

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

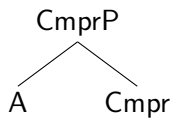
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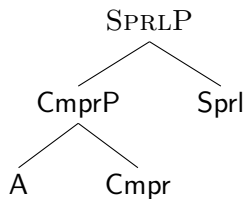
Containment Hypothesis

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

(1)



(2)



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	nüs ^{wə}	ç'a -nüs ^{wə}	a- ç'a -nüs ^{wə}	`pretty'

CSG

Comparative-Superlative Generalisation

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

CSG

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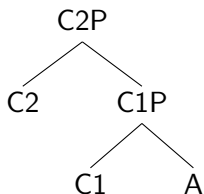
- (3)
- | | | | |
|------|------|--------|---------|
| ABB | good | better | best |
| *ABA | good | better | goodest |
| *AAB | good | gooder | best |

$$\text{Cmpr} = \text{C1} + \text{C2}$$

Our claim

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

(4)



Evidence comes from Czech

- regular degree morphology
- root suppletion in degree morphology

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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-ějš-í	nej-moudř-ějš-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-ějš- í	nej-moudř-ějš- í	`wise'

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

ějš = ěj+š

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

① -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'

② -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'

③ -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'

④ -ěj- disappears with de-adjectival verbs

(10)	POS	CMPR	VERB	
	such-ý	suš-š-í	(u-)suš-i-t	`dry'
	mokr-ý	mokř-ějš-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 z-del-š-i-t	`long'

⑤ -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*

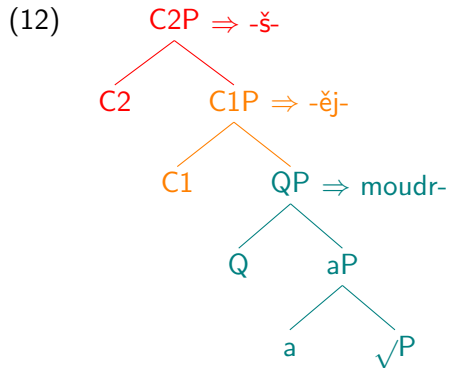
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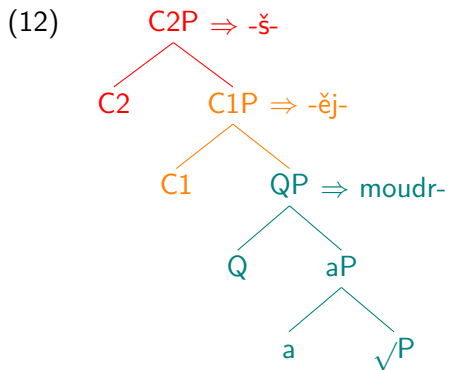
Nanosyntax

- 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



The Czech regular comparative

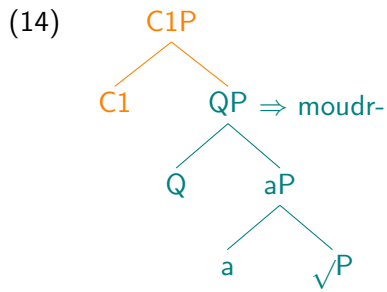


(Q = gradability)

The lexicon

- (13) a. < /moudr-/, [QP Q [aP a [√P √]]], WISE >
 b. < /-ěj-/, [C1P C1] >
 c. < /-š-/, [C2P C2] >

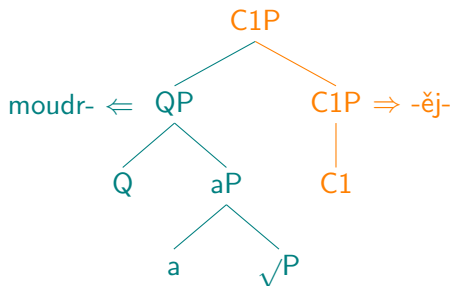
The derivation-1



< /moudr-/, [QP Q [aP a [√P √]]], WISE >
 < /-ěj-/, [C1P C1] >

The derivation-2 (spellout-driven movement)

