

# The Roots of Nominality, the Nominality of Roots

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## Abstract

This paper is a study in lexical categories; specifically, in nominality. Nouns are argued to refer primarily to kind-level sorts, which define categories of entities in the speakers' conceptualization. This notion is characterized in semantic, ontological, and cognitive terms. Sorts, or nominal concepts, represent what is specifically nominal in lexical semantics. Not all nominalized properties are concepts; in particular, not transparent deverbal nominalizations. Concepts thus provide a substantive notion of nominality not coextensive with the morphosyntactic one. I present some evidence for the linguistic reality of this notion. In word formation and in phrases like *plastic flower*, the semantic value of a noun is its concept and not what it may be true of. The two often differ, as concepts are typically based on function and conventional expectations more than on objective properties. Concepts also seem to be needed in expressing semantic restrictions on affixation (*ornamental*, but *\*employmental*). Finally, concepts are the value of nouns, not of any of their pieces; in particular, not of roots. This emerges clearly from the examination of different nouns (and verbs) sharing one root, and accords with the view that lexical categories have content, and roots are category-free.

**Keywords:** Lexical categories; lexical semantics; morphology; nouns; roots.

## Introduction<sup>1</sup>

This paper investigates the substantive properties that make a noun a noun. The search for defining properties of a lexical category should be understood in the context of much work on the lexical decomposition of verbs (Hale and Keyser 1993, 2002, 2005, Harley 1995, 2005, Borer 2005a, 2005b, Ramchand 2008, to cite the most directly relevant literature). Verbs, in this approach, are words spelling out formal structures expressing eventualities as ways to relate participants. In this constructional approach to lexical knowledge, event structure and argument structure are the stuff verbs are made of. What is the stuff nouns are made of?

The answer I suggest is that nouns primarily express *sorts*, understood as kind-level concepts defining the categories of entities in a speaker's conceptualization of the world (sections 1-2). Viewing primary nouns as encapsulations of concepts restricts the range of possible lexical meanings, since it excludes otherwise well-formed predicates like *non-blue*, *round square* or *number of planets*. This seems a genuine contribution to an explanatory theory of what is a possible lexical item in natural language.

A substantive definition of nominality based on concepts is not coextensive with one based on morphosyntax (section 3). For example, a transparent nominalization like *collection* in *the*

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*frequent collection of mushrooms by students* is morphosyntactically a noun, but its lexical semantics is entirely determined by the event- and argument-structure of the verb *to collect*. In this reading, then, *collection* has nominal morphosyntax but it is not a noun as a primary lexical item encapsulating a concept.

What makes the notion of nominal concepts linguistically relevant is its value as explanatory tool. This is the subject of the central part of the paper (sections 4-6). First, some lexicalized uses of plurality call for a distinction between instance- and kind level reading as part of the lexical descriptive content of nouns (section 4). Secondly, and more significantly, the semantic contribution of nouns in word formation and in some patterns of modification derives from their conceptual content rather than their extensional reference (section 5), the concept often encapsulating a canonical function or role. Thirdly, concepts arguably play a role in conditioning derivational affixation (section 6). This seems to happen with denominal adjectives of the form *X-ment-al*, which are well formed when the nominalization *X-ment* expresses a nominal concept (*ornament-al*, *government-al*) but not when it is totally transparent (*\*employment-al*, *\*agreement-al*).

Finally, every constructional approach to lexical items faces the question of what part of the word expresses what part of its meaning. The evidence I will review suggests that the conceptual content of nouns does not correspond to any morphologically defined subpart of the word, but emerges as the core meaning of the word as a whole. In particular, concepts are not necessarily encapsulated in lexical roots or in numberless noun stems, but may be expressed by syntactically complex structures—say, root plus gender or class marking, or occasionally number (section 7). Generalizing from nouns to lexical categories, I tentatively conclude (section 8) that lexical roots identify the lexical content of a word, but do not express it by themselves. 'Lexical' meaning is a property of a word as an abstract construct, neither of its root nor of any other of its constituent parts. As a major lexical category, nouns conceptualize such abstract word meaning as nominal concepts. In sum, then, nouns as primary lexical items arise when syntax provides an appropriate structure for the expression of a nominal concept through a morphologically well-formed word.

## 1. Verbal and nominal reference: a fundamental difference

To say that nouns refer to things and verbs to actions is evidently a gross oversimplification, if only because verbs typically refer to events, and events are 'things' too (unless 'things' are defined, circularly, as something different from events). Yet there seems to be something to this traditional distinction. Mereology helps bring out this elusive intuition by use of the classic distinction between *occurents*, or entities with temporal parts, and *continuants*, or entities which may undergo change in time but are all there at any given time (cf. Simons 1987:129-137). Verbs refer to events and states, which have temporal parts: an event or state is not all there until all of it has occurred in time. In this sense, because verbal meaning is based on event structure (cf. especially Ramchand 2008), it has a temporal dimension built in. Nominal meaning, by contrast, does not have a temporal dimension built in. Most nouns refer to continuants, or entities that do not have temporal parts but are all there at any given time. This characterization encompasses concrete objects or masses, which are extended in space, as well as abstract entities, which are not (for instance *number*).

The distinction between occurents and continuants is ontological, not linguistic, since the two classes do not directly correlate with verbs and nouns. Obviously, there are nouns that refer to occurents, like *event* or *occurent*. However, nouns allow speakers to describe events unfolding in time as if they were complete entities that acquire and lose properties over time.

We know that *argument* or *wedding* describe events, but we can speak of them as if they could undergo changes in time, as in (1):

- (1) a the argument was calm at first, then it became heated (Simons 1987:134)  
b the wedding moved from the church to the bride's parents' house

Speakers know that only a part of the event had a property and another part had the other property, but this is disregarded in a structure which predicates two contradictory properties of the same subject. The nature of the nouns' referents as occurrents is only disregarded, not changed; this becomes obvious when we explicitly state that the whole subject is there at a given time:

- (2) a the iron became heated (all of it)  $\neq$  the argument became heated (all of it)  
b the wedding moved from A to B  $\neq$  they married first in A then in B

In (2a), *all of it* may not refer to all of the event's temporal parts (it may refer, irrelevantly, to other parts, like the totality of the people involved). In (2b), the right-hand side is not a good paraphrase of the left-hand side because *marry* is a telic verb and so the sentence entails that the event is completed, first in A, then in B. To explicitly describe the referents of *argument* and *wedding* as lacking temporal parts, thus, conflicts with their lexical semantics. Yet the sentences in (1) are natural even though they sideline temporal constitution. Reference to temporal constitution is thus inessential for nouns referring to occurrents. This, then, is a clear difference: verbal reference has a temporal dimension built in (in terms of actionality, not tense; this applies to permanent states as well as to bounded events); nominal reference does not, and can do without such a dimension even when referring to occurrents.

Like all negative conclusions, this is wide-ranging but also weak. It means that we cannot just apply to nouns the semantic decomposition that works for verbs. It does not mean that event structure never plays any role in the lexical semantics of nouns, but that it is not its fundamental ingredient. There seems to be something else at the basis of nominal reference, not reducible to states and event structure.

