Comparative root suppletion: DM vs Nanosyntax

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Outline

1 The Containment Hypothesis

2 Czech comparative morphology

3 The internal structure of the comparative

4 Suppletion I: Nanosyntax

5 Suppletion II: Distributed Morphology
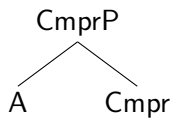
6 Conclusions

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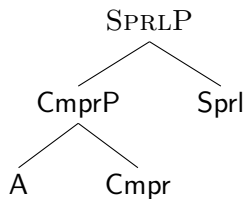
6 Conclusions

Containment Hypothesis

`The representation of the superlative properly contains that of the comparative' (**?**: 4)

(1)

CmprP
├── A
└── Cmpr

(2)

SPRLP
├── CmprP
│   ├── A
│   └── Cmpr
└── Sprl

Morphological evidence

	Pos	Cmpr	Sprl	
Persian	kam	kam-**tar**	kam-**tar**-in	`little'
Cimbrian	šüa	šüan-**ar**	šüan-**ar**-ste	`pretty'
Czech	mlad-ý	mlad-**ší**	nej-mlad-**ší**	`young'
Hungarian	nagy	nagy-**obb**	leg-nagy-**obb**	`big'
Latvian	zil-ais	zil-**âk**-ais	vis-zil-**âk**-ais	`orange'
Ubykh	nüsʷə	**ç'a**-nüsʷə	a-**ç'a**-nüsʷə	`pretty'

CSG

Comparative-Superlative Generalisation

When the comparative has a suppletive form, the superlative will also be suppletive, and vice versa (**?**: 29-30).

CSG

Comparative-Superlative Generalisation

When the comparative has a suppletive form, the superlative will also be suppletive, and vice versa (**?**: 29-30).

(3)   ABB   good   better   best
      *ABA   good   better   goodest
      *AAB   good   gooder   best

Cmpr = C1 +C2

Our claim

- the Cmpr head is to be split up into two distinct heads, C1 and C2 (see also **?**)

(4)

```
        C2P
       /    \
     C2     C1P
            /  \
          C1    A
```
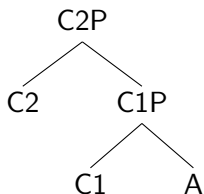
Evidence comes from Czech

- regular degree morphology
- root suppletion in degree morphology

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1. The Containment Hypothesis

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6. Conclusions

Regular comparative degree morphology

-ějš-

(5)　　Pos　　　Cmpr　　　　Sprl
     červen-ý   červen-ějš-í   nej-červen-ějš-í   `red'
     hloup-ý   hloup-ějš-í   nej-hloup-ějš-í   `stupid'
     moudr-ý   moudř-ejš-í   nej-moudř-ejš-í   `wise'

Regular comparative degree morphology

-ějš-

(6)

	POS	CMPR	SPRL	
	červen-ý	červen-ějš-í	nej-červen-ějš-í	`red'
	hloup-ý	hloup-ějš-í	nej-hloup-ějš-í	`stupid'
	moudr-ý	moudř-ejš-í	nej-moudř-ejš-í	`wise'

í/ý = adjectival agreement: Case, number, gender

$ěj\check{s} = ěj+\check{s}$

5 pieces of evidence showing that -ějš- consists of two parts ($ěj+\check{s}$)

❶ -ěj- disappears with suppletive roots

❷ -ěj- disappears in cases where the root shortens

❸ -ěj- can disappear non-predictably

❹ -ěj- disappears with de-adjectival verbs

❺ -š- disappears with comparative adverbs

❶ *-ěj-* disappears with suppletive roots

(7)

Pos	Cmpr	Sprl	
dobr-ý	lep-š-í	nej-lep-š-í	`good'
špatn-ý	hor-š-í	nej-hor-š-í	`bad'
mal-ý	men-š-í	nej-men-š-í	`little, small'
velk-ý	vět-š-í	nej-vět-š-í	`big'

