since the kind denotation of capacity nominals is different than its capacity denotation, we normally have for any capacity *c*: CAP(*c*) ≠ REL(*kind*(*c*)). Hence the two set interpretations of capacity nominals. Nouns other than capacity nouns lexically start as kinds, and may be only mapped to sets of entities, via the REL operator, as in Carlson (1980).[16]

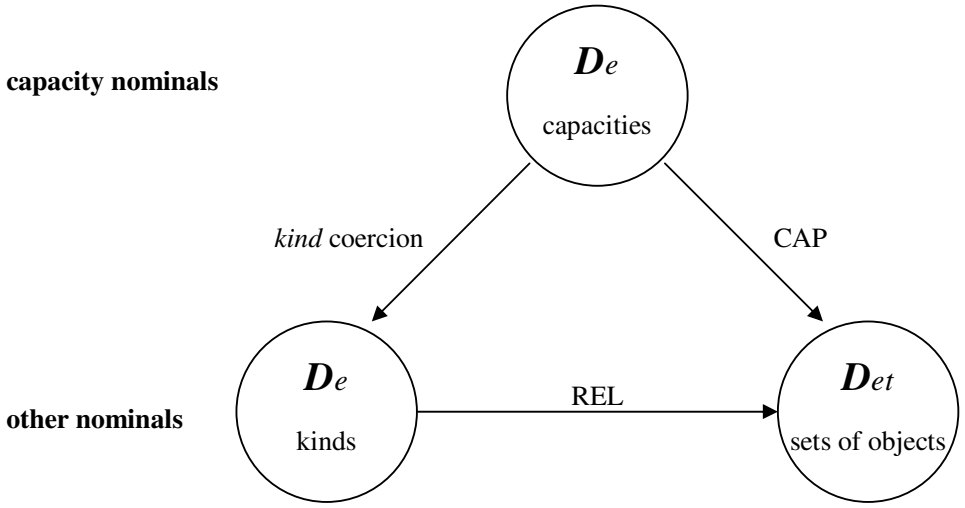

***Figure 1**: mappings with capacities and kinds*

[15] For a detailed discussion of the necessary mappings between kinds and properties see Chierchia (1998) and Krifka (2004).

[16] Chierchia (1998) and Krifka (2004) also use an operator that derives kinds from properties. Since here we ignore properties, we ignore this possibility as well. However, once properties are assumed, nominals other than capacity operators may have either kinds or properties as their basic denotation, since the two can be mapped to each other. We do not try to resolve this matter here and refer the reader to Chierchia (1998), Dayal (2004), Krifka (2004), and the references therein.

Summarizing, we adopt the following hypothesis concerning the interpretation of BNs.

> *Capacity nouns in Romance and Germanic languages denote capacities – entities of type e that are distinguished from kinds. Capacities can be mapped to kinds using kind coercion and to sets of ordinary entities using the CAP operator. Kinds, as in other theories, can be mapped to sets of entities using the realization operator REL.*

For now, the relations between the different interpretations of capacity nouns are still somewhat abstract. In the next section we explore how the operators are regulated by their syntax. In particular, we will put the operators CAP and REL to work in BN and MN predicative constructions respectively.

4 The syntax-semantics interface with capacity nominals

We adopt the following, fairly standard structure of a layered DP in the languages that we are investigating:

> **Assumption about layered DP**
> $[_{DP} \ldots D\ [_{NumP} \ldots Num\ [_{NP} \ldots N \ldots] \ldots] \ldots]$

The NP level is unspecified for number. It contains the complements of the noun, and is highly restricted in the possibilities it allows for adjectival modification. The NumP level encodes the number inflection of the noun phrase (Ritter 1991, Déprez 2005), and allows the full range of modification (adjectives, PPs, relative clauses). The Num projection is a way to factor out the number (singular/plural) information of the noun phrase as a separate syntactic element. It should be noted that we assume that the functional Num head is for morphological number, and not for numeral expressions. The DP level involves determination by articles, demonstratives and quantifiers, and has genitive possessives.