## 2. Defining nominal concepts

I will explore an approach to the nominal mode of reference based on what I will call 'nominal concepts'. My understanding of this (rather unoriginal) notion derives from the convergence of three lines of inquiry: on kinds in semantics (Carlson 1977, Krifka 1995, Chierchia 1998, Zamparelli 2000, Dayal 2004, Müller-Reichau 2006), on substantival vs. adjectival properties in metaphysics (Geach 1962, Gupta 1980, Lowe 1998, 2005), and on concepts in psychology and lexical semantics (Lakoff 1987, Wierzbicka 1988, Jackendoff 1990, Bloom 1997, Gelman 2004).

Viewed as kinds, nominal concepts are kind-level entities instantiated by object-level entities. I will consider kinds as atoms, without subparts even for mass terms like *water* (divisibility and cumulativeness being properties of instances, not of kinds), and often related to each other in a taxonomy. *Sperm whale* is a subkind of the kind *whale*, but not a part of it; in this sense I speak of a taxonomy and not of a mereology. Importantly, the notion of kind used here is primitive, not derivative. A kind is an entity that can have particulars as instances, and particulars are entities that cannot have instances. The instantiation relation connects the two, but it does not derive kinds from individuals through some process of abstraction (cf. Krifka

1995 and especially Müller-Reichau 2006; this contrasts with the formalization of Chierchia 1998).

Viewed as substantival properties, nominal concepts are categories of entities in speakers' ontology. Such categories of being may also be called 'sorts', although in what follows I will not use this term because the derived adjective *sortal* has come to be restricted to count nouns alone.<sup>2</sup> In the neo-Aristotelian ontology argued for by Lowe (2005), they correspond to 'substantial universals', which are kind-level entities instantiated by 'substantial particulars'. For example, the kind *person* is a universal and so has instances, namely persons, which are instead particulars and do not have instances. Being a person is different from being tall, for example, because only the former property identifies a type of entity. The property of being tall, by contrast, characterizes the entities it is true of but does not define a category of being, that is something that may replace *A* in the relative identity statement *x is the same A as y*. In this sense, properties like *person* are known since Geach (1962) as 'substantival', as opposed to 'adjectival' properties like *tall*.

Taking on board the metaphysical notion of substantival property leads to a crucial qualification the notion of kind current in formal semantics since Carlson (1977). In Chierchia's (1998) influential formalization, every property *P* can define a kind  $\cap P$  based on the extension of *P* at every world. Not every kind in this sense can be a nominal concept, however, because a nominal concept must be coherent and contentful enough to identify a category of being independently from the particulars that instantiate it. *Round square*, *non-blue*, or *number of planets* are all legitimate properties, but none of them may plausibly identify a nominal concept: the first is necessarily contradictory, the second too vague, and the third necessarily contingent. My falsifiable claim is that, because of this, natural languages do not lexicalize such properties as underived nouns.

A concept that defines what it means to be an entity of a certain kind corresponds to a condition of identity for the corresponding kind (not quite a criterion, which is necessary and sufficient). This is the position defended by Baker (2003), which I follow with the important qualification that a condition of identity does not necessarily provide a criterion for counting, as Baker asserts instead on the basis of a tradition going back to Frege (1884). It is true that counting provides the most striking illustration of the way different nouns may provide different identity conditions for the same particulars, namely the paralogism discussed by Gupta (1980:23):

(3) Gupta's (1980) paralogism:

National Airlines served at least two million passengers in 1975.  
Every passenger is a person.

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National Airlines served at least two million persons in 1975.

This does not follow because, although every passenger is a person, *passenger* and *person* define differently what is one and the same. However, as cogently argued by Pelletier (1979), knowing what it means to be an instance of a certain kind does not necessarily mean being able to count items of that kind. If one claims that nominality encapsulates a criterion for counting, as Baker (2003) does, mass nouns represent an obvious problem, but also abstractions like *fun* or *love*, and even grammatically count nouns like *thing* or *segment*. For this reason, I will consider denumerability and grammatical countability as secondary (see Acquaviva 2008a:15-21 for discussion). What is essential is that a nominal concept

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<sup>2</sup> Gupta (1980) is an important exception.

corresponds to a way of being the same; for example, identity of material parts through time would seem to be essential for the concept *apple* but not for the concept *river*, and is irrelevant for the concept *triangle*.<sup>3</sup>

Viewed as cognitive categories, nominal concepts are unifying principles driving linguistic categorization, and hence shaping speakers' conceptualization of reality. This view accords with the hypothesis known as psychological essentialism (Gelman 2004), which holds that concepts are basic, not abstracted from observed properties; so much so that we may view two categories as distinct without being able to spell out what makes them distinct.<sup>5</sup> Concepts, then, are not labels that reflect the generalizations we experience, but are treated in cognition as reified essences. Significantly, the empirical arguments for psychological essentialism parallel some important results in the philosophical theorizing on parts and wholes in ontology. As Bloom (1997) argued on the basis of experimental evidence, function and ascribed intentions are more relevant than perceptual properties for the formation of category concepts in children. Correspondingly, work in ontology has made clear that it is the organization of the parts and their function that defines what it means to be a 'whole' instance of a certain concept; a concept *N* defines a function and mode of composition for the parts making up an *N*. It is this that defines what it means to be an *N* and the same *N*, much more than the extensional identity of the parts. Classic examples are a person's body, which does not reduce to the extensional sum of its material parts; and collectives like the Robinson family and the Robinson basketball team, which may have the same members but differ in their essential properties. In fact, extensional mereology simply cannot account for our intuitions about identity (Simons 1987:111-127; Meirav 2003).<sup>6</sup> Something else is called for, namely unifying principles based on the same notions that underlie concept formation, chiefly function and mode of composition of the parts. If so, the non-extensional properties grouped together by Pustejovsky (1995) under the label of *qualia* structure, which include *telos* (canonical function) as well as mutual organization of the parts, lie at the core of the semantic content of nouns; in fact, they are the stuff nominal lexical semantics is made of.

### 3. Substantive vs. morphosyntactic nominality

The preceding section has spelled out the notion of nominal concept; this section and the following ones will argue that this notion is useful. The first reason, in essence, is that nominal concepts allow us to capture the intuition that some nouns are more nouns than others.

<sup>3</sup> Nominal concepts may be formalized as *separated* intensional properties (Gupta 1980:29, 33, 35): what is one *N* at a world *w* cannot be two distinct *N*s at *w*<sub>1</sub>. In this way, trans-world identity is inherent in the intension of a concept.

<sup>5</sup> Thanks to Feargal Murphy for alerting me to Bloom (1997) and Gelman (2004).

