

From lexical categories to roots – and back again

Phoevos Panagiotidis – University of Cyprus (phoevos@ucy.ac.cy)

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Approaches to lexical categories.

What are nouns? What are verbs? What is their difference?

The Amherst system (Chomsky 1970)

[+N]	nouns, adjectives
[-N]	verbs, prepositions
[+V]	verbs, adjectives
[-V]	prepositions, nouns

What do values $[\pm N]$ and $[\pm V]$ stand for? Are they merely taxonomic labels?

Stowell (1981): feature specifications define *natural classes*; as they should. The first *explanatory* theory of categorial features. Alas, it is wrong.

The Déchaine (1993) categorial system. Similar in spirit to Stowell, but more refined and more complete.

The Baker (2003) categorial system – a mixed system.

	<i>semantic interpretation</i>	<i>syntactic behaviour</i>
[N]	Sortality	referential index
[V]	Predication	Specifier

Langacker (1987):

Nouns conceptualise THING

Verbs conceptualise PROCESSES

Adjectives / adverbs conceptualise ATEMPORAL RELATIONS.

Anderson (1997): categories are “**grammaticalisations** of cognitive – or notional – constructs”:

a feature P, standing for *predicability*

a feature N standing for the ability to function as an argument.

Category as a matter of interpretive perspective.

Synthesising the Amherst-Stowell-Déchine perspective with the Langacker-Anderson one (via Baker):

Lexical category is a matter of fundamental interpretive perspective.
 These perspectives are encoded by categorial features.
 Therefore, categorial features are LF-intepretable.

Remember: conceptual categorization ≠ linguistic categorization

Consider: although all physical objects are nouns cross-linguistically, not all nouns denote concepts of physical objects (D. Pesetsky, p.c.).

In other words, *rock* and *theory* cannot belong together in any useful, or even coherent, conceptual category. However, there is a way in which *rock* and *theory* are treated the same by grammar, even if they share no significant common properties notionally.

This is what I call fundamental interpretive perspective.

This idea comes from Langacker (1987), Uriagereka (1999), Baker (2003, 293–294) and Acquaviva (2009a), (2009b).

Categorial features as LF-interpretable features.

The story:

[N] imposes a sortal perspective on the categorizer's complement at LF.
 [V] imposes an extending-into-time perspective on the categorizer's complement at LF.

Sortality: application *together with* identity (and individuation) – as implemented in Prasada (2008) and Acquaviva (2009a).

Application: x applies to things of a certain kind, but not others

Identity: something which may replace A in the statement x is the same A as y

Extending into time (*not* predicativity / predicability) – following Uriagereka (1999) and Ramchand (2008, 38–42).

“both nouns and verbs correspond to mathematical spaces of various dimensions, the difference between them being whether those spaces are *seen* as *permanent* or *mutable*”.

Verbal constituents are inherently (sub-)eventive by virtue of the temporal perspective contributed by the categorial feature [V].

Sortality will have to be associated with *individuation*, number, quantification etc. – realised as functional categories Number, Determiner etc.

‘Extending into time’ will be the seed of events and causation, and will require event participants, a way to encode length of event and relation between time intervals etc. – realised as an event projection / argument, Voice, Aspect, Tense.

Categorisers as lexical heads.

Assume a syntactic categorisation / syntactic decomposition framework – see Harley and Noyer (1998), Embick (2000), Alexiadou (2001), Folli, Harley and Karimi (2003), Arad (2003) and (2005), Folli and Harley (2005), Harley (2005a), (2005b), (2007), (2009) and (2013), Marantz (2005) and (2006), Embick and Marantz (2008), Lowenstamm (2008), Acquaviva (2009b), Basilico (2008), Volpe (2009), Acquaviva

and Panagiotidis (2012) and, in a slightly different framework but in considerable detail, Borer (2005), (2009) and De Belder (2011)

On the one hand we have functional heads, on the other roots.

n and *v* are typically analysed as functional heads – but this is due to the generalised confusion of what functional heads are.

Categorisers host categorial features.

No functional head can categorise roots and root material – only categorisers.

Sub-categorial so-called “inner morphemes”, see Marantz (2000) and (2006), cannot categorise roots.

Roots themselves are a-categorial (categoryless) – more on this below.

You can build a derivation solely on categorisers, without roots.

In this case categorisers behave as so-called *semilexical categories* (Corver and Riemsdijk 2001), such as ‘empty nouns’ (Panagiotidis 2003). See van Riemsdijk (1998), Haider (2001), and Schütze (2001).