Furthermore, we make the following assumption about the syntactic structure of BNs and MNs (cf. Munn and Schmitt 2005 for a similar claim):

> **Assumption about NP/DP structure**
> *Bare nominals project NPs, marked nominals have at least a NumP projection.*

Under this assumption, bare nominals are syntactically nothing more than a projection of the N, without functional material added. This captures the idea that they are stripped of functional categories. In particular, they do not carry any features for number. Marked nominals, on the other hand, may or may not have a DP level, but they do have a NumP. This means that they specify the number of the noun phrase as being either singular or plural. In more concrete terms, we assume the following partial structures for the Dutch noun phrases *leraar* 'teacher', *een leraar* 'a teacher', and *leraren* 'teachers':

(39)	a.	BN	leraar	'teacher'	$[_{NP}$ leraar $]$
	b.	MN, singular	een leraar	'a teacher'	$[_{DP}$ een $[_{NumP} -$pl $[_{NP}$ leraar $]]]$
		MN, plural	leraren	'teachers'	$[_{NumP} +$pl $[_{NP}$ leraar $]]$

In this section all examples are from Dutch, unless otherwise noted. As we said in the introduction, in this paper we do not intend to explain the restricted distribution of NPs and

NumPs, as apposed to DPs, or the property that allows plural, but not singular, noun phrases to occur bare (i.e. without a DP layer).[17] That is best left for another occasion. But, given the structures in (39), our concern is here to show how these structures correspond to particular interepretations.

To do this, we adopt the following, fairly common assumptions on the syntax-semantics interface of predicative constructions. Consider a predicative construction '*x is P*', where *x* is an individual constant or a variable, and *P* is an NP, NumP or DP. The predicative construction requires the entity **x** denoted by *x* to be a member of the set **P** denoted by *P*: $\mathbf{x} \in \mathbf{P}$.

Assumption about predication
Predication of the form 'x is P', where P is an NP, NumP or DP, always involves a membership relation between the denotation of x and a set of entities obtained by mapping the denotation of the noun in P to a set of entities of type et.

According to the semantics of predication, the NP, NumP or DP should have a denotation in the domain of expressions of type *et*. Under our assumptions so far, the nominal expressions that occur in predicative environments do not have such a denotation as their basic interpretation, but they can get one by type-shifting (under CAP or REL). A bare NP like *leraar* 'teacher' denotes a capacity (type *e*). In the predicative construction *Jan is leraar* ('Jan is teacher'), the BN is shifted to a set of objects by means of the function CAP that maps a capacity to the set of individuals that have this capacity. MNs involve at least a NumP, and sometimes a DP. We take Num to involve Carlson's realization operator REL (see also Zamparelli 1996, Déprez 2005). In the predicative construction *Jan is een leraar* ('Jan is a teacher'), the NumP coerces the capacity denotation of the NP into a kind denotation, without which the realization operator originating from the Num cannot apply to the NP denotation. Once the realization operator has applied, we obtain the set of individuals realizing the kind as usual. The two compositional processes with BNs and MNs are shown in the following diagrams:

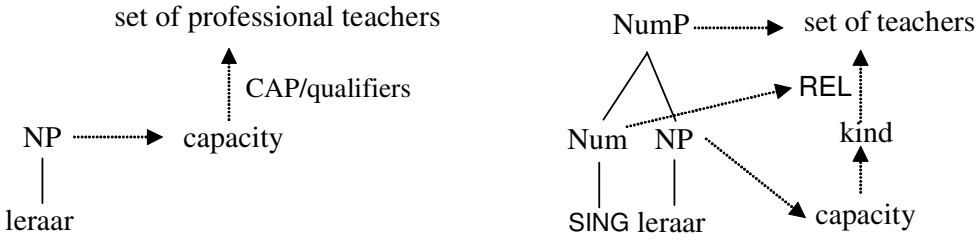

***Figure 2**: Compositional interpretation with capacities and kinds*

With the BN, the predication is $\mathbf{j} \in$ CAP(**teacher'**), which means that John is in the set of individuals who are teachers by profession. The predication with MNs is

[17] As shown by the contrast between singular and plural NumPs, even in predicative position:

(i) *Jan is jongen
Jan is [$_{\text{NumP}}$ sg [$_{\text{NP}}$ jongen]]
Jan is boy
(ii) Jan en Karel zijn jongens
Jan en Karel zijn [$_{\text{NumP}}$ pl [$_{\text{NP}}$ jongen]]
Jan and Karel are boys

j ∈ REL(*kind*(**teacher'**)), where *kind* is the operator coercing the capacity into a kind. Hence, the predication now means that John is a member of the set that realizes the kind teacher. As a result, all DPs that involve a NumP, bare plurals (*children)*, as well as indefinite singulars (*a child*) or definite singulars (*the child*) trigger application of the REL operator.[18] Remember that there is only a restricted class of human nouns that refer to capacities. The nouns outside this class refer directly to kinds. Given that they do not have a capacity interpretation, the CAP operator cannot apply to them: they are of the right type, but not of the right sort. As a result, such nouns always need a Num to become a predicative noun phrase, as illustrated in (6) and (16) above, for example. The compositional interpretation spelled out in figure 2 is illustrated for Dutch, but it accounts similarly for the overall semantic contrast between bare and marked predicates that we saw across a range of Germanic and Romance languages (cf. section 1 above for examples).