<sup>6</sup> That distinct individuals may be materially equivalent is well known in formal semantics. For example, Link (1983) defined a material part (m-part) relation which '... establishes a partial order on portions of matter, but only a preorder, called  $\geq_m$ , on the whole domain of individuals. Objects which are m-parts of one another are *materially equivalent* in that they have the same portion of matter constituting them.' (Link 1998 [1983]:17). Being a pre-order,  $\geq_m$  is not antisymmetric, so there are distinct individuals *x* and *y* such that  $x \geq_m y$  and  $y \geq_m x$ . That is, distinct objects may be constituted by the same portion of matter. There is no need to resort to concepts for that, as long as identity and difference between individuals are defined in some other way. For semantic purposes, the use of logical constants (*a*, *b*, *c* ...) to represent members of the domain obviously suffices. However, if one is interested in the ontological question of what makes *a* different from *b*, such a formal restatement is not enough. One needs to know on what bases an individual is one and the same. The tradition I am following (Geach 1962, Gupta 1980, Baker 2003) holds that such identity conditions require reference to a sort, and that natural language encodes sorts by means of common nouns. In Acquaviva (2007) I explore informally the view that proper names are nouns used as identity criteria by themselves.

Consider a noun like *collection*, as in *the frequent collection of mushrooms by students*. Grimshaw (1990) called such transparent deverbal nominalizations 'Complex Event Nominals'. Their distinctive property, as Borer (2003) showed, is not so much that they refer to an event, as that they retain the argument structure of their source verb. Of course, *collection* is a noun: it is modified by a determiner and by an adjective, it has nominal morphology (this can be best seen in languages other than English), and its primary role is to head an argument rather than a predicate. Yet, *collection* adds nothing to the semantics of *to collect*, being a transparent deverbal nominalization. What makes it a noun are its distribution and its word-peripheral morphology, certainly not its lexical semantics. In different ways, Alexiadou (2001) and Borer (2003) have rigorously traced back the properties of such nominalizations to the properties of a complex syntactic structure, specifically one that underlies verbs. For Borer (2003), in particular, eventive reading and argument structure are not lexically projected from the noun, but from syntactic heads that embed a category-free root; the nominal head merely caps this structure, as in (4) (Borer's (39)):

- (4) a Kim's breaking / destruction of the vase  
 b [NP -tion [EP Kim [AspQ the vase [L-D break/destroy ]]]]

(L-D = lexical domain; EP = event; AspQ = Aspect / quantity)

There is no need to invoke some mysterious concept underlying the meaning of *destruction* in (4); its lexical semantics is that of the verb, or more precisely of a relevant substructure (this is where analyses diverge) expressing its event- and argument structure. But this rather obvious observation would be void without adding that simplex nouns like *book*, by contrast, do have a lexical semantics that is not built up from the pieces of a verb, or of another lexical category. This is the sense in which *book* is more of a noun than *destruction*. As an underived noun, *book* expresses the concept of a particular cultural artifact, defined by relation to a canonical activity (reading) as much as by its appearance and material constitution. If we based a noun's lexical semantics on its extension alone, there would be no difference between *book* and *destruction*, which are both true of sets of things, and may be true of different sets in different worlds. By recourse to the notion of nominal concept, by contrast, we can say that *destruction* differs from *book* because it does not encapsulate a basic concept, but takes over its lexical semantics from a verb.

Encapsulating a concept, then, cannot be a  *criterial*  property for nouns, since it doesn't apply to all nouns; or better, it distinguishes words that are nouns for morphosyntax only from words that are nouns in a more substantive sense. Concepts represent what is specific to nouns in lexical semantics, and that should be distinguished from the semantic contribution of nominalization. The latter is better represented by Chierchia's (1998) down operator, or some other device for interpreting properties as entities (cf. Chierchia and Turner 1988, Fox 2000).

There is some direct evidence for distinguishing in this way nominality as a shallow morphosyntactic property from nominality as a core conceptual property of a lexical item. In Irish, the phrase for 'how sweet he was' expresses the gradable property not through the adjective *binn* 'sweet', but through the nominalization *binneacht* 'sweetness':

- (5) a bhinneacht a bhí sé (Irish; Doyle 1992:53)  
 its sweetness PRT was he  
 'how sweet he was'

The word *binneacht* (here with initial spirantization triggered by the possessive *a*) consists of the stem *binn*, self-standing as the adjective 'sweet', and the nominalizing suffix *-acht* (spelled

-*eacht* to mark palatality on the nasal). No other analysis is possible for *binneacht*; the suffix makes it unambiguously a noun, unlike other adjectives that occur in a form identical to that of the comparative, like *óige* 'youth' – 'younger' in *a óige a bhí sé* 'how young he was' (Doyle 1992:49; this latter pattern is the only one available in Scottish Gaelic, as discussed by Adger 2006). Although a direct translation sounds puzzling, the relation between degree adjective and nominalization is actually expected from a semantic point of view, as Adger (2006) shows with reference to Schwarzschild and Wilkinson (2002). Both the comparative adjective and the abstract noun denote intervals of the scale associated with a gradable property P: 'the extent to which P holds of x'; so, 'he is sweeter' has a semantic structure like 'his degree of sweetness is greater'. This, however, is not enough to license abstract nominals in place of comparative adjectives in English or Scottish Gaelic. What is more, even in Irish itself nominalizations are not otherwise used as expressions of degree apart from the cleft structure in (5), as the ungrammatical paraphrase in (6) shows:

- (6) \* bhí sé binneacht mar sin  
       was he sweetness like that  
       'he was so sweet'

The nominality of *binneacht*, in sum, conflicts with its semantic and indeed syntactic properties. It is possible, then, for a word to exhibit morphological nominality that does not correlate with its other properties. Forcing some substantive conceptual character on such a word (say, the provision of a criterion of identity, or of counting) merely because of its nominal morphology would clearly be misguided. But then, being nominal as a matter of morphology and being a noun as a matter of semantic content are two distinct properties. The hypothesis of nominal concepts gives substance to the latter one.

#### 4. Concepts vs. instances in noun lexical semantics

The distinction between kind-level and object-level interpretation is well established. In the approach explored here, this distinction plays an important role in a noun's lexical semantics. If a noun refers primarily to a kind-level concept, which does not arise through abstraction from its instances, the kind reading and the instance reading are not two ways of interpreting the same descriptive content, but two distinct components of this content (the kind being primary). The following sections will present empirical support for this view. Sections 5-6 will focus on aspects of noun lexical semantics that are exclusive to concepts and cannot be derived from a noun's extension. Here I will briefly discuss two aspects that single out the instance reading instead.

