



FACULTY  
OF ARTS

Masaryk University

# Roots unrooted

---

Pavel Caha

# The morphologist's view: Roots vs. affixes

## Roots: the morphologist's view

Aronoff (1994): A root is what is left when all morphological structure has been wrung out of a form.

(1) Czech conjugation

|     | sg.    | pl.     |
|-----|--------|---------|
| 1st | prosím | prosíme |
| 2nd | prosíš | prosíte |
| 3rd | prosí  | prosí   |

## Roots: the morphologist's view

Aronoff (1994): A root is what is left when all morphological structure has been wrung out of a form.

(1) Czech conjugation

|     | sg.     | pl.      |
|-----|---------|----------|
| 1st | prosí-m | prosí-me |
| 2nd | prosí-š | prosí-te |
| 3rd | prosí   | prosí    |

## Roots: the morphologist's view

Aronoff (1994): A root is what is left when all morphological structure has been wrung out of a form.

(1) Czech conjugation

|           | sg.     | pl.      |
|-----------|---------|----------|
| 1st       | prosí-m | prosí-me |
| 2nd       | prosí-š | prosí-te |
| 3rd       | prosí   | prosí    |
| past.masc | prosil  | prosili  |
| inf       | prosit  | prosit   |

## Roots: the morphologist's view

Aronoff (1994): A root is what is left when all morphological structure has been wrung out of a form.

(1) Czech conjugation

|           | sg.      | pl.        |
|-----------|----------|------------|
| 1st       | pros-í-m | pros-í-me  |
| 2nd       | pros-í-š | pros-í-te  |
| 3rd       | pros-í   | pros-í     |
| past.masc | pros-i-l | pros-i-l-i |
| inf       | pros-i-t | pros-i-t   |

## Roots: the morphologist's view

Aronoff (1994): A root is what is left when all morphological structure has been wrung out of a form.

(1) Czech conjugation

|           | sg.      | pl.        |
|-----------|----------|------------|
| 1st       | pros-í-m | pros-í-me  |
| 2nd       | pros-í-š | pros-í-te  |
| 3rd       | pros-í   | pros-í     |
| past.masc | pros-i-l | pros-i-l-i |
| inf       | pros-i-t | pros-i-t   |
| imp       | pros     | pros-te    |

## Roots: the morphologist's view

Aronoff (1994): A root is what is left when all morphological structure has been wrung out of a form.

(1) Czech conjugation

|           | sg.             | pl.               |
|-----------|-----------------|-------------------|
| 1st       | <b>pros-í-m</b> | <b>pros-í-me</b>  |
| 2nd       | <b>pros-í-š</b> | <b>pros-í-te</b>  |
| 3rd       | <b>pros-í</b>   | <b>pros-í</b>     |
| past.masc | <b>pros-i-l</b> | <b>pros-i-l-i</b> |
| inf       | <b>pros-i-t</b> | <b>pros-i-t</b>   |
| imp       | <b>pros</b>     | <b>pros-te</b>    |



## The M-Root

In a lot of words, one can distinguish the root and the affixes

(2) Czech demonstratives

|     | fem. | neut. | masc. |
|-----|------|-------|-------|
| nom | ta   | to    | ten   |
| acc | tu   | to    | toho  |
| gen | té   | toho  | toho  |
| loc | té   | to    | toho  |
| dat | té   | to    | toho  |
| ins | tou  | tím   | tím   |

## The M-Root

In a lot of words, one can distinguish the root and the affixes

(2) Czech demonstratives

|     | fem. | neut. | masc. |
|-----|------|-------|-------|
| nom | t-a  | t-o   | t-en  |
| acc | t-u  | t-o   | t-oho |
| gen | t-é  | t-oho | t-oho |
| loc | t-é  | t-o   | t-oho |
| dat | t-é  | t-o   | t-oho |
| ins | t-ou | t-ím  | t-ím  |