❷ *-ěj-* disappears in cases where the root shortens

(8)

Pos	Cmpr	
dlouh-ý	del-š-í	'long'
blízk-ý	bliž-š-í	'close'
vys-ok-ý	vyš-š-í	'tall'

❸ *-ěj-* can disappear non-predictably

(9)

Pos	Cmpr	
star-ý	star-š-í	`old'
such-ý	suš-š-í	`dry'
drah-ý	draž-š-í	`expensive'
tvrd-ý	tvrd-š-í	`hard'
tich-ý	tiš-š-í	`silent'

❹ *-ěj-* disappears with de-adjectival verbs

(10)

Pos	Cmpr	Verb	
such-ý	suš-š-í	(u-)suš-i-t	`dry'
mokr-ý	mokř-ejš-í	(za-)mokř-i-t	`wet'
drah-ý	draž-š-í	z-draž-i-t	`expensive'
dlouh-ý	del-š-í	z-dlouž-i-t	`long'
		z-del-š-i-t	

❺ -š- disappears with comparative adverbs

(11)

CMPR ADJ	CMPR ADV	
červen-ěj-š-í	červen-ěj-i	`redder'
hloup-ěj-š-í	hloup-ěj-i	`more stupid'
moudř-ej-š-í	moudř-ej-i	`wiser'
rychl-ej-š-í	rychl-ej-i	`faster'

Preliminary Conclusion

The regular comparative suffix consists of two parts: *ěj+š*

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Nanosyntax

- One Feature, One Head (OFOH)
- Postsyntactic Lexicon
- Phrasal Spellout
- Superset Principle: A lexical entry may spell out a syntactic node iff the lexical tree contains the syntactic node.
- Elsewhere Principle: If there is more than one candidate for spellout, the closest match wins.
- Language variation can be reduced to the size of lexically stored trees (**?**).

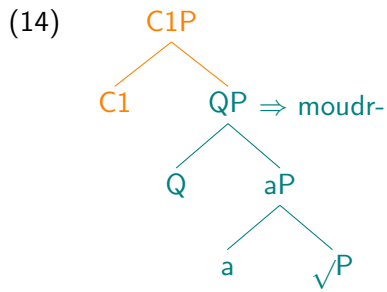# The Czech regular comparative

(12)

The Czech regular comparative

(12)
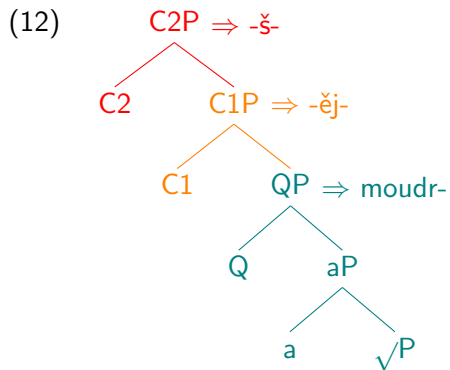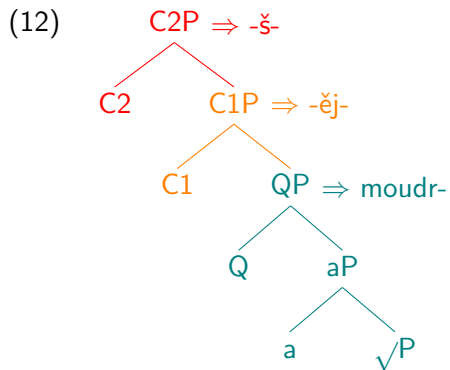
$(Q = \text{gradability})$

The lexicon

(13) a. $< /\text{moudr-}/, [_{QP} \text{ Q } [_{aP} \text{ a } [_{\sqrt{P}} \sqrt{}]]], \text{ WISE } >$
      b. $< /\text{-ěj-}/, [_{C1P} \text{ C1 }] >$
      c. $< /\text{-š-}/, [_{C2P} \text{ C2 }] >$

The derivation-1

(14)