In a kind-level predication like *water has a simple chemical structure*, the indefinite *water* is generally taken to refer to a kind. The same term refers instead to a concrete amount of substance in a sentence like *water spilled on the floor*. Ware (1979) observed that the definite *the water* must refer to contextually given quantities, not to the abstract kind.<sup>7</sup> This concrete reading takes on a peculiar, lexicalized nuance when the noun is pluralized, as in *the waters*. Notice that, contrary to widespread assumptions, mass nouns even in English often admit pluralization with a mass reading (so, not in the coerced 'type' or 'portion' count reading like *two mineral waters*). It seems that these mass plurals generally require a definite determiner: *the / \*some waters of this river*. Because plurality requires definiteness, and definiteness

<sup>7</sup> English substance mass nouns are not all alike in this respect: the definite *the fire* is deviant in *\*playing with the fire is dangerous*, but *the air* is acceptable in *the air contains several chemical elements*

implies instance reading (but not viceversa), plurality implies instance reading. But because the noun is still mass, what is plural cannot be fixed-size units of water. Rather, *the waters* is true of something like the (maximal sum of) spatially extended divisions making up a given quantity of water; what is plural are the portions of space occupied by water.<sup>8</sup> This implies a concrete reading, but expresses more than that, since dispersion in space brings about an implication of large quantity; contrast *the waters of the river* vs. *\*the waters of the puddle* (for discussion see Tsoulas 2006 and Acquaviva 2008a, chapter 4). Plurality thus affects the descriptive content of the noun in this case, but only in its instance reading (because it is based on spatial extension). We must, then, distinguish kind and instance reading in the descriptive content of a noun.

The case of *the waters* suggests, I claim, that the kind and instance reading are distinct components in a noun's lexical semantics; plurality only affects the latter. A related phenomenon suggests, more strongly, that they are distinct components because one exists but the other does not. I'm referring to nouns that are true of pluralities of instances but do not express what they are instances of. Consider the plural nouns exemplified in (7):

- (7) a contents, furnishings, belongings, ...  
       b depths, deeps, heights, riches, ...

Schematically representing the structure of these nouns as *X-[pl]*, we can say that the nouns in (7a) are true of undescribed particulars (instances, not kinds) sharing a contingent property *X* (see Wierzbicka 1988:499-562, on which much of the present section is based). Being contained, being used for domestic purposes, or being owned, are not categories of entities like being water; they are properties that at a certain time happen to be true of the elements referred to. The elements themselves remain un-categorized, although we know that they are several, because of plurality. Similarly, the nouns in (7b) refer to concrete extensions of the property *X*, where *X* is not the kind they instantiate: undescribed 'things that are deep', or 'things that make up being rich'. Some of these nouns are *pluralia tantum*, like *furnishings* or *riches*, some are not, like *contents* or *depths*; what is limited to the plural is the instance reading, as in *the waters* (definiteness also seems to be obligatory). The difference is that the nouns in (7) do not express the kind of their instances. Correspondingly, their base *X* is never an underived noun, but is (or is transparently derived from) a verb or an adjective. They are nouns in all morphosyntactic respects; but they are not primary nouns because they lack a nominal concept.

Note that the notion of nominal concept is not equivalent to that of a kind in this case. There are sound reasons for speaking of kind-level reference for every property, and as we have seen a kind may be formally defined on the basis of any arbitrary property *P*. But what the nouns in (7) lack are kinds of a particular type, defining substantival and not adjectival properties. This contrast parallels the categorial asymmetry between the noun-based *water* and the non-noun based *contents*, *belongings* or *riches*. The notion of nominal concept allows us to capture this systematic relation between interpretation and linguistic category.

## 5. Nominal concepts as explanatory tools: word formation and modification

Nouns play an important role in word formation. In this function, as well as in certain compound-like modification structures, they display characteristic properties that suggest that

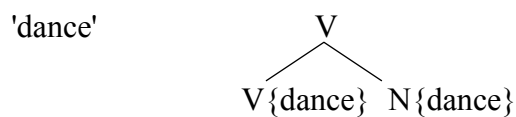
<sup>8</sup> The phrase *the territorial waters* makes very clear the distinction between space and substance occupying it, since it refers to an area and not to the portions of water in it (otherwise, a portion of water may remain part of the territorial waters after being displaced).



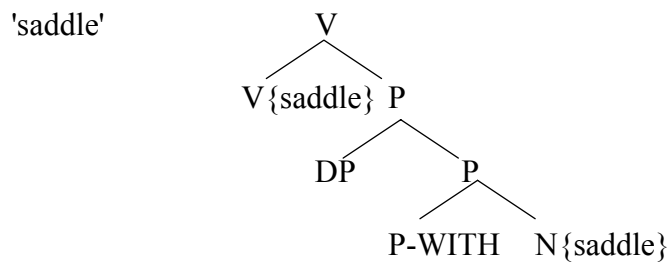
what acts as a constituent of a complex lexical predicate is not really a noun, but more precisely a nominal complex.

Consider the well-studied case of denominal verbs. In a series of publications starting with Hale and Keyser (1993), Ken Hale and Samuel Jay Keyser have argued for a syntactic account of verb formation where argument structure descends from properties of abstract syntactic configurations. Independently of the overall merit of this influential approach, it is of some interest to examine how it analyzes nouns as components of verbal predicates. In contrast to their earlier proposals, Hale and Keyser (2002:98, 2005:18) stress that what defines different verb classes are abstract syntactic structures, not complexes involving full-fledged words moving from one terminal node to another. I illustrate in (8) the structures deemed to underlie unergative verbs like *to dance*, locatum verbs like *to saddle*, and location verbs like *to shelf*.

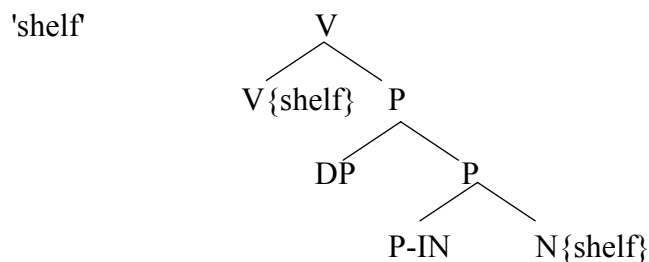
- (8) a denominal unergative verbs defining a transitive structure ('perform an action N')



- b denominal locatum verbs defining a two-argument structure ('cause DP to be with N')



- c denominal location verbs defining a two-argument structure ('cause DP to be in N')



The curly brackets notation means that the phonological word which spells out the verb does not 'originally' appear under N, but realizes under V a connection between V and N that is a consequence of lexical selection. With this move, Hale and Keyser (2002, 2005) revise earlier accounts based on head raising of N to V, made implausible by cases like *to dance a dance* or *to dance a Sligo jig* for (8a) (where *dance* cannot have originated in the already filled N). For them, then, such verbs are denominal not because they incorporate an actual noun but because they include a N in their structure.