Roots and subcategorial material are – syntactically speaking – optional: a well-formed syntactic representation can be constructed using just a categoriser and superimposed functional structure.

Categorisers are the only lexical heads.

The elusive functional-lexical distinction.

Nobody really has a *good* theory on the lexical-functional distinction.

Confusion caused by

Theta-assignment, e.g. Haegeman (2006)

Descriptive content (but semi-lexical categories...)

Abney’s (1987, 64–65) oft-quoted criteria

Muysken (2008) shows that there exist no unambiguous criteria for functional category membership: “[V]ery few semantic features, if any, unambiguously characterise a class of elements that may be reasonably termed functional categories” (ibid.: 52).

The lexical-functional distinction is ultimately one that must be made theory-internally – as with most of the important analytical distinctions in scientific enquiry.

Functional heads as lexical satellites supplying structural positions.

Chametzky (2000, 22–32), (2003, 213–219) and Hinzen (2006, 174) essentially take functional elements to be satellites of lexical heads. Already in Grimshaw's (1991) *Extended Projection*, or Chomsky's *Complete Functional Complex* (Chomsky 1986).

Functional elements are understood to belong to the same *supercategory* (Chomsky 2001, 47) as the lexical categories of which they form the functional entourage:

No matter how many functional categories are hypothesized, motivated and discovered, no actual proliferation of the number of *stricto sensu* parts of speech is necessary.

Functional elements are satellites of lexical ones, and that functional categories *do not exist* as primitives of the grammar.

Functional elements are perhaps just collections of features in the Numeration which are flagged by a feature, as in Hegarty (2005).

Why 'flagged'?

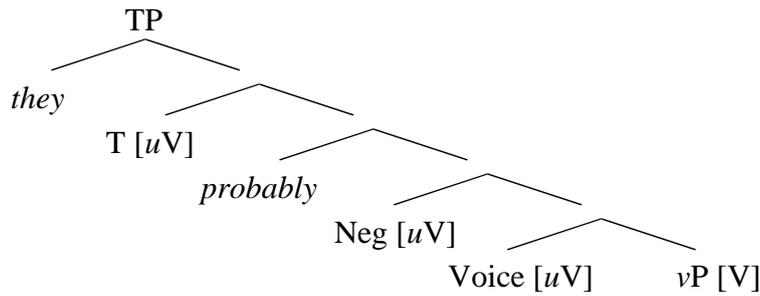
Because of what Felix (1990) calls *biuniqueness*, harking back to at least Martinet.

Biuniqueness is the exclusive relationship between nouns and the nominal functional heads (D, Num etc.), and between verbs and the verbal/clausal functional heads (Voice, Asp, T, Mood etc.).

How to capture this?

Uninterpretable categorial features.

Categorial Deficiency: functional elements bear the uninterpretable version of the categorial feature of the lexical head at the bottom of their projection line (cf. Panagiotidis 2002, chap. 5)



- Verbal/clausal functional heads will all be marked as $[uV]$, nominal ones as $[uN]$; they will be distinguished from each other by virtue of their interpretable features, such as [voice], [tense], [aspect], [(illocutionary) force] and the like.
- Functional heads are just members of a verbal/clausal and a nominal supercategory. They contribute necessary features and structural positions.
- *They are not grammatical primitives.* The UG features they host *are*; e.g. number / individuation features *are* grammatical primitives; Num is *not* (the features could be borne by a classifier head).

The lexical-functional distinction is real and sharp, and that there is no such thing as a lexical-functional gradient.



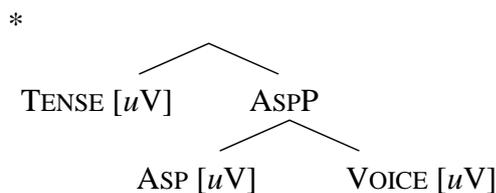
Functional heads *cannot* categorise roots or anything else!

Categorial Agree.

If $[X]$ is an interpretable categorial feature, $[uX]$ serves as Probe for the Goal $[X]$, and not vice versa: $[X]$ cannot ever act as a Probe for $[uX]$ and $[uX]$ can never act as a Goal.

