Phonology-free Syntax

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ComSyn
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In a nutshell
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Suppletion
Phrasal spellout
Root size variation
A prediction
   Czech
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In a nutshell

▶ Syntax is Phonology-Free
In a nutshell

- Syntax is Phonology-Free
- The architecture of Late Insertion Models directly derives this fact, but it faces a problem with suppletion
In a nutshell

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- The architecture of Late Insertion Models directly derives this fact, but it faces a problem with suppletion
- We solve this problem, by making a distinction between roots and $\sqrt{s}$
In a nutshell

- Syntax is Phonology-Free
- The architecture of Late Insertion Models directly derives this fact, but it faces a problem with suppletion
- We solve this problem, by making a distinction between roots and √s
- We develop a theory of allomorphy in terms of root size
In a nutshell

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Principle of Phonology-Free Syntax

“In the grammar of a natural language, rules of syntax make no reference to phonology” (Miller, Pullum & Zwicky 1997: 68)
Introduction

“No phonological properties of roots interact with the principles or computations of syntax” (Marantz 1996: 16)
Introduction

Lexicon
  ↓
Syntax
  ↓
Sound  Meaning
Introduction

(1) 

\[
\begin{array}{c}
\text{DP} \\
\text{D} \quad \text{NP} \\
\text{my} \quad \text{N} \\
/\text{cat}/ \quad [\text{N, +count}] \\
\end{array}
\]
Introduction

(2)

DP

D
my

Div

DivP

SizeP

Size

nP

n

√CAT
Introduction
Introduction

(2)

\[
\begin{align*}
&\text{DP} \\
&D \\ &\text{my} \\
&\text{Div} \\
&\text{Size} \\
&\text{nP} \\
&n \\
&\sqrt{n}
\end{align*}
\]
“A root is what is left when all morphological structure has been wrung out of a form” (Aronoff 1994: 40)
Introduction

Phonology-Free Syntax = Universal Syntax

“[I]t is assumed here that at LF, DS, and SS terminal nodes consist exclusively of morphosyntactic/semantic features and lack phonological features. The morphosyntactic features at these levels are drawn from a set made available by Universal Grammar (we are unaware of any arguments that language-specific features are necessary at these syntactic levels).” (Halle & Marantz 1993: 121)
Introduction

Lexicon

Syntax

Sound

Meaning
Introduction
Introduction

The picture so far:

- There is only one √
Introduction

The picture so far:

- There is only one $\sqrt{\ }$
- $\sqrt{\ }$ has no grammatical, phonological, or semantic properties
Introduction

The picture so far:

- There is only one $\sqrt{}$
- $\sqrt{}$ has no grammatical, phonological, or semantic properties
- Halle & Marantz (1993); Marantz (1996; 1997); De Belder & Van Craenenbroeck (2015)
An alternative view:

- Roots need to be individuated, through the use of numerical indices (Pfau 2000; 2009; Harley 2014), or a phonological index (Borer 2013)
Introduction

An alternative view:

▶ Roots need to be individuated, through the use of numerical indices (Pfau 2000; 2009; Harley 2014), or a phonological index (Borer 2013)
▶ There is a potential infinity of different $\sqrt{\text{~s}}$
An alternative view:

▶ Roots need to be individuated, through the use of numerical indices (Pfau 2000; 2009; Harley 2014), or a phonological index (Borer 2013)

▶ There is a potential infinity of different $\sqrt{s}$

▶ Technically, the syntax is phonology-free, but it’s clear that the index merely serves to uniquely tie a particular $\sqrt{\text{e.g. } 532}$ to a particular lexical item (e.g. cat), including its phonology
This talk

- we make the single $\sqrt{}$ approach compatible with root suppletion

Key ingredients:
- phrasal spellout
- a distinction between
  - **roots**: lexical items (such as *book*, *smart*), which spell out multiple syntactic nodes
  - $\sqrt{}$: a root in narrow syntax
We use $\sqrt{\cdot}$ for easy comparability with existing proposals in the literature.

We don’t believe the presyntactic lexicon contains a $\sqrt{\cdot}$, nor categorising heads.