The mapping from capacities to sets of individuals that have the capacity is usually covert, but Dutch has qualifier expressions that make the type-shifting overt, as in the examples in (40) (adapted from Haeseryn et al. 1997).

(40) a. Peter is advocaat *van beroep*. [Dutch]
Peter is lawyer of profession
Peter is a lawyer by profession.
b. Peter is Belg *van nationaliteit*.
Peter is Belgian of nationality
Peter is of Belgian nationality.
c. Peter is christen *van religie*.
Peter is Christian of religion
Peter is of the Christian faith.

Similar qualifiers can be found (at least) in German, French and Spanish:

(41) a. Er ist Schafhirt *von Beruf*. [German]
he is herdsman of profession
b. Il est infirmier *de son métier*. [French]
he is nurse of his profession
c. Es periodista *de profesión*. [Spanish]
is journalist of profession

We treat such qualifiers as functors QUAL of the same type and sort as the CAP operator: they map a capacity to a set of objects that have that capacity. So, they are of type *e(et)*. For the sentences in (40) and (41), we propose the following semantics:

(42) *x* is A_c *by profession* ·····> $x \in$ by_profession(A_c)
x is A_c *by nationality* ·····> $x \in$ by_nationality(A_c)
x is A_c *by religion* ·····> $x \in$ by_religion(A_c)

Qualifiers like *van beroep, van nationaliteit, van religie* map a capacity P_c to the set of entities realizing A_c as a particular role in society, often associated with its typical activities.

[18] It may not be obvious what set of entities is derived by the REL operator for singular definites. However, in a definite like *the child* the uniqueness condition that is imposed by the definite article holds with respect to the set of children that realize the kind for the noun *child.*

Capacity qualifiers QUAL are more restrictive than CAP, because only entities that realize the capacity P_c in the way that is expressed by the qualifier are in the set QUAL(P_c). Furthermore, capacity qualifiers are partial functions, as witnessed by illicit examples like #*advocaat van nationaliteit* ('lawyer by nationality') and #*Belg van religie* ('Belgian by religion'). In some cases, two different qualifiers have overlapping domains. For instance, the nominals *jood van religie* and *jood van geboorte* ('Jew by religion', 'Jew by birth') are both acceptable as predicative BNs. The covert CAP operator that we have adopted so far in the mapping from capacities to kinds may be viewed as mapping the capacity P_c to the union set of entities $\bigcup_{QUAL} QUAL(P_c)$, where QUAL ranges over possible capacity qualifiers. As a result, *Jan is Jood* ('Jan is Jew') can mean that Jan is a Jew by religion or by birth.

Haeseryn et al. (1997) and Broekhuis, Keizer and den Dikken (2003) observe that MNs do not license capacity qualifiers. The examples are based on Haeseryn et al. (1997):[19]

(43) a. *Peter is een advocaat *van beroep*/een Belg *van nationaliteit*/een christen *van religie*.
Peter is a lawyer by profession/a Belgian by nationality/a Christian by faith.
b. *Peter en Sofie zijn advocaten *van beroep*/Belgen *van nationaliteit*/christenen *van religie*.
Peter and Sofie are lawyers by profession/Belgians by nationality/ Christians by faith.

The contrast between BNs and MNs follows from the analysis set up so far. Qualifiers are compatible with MNs, because they map capacities onto sets of individuals, just like the covert operator CAP (cf. figure 2). MNs involve at least a NumP, and Num expresses Carlson's realization operator REL. This makes Num an *e(et)* mapping itself, but taking *kinds,* not *capacities*, as arguments. Under this assumption, Num is incompatible with both CAP and the capacity qualifiers. The semantics of Num thus explains not only why capacity readings are unavailable for MNs, but also why qualifiers are blocked with MNs as in (43), and are restricted to BNs as in (41).