This buys us:

1. Biuniqueness
2. The necessity of lexical heads (i.e. categorisers) in a derivation:



3. That we cannot merge lexical *after* we have started merging functional.

4. That when a functional [*uX*] LI and a lexical [*X*] LI merge, the functional LI, a Probe for categorial Agree, invariably projects.
5. That when a functional [*uX*] LI and an SO merge, the functional LI, a probe for categorial Agree, cannot be a specifier.

Why roots matter

1. One of the first things linguistics looked at.
2. Not as intuitively prominent as words, but somewhere there.
3. The basic building blocks of words.
4. Since the advent of separationist / realizational theories, among the building blocks of syntactic structures.

I will couch my discussion within Distributed Morphology: one of the few frameworks with concrete hypotheses about roots (also, Borer 2009).

Roots in Distributed Morphology are exceptional in 2-3 ways:

category-neutral

meaningful (although meaning is *otherwise* assigned late)

phonologically identified (in spite of Late Insertion)

syntactically active (syntactic nodes).

The content(lessness) of roots

For content

Looking at words derived from the same root, they seem to share a common conceptual core, cf. Hale & Keyser (1993), (2002); Rappaport Hovav & Levin (1998); Levin & Rappaport-Hovav (2005):

Consider also the Hebrew root QLT (Arad 2005, 97)

Nouns: miqlat ('shelter')

maqlat ('receiver')

taqlit ('record')

qaletet ('cassette')

qelet ('input')

Verbs: qalat ('absorb', 'receive')

hiqlit ('record')

An abstract common meaning core: 'keep, preserve'.

Even if semantically impoverished, a root contains the ‘common semantic denominator’ (Arad 2005, 4–6, 55–59, 271–274) of the words derived from it.

Roots have a minimum of semantic content, present in the various words derived from them.

Content?

Not all roots are like QLT: KBŠ (Aronoff 2007, 819)

Nouns:

keveš (‘gangway’, ‘step’, ‘degree’, ‘pickled fruit’)

kviš (‘paved road’, ‘highway’)

kviša (‘compression’)

kivšon (‘furnace’, ‘kiln’)

Verbs:

kibeš (‘conquer’, ‘subdue’, ‘press’, ‘pave’, ‘pickle’, ‘preserve’)

kavaš (like *kibeš* plus ‘store’, ‘hide’)

Or METT:

mett-re, ad-mett-re, com-mett-re, pro-mett-re, sou-mett-re...

Different contents?

Do we then get a scale in which

Some roots, like METT or KBŠ, are meaningless.

Others, like QLT or NOM, seem to have some content.

Others, like SUGAR, seem to have a lot and pretty concrete content, too?

Can we say that

less specified roots give rise to crazier, more idiosyncratic word meanings and more specified roots to more ‘compositional’ ones?

But how is a native speaker / linguist to decide how much content a root has?

She will have to look at words derived from it

All of them? some? which?

How come the least ‘productive’ roots are the most concrete ones?

Let’s look at roots with “a lot and pretty concrete content”:

Consider the extreme case of the word *laser*.

Laser can safely be said to derive from a root LASER (originally an acronym, 1957: “light amplification by stimulated emission of radiation”).

LASER seems to have a concrete and rich meaning, but there are no other words derived from it, so we cannot really know.

Having said that: a laser stare, throw a laser.

Against content

All roots are meaningless in isolation (Borer 2009).

Let’s flesh this out:

Roots don’t identify word-specific, non-structural meaning.

They can have a meaning only in a particular grammatical context: category, affixes, particles etc. Consider NOM:

[_{vP} nom-iz-]	‘think’
[_{nP} [_{vP} nom-iz-] ma]	‘coin, currency’
[_{aP} ne- [_{vP} nom-iz-] men-]	‘legally prescribed’

Roots acquire meaning within grammatical structure:

- Borer (2003): same root, different ontological typing (event, object), different syntax:

collection ₁	‘the frequent collection of mushrooms by Eric’ (process)
collection ₂	‘let me show you my collection of stamps’ (result)

- Acquaviva (2009b): same root, different types, different derivations:

argu-ment ₁	‘logical category’
argu-ment ₂	‘event of arguing’
argu-ment-al	‘relative to argument ₁ , #argument ₂ ’

- Acquaviva & Panagiotidis (2012): lexical meaning may be expressed through inflectional means:

class 11/4:	u-siku ‘night’ (Swahili)
class 9/10:	siku ‘day’
class 3/4:	m-ti ‘tree’
class 7/8:	ki-ti ‘chair’

è mancato past perf. ‘was missed’: ‘died’

mancava ‘was missing’ NOT ‘was dying’)

nero (‘water’) – *nera* (‘rain’) (Cypriot Greek)

Roots have no content in isolation.