The distinction is subtle, but it is important. Nouns have a certain semantic latitude, which is not totally preserved when they are verbalized (cf. Jackendoff 1990). In particular, Kiparsky (1997) drew attention to the 'canonical use constraint' for causative locatum and location verbs: these don't just mean 'cause DP to be with N' or 'cause DP to be in N', but

incorporate a notion of canonical purpose, based on intentionality and conventional function. The contexts for the locatum and location verbs in (9-10) contradict this lexical entailment:

- (9) a to saddle 'to place a weighty implement on a living being'  
       % she saddled the floor for a moment
- b to water 'to pour water on a living being for its biological needs'  
       % the rain watered the dress of the spectators
- (10) a to jail 'to put under arrest in a jail as a measure of judiciary retribution'  
       % the mayor jailed the homeless for the night as emergency accommodation
- b to shelve 'to put in a shelf-like structure for storing'  
       % he had absent-mindedly shelved the screws and forgot where he'd put them

As Harley (2008) has observed, the canonical use constraint is just a facet of the more general phenomenon whereby bare nouns often display a somewhat conventionalized interpretation (as in bare noun objects, to be discussed below). But why should a bare noun contain *additional* information, if it is 'bare'? And why does this information typically (for denominal verbs) have to do with conventional function and intentionality? The alternative is that a noun may be part of a verb as a concept, not as an object-referring description. The semantics of the verb *to jail* makes reference to the concept of *jail*, as defined by its institutionalized use and not by the concrete buildings the description is true of. Under this interpretation, the Hale-Keyser hypothesis means that an N node in the abstract structure underlying a verb hosts not a noun, but more precisely the concept of a noun; this is a constituent part of the complex concept associated with the verb. More generally, a noun may enter into a complex lexical predicate only as a concept-, not as an instance-referring expression. But to state this strong hypothesis, we need a distinction between the two.

There is more evidence, very closely related but less theory-dependent, that function and conventional expectations are more important than the object-level reference of a noun in word formation. Clark and Clark (1979) named 'contextuals' a class of expressions whose lexical semantics can apparently take on arbitrary shades of meaning according to the context. In his critical discussion, Aronoff (1980) pointed out that zero-derived denominal verbs typically express the ability or function encapsulated in the noun, not what the noun is true of. This is brought out by apparent contradictions like (11a), where *to nurse* embeds the concept of the ability expected of a nurse; and for context-determined readings like (11b), where the meaning of *to bottle* does not follow from the reference to objects but from the use of these objects made salient by the context.

- (11) a he nurses well (but he's not a nurse)                    'he does well what nurses do'  
       b we were stoned and bottled by the spectators        'we were thrown bottles at'

As Aronoff (1980) further observes, this same semantic component emerges with certain modifiers, like the notoriously all-purpose *good*:

- (12) a he's a good nurse (good at nursing)  
       b a good knife (good for cutting)  
       c a good lash (good for fastening, or for beating)

The apparent semantic variability displayed by *good* in (12) does not involve word formation, and so cannot be put down to some sort of lexicalization. Rather, the nouns encapsulate information about use, purpose, and conventional activities, which far from being accessory encyclopedic knowledge is part and parcel of their lexical semantics. That is the dimension in which *good* acts as a modifier in (12) (see Bouchard 2001 for extensive argumentation along these lines). As with the examples involving word formation, function, ability, and canonical purpose are facets of the nominal concept, and are not derivable from the noun's extension.

This last aspect comes to the fore in what Katz and Pitt (2000) called 'compositional idioms', illustrated in (13):

- (13) a plastic flower            (necessarily, not a flower)  
       b kosher bacon            (necessarily, not bacon)  
       c stuffed animal        (necessarily, not an animal)  
       d plastic heart           (contingently, either a model or a functioning organ)

Suppose that the semantics of *flower* was primarily based on the extension of the term, and that this was the basis for an intensional concept formalized by the function mapping each possible world to the extension of *flower* in that world; all other semantic associations would be a matter of world knowledge. Then the extension of *plastic* and that of *flower* should not overlap, at least in the actual world: to know what a flower is implies knowing that it's not made of plastic. And yet we assign a straightforward interpretation to this type of construction, which is not only common but productive, and does not involve non-subjective modifiers like *former*, *alleged*, or *fake* (it is not part of the meaning of *plastic* that the extension of *plastic N* must fall outside the extension of *N* at this time and / or in this world). Katz and Pitt (2000) hypothesize a covert structure that yields compositionally the attested interpretation; but the parallels with constructions like those in (11) are obvious. The non-extensionalist approach argued for by Katz and Pitt makes it simpler to analyze *plastic flower* as 'plastic instance of the flower concept'. This is hardly a rigorous semantic analysis, since we would like to know under what circumstances a noun can or must be interpreted as a concept, and how it is exactly that *plastic* modifies instances while *flower* identifies the concept; in particular, what is the underlying DP structure and how it is amenable to a compositional interpretation. The conclusion I wish to draw, however, is less ambitious: 'compositional idioms' bolster the case for nominal concepts as a distinct component of noun lexical semantics. A noun like *flower* not only admits a kind-level and an object-level interpretation, but makes both available at the same time, and in such a way that the kind (i.e. the concept) is defined by properties not deterministically derived from the noun's extension.

## 6. Nominal concepts as explanatory tools: a morphological restriction

Evidence that nominal concepts condition or inhibit morphological processes would provide a strong argument for their linguistic reality, as a semantic category interacting with other components of the grammar. One puzzling restriction on English word formation, noted by Aronoff (1976), appears to fall into this category. Some nouns with the suffix *-ment* admit adjectival suffixation by *-al*, while others do not; *ornament* > *ornamental*, but *employment* > \**employmental*. Aronoff noted that if *X* is a verb, *X-ment<sub>N</sub>-al<sub>ADJ</sub>* is ill-formed:<sup>9</sup>

<sup>9</sup> The suffix *-al* is among the six suffixes identified as problematic by Fabb (1988) on the basis of their inconsistent behaviour vis-à-vis selectional restrictions.

(14) X-ment > X-ment-al

a	ornament regiment	*orna <sub>v</sub> *regi <sub>v</sub>	ornamental regimental	(Aronoff 1976:54)
b	employment discernment agreement basement shipment	employ <sub>v</sub> discern <sub>v</sub> agree <sub>v</sub> base <sub>v</sub> ship <sub>v</sub>	*employmental *discernmental *agreemental *basemental *shipmental	

While it correctly captures the facts, the restriction barring *-al* from attaching to a base  $X_V$ . *ment* is arbitrary and non-predictive (a restriction barring  $X_N$ .*ment* would be equally possible). Besides, it is not absolute. Aronoff himself noted the exceptions *govern-ment-al* and *develop-ment-al*, to which we may add *judge-ment-al*:

(15)	government development judgement	govern <sub>v</sub> develop <sub>v</sub> judge <sub>v</sub>	governmental developmental judgemental
------	--	---	--

One aspect of this restriction may suggest a reinterpretation in terms of a-categorial roots versus verbal stems. As Aronoff notes, the base  $X$  cannot be a verb, but it can be regularly derived from a verb. For instance, *medica-ment(-al)*, *excre-ment(-al)*, and *incre-ment(-al)* can be regularly derived from the verbs *medicate*, *excrete*, and *increase* via a rule of obstruent deletion before *-ment*. Perhaps, then, *-al* suffixation may target  $X$ -*ment* only if this is a root nominalization, that is, if *-ment* attaches directly to a category-free root. The ban against verbs, but not against regularly derived verbal bases, would be an epiphenomenon. In reality, Aronoff's generalization would reflect a locality constraint on *-al* affixation, on a par with many other phenomena that are sensitive to the locality of the root (see Embick 2003 and Arad 2003 for discussion).