$< $ /moudr-/, [$_{QP}$ Q [$_{aP}$ a [$_{\sqrt{P}}$ $\sqrt{}$]]], WISE $>$
$< $ /-ěj-/, [$_{C1P}$ C1] $>$

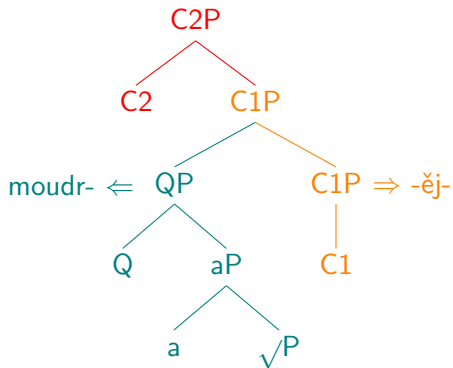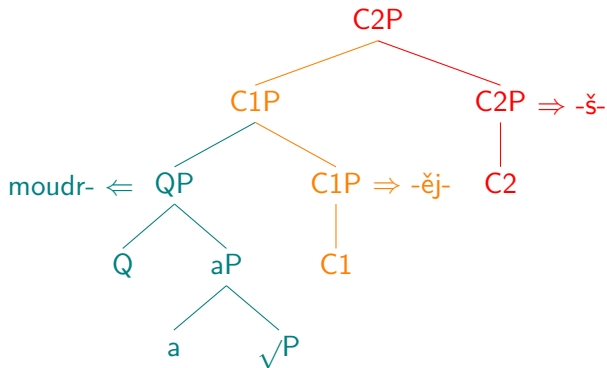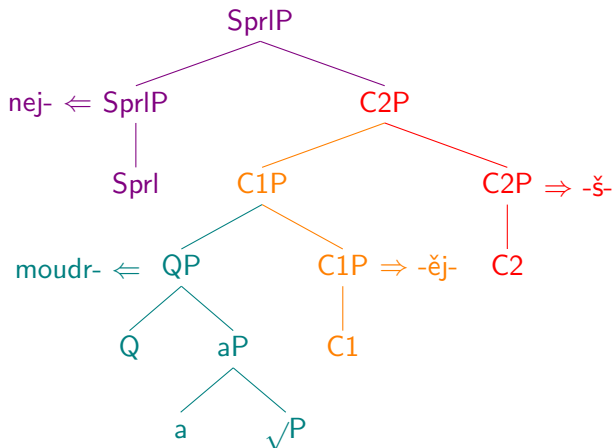# The derivation-2 (spellout-driven movement)

(15)

```
                        C1P
                       /    \
moudr- ⇐  QP          C1P ⇒ -ěj-
          /  \         |
         Q    aP       C1
             /  \
            a    √P
```
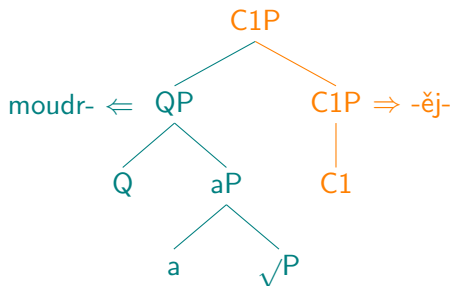
$< $ /-ěj-/, [$_{C1P}$ C1] $>$

The derivation-3

(16)

$<$ /-š-/, [$_{C2P}$ C2] $>$

The derivation-4

(17)

```
                                    C2P
                          ┌──────────┴────────┐
                        C1P                  C2P ⇒ -š-
                 ┌────────┴──────┐            │
moudr- ⇐      QP              C1P ⇒ -ěj-     C2
           ┌───┴───┐           │
          Q       aP          C1
               ┌───┴───┐
              a      √P
```

< /-š-/, [C2P C2] >

The derivation-5

(18)

$< $ /-nej-/, [$_{\text{SprIP}}$ SprI] $>$

Language variation

(19)