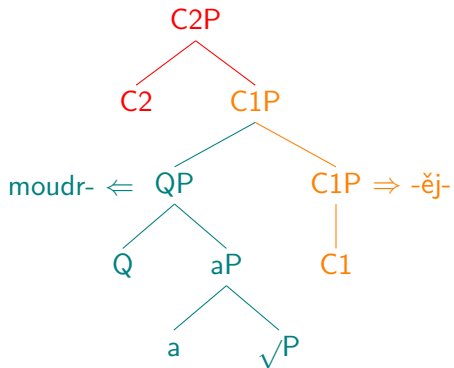
(15)



< /-ěj-/, [C1P C1] >

The derivation-3

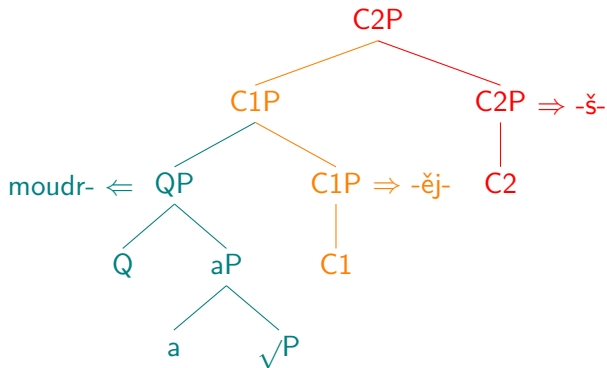
(16)



< /-š-/, [C2P C2] >

The derivation-4

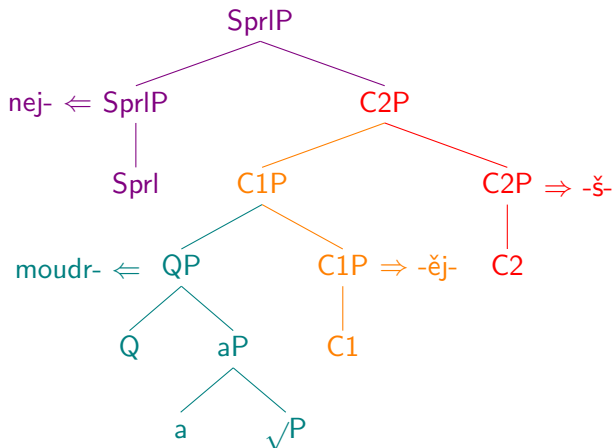
(17)



$\langle /-š-/ , [C2P C2] \rangle$

The derivation-5

(18)



< /-nej-/, [SprIP Sprl] >

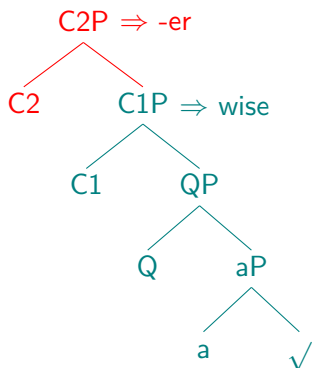
Language variation

(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)



(21)

- a. $\langle /wise/, [C1P C1 [QP Q [aP a [_{VP} \checkmark]]]] \rangle$
 b. $\langle /-er/, [C2P C2] \rangle$

- (22)
-
- ```

graph TD
 A["SprIP ⇒ -est"] --- B["SprI"]
 A --- C["C2P ⇒ -er"]
 C --- D["C2"]
 C --- E["C1P ⇒ wise"]
 E --- F["C1"]
 E --- G["QP"]
 G --- H["Q"]
 G --- I["aP"]
 I --- J["a"]
 I --- K["✓"]

```
- (23)  $\langle /-est/, [_{SprIP} SprI [_{C2P} C2 ] ] \rangle$

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# Suppletion

Two types:

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

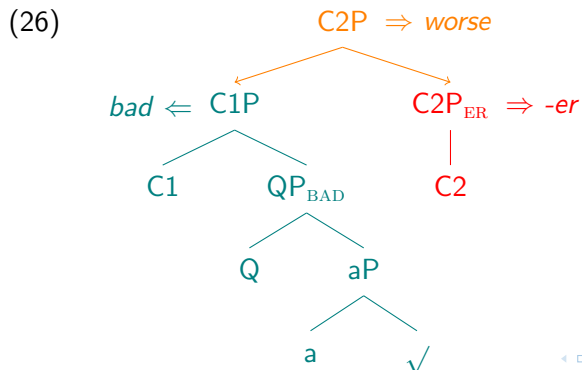
|      |    |      |         |
|------|----|------|---------|
| (24) |    | Pos  | Cmpr    |
|      | a. | bad  | worse   |
|      | b. | good | bett-er |