An alternative along these lines would not be a genuine improvement, however, for three reasons. First, it still couldn't predict the exceptions in (15). Second, the hypothetical constraint on *-al* affixation would amount to a non-local requirement between *-al* and the root, across the intervening nominal affix *-ment*. What would then prevent 'locality' requirements between a root and an affix at three, four, or more removes? The parallel with root-local phenomena, then, is only apparent. Third, and most seriously, the analysis would fail for the numerous verbs that, like *agree*, lack any overt verbalizer. If these forms really spell out roots turned into verbs by a zero  $[v]$ , that is,  $[[ \sqrt{\text{AGREE}} ] \emptyset_v ]$ , nothing would bar the root from appearing without  $[v]$  in a root nominalization  $[[ \sqrt{\text{AGREE}} ] \text{ment}_n ]$ , and this could then be targeted by *-al*, incorrectly ruling in *\*agreemental*.<sup>10</sup>

The alternative I propose centres on the nature of the exceptions. Aronoff (1976:54) observes that *governmental* is not really an exception, if the *govern-* root of *govern-ment* is not the same root of *to govern*. At least on semantic grounds, the two seem distinct in so far as *government* lacks the reading 'act / fact of governing'. Likewise, but uncontroversially, *departmental* does not involve the motion verb *to depart* and so does not represent an exception either. The semantics of the  $X$ -*ment* base seems to be relevant, in fact, even more relevant than the availability of  $X$  as a verb; what counts is that  $X$ -*ment* is not a transparent

<sup>10</sup> This last consideration supports Borer's (2003) contention that there is in fact no zero derivational affix in English.

nominalization. Still, as Aronoff (1976:55) points out, 'normally *-al* attaches quite freely to other deverbal abstract nominals: *organizational*, *observational*, *reverential*, *preferential*'. This last observation suggests a reinterpretation in terms of selection, both by the suffix (Fabb 1988) and by the base (Plag 1996, Hay and Plag 2004): *-al* does not attach to transparent nominalizations unless it is selected by a very small number of nominalizing affixes, which crucially don't include *-ment*.

- (16) a     *-al* is selected by certain nominalizing affixes: *-ation*, *-ence*, *-or* (*organizational*, *reverential*, *professorial*), but not *-ment*
- b     otherwise, *-al* attaches to a N which expresses a listed concept (not a transparent nominalization)

The suffix *-al* must be sensitive to the base it attaches to, given that, if there is a default adjective suffix, it is *-y* (*Christmassy*, *studenty*) and certainly not *-al*. As befits its origin, *-al* typically attaches to stems of Latin (secondarily Greek) origin, and to some occasional native nouns, as in *tidal* (Marchand 1969:238-244). Apart from this historically motivated tendency, and from the systematic relation between *X-ic* and *X-ical*, there are no major regularities in the distribution of *-al*; the strong tendency to employ this suffix for adjectival derivation from *-ation*, *-ence* and *-or* (in the form *-ial* for the last one), stands out all the more clearly for that. The first part of the hypothesis, in (16a), states that *-ation*, *-ence*, and *-or* require *-al* as adjectival suffix as a matter of morphological selection. This does not entail that *-al* cannot attach to a noun in *-ment* or to any other base. However, *-ment* can derive abstract nominalizations, and this falls under the second condition, which is not morphological but semantic in nature.<sup>11</sup> According to (16b), the difference between *ornamental* and *\*employmental* is not that *employ* is a verb, but that *ornament* expresses a concept while *employment* is a transparent nominalization (like *collection*, discussed in section 3). This reformulation remains close to Aronoff's original analysis, since the nouns excluded are those transparently derived from a verb. But, first, the hypothesis of morphological selection in (16a) accounts for the systematic possibility of nominalizations in *-ational* and *-ential* while at the same time allowing us to state that *-al* derives adjectives from 'primary' nouns, basically nominal in their lexical semantics. Secondly, this morphosemantic generalization accounts straightforwardly for the exceptions to Aronoff's analysis, and makes precise the intuition that *X-ment-al* is possible when the meaning of *X-ment* is not transparently derived from *X*. To the exceptions thus explained we can now add *argumental*:

- |      |               |                           |   |
|------|---------------|---------------------------|---|
| (17) | argumental    | *'relative to arguing'    | 'relative to arguments as a logical category' |
|      | governmental  | *'relative to governing'  | 'relative to government as an institution'    |
|      | developmental | *'relative to developing' | 'relative to developing humans'               |
|      | judgemental   | *'relative to judging'    | 'characterized by a censoring attitude'       |

In effect, *-al* requires semantic opacity on its base (*modulo* morphological selection, as per (16a)), but this does not amount to requiring the base to be a root derivation (cf. Arad 2003 for the view that non-compositional interpretation is limited to the root plus the first head attached to it). In fact, making a morphological operation conditional on semantic opacity seems implausible. The idea is rather that *-al* suffixation derives a property-referring adjective from an entity-referring noun. Not all nouns are entity-referring in the required substantive

<sup>11</sup> For a similar case of suffixal sensitivity to lexical semantic properties of the base, see Aronoff and Cho (2001).

sense, however. Through nominal concepts we can pinpoint what distinguishes primarily entity-defining nouns from properties in nominal disguise.

## 7. Nominal concepts are not bare or numberless nouns

It would be tempting to identify nominal concepts with the content of a sub-part of the noun, perhaps with the subtree made up of projections that do not interact with the syntactic context, or with the root alone, or with the domain for kind-level interpretation (see especially the detailed study in Zamparelli 2000). Empirical considerations, chiefly arising from languages other than English, make an approach along these lines much less promising than would appear at first sight.

It seems immediately clear that concepts cannot be 'located', as it were, on roots, when this notion identifies a core part of a lexical category void of category-defining morphology. Consider again *to dance a dance*: what makes the first word a verb and the second a noun cannot be the root they share, unless by root we mean an abstract element distinct from the form that spells it out. There certainly are insightful ways to go around this problematic construction, which is relatively peripheral but important enough to have inspired a significant shift in Hale and Keyser's (2002, 2005) conception of 'Conflation'. Perhaps there are roots that are truly category-free and others that are nominal or verbal, as I will suggest below. The point is that, even staying within nouns, one and the same root often serves to express distinct nominal concepts. I present two illustrations where distinct grammatical environments (always nominal) correspond to different concept readings for the same root; the changing grammatical environment involves noun class in (18), and in (19) respectively gender + inflectional class, inflectional class alone, and number + gender:

(18) same root, distinct environments, distinct concepts: class (Swahili; Polomé 1967:95, 103)

- |   |                   |                |   |                |
|---|-------------------|----------------|---|----------------|
| a | class 3 ~ 4       | m-ti 'tree'    | ~ | mi-ti 'trees'  |
|   | class 7 ~ 8       | ki-ti 'chair'  | ~ | vi-ti 'chairs' |
| b | class 11/4 ~ 9/10 | u-siku 'night' | ~ | siku 'day'     |