The compositional interpretation in figure 2 also accounts for the number neutrality of BNs. According to the layered structure of the DP in (39), morphological number resides in the NumP. NPs are not specified for morphological number, and they do not project a NumP. We assume that semantic number information is connected to the Num projection (cf. Farkas and de Swart 2003, Déprez 2005 and others). Accordingly, BNs that lack a Num projection are semantically number neutral, whereas MNs have a Num projection and must agree in number with their subjects. This explains the grammaticality judgments in (44) and (45):

(44) a. Jan is leraar. [Dutch]
Jan is teacher
Jan is a teacher.
b. Jan is een leraar.
Jan is a teacher.
Jan is a teacher.
c. *Jan is leraren.

[19] In (43b), plural nouns with *van beroep* 'of profession' seem more acceptable than with other capacity qualifiers, suggesting that not all these qualifiers behave in exactly the same way and also that there might be differences in the markedness of singular nouns and plural nouns that escape our proposal. Compare also footnote 7.

Jan is teachers

(45) a. Jan en Sofie zijn leraar.
Jan and Sofie are teacher
Jan and Sofie are teachers.
b. *Jan en Sofie zijn een leraar.
Jan and Sofie are a teacher
c. Jan en Sofie zijn leraren.
Jan and Sofie are teachers
Jan and Sofie are teachers.

The BN is acceptable with both singular and plural subjects, as seen in (44a) and (45a). In contrast, the marked nominals *een leraar* in (44b) and (45b) and *leraren* in (44c) and (45c) have to agree in number with the subject. We account for this by treating the BNs in (44a) and (45a) as NPs, lacking the NumP (cf. also Déprez's analysis in section 3.3 above). The semantics of sentences like (45a) involves a distributivity operator *D*, which is assumed by many semantic theories of plurals. According to Link (1983), this operator maps a set of entities *X* to the set of i-sums of members in the non-empty subsets of *X*. The i-sum of a set $Y \subseteq X$ is denoted $\oplus Y$. With the distributivity operator *D*, the interpretation of (45a) can be spelled out as follows:

(46) Jan en Sofie zijn leraar.
Jan and Sofie are teacher
Jan and Sofie are teachers.
$\mathbf{j' \oplus m'} \in D(\mathsf{CAP}(\mathbf{leraar'})) \Leftrightarrow \mathbf{j' \oplus m'} \in \{ \oplus A : \phi \neq A \subseteq \mathsf{CAP}(\mathbf{leraar'}) \}$

According to this semantic equation, Jan and Sofie *both* qualify as professional teachers.

The distinction between capacities and kinds also plays a role in the contrast that was pointed out in Broekhuis, Keizer and den Dikken (2003) for the prepositional copula *als* (11c repeated here as 47a,b):

(47) a. Jan spreekt als dominee.
Jan speaks as vicar
Jan speaks in his capacity as vicar.
b. Jan spreekt als een dominee.
Jan speaks as a vicar
Jan speaks like a vicar.

In (47a), the word *als* 'as' directly applies to a capacity. It is then natural to interpret *als* as a function from capacities to verb modifiers. When *als* is combined with a marked nominal as in (47b), it does not have a capacity as its argument, but an individual based interpretation derived from the kind. This leads to a different interpretation than in (47a).

In the other constructions that we saw in section 2, BNs also figure as capacity-referring, cf. (14b) repeated here as (48):

(48) a. Het beroep van kunstzinnig therapeut is nog in volle ontwikkeling
The profession of artistic therapist is still in full development
The profession of art therapist is still rapidly developing.

b. Hij is benoemd tot buitengewoon hoogleraar.
He is appointed to extraordinary professor
He has been appointed to the position of endowed professor.

Even though they are complex, both *kunstzinnig therapeut* and *buitengewoon hoogleraar* refer to capacities and are not coerced to kinds (cf. McNally and Boleda Torrent 2004). The expression *het beroep van* 'the profession of' in (48a) and the preposition *tot* 'to' in (48b), or maybe the whole expression *benoemen tot* 'appoint', select directly for capacities. There is no need for the capacity to be shifted to a kind-denotation.

5 Possible extensions of the analysis

As we mentioned in sections 1 and 2, English uses BN constructions more sparingly than other Germanic and Romance languages. We find direct reference to capacities as in (5a), (11a), and (14b), repeated here as (49a,b,c):

(49) a. Frank was appointed chairman.
b. In her role as linguist, Sue avidly defends the use of dialects.
c. Bush for president!
d. Peter is a lawyer by profession.