## Portmanteau suppletion = pointers

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

## Portmanteau suppletion = pointers

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

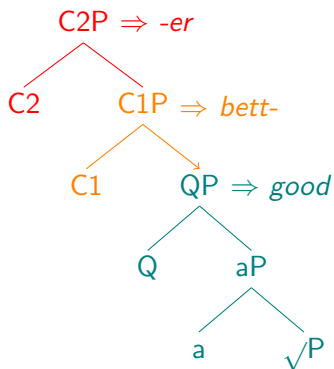


## Root suppletion = pointers (but differently)

- 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.  $\langle \text{GOOD} / \text{good} /, [\text{QP } \text{Q} [\text{aP } \text{a} [\text{√P } \checkmark ]]] \rangle$   
 b.  $\langle \text{BETT} / \text{bett-} /, [\text{C1P } \text{C1 } \text{GOOD} ] \rangle$

# This analysis explains 1

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

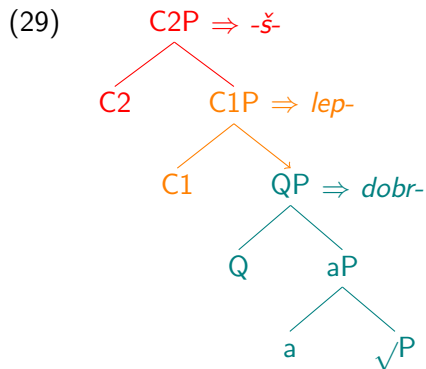
- ❶ ***-ěj-* disappears with suppletive roots**
- ❷ *-ěj-* disappears in cases where the root shortens
- ❸ *-ěj-* can disappear non-predictably
- ❹ *-ěj-* disappears with de-adjectival verbs
- ❺ *-š-* disappears with comparative adverbs



# This analysis explains 1

- ① *-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-*



- (30)
- $\langle_{\text{DOBR}} / \text{dobr-} /, [\text{QP } Q [\text{aP } a [\text{√P } \checkmark ]]] \rangle$
  - $\langle_{\text{LEP}} / \text{lep-} /, [\text{C1P } C1 \text{ DOBR } ] ] \rangle$
  - $\langle / \text{-ěj-} /, [\text{C1P } C1 ] \rangle$
  - $\langle_{\check{s}} / \text{-š-} /, [\text{C2P } C2 ] \rangle$

## The analysis explains 2

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

- 1 *-ěj-* disappears with suppletive roots
- 2 ***-ěj-* disappears in cases where the root shortens**
- 3 *-ěj-* can disappear non-predictably
- 4 *-ěj-* disappears with de-adjectival verbs
- 5 *-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.  $\langle_{\text{DLOUH}} /dlouh-/ , [_{\text{QP}} \text{Q} [_{\text{aP}} \text{a} [_{\sqrt{\text{P}}} \checkmark ]]] \rangle$
- b.  $\langle_{\text{DEL}} /del-/ , [_{\text{C1P}} \text{C1} \text{DLOUH} ] \rangle$

## 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)  $\langle /star-/ , [C_{1P} C1 [QP Q [a_P a [\sqrt{P} \sqrt{\quad} ]]] ] \rangle$

- *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**)

- ① **-ěj-** disappears with suppletive roots
- ② **-ěj-** disappears in cases where the root shortens
- ③ **-ěj-** can disappear non-predictably
- ④ **-ěj-** disappears with **de-adjectival verbs**
- ⑤ **-š-** disappears with **comparative adverbs**

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

- ① *-ěj-* disappears with suppletive roots
- ② *-ěj-* disappears in cases where the root shortens
- ③ *-ěj-* can disappear non-predictably
- ④ ***-ěj-* disappears with de-adjectival verbs**
- ⑤ ***-š-* disappears with comparative adverbs**

We skip 4 and 5 here  
... and move on to ...