## The M-Root

In a lot of words, one can distinguish the root and the affixes

(2) Czech demonstratives

|     | fem. | neut. | masc. | wh, anim. |
|-----|------|-------|-------|-----------|
| nom | t-a  | t-o   | t-en  |           |
| acc | t-u  | t-o   | t-oho | k-oho     |
| gen | t-é  | t-oho | t-oho | k-oho     |
| loc | t-é  | t-o   | t-oho | k-om      |
| dat | t-é  | t-o   | t-oho | k-omu     |
| ins | t-ou | t-ím  | t-ím  |           |

# The syntactician's view: Lexical categories vs. Functional categories

## Lexical categories

- In syntax, people used to have a related distinction, namely that between LEXICAL CATEGORIES and FUNCTIONAL CATEGORIES.

## Lexical categories

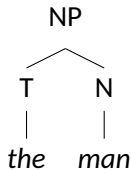
- In syntax, people used to have a related distinction, namely that between LEXICAL CATEGORIES and FUNCTIONAL CATEGORIES.

(3) Syntactic structures

(Chomsky (1957))

- a.  $NP \rightarrow T + N$
- b.  $T \rightarrow the$
- c.  $N \rightarrow man, ball, \dots$

(4)



## Lexical categories

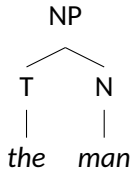
- In syntax, people used to have a related distinction, namely that between LEXICAL CATEGORIES and FUNCTIONAL CATEGORIES.

(3) Syntactic structures

(Chomsky (1957))

- $NP \rightarrow T + N$
- $T \rightarrow \textit{the}$
- $N \rightarrow \textit{man, ball, ...}$

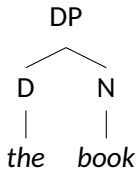
(4)



- One distinction is obvious from the notation: open vs. closed class items.

## The DP hypothesis

(5) Abney (1987)





## Affixes can be functional heads

(6) Danish

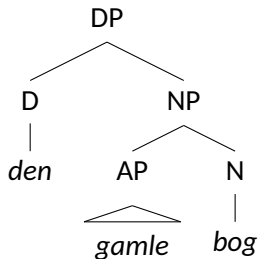
- a. en bog  
a book
- b. bog-en  
book-def  
'the book'
- c. den gamle bog  
the old book

## Affixes can be functional heads

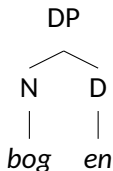
(6) Danish

- a. en bog  
a book
- b. bog-en  
book-def  
'the book'
- c. den gamle bog  
the old book

(7)



(8)

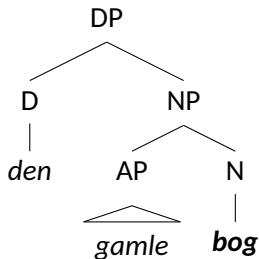


## Affixes can be functional heads

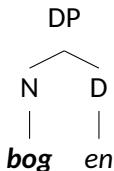
(6) Danish

- a. en bog  
a book
- b. bog-en  
book-def  
'the book'
- c. den gamle bog  
the old book

(7)



(8)



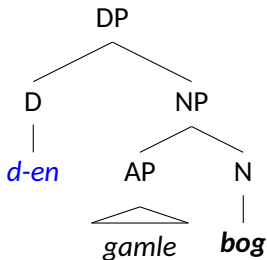
Lexical categories are M-roots.

## Affixes can be functional heads

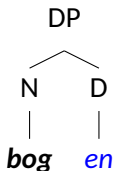
(6) Danish

- a. en bog  
a book
- b. bog-en  
book-def  
'the book'
- c. den gamle bog  
the old book

(7)



(8)



Lexical categories are M-roots.  
Functional categories may be  
affixal (but do not have to be).