(19) same root, distinct environments, distinct concepts: gender and number

- |   |  |           |
|---|--|-----------|
| a | mālus 'apple tree' (fem) ~ mālum 'apple' (neut)                            | (Latin)   |
| b | tsvet 'flower, colour', pl. tsvetá 'colours' ~ tsvéty 'flowers'            | (Russian) |
| c | membro 'member' (masc), pl. membra 'limbs' (fem) ~ membri 'members' (masc) | (Italian) |

Examples are easy to find, a bit too easy in fact—which is why one must be clear about their import. It shouldn't be too difficult to conjure up some appropriately underspecified semantic notion underlying both 'apple tree' and 'apple fruit', say, or 'member' and 'limbs' ('night' and 'day' look like a harder challenge, but these lexical semantic considerations are best left to people who know the language). It seems to me that such constructs would be too vague to be concepts in the precise sense outlined in section 1, namely, kinds defining a category of entities in the speakers' conceptualization. An 'apple' concept that does not discriminate between the fruit and the tree does not define an entity. At most, it would name what two types of entities have in common. Such a property may be imagined, and can certainly be formally defined, but what linguistic relevance would it have? On the contrary, the notion of

nominal concept defended here *must* play some role in describing or even explaining linguistic phenomena; otherwise, it would be useless, or better, contentless.

As we saw in section 5, conventional expectations about purpose, function, or ability constitute an important aspect of conceptual content. Even for natural objects like flowers, expressions like *plastic flower* can single out this 'functional' component, in so far as a plastic flower is an object that does all that a flower does except it's not a flower in botanical terms. As is natural, this non-extensional component can acquire greater prominence with nouns referring to humans, and has been called 'capacity nouns', like *teacher*; see Zamparelli (2000:134) and particularly de Swart, Winter and Zwarts (2007). As the latter show, the interpretation foregrounding conventional role and expected activity licenses some syntactic peculiarities, like the absence of indefinite determiner and the use of (bare) singular for a plural subject in Dutch predicate nominals:

- (20) a Jan is (een) leraar (Dutch)  
'Jan is (a) teacher'  
b Jan en Sofie zijn leraar / leraren  
'Jan and Sofie are teacher / teachers'

The Dutch facts are certainly suggestive, especially so in the light of significant parallels from Haitian Creole (de Swart, Winter and Zwarts 2007, Déprez 2005). But it would be too strong to conclude that the capacity reading is incompatible with number inflection. In the very closely related German, which unlike English patterns with Dutch in allowing structures like 'teacher is a good profession', the corresponding predicate nominal unambiguously calls for the plural (I have substituted 'fireman' for 'teacher' because the German *Lehrer* has the same form in sg. and pl.):

- (21) Hans und Karl sind \*Feuerwehrmann (sg) / Feuerwehrmänner (pl) (German)  
'Hans and Karl are \*fireman / firemen'

Plural also appears in structures that admit or require a capacity reading, like the following Italian examples (the first from de Swart, Winter and Zwarts 2007):

- (22) a hanno parlato come vicari (Italian)  
'they spoke as vicars / like vicars'  
b Rita e Chiara si sono travestite da streghe  
'Rita and Chiara dressed up as witches'

A further point worth emphasizing is that singular, by itself, does not automatically imply lack of number inflection. It does in Dutch or English, but not in languages with nominal inflection systems where a singular form is not a numberless default, but carries an exclusively singular exponent. Such is the case of Italian *dottore* or *vicario*, which are therefore marked for number in structures like *ha parlato da dottore / vicario* 's/he spoke as doctor / vicar' (contrast *ha parlato come un dottore / vicario*, only 's/he spoke like a doctor / vicar').

I am not suggesting, on the basis of these cursory remarks, that number inflection is always required or always irrelevant for the expression of a nominal concept. Déprez (2005) and Dobrovie-Sorin and Pires de Oliveira (2007) have shown quite convincingly the connection between kind-level reference and numberless expression of nouns in languages like Haitian

Creole and Brazilian Portuguese. It seems however that this connection can be overridden by requirements of syntactic and morphological well-formedness. The conclusion I draw is that morphology and syntax construct whatever structures are needed for the well-formed expression of nominal concepts; this may involve inflectional elements. But grammatical and / or inflectional determinants like class, gender, or number, or the abstract functional heads encoding them, do not automatically map concepts into instances.

## 8. Roots don't refer to concepts, but name them

The notion of nominal concepts here outlined is a linguistic one. Concepts are the content of nouns as words; in particular, of nouns as primary lexical items, as opposed to nominalizations. But if lexical items decompose into a structure whose invariant core is a root, and yet the concept is not encoded by the root, what exactly is it the content of?

A possible answer, which I believe is correct, is that nominal concepts are the content of nominal lexemes. They provide a substantive counterpart to the relational definition of lexeme as the abstract base shared by the inflectional paradigm of a lexical item.

The connection with lexemes, however, is uninformative unless it leads to concrete explanatory gain, which is something I cannot offer. Therefore, I will conclude by placing the present discussion in the context of a more general approach to roots and lexical semantics. The leading intuition is that what is 'lexical' in lexical semantics is the meaning is a word, which is more than the sum of the meaning of its pieces (Aronoff 1976, 2007). This does not commit us to a holistic view of words as unanalyzable morphosyntactic objects, however. Words belonging to major lexical categories may well decompose into category-free roots and abstract category-assigning morphemes (Marantz 2001, Embick and Noyer 2007, Embick and Marantz 2008), without the necessary implication that the root contributes a core meaning and the categorizer a purely formal categorial feature. An alternative view, formally developed by Panagiotidis (2008), is that the categorial features of category-assigners [v] and [n] are semantically contentful ('interpretable'), in fact necessary for the primary conceptualization ('fundamental perspective') of the word as entity- or state-referring expression (cf. also Josefsson 2001 and, especially for the formal interpretation, Alexiadou and Müller 2008). From this perspective, I suggested (Acquaviva 2008b) that root terminal nodes, lacking category, lack semantic typing and cannot have any coherent interpretation. What has minimal lexical content is an expression categorized as verbal or nominal, since this correlates with a conceptualization respectively as state / event or, I have claimed here, as entity-defining nominal concept. The function of roots, in this abstract sense of morphosyntactic formatives, is syncategorematic, like *cran-* or *logan-* in *cranberry* or *loganberry*. Difference of root comports difference of word (*modulo* suppletion), and identity of root comports lexical relatedness. Roots, then, lack descriptive content because descriptive content presupposes a basic conceptualization, and this arises in a structure which defines a grammatical category.

Unfortunately, this does not even begin to answer the question as to how semantically distant two words can be if they share the same root and neither has any other derivational formatives. *To nurse* means something like 'to do what nurses do', but *to doctor* in the meaning 'to tamper with, to falsify' is further from the corresponding professional role. And *to hammer* can take on a pure manner of action reading removed from the instrument, as in *he hammered his way up the social ladder*, with a clear relation with the literal sense of *to hammer* but no real connection with the noun *a hammer*. Viewing roots as lacking descriptive content but signalling lexical relatedness does not answer the question, but it helps ask it in the correct way. In particular, it avoids having to claim that two words like *doctor* 'physician'



and *to doctor* 'to manipulate' share an ill-definable semantic core, or that their roots are homophonous but synchronically distinct.