We also find capacity qualifiers in English, as illustrated in (49d). However, the fact that they occur with a marked nominal indicates that they do not have the same properties as their Dutch counterparts. English lacks the general use of capacity nouns in bare predicative constructions, as illustrated in (32d), repeated here as (50a):

(50) a. John is *(a) doctor.
b. George is president of the U.S.A.
c. Sue is chair of the committee.

As the contrast between (50a) and (50b,c) indicate, predicative BN constructions are not impossible in English, but they are subject to further restrictions beyond the restrictions that apply in Romance and Germanic languages. In particular, the capacity needs to have a uniqueness condition attached to it: there are many doctors, but only one president of the U.S.A. at any particular time.

It is interesting to observe that the semantic contrast between BNs and MNs we found in predicative constructions in Germanic and Romance can be mirrored in English in the adjectival versus the nominal predicative constructions in (51):

(51) a. David is Jewish.
b. David is a Jew.
c. John is American.
d. John is an American.

(51a) is quite neutral, and predicates Jewishness of David as a feature of his nationality, religion or birth. In addition to this neutral interpretation, (51b) allows a reading that calls up (positive or negative) stereotypes that can be associated with Jews.[20] Similar differences in

[20] We are grateful to Donka Farkas (p.c.) for this example and the observed contrast in meaning.

meaning are found between (51c) and (d). This observation supports the view advanced by Déprez (2005) that bare nominals may in certain ways be closer to adjectives than to full nominals. This idea receives further support from the observation that capacity qualifiers are compatible with adjectives, at least in certain dialects of Dutch:[21]

(52) Hij is Belgisch van nationaliteit/christelijk van religie/joods van geboorte.
He is Belgian (Adj) by nationality/Christian (Adj) by religion/Jewish (Adj) by birth.

A tentative explanation we would like to propose for the similarity between bare nominals and adjectives is that adjectives do not present the layered structure of DPs. In particular, Dutch and English adjectives do not involve a 'number' layer, the level at which the standard realization operator REL applies. This opens up the possibility of using the overt/covert capacity operators CAP and QUAL in the semantics of predicative constructions involving adjectives.

Two reviewers point out that capacities do not exhaust the range of interpretations available for bare constructions in Romance and Germanic languages and that they can have other, 'institutional' readings that do not involve human reference. On the one hand, we find Dutch examples like (53a) and (53b) (from Haeseryn et al. 1997). On the other hand, English, Dutch, French, and other languages allow bare nouns to follow certain prepositions, as in (54):

(53) a. Deze kamer is opslagplaats. [Dutch]
this room is storage room
This room is a storage room.

b. Deze kamer is in gebruik als opslagplaats.
this room is in use as storage room
This room is in use as a storage room.

c. Ik gebruik deze plastic tas als regenjas.
I use this plastic bag as raincoat
I am using this plastic bag as a raincoat.

(54) a. Jane is in hospital. [English]

b. Luuk is op school. [Dutch]
Luuk is at school.

c. Il est en prison. [French]
He is in prison.

We acknowledge that there are interesting parallels between the bare location examples on the one hand, and the bare predication and supplementive constructions on the other hand. However, we have to leave these issues for further research (cf. De Swart and Zwarts 2006).

[21] The examples are from Guido van den Wyngaerd (p.c.), and are based on his intuitions about Flemish, a variety of Dutch spoken in Belgium. The Dutch authors of this paper think that in more northern dialects of Dutch (spoken in the Netherlands, rather than in Belgium), the construction is less frequent, but a reviewer claims, based on a Google search, that the adjectival construction is about as common or uncommon as the nominal one. At least, it is clear that it is real.

6 Conclusions

The main claim of this paper is that cross-linguistically, the semantic notion of capacity plays a central role in the interpretation of bare nominals, in close relation to syntactic layers within the DP. Capacity readings of nominals reflect a primitive phase in the interpretation of the DP, strongly connected to the lexicon. Type/sort coercions from capacities to kinds and to sets of entities were used in order to explain the "normal" morphologically marked behavior of capacity nominals, in addition to their special readings as bare nominals. Our discussion has concentrated on bare predicate nominals in certain Germanic and Romance languages. However, we have seen that our analysis has clear implications for other bare constructions in these languages, and it is also relevant for languages that exhibit much freer distribution of bare nominals, including Modern Hebrew, Brazilian Portuguese and Haitian Creole. Almost inevitably, we have had to leave many problems unresolved that are linked to bare nominals and their capacity interpretation. However, we believe that the basic line of thought we have proposed may provide important pointers for further studies of bare nominals and their special status in syntax and semantics.

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