# How lexical categories became empty

## Plural

(9) the books

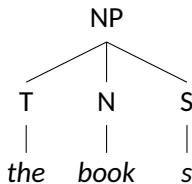
## Plural

(9) the books

(10) Chomsky (1957)

- a.  $NP \rightarrow NP_{sing}$
- b.  $NP \rightarrow NP_{pl}$
- c.  $NP_{sing} \rightarrow T + N + \emptyset$
- d.  $NP_{pl} \rightarrow T + N + S$

(11)



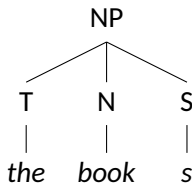
## Plural

(9) the books

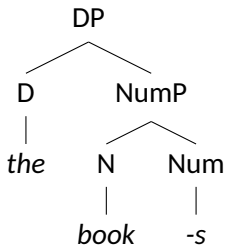
(10) Chomsky (1957)

- a.  $NP \rightarrow NP_{sing}$
- b.  $NP \rightarrow NP_{pl}$
- c.  $NP_{sing} \rightarrow T + N + \emptyset$
- d.  $NP_{pl} \rightarrow T + N + S$

(11)



(12)





## Gender

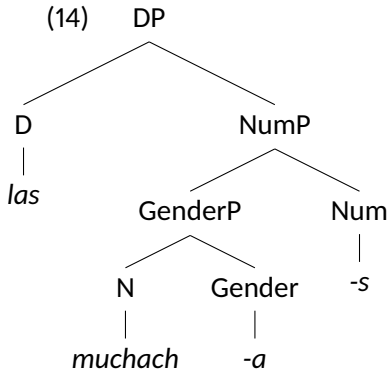
(13) Spanish

- a. l-a-s  
the-fem-pl  
muchach-a-s  
child-fem-pl  
**'the girls'**
  
- b. l-o-s  
the-masc-pl  
muchach-o-s  
child-masc-pl  
**'the boys'**

## Gender

(13) Spanish

- a. l-a-s  
the-fem-pl  
muchach-a-s  
child-fem-pl  
'the girls'
- b. l-o-s  
the-masc-pl  
muchach-o-s  
child-masc-pl  
'the boys'



## Portmanteau

- (15) Luganda
- a. omu-ntu 'person' (class 1)
  - b. aba-ntu 'people' (class 2)
  - c. eki-ntu 'thing' (class 7)
  - d. ebi-ntu 'things' (class 8)
  - e. awa-ntu 'place' (class 16)

## Portmanteau

(15) Luganda

- a. omu-ntu 'person' (class 1)
- b. aba-ntu 'people' (class 2)
- c. eki-ntu 'thing' (class 7)
- d. ebi-ntu 'things' (class 8)
- e. awa-ntu 'place' (class 16)

(16) a. ss-a-yas-izza                      ki-kopo  
neg.1-past-break-perf 7-cup  
'I didn't break any cup.'

- b. ss-a-ky-as-izza                      e-ki-kopo  
neg.1sg-past-7oc-break-perf 7-7-cup  
'I didn't break the cup.'

## Portmanteau

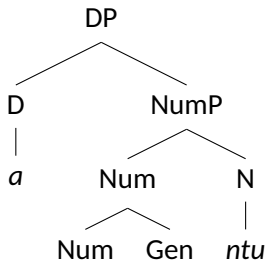
(15) Luganda

- a. o-mu-ntu 'person' (class 1)
- b. a-ba-ntu 'people' (class 2)
- c. e-ki-ntu 'thing' (class 7)
- d. e-bi-ntu 'things' (class 8)
- e. a-wa-ntu 'place' (class 16)

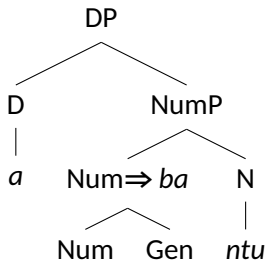
(16) a. ss-a-yas-izza                      ki-kopo  
neg.1-past-break-perf 7-cup  
'I didn't break any cup.'

- b. ss-a-ky-as-izza                      e-ki-kopo  
neg.1sg-past-7oc-break-perf 7-7-cup  
'I didn't break the cup.'