Instead, it’s features all the way down.
Parenthesis

(3)

```
  DP
 /   |
D    DivP
 |    /
my   Div
    /
SizeP
    /
Size  F0
```
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(4) POS  CMPR  SPRL
good  better  best

(5) \[ \begin{array}{c}
\text{\(aP\)} \\
\swarrow \\
\text{\(a\)}
\end{array} \quad \begin{array}{c}
\text{\(\text{CMPRP}\)} \\
\swarrow \\
\text{\(aP\)} \quad \text{\(\text{CMPR}\)}
\end{array} \quad \begin{array}{c}
\text{\(\text{SPRLP}\)} \\
\swarrow \\
\text{\(\text{CMPRP}\)} \quad \text{\(\text{SPRL}\)}
\end{array} \]
(6)  
   a. \( \sqrt{\ } \Leftrightarrow \text{bett- } /\_\_ \} a \} \text{CMPR} \}
   b. \( \sqrt{\_} \Leftrightarrow \text{good} \)
(6)  

a.  √  ⇔  bett- / ___ ] a ] CMPR ]

b.  √  ⇔  good

(7)  The *Elsewhere Condition* forces a contextually-restricted allomorph (6a) to block insertion of a context-free allomorph of the same root (6b), when the context for insertion is met (Bobaljik 2012: 10)
(8)  

a.  \( \sqrt{\ } \quad \Leftrightarrow \quad \textit{bett- / } \underline{\text{[a]}} \text{CMPR} \) 

b.  \( \sqrt{\ } \quad \Leftrightarrow \quad \textit{good, nice, happy, small, intelligent, tall, ...} \)
Solution I

Root suppletion does not exist (Marantz 1997)

(9)  
   a. GOOD $\Leftrightarrow$ *bett- / ___ ] a ] CMPR ]*  
   b. GOOD $\Leftrightarrow$ good

(10) $\sqrt{\mathcal{V}}$ $\Leftrightarrow$ nice, happy, small, intelligent, tall, ...
Solution II
There is an infinity of different $\sqrt{s}$

(11) a. $\sqrt{\text{GOOD}} \iff \text{bett- / ___ ] a ] CMPR ]}$
b. $\sqrt{\text{GOOD}} \iff \text{good}$

(12) a. $\sqrt{\text{NICE}} \iff \text{nice}$
b. $\sqrt{\text{HAPPY}} \iff \text{happy}$
c. $\sqrt{\text{SMALL}} \iff \text{small}$
d. $\sqrt{\text{INTELLIGENT}} \iff \text{intelligent}$
e. $\sqrt{\text{TALL}} \iff \text{tall}$
f. ...
Solution II

There is an infinity of different $\sqrt{s}$

(11) a. $\sqrt{\text{GOOD}} \iff \text{bett-} / \underline{\phantom{a}} a \text{ ] CMPR ]}$
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d. $\sqrt{\text{INTELLIGENT}} \iff \text{intelligent}$
e. $\sqrt{\text{TALL}} \iff \text{tall}$
f. ...  

► Phonology sneaks in through the back door!
In a nutshell

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Suppletion

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A prediction

Conclusion
Phrasal spellout

(13) \( aP \Leftrightarrow bad \)

(14) \( CMPRP \Leftrightarrow worse \)
Phrasal spellout

(15) \[
\begin{align*}
a \quad & \quad \text{aP} \quad \Leftrightarrow \quad \text{good, nice, kind, small, intelligent, bad, ...}
\end{align*}
\]
How do we avoid that *worse* will be inserted in any comparative environment?
Phrasal spellout

How do we avoid that worse will be inserted in any comparative environment?

▶ pointers
Phrasal spellout

How do we avoid that *worse* will be inserted in any comparative environment?

▶ pointers

(16) \[
\text{CMPRP} \iff \text{worse}
\]

\[
\text{CMPR} \quad \text{bad}
\]
How do we avoid that *worse* will be inserted in any comparative environment?

- pointers

(16) \[ \text{CMPRP} \Leftrightarrow \textit{worse} \]

- *worse* only gets inserted if *bad* was inserted at an earlier cycle
Phrasal spellout

(17) \[ \text{CMPRP} \iff \text{bett} \]

\[ \text{CMPR} \quad \text{good} \]
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Root size variation

Root suppletion in a single $\sqrt{}$ theory

- roots vary in size
- suppletive roots are larger than nonsuppletive ones
- $\text{CMPR} = C_1 + C_2$
Root size variation

(18)  
\[ \begin{array}{c}
(\begin{array}{c}
C_2P \\
C_2 \\
C_1P \\
C_1 \\
aP \\
\sqrt{a}
\end{array})
\end{array} \]
Root size variation

\[(19) \quad C_1P \, \leftrightarrow \, bett\]

\[\begin{array}{c}
C_1 \\
\downarrow \quad \text{good}
\end{array}\]
Root size variation

