

# Defaults and the Canonical Ideal

Dunstan Brown

Surrey Morphology Group

'Defaults in Morphological Theory'

University of Kentucky, 22 May 2012

With thanks to the ESRC (grant ES/I029621/1) and the European  
Research Council.



## Motivation

- Canonical Typology
  - what the possibilities are
  - determined by analysis of the evidence
- Network Morphology
  - the relationship between inflectional classes and default classes
  - the extent to which default classes correspond to recognizable parts of speech



## Structure

- PART ONE: Introduction to Network Morphology
- PART TWO: Defaults and canonical inflectional classes
- PART THREE: Shape of the Paradigm
- PART FOUR: Further issues
- PART FIVE: Conclusion



# PART ONE

- Network Morphology



## Network Morphology

- Uses DATR (Evans & Gazdar 1996) to implement analyses



## Network Morphology

- Lexeme-based

Stol:

<> = NOUN

<declensional\_class> == N\_I:<mor>

<gloss> == table

<root> == stol

<stress\_index> == 2.



## Network Morphology

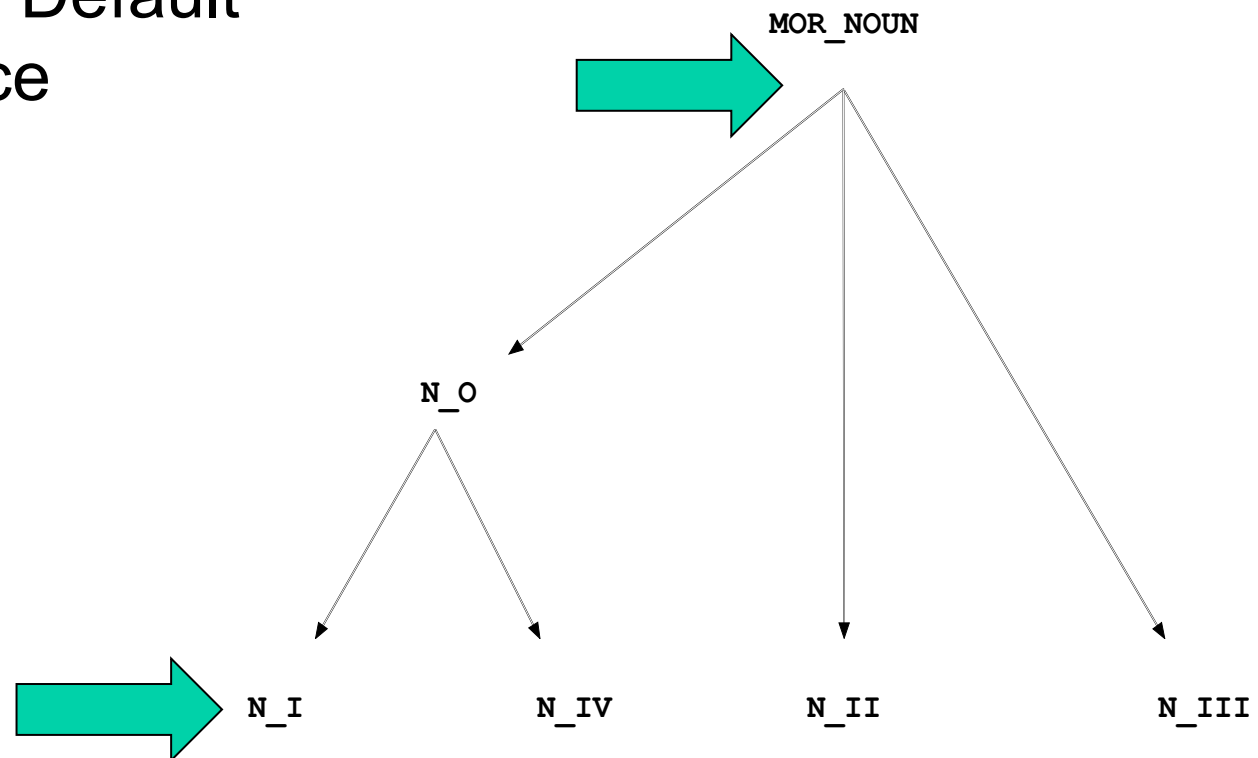
- Inferential-Realizational

`<mor sg dat> == "<stem sg>" ^ u "<stress sg>"`



# Network Morphology

- Based on Default Inheritance







## Network Morphology

- attribute ordering
  - a. <mor sg dat>
  - b. <mor sg>
  - c. <mor>
  - d. <>



## Network Morphology

- Implicit typing based on attribute ordering