## Bantu II



## Bantu II



## Once you factor functional structure away, there is nothing left

- Borer: Thus far, the investigation of e.g. *the table* or *walked the dog* proceeded from the assumption that formal properties of such expressions can be fully accommodated without availing ourselves, at any point, of information that is uniquely connected to *table*, *walk* and *dog* respectively. Rather, both syntax and the crucial aspects of the semantics can be computed on the basis of functors and the semantic formulas which such functors denote.



## Once you factor functional structure away, there is nothing left

- Borer: Thus far, the investigation of e.g. *the table* or *walked the dog* proceeded from the assumption that formal properties of such expressions can be fully accommodated without availing ourselves, at any point, of information that is uniquely connected to *table*, *walk* and *dog* respectively. Rather, both syntax and the crucial aspects of the semantics can be computed on the basis of functors and the semantic formulas which such functors denote.
- A lot of people in Generative Grammar now entertain this position.

# The birth of S-roots

## A-categorial categories

dance: N / V

dog: N / V (to cause trouble for someone over a long period of time)

...

## A-categorial categories

dance: N / V

dog: N / V (to cause trouble for someone over a long period of time)

...

Harley and Noyer (1999): ... different “parts of speech” can be defined as a single l-morpheme, or Root (to adopt the terminology of Pesetsky 1995), in certain local relations with category-defining f-morphemes. For example, a noun or a nominalization is a Root whose nearest c-commanding f-morpheme (or licenser) is a Determiner ...

## A-categorial categories

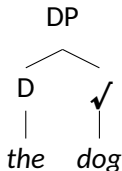
dance: N / V

dog: N / V (to cause trouble for someone over a long period of time)

...

Harley and Noyer (1999): ... different “parts of speech” can be defined as a single l-morpheme, or Root (to adopt the terminology of Pesetsky 1995), in certain local relations with category-defining f-morphemes. For example, a noun or a nominalization is a Root whose nearest c-commanding f-morpheme (or licenser) is a Determiner ...

(17)



## A-categorial categories

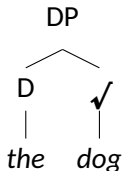
dance: N / V

dog: N / V (to cause trouble for someone over a long period of time)

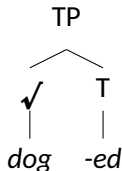
...

Harley and Noyer (1999): ... different “parts of speech” can be defined as a single l-morpheme, or Root (to adopt the terminology of Pesetsky 1995), in certain local relations with category-defining f-morphemes. For example, a noun or a nominalization is a Root whose nearest c-commanding f-morpheme (or licenser) is a Determiner ...

(17)



(18)



## “A novel syntactic term”

Borer, Structuring Sense III, 347: by virtue of being syntactic objects without a category, roots represent a novel syntactic term.

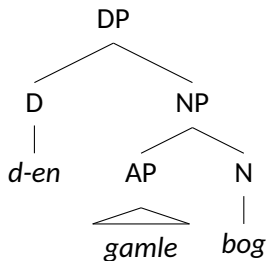
- (19) a. S-roots: Whatever is left when functional categories are “wrung out” of a form.
- b. M-roots: Whatever is left when all morphological structure has been wrung out of a form.

## “A novel syntactic term”

Borer, Structuring Sense III, 347: by virtue of being syntactic objects without a category, roots represent a novel syntactic term.

- (19) a. S-roots: Whatever is left when functional categories are “wrung out” of a form.  
b. M-roots: Whatever is left when all morphological structure has been wrung out of a form.

(20)





## My position

- There are no S-roots — There are no a-categorial root nodes in syntax, no novel objects in the Borer/DM sense

## My position

- There are no S-roots — There are no a-categorial root nodes in syntax, no novel objects in the Borer/DM sense
- There are no lexical categories

## My position

- There are no S-roots — There are no a-categorial root nodes in syntax, no novel objects in the Borer/DM sense
- There are no lexical categories
- Functional categories all the way down