(20)

\[
\begin{array}{c}
\text{aP} \\
\text{a} \\
\sqrt{-} \\
\text{good}
\end{array}
\]

(21)

\[
\begin{array}{c}
bett \\
\text{C2P} \\
\text{C1P} \\
\text{good} \\
\text{C1} \\
\text{aP} \\
\text{a} \\
\sqrt{-} \\
\text{er} \\
\text{C2P}
\end{array}
\]
Root size variation

(22)

C₂P
/   \  \
C₂   C₁P
/ \
C₂   C₁

more

\sqrt{a}

root₂

(23)

C₂
/   \  \
C₁P  C₂
/     /  \
C₁  a  C₂

\sqrt{-a}

root₃

 более

Èр
Root size variation

(24) a. $aP \leftrightarrow \text{root}2 \ (\text{good, ill, apt, intelligent, gaunt, ...} )$

\[
\begin{array}{c}
a \\
\sqrt
\end{array}
\]

b. $C_1P \leftrightarrow \text{root}3 \ (\text{bett, old, nice, smart, great, ...} )$

c. $C_2P \leftrightarrow \text{-er}$

\[
\begin{array}{c}
C_2 \\
C_1 \\
aP \\
a \\
\sqrt
\end{array}
\]
Root size variation

$$\sqrt{a} \quad C_1 \quad C_2$$

<table>
<thead>
<tr>
<th></th>
<th>good</th>
<th>er</th>
</tr>
</thead>
<tbody>
<tr>
<td>bett</td>
<td></td>
<td>er</td>
</tr>
<tr>
<td>old</td>
<td></td>
<td>er</td>
</tr>
<tr>
<td>intelligent</td>
<td>more</td>
<td></td>
</tr>
<tr>
<td>intelligent</td>
<td></td>
<td>er</td>
</tr>
</tbody>
</table>
Root size variation

(26) *The Superset Principle* (Starke 2009)
A lexically stored tree L matches a syntactic node S iff L contains the syntactic tree dominated by S as a subtree
Root size variation

(26) *The Superset Principle* (Starke 2009)
A lexically stored tree $L$ matches a syntactic node $S$ iff $L$ contains the syntactic tree dominated by $S$ as a subtree.

(27) *Faithfulness Restriction (FR)*
A spellout $\alpha$ may overwrite an earlier spellout $\beta$ iff
\begin{enumerate}
  \item $\alpha$ contains a pointer to $\beta$
  \item $\alpha = \beta$
\end{enumerate}
Root size variation

(28) C₂P
     /\   /
    aP  C₂P
   /     /\      
  C₁   C₂  more   intelligent

(29) C₂
     /\        
    C₁P  C₂P
   /     /\      
  aP  a  old   er
   \    /         
    a  √
Root size variation

(30) Root Suppletion Generalisation (Bobaljik 2012: 3)
Root supplication is limited to synthetic (i.e., morphological) comparatives.
Root size variation

(31)  
lucky  happy
slimy  dizzy
crappy  silly
arty  nifty
windy  sloppy
thorny  tidy
healthy  pretty
beardy  happy
kinky  bonny
bloody  busy
cloudy  canny
bony  bawdy
touchy  phoney
chirpy  horny
dirty  cheeky
Root size variation

\[
\begin{align*}
(32) & \quad \sqrt{a} \iff \text{root1 (luck, slime, hap, sil, slop, ...)} \\
& \quad \text{b. } C_1 P \iff \neg y
\end{align*}
\]
Root size variation

(33) \(\sqrt{\text{sil}}\)

(34) \(\sqrt{\text{sil}}\)

\[\text{aP}\]

\[\text{y}\]
Root size variation

(35)
Root size variation

(36) \[ C_2P \iff worse \]

\[
\begin{array}{c}
\text{C2} \\
\text{bad}
\end{array}
\]

(37) \[ C_2P \iff root_4 \]

\[
\begin{array}{c}
\text{C2} \\
\text{C1P} \\
\text{aP} \\
a \\
\sqrt{}
\end{array}
\]
Root size variation

(38)  