POS	CMPR	SPRL
wise	wis-er	wis-est
moudr-ý	moudř-ej-š-í	nej-moudř-ej-š-í

- the difference between Czech and English is entirely located in the size of the lexically stored trees

English

(20)
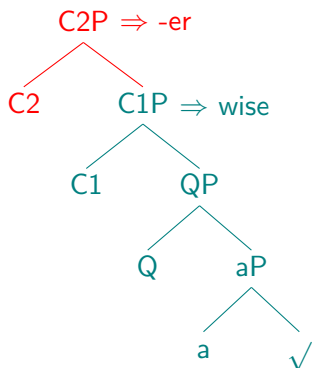
C2P ⇒ -er
- C2
- C1P ⇒ wise
  - C1
  - QP
    - Q
    - aP
      - a
      - √

(21) a. $< /wise/, [_{C1P} C1 [_{QP} Q [_{aP} a [_{\sqrt{P}} \sqrt{}]]]] >$
      b. $< /-er/, [_{C2P} C2] >$

(22)

SprIP ⇒ -est
├─ SprI
└─ C2P ⇒ ~~-er~~
   ├─ C2
   └─ C1P ⇒ wise
      ├─ C1
      └─ QP
         ├─ Q
         └─ aP
            ├─ a
            └─ √

(23) $<$ /-est/, [$_{SprIP}$ SprI [$_{C2P}$ C2]] $>$

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Suppletion

Two types:

- Portmanteau suppletion (24a)
- Root suppletion (24b)

(24)

	Pos	Cmpr
a.	bad	worse
b.	good	bett-er

Portmanteau suppletion = pointers

(25)   a. $<_{\text{WORSE}}$ /worse/, $[_{\text{C2P}}$ BAD ER $]>$

       b. $<_{\text{BAD}}$ /bad/, $[_{\text{C1P}}\ [_{\text{QP}}$ Q $[_{\text{aP}}$ a $\sqrt{}\ ]]]>$

       c. $<_{\text{-ER}}$ /-er/, $[_{\text{C2P}}$ C2 $]>$

Portmanteau suppletion = pointers

(25) a. $<_{\text{WORSE}}$ /worse/, $[_{\text{C2P}}$ BAD ER $]>$
      b. $<_{\text{BAD}}$ /bad/, $[_{\text{C1P}}\ [_{\text{QP}}\ Q\ [_{aP}\ a\ \sqrt{\ }]]]>$
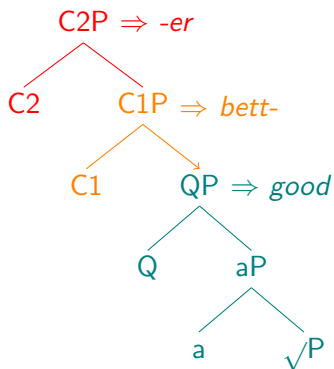   c. $<_{\text{-ER}}$ /-er/, $[_{\text{C2P}}\ \text{C2}\ ]>$

(26)
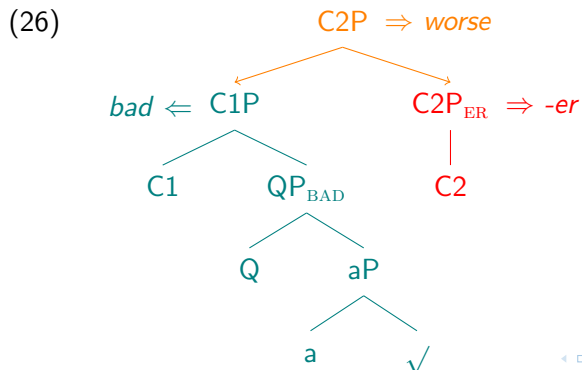
Root suppletion = pointers (but differently)

- the contrast between *good* and *bett-* is one of internal makeup:
    - *good* spells out QP
    - *bett-* spells out C1P

- *bett-* contains a pointer to GOOD

better

(27)