## My position

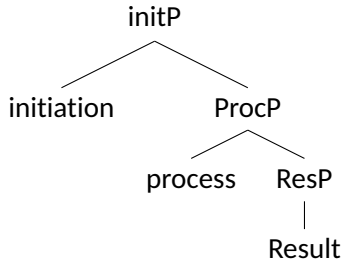
- There are no S-roots — There are no a-categorial root nodes in syntax, no novel objects in the Borer/DM sense
- There are no lexical categories
- Functional categories all the way down
- M-roots are the pronunciation of functional categories

## My position

- There are no S-roots — There are no a-categorial root nodes in syntax, no novel objects in the Borer/DM sense
- There are no lexical categories
- Functional categories all the way down
- M-roots are the pronunciation of functional categories

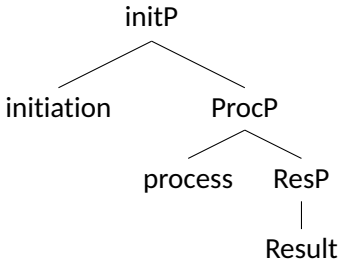
## Predecessors

(21) Ramchand (2008)



## Predecessors

(21) Ramchand (2008)



- enter = init+proc+res
- walk = init+proc
- melt = proc

# Nanosyntax and adjectives



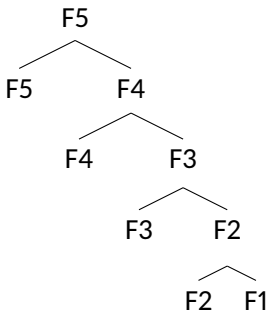
## The framework

- The basic building blocks of language are very small (smaller than morphemes)
- Phrasal spell-out (and the Superset Principle)

## The framework

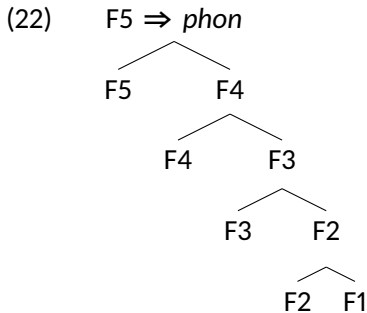
- The basic building blocks of language are very small (smaller than morphemes)
- Phrasal spell-out (and the Superset Principle)

(22)



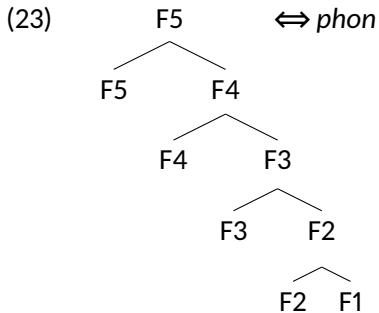
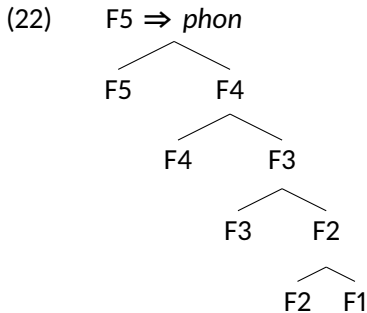
## The framework

- The basic building blocks of language are very small (smaller than morphemes)
- Phrasal spell-out (and the Superset Principle)



## The framework

- The basic building blocks of language are very small (smaller than morphemes)
- Phrasal spell-out (and the Superset Principle)



## Two classes of adjectives

- (24) a. gradable: *tall, rich, fast, warm,...*  
b. non-gradable: *nuclear, communal, baroque, ...*

## Two classes of adjectives

- (24) a. gradable: *tall, rich, fast, warm,...*
- b. non-gradable: *nuclear, communal, baroque, ...*
  
- (25) a. a very/extremely warm weather
- b. \*a very/extremely nuclear family

## Two classes of adjectives

- (24) a. gradable: *tall, rich, fast, warm,...*  
b. non-gradable: *nuclear, communal, baroque, ...*
  