The foregoing reflections are rather abstract. To appreciate their empirical import, it is important to distinguish between root as terminal element in the abstract syntactic structure, and root as exponent. Thanks to this principled distinction, we can preserve a notion of category-neutral root (as an abstract terminal) while recognizing that roots (as exponents) may well be 'primarily' nominal or verbal. Consider first the following contrast discussed by Kiparsky (1997):

- (23) a     Lola taped pictures to the wall (# with pushpins)  
      b     Lola hammered the metal (with her shoes)

For Kiparsky, *to tape* includes the meaning of the noun *tape*, but *to hammer* does not include the meaning of *hammer* in the same fashion; *to ditch* and *to dump* parallel *to hammer* in this respect. Therefore, the addition of a PP naming an explicitly different instrument makes (23a) somewhat contradictory, but not (23b) (cf. also the discussion in Arad 2003). As observed in Acquaviva (2008b), a question then arises about *to hammer*. If it's not a denominal verb because it does not 'include' the meaning of the noun *hammer*, what other semantic relation, if any, relates the noun and the verb? *To hammer* and *hammer*, apparently, are related in form (by a shared root) but not really in meaning. Then, perhaps roots don't carry meaning.

In fact, the two instrument verbs do not differ as sharply as it may appear. Harley (2005) and Harley and Haugen (2007) observed that for both verbs, a PP repeating the same instrument sounds identically redundant (*to tape with tape*, *to hammer with a hammer*), while a PP expressing a hyponym sounds identically acceptable:<sup>12</sup>

- (24) a     Lola hammered the metal with a ball-pen hammer / ?with a hammer  
      b     Lola taped pictures to the wall with duct-tape / ?with tape

For Harley (2005), neither verb 'includes' a noun. Instead, all instrument noun verbs name a manner of action; that described by *to tape*, in particular, is incompatible with the manner of action required by pushpins in (23a). The verb *to hammer* has the same structure of *to hit*, and the root *hammer* (like *brush*, *rake* ...) identifies a specific manner of performing the action: something like 'to hammer-hit'. In Acquaviva (2008b) I generalized this approach, arguing that a paraphrase like 'to hammer-do' identifies an action verb whose lexical root *hammer* establishes a relation with a noun sharing the same root; a 'hammer-entity'. There is no need to state that the verb includes the noun (or viceversa) in order to express this lexical relatedness; the shared root does that. But the root does not express a basic notion of an action or of an entity, because it is, by hypothesis, category-free and thus neither verbal nor nominal.

This approach emphasizes the separation between abstract information (lexical as well as grammatical) and morphological exponence. Roots, from this perspective, are first of all exponents. Some name nominal concepts, some enter in the formation of verbs, some may do both (and some do neither, being morphological atoms in complex roots, like *-ceive* in the English *re-ceive*, *con-ceive*, *per-ceive*; cf. Aronoff 1976). We might expect these different functions to correlate with different behaviour, even for the same root, and this is in fact what happens. Consider the roots (atomic exponents) *cost* and *price*. Both can appear as noun or as verb: *the cost / price is too high*, *the house costs too much*, and also *he costed the project*, *he priced the goods*. There is a difference, however, brought out by the peculiarities of English morphology. Consider the paradigms in (25)-(26):

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<sup>12</sup> Thanks to Raffaella Folli for alerting me to Harley and Haugen (2007).

(25) cost

- |   |                                      |                                     |
|---|--------------------------------------|-------------------------------------|
| a | in 1985, this house cost very little | (strong verb )                      |
| b | the cost was prohibitive             | (noun; names a nominal concept)     |
| c | Lola costed the project              | (verb based on the nominal concept) |

(26) price

- |   |  |                  |
|---|--|------------------|
| a | * in 1985, this house priced very little | (verb)           |
| b | the price was reasonable                 | (noun)           |
| c | the agent priced the house reasonably    | (denominal verb) |

*To cost*, but not *to price*, has stative reading, like being along the cost-dimension (cf. Hale and Keyser 2005). There is no reason to think that this verb is denominal, especially because it is strong (past tense *it cost*, like *it cut*) and English (Germanic) strong verbs are not derived from nouns. On the other hand, the transitive *to cost* 'to estimate the cost' and *to price* 'to put a price on' are denominal, in that their interpretation is built on the meaning of the respective nouns. In addition, both are weak verbs (*he costed*), as denominal verbs are. So, *he costed* is built on a noun *cost*, like *he grandstanded* is built on the noun *grandstand* and *he waked (the corpse)* is built on the noun *wake*. In all three cases, the same root also spells out underived strong verbs (*he stood*, *he woke*). One and the same root, then, can be 'primarily' verbal and 'primarily' nominal. Being verbal, being stative, and belonging to the class of strong verbs, are not intrinsic properties of the root *cost*; the same exponent appears in words that are not verbal, are not stative, and belong to weak verbs. The obvious semantic closeness between the nouns and verbs in question makes very implausible the existence of distinct, accidentally homophonous roots in this case. It seems better to view roots, generally, as exponents, which may appear in structures defining nouns, verbs, or both, varying with the language (an important observation in a footnote by Hale and Keyser 2002:254). What carries the lexical meaning of a noun or verb is not the root, but the noun or verb; and if these are complex constructions, then lexical meaning is the meaning of the construction and not of any of its parts—not even of the root.

## Conclusion

An important part of what speakers know about their language concerns the way words encapsulate information. Decompositional and constructional approaches have emphasized that knowledge of lexical items is shaped to a large extent by knowledge of the grammatical system. What remains, however, is more than a non-linguistic residue, an arbitrary item of a cultural encyclopedia. We can legitimately ask what constrains and regulates the content of a possible 'lexical item', in so far as it does not reduce to that of simpler elements; more specifically, we can ask what role does grammatical categorization play in determining the meaning of words as linguistic entities.

As a partial answer, restricted to nominality, I have outlined a notion of nominal concepts as part of this lexical knowledge. I emphasized the linguistic reality of nominal concepts, and their explanatory value for both the semantic and the morphological facets of lexical items. To claim that a noun is associated with a unifying concept which does not originate in any one of its parts is not to deny the existence of these parts, nor to invoke a level of mysterious entities inaccessible to scientific analysis. The empirical phenomena here discussed are as many

concrete reasons for thinking that nominality has a substantive basis not reducible to its morphosyntactic signature, and that this basis is grounded in the notion of a concept: a kind-level entity that defines a category of being in the speaker's conceptualization, thus bridging the gap between linguistic and conceptual categorization. Understood in this sense, a nominal concept does not reduce to the prototypical 'core' ingredients of a noun's lexical semantics, if such may be identified. It is a hypothesis about the meaning of nominality as a lexical category, which relates lexical semantics to other grammatical properties (chiefly morphological) that make a noun a noun. According to this hypothesis, a noun understood as a primary, underived lexical item, is a word that spells out a concept, and thus defines a way of being an entity independently of temporal constitution.

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