(28) a. $<_{\text{GOOD}}$ /good/, [$_{QP}$ Q [$_{aP}$ a [$_{\sqrt{P}}$ $\sqrt{}$]]] $>$
       b. $<_{\text{BETT}}$ /bett-/, [$_{C1P}$ C1 GOOD]] $>$

This analysis explains 1

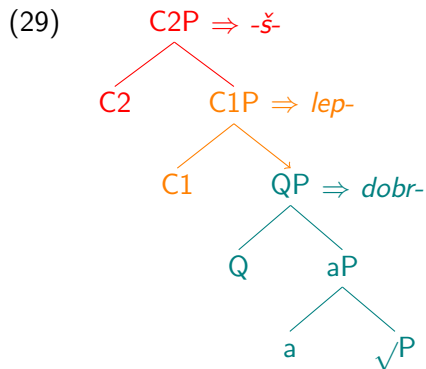5 pieces of evidence showing that -*ějš*- consists of two parts (*ěj*+*š*)

❶ -*ěj*- disappears with suppletive roots

❷ -*ěj*- disappears in cases where the root shortens

❸ -*ěj*- can disappear non-predictably

❹ -*ěj*- disappears with de-adjectival verbs

❺ -*š*- disappears with comparative adverbs

This analysis explains 1

➁ *-ěj-* disappears with suppletive roots

- *-ěj-* spells out the C1 feature
- the suppletive root *lep-* also spells out C1
- therefore, suppletive roots are predicted to be incompatible with *-ěj-* in principle

lep- eats up *-ěj-*

(29)

C2P ⇒ -*š*-
C2   C1P ⇒ *lep-*
      C1   QP ⇒ *dobr-*
            Q   aP
                 a   √P

(30) a. $<_{\text{DOBR}}$ /dobr-/, [$_{QP}$ Q [$_{aP}$ a [$_{\sqrt{P}}$ √]]] >
      b. $<_{\text{LEP}}$ /lep-/, [$_{C1P}$ C1 DOBR]] >
      c. $<$ /-ěj-/, [$_{C1P}$ C1] >
      d. $<_{\text{š}}$ /-š-/, [$_{C2P}$ C2] >

The analysis explains 2

5 pieces of evidence showing that -*ějš*- consists of two parts (*ěj*+*š*)

❶ -*ěj*- disappears with suppletive roots

❷ -*ěj*- disappears in cases where the root shortens

❸ -*ěj*- can disappear non-predictably

❹ -*ěj*- disappears with de-adjectival verbs

❺ -*š*- disappears with comparative adverbs

⇒ shortened roots (like suppletive roots) spell out C1P

(8)

Pos	Cmpr	
dlouh-ý	del-š-í	'long'
blízk-ý	bliž-š-í	'close'
vys-ok-ý	vyš-š-í	'tall'

(31)   a. $<_{\text{DLOUH}}$ /dlouh-/, [$_{QP}$ Q [$_{aP}$ a [$_{\sqrt{}P}$ $\sqrt{}$]]] $>$
       b. $<_{\text{DEL}}$ /del-/, [$_{C1P}$ C1 DLOUH]] $>$

The analysis explains 3

5 pieces of evidence showing that -ějš- consists of two parts (ěj+š)

❶ -ěj- disappears with suppletive roots

❷ -ěj- disappears in cases where the root shortens

❸ -ěj- can disappear non-predictably

❹ -ěj- disappears with de-adjectival verbs

❺ -š- disappears with comparative adverbs

⇒ the relevant lexical items spell out C1P

(9)

Pos	Cmpr	
star-ý	star-š-í	`old'
such-ý	suš-š-í	`dry'
drah-ý	draž-š-í	`expensive'

(32) $< $ /star-/, $[_{C1P}$ C1 $[_{QP}$ Q $[_{aP}$ a $[_{\sqrt{}P}$ $\sqrt{}$]]]] $>$