- (25) a. a very/extremely warm weather  
b. \*a very/extremely nuclear family
  
- (26) a. a very American movie  
b. an un-American movie

## Two classes of adjectives

- (24) a. gradable: *tall, rich, fast, warm,...*  
b. non-gradable: *nuclear, communal, baroque, ...*
- (25) a. a very/extremely warm weather  
b. \*a very/extremely nuclear family
- (26) a. a very American movie  
b. an un-American movie
- (27) a. This stipend is for (\*very) American scientists  
b. This stipend is for non-American scientists



## Two classes of adjectives

- (24) a. gradable: *tall, rich, fast, warm,...*  
b. non-gradable: *nuclear, communal, baroque, ...*
- (25) a. a very/extremely warm weather  
b. \*a very/extremely nuclear family
- (26) a. a very American movie  
b. an un-American movie
- (27) a. This stipend is for (\*very) American scientists  
b. This stipend is for non-American scientists

(NB: I came up with the examples myself on the basis of descriptions and the negative examples seem not to be correct, as pointed out by Jeff)

- (28) Gradable adjectives are based on scales, non-gradable adjectives have no such scale. A non-gradable adjective can be turned into a gradable adjective by associating a scale to it.

## Two classes of gradable adjectives

- (29) Gradable adjectives form pairs belonging to an identical scale
- a. *happy — sad*
  - b. *friendly — hostile*
  - c. *healthy — sick*

## Two classes of gradable adjectives

- (29) Gradable adjectives form pairs belonging to an identical scale
- a. *happy* — *sad*
  - b. *friendly* — *hostile*
  - c. *healthy* — *sick*
- (30) Positive vs. negative adjectives

## Two classes of gradable adjectives

- (29) Gradable adjectives form pairs belonging to an identical scale
- a. *happy* — *sad*
  - b. *friendly* — *hostile*
  - c. *healthy* — *sick*
- (30) Positive vs. negative adjectives
- a. *unhappy* — \**unsad*
  - b. *unfriendly* — \**unhostile*
  - c. *unhealthy* — \**unsick*

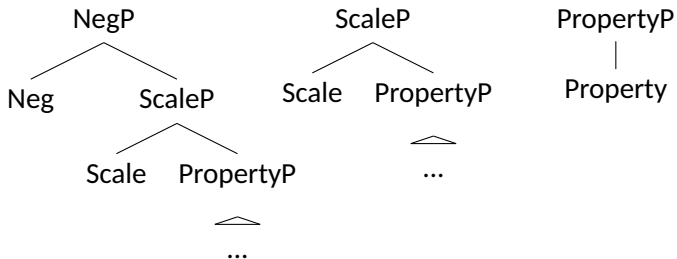
## The three classes of adjectives

Ongoing work by Guido Vanden Wyngaerd and Karen de Clercq

(31) a. *sad*

b. *happy*

c. *nuclear*



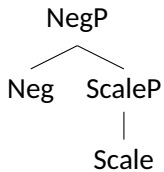
## No difference between roots/affixes

(32) Deriving adjectives

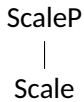
- a. positive adjectives: (un-)event-ful, (un-)faith-ful,  
(un-)help-ful, (un-)law-ful, (un-)success-ful
- b. negative adjectives: (\*un-)use-less, (\*un-)breath-less,  
(\*un-)sense-less, (\*un-)merci-less, (\*un-)cheer-less

## In tree structure

(33) a. *-less*



b. *-ful*



## In tree structure

- ‘Lexical categories’ (like adjectives, verbs) fall into various classes that can be described by various degrees of functional structure
- Functional structure all the way down
- No “roots” in syntax
- Root makes sense as a morphological term — the base to which affixes attach



To be continued...

## References

- Abney, Stephen. 1987. *The english noun phrase in its sentential aspect*. MIT, Cambridge, Massachusetts: Doctoral Dissertation.
- Aronoff, Mark. 1994. *Morphology by itself*. Cambridge: MIT Press.
- Chomsky, Noam. 1957. Review of Skinner *Verbal Behavior*. *Language* 35. 26–58.
- Ramchand, Gillian. 2008. *Verb meaning and the lexicon*. Cambridge, Massachusetts: MIT Press.