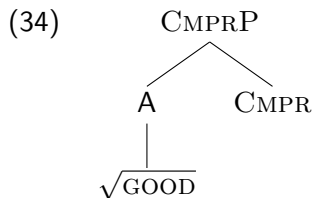
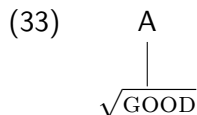
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# DM account of suppletion

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

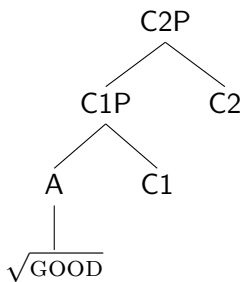
# Root Suppletion = contextual allomorphy



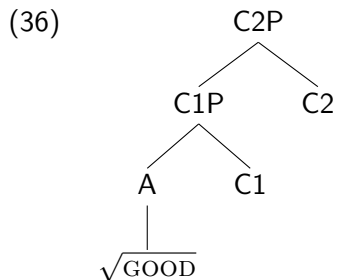
- (35)
- $\sqrt{\text{GOOD}} \rightarrow \text{be(tt)-} / \text{ \_\_\_\_\_\_ ] CMPRP ]}$
  - $\sqrt{\text{GOOD}} \rightarrow \text{good}$

# Root suppletion in Czech

(36)



# Root suppletion in Czech



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

- (38) a.  $\text{C1} \rightarrow \text{ěj}$   
 b.  $\text{C1} \rightarrow \emptyset / \text{lep} ] \text{_____}$   
 c.  $\text{C2} \rightarrow \text{š}$

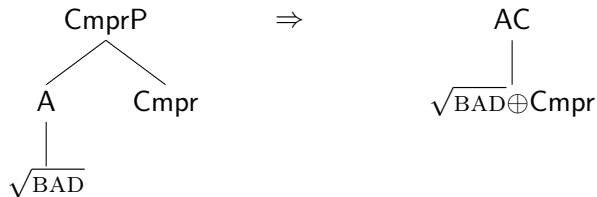
## Root suppletion in Czech

- (38)
- a. C1 → ěj
  - b. C1 →  $\emptyset$  / *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

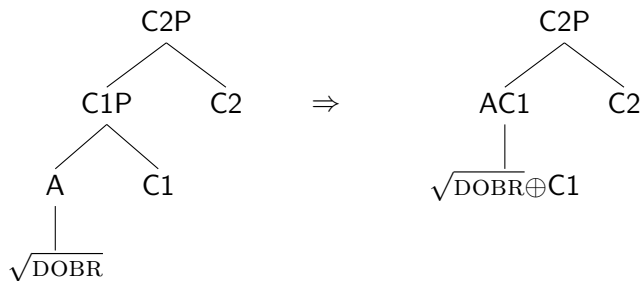
(39)



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

# Alternative for Czech: *lep* is portmanteau suppletion

(41)



- (42)
- $\sqrt{\text{DOBR}}$ , C1  $\rightarrow$  lep
  - $\sqrt{\text{DOBR}}$   $\rightarrow$  dobr
  - C1  $\rightarrow$  ěj
  - 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

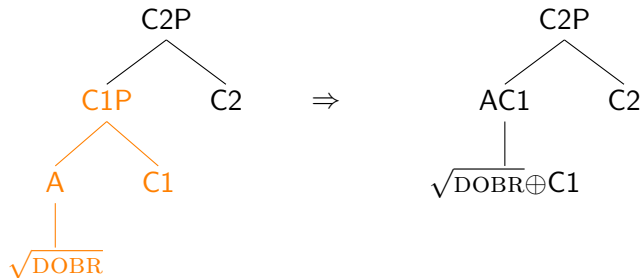
- Fusion < Lexical insertion
- Fusion must apply in all and only those cases where a portmanteau morpheme is available:
  - *lep-* 'good'
  - *del-* 'long'
  - *star-* 'old'
- the rules manipulating the structure (like Fusion) must know what the lexicon contains, in advance of lexical insertion

## 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.  $\sqrt{\text{DOBR}}, \text{C1} \rightarrow \text{lep}$

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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