- *star-* can spell out C1P, causing *-ěj-* to disappear in the comparative
- *star-* does not contain a pointer
- the difference between these adjectives and the ones that do take *-ěj-š-* is a matter of lexical idiosyncrasy

5 pieces of evidence showing that -*ějš*- consists of two parts (*ěj*+*š*)

❶ -*ěj*- disappears with suppletive roots

❷ -*ěj*- disappears in cases where the root shortens

❸ -*ěj*- can disappear non-predictably

❹ **-*ěj*- disappears with de-adjectival verbs**

❺ **-*š*- disappears with comparative adverbs**

5 pieces of evidence showing that -*ějš*- consists of two parts (*ěj*+*š*)

❶ -*ěj*- disappears with suppletive roots

❷ -*ěj*- disappears in cases where the root shortens

❸ -*ěj*- can disappear non-predictably

❹ **-*ěj*- disappears with de-adjectival verbs**

❺ **-*š*- disappears with comparative adverbs**
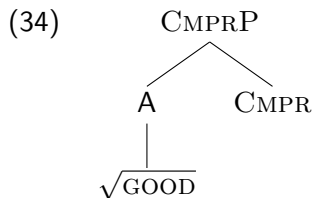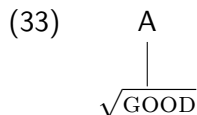
We skip 4 and 5 here
... and move on to ...

Outline

DM account of suppletion

- root suppletion: contextual allomorphy
- portmanteau suppletion: contextual allomorphy + fusion

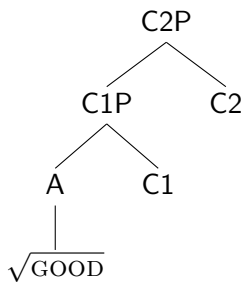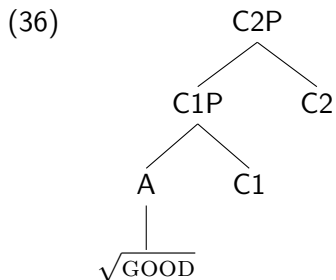## Root Suppletion = contextual allomorphy

(33)   A
            |
       √GOOD

(34)   CMPRP
           A   CMPR
       |
     √GOOD

(35)   a. $\sqrt{\text{GOOD}} \rightarrow$ *be(tt)-* / ____] CMPR]
       b. $\sqrt{\text{GOOD}} \rightarrow$ *good*

Root suppletion in Czech

(36)

```
                    C2P
                   /    \
                C1P      C2
               /   \
              A     C1
              |
           √GOOD
```

Root suppletion in Czech

(36)

(37) a. $\sqrt{\text{GOOD}} \rightarrow$ *dobr-*
      b. $\sqrt{\text{GOOD}} \rightarrow$ *lep-* / ____] C1]

(38) a. C1 $\rightarrow$ *ěj*
      b. C1 $\rightarrow$ $\emptyset$ / *lep*] ____
      c. C2 $\rightarrow$ *š*

Root suppletion in Czech

(38)　a.　C1 → ěj
　　　b.　C1 → Ø / lep] _____
　　　c.　C2 → š

- a rule like (38b) must be duplicated for each suppletive root
- nothing in principle prevents the existence of suppletive roots with -ěj-: Czech could have (37), and at the same time lack (38b)
- there is no principled explanation for the systematic absence of -ěj- with suppletive (and shortened) roots

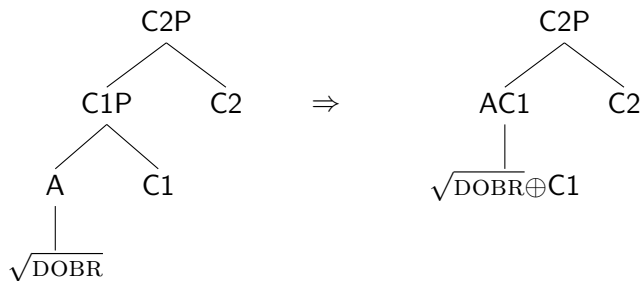Portmanteau suppletion $=$ Fusion $+$ contextual allomorphy