(39)  
a.  \textit{root1}: appears with an overt $a$ in the positive  
b.  \textit{root2}: no overt $a$, full comparative marking  
c.  \textit{root3}: no overt $a$, reduced comparative marking  
d.  \textit{root4}: no overt $a$, no comparative marking
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In cases where suppletion co-occurs with overt marking, the overt marking tends to be ‘reduced’, often a substring of a different, nonreduced marker.
A prediction

<table>
<thead>
<tr>
<th>(40)</th>
<th>POS</th>
<th>CMPR</th>
</tr>
</thead>
<tbody>
<tr>
<td>a.</td>
<td>ějš-í</td>
<td>chab-ý</td>
</tr>
<tr>
<td>b.</td>
<td>š-í</td>
<td>slab-ý</td>
</tr>
<tr>
<td>c.</td>
<td>-í</td>
<td>hez-k-ý</td>
</tr>
<tr>
<td>d.</td>
<td>-í</td>
<td>ostr-ý</td>
</tr>
</tbody>
</table>
A prediction

<table>
<thead>
<tr>
<th>(41)</th>
<th>CMPR ADJ</th>
<th>CMPR ADV</th>
<th>Meaning</th>
</tr>
</thead>
</table>
|      | chab-
ěj-
š-í | chab-
ěj-i | ‘weak’   |
|      | rychl-
ej-
š-í | rychl-
ej-i | ‘fast’   |
|      | červen-
ěj-
š-í | červen-
ěj-i | ‘red’    |
A prediction

(42) C2P
   /  \\
 C1P    C2
   |  |
 aP    C1
   |  |
 a    -ěj

root2

(43) C2
   /  \\
 C1P    C2
   |  |
 aP    C1
   |  |
 a    -š

root3
A prediction

<table>
<thead>
<tr>
<th>POS</th>
<th>CMPR</th>
<th>‘good’</th>
</tr>
</thead>
<tbody>
<tr>
<td>dobr-ý</td>
<td>lep-š-í</td>
<td>‘big’</td>
</tr>
<tr>
<td>velk-ý</td>
<td>vět-š-í</td>
<td>‘long’</td>
</tr>
<tr>
<td>dlouh-ý</td>
<td>del-š-í</td>
<td>‘bad’</td>
</tr>
<tr>
<td>špatn-ý</td>
<td>hor-š-í</td>
<td>‘little, small’</td>
</tr>
<tr>
<td>mal-ý</td>
<td>men-š-í</td>
<td></td>
</tr>
</tbody>
</table>
A prediction

(45) lep C2P
    /   |
   /    |
C1P  dobře C2P

C1 aP

C2 š
A prediction

<table>
<thead>
<tr>
<th>POS</th>
<th>CMPR</th>
<th>SPRL</th>
<th>GLOSS</th>
<th>marking in SPRL</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. alt-us</td>
<td>alt-i-or</td>
<td>alt-i-ss-im-us</td>
<td>‘tall’</td>
<td>full marking</td>
</tr>
<tr>
<td>b. mal-us</td>
<td>pe- or</td>
<td>pe- ss-im-us</td>
<td>‘bad’</td>
<td>SPRL lacks -i</td>
</tr>
<tr>
<td>c. bon-us</td>
<td>mel-i-or</td>
<td>opt- im-us</td>
<td>‘good’</td>
<td>SPRL lacks -i-ss</td>
</tr>
<tr>
<td>d. magn-us</td>
<td>ma-i-or</td>
<td>max- im-us</td>
<td>‘big’</td>
<td>SPRL lacks -i-ss</td>
</tr>
<tr>
<td>e. parv-us</td>
<td>min- or</td>
<td>min- im-us</td>
<td>‘small’</td>
<td>SPRL lacks -i-ss</td>
</tr>
<tr>
<td>f. mult-us</td>
<td>plūs</td>
<td>plūr- im-us</td>
<td>‘much’</td>
<td>SPRL lacks -i-ss</td>
</tr>
</tbody>
</table>
A prediction

\[(46)\]

```
(alt)

alt

a

aP

C1

C1P

C2P

S1P

S2P

S1

S2

im

ss

i

\[\sqrt{}\]
```
A prediction

(47)
In a nutshell

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Conclusion

- Syntax is Phonology-Free
- Suppletion involves
  - phrasal spellout
  - a split CMPR
- Allomorphy is explained in terms of variations in root size
References


MARANTZ, A. 1996. Cat as a phrasal idiom: consequences of late insertion in Distributed Morphology. Ms., MIT.