Free roots are meaningless, they do not contain a fragment or a shadow of lexical meaning.

We cannot do lexical semantics with roots – already in Arad (2005, 57–71).

The Categorization Assumption and 'lexical idioms'.

Categorization makes roots LF-acceptable

How do we get from roots to lexical categories, like nouns and verbs?

Roots have to be categorized:

- a) No uncategorized roots in syntax (Embick and Marantz 2008, 6): *the Categorization Assumption*.
- b) Only categorizers can do this job, not functional heads.

Roots are contentless when they are free.

Categorial features on *n* and *v* provide roots and the associated structures with a fundamental perspective for the conceptual systems to view it in.

Therefore, the association of root material with categorial features [N] and [V] enables the former to be interpreted at the interfaces.

The categorization of roots is not a narrow-syntactic requirement, but one of the interface between syntax and the conceptual-intentional systems.

It follows “from the general architecture of the grammar” (Embick and Marantz 2008, 6).

“Lexical idioms”

Now we can see why *nP* and *vP* are systematically idiosyncratic (“lexical”), why they always behave as idioms without a compositional alternative (cf. *I kicked the bucket*).

Consider well-known pairs such as

*n*water-*v*water-*A*watery, *n*dog-*v*dog, *n*castle-*v*castle, *n*deed-*v*do, etc. – already

highlighted in Chomsky (1970): meanings associated with material such as root-*v* and root-*n* are invariably listed and almost always idiosyncratic.

This canonical idiosyncrasy/non-compositionality has led people
to think of the first phase as a somehow privileged domain for idiomaticity
to correlate idiomaticity of a structure with it appearing below the categorizer.

However, non-compositional and idiosyncratic interpretations of material in nP and vP is the only option:

how could compositional interpretation deal with the un- or under-specified meaning of roots?

what would a compositional function operate on in the case of roots?

Hence, no compositional alternative to the verb *water* (unless a denominal coinage).

The systematic idiomaticity of first phases is not due to the categorizer acting as a limit, below which interpretation is/can be/must be noncompositional (Marantz 2000). It is because the First Phase (an nP or a vP) contains a root, an LF-deficient element, that would resist any compositional treatment anyway.

The bigger picture.

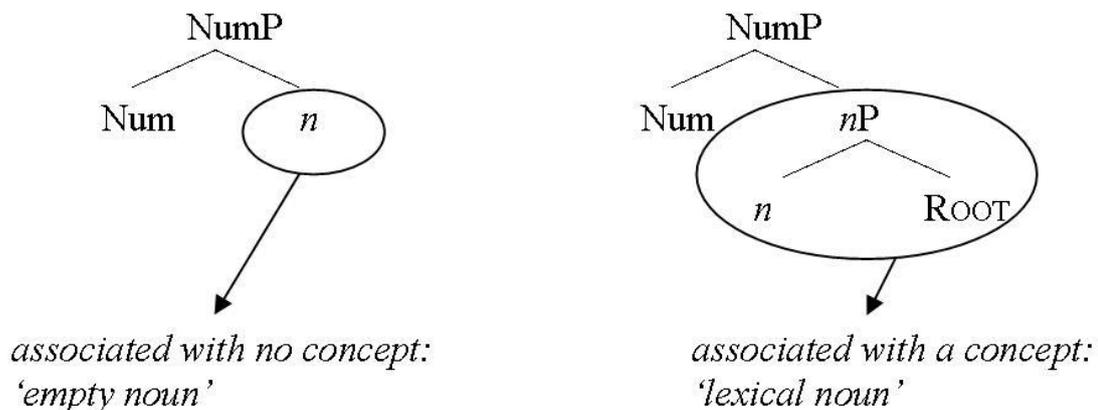
So, different roots will enable the same structure, say nP , to be associated with different concepts.

Although meaningless themselves,

roots are *the* syntax-internal criterion of lexical identity.

The existence of different roots enables the association of grammatical structures with a meaning

(a) form(s) (VIs)



So, roots as syntactic objects are pure indices / addresses:

Acategorial abstract indices: Acquaviva (2009b), Harley (2013).

You may imagine them as something like phone numbers.

This is a nice metaphor: phone numbers are transferrable, may become obsolete, need a context etc.

Roots are indices, the syntax-internal criterion of lexical identity.

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