(39)

$$\text{CmprP} \qquad \Rightarrow \qquad \text{AC}$$

A   Cmpr $\sqrt{\text{BAD}}\oplus\text{Cmpr}$

$\sqrt{\text{BAD}}$
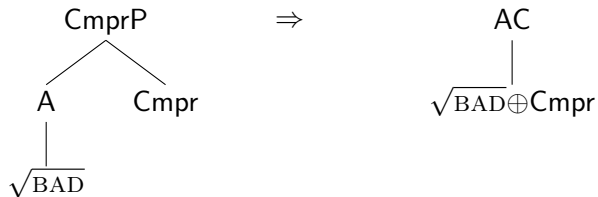
(40)   a. $\sqrt{\text{BAD}}$, Cmpr $\rightarrow$ worse
         b. $\sqrt{\text{BAD}} \rightarrow$ bad

Alternative for Czech: *lep* is portmanteau suppletion

(41)

(42)   a. $\sqrt{\text{DOBR}}$, C1 $\rightarrow$ lep
       b. $\sqrt{\text{DOBR}} \rightarrow$ dobr
       c.   C1 $\rightarrow$ ěj
       d.   C2 $\rightarrow$ š

The Good

- *lep* lexically contains C1, therefore no spellout for C1 as *-ěj-* is needed/allowed (like in the nanosyntactic approach).

The Good

- *lep* lexically contains C1, therefore no spellout for C1 as *-ěj-* is needed/allowed (like in the nanosyntactic approach).

The Bad

- to derive the principled incompatibility of *-ěj-* with suppletive roots, the Fusion derivation *must* be chosen over the contextual allomorphy derivation.

The Good

- *lep* lexically contains C1, therefore no spellout for C1 as *-ěj-* is needed/allowed (like in the nanosyntactic approach).

The Bad

- to derive the principled incompatibility of *-ěj-* with suppletive roots, the Fusion derivation *must* be chosen over the contextual allomorphy derivation.

The Ugly

- a timing paradox arises (**?**).

The Paradox

- Fusion < Lexical insertion
- Fusion must apply in all and only those cases where a portmanteau morpheme is available:
    - *lep-* `good'
    - *del-* `long'
    - *star-* `old'

- the rules manipulating the structure (like Fusion) must know what the lexicon contains, in advance of lexical insertion

The Paradox

- Fusion $<$ Lexical insertion
- Fusion must apply in all and only those cases where a portmanteau morpheme is available:
    - *lep-* `good'
    - *del-* `long'
    - *star-* `old'

- the rules manipulating the structure (like Fusion) must know what the lexicon contains, in advance of lexical insertion

The Solution

- Give up the assumption that lexical insertion can only take place at terminals (**?**).
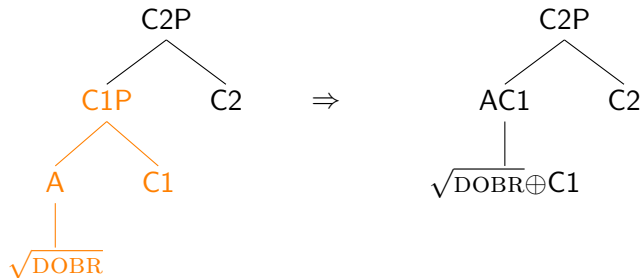
(43)   a. $\sqrt{\text{DOBR}}$, C1 $\rightarrow$ lep

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Conclusions

- Bobaljik's Cmpr needs to be split up into two distinct heads/features, C1 and C2.
- Czech morphology provides evidence for two distinct exponents corresponding to these two features: *ěj+š*.
- We developed a nanosyntactic analysis of root suppletion that accounts for the systematic absence of *ěj* with suppletive and shortened roots in Czech comparatives.
- We showed that the DM account leads to a timing paradox, which supports the idea of phrasal spellout.

Thank you!

Pavel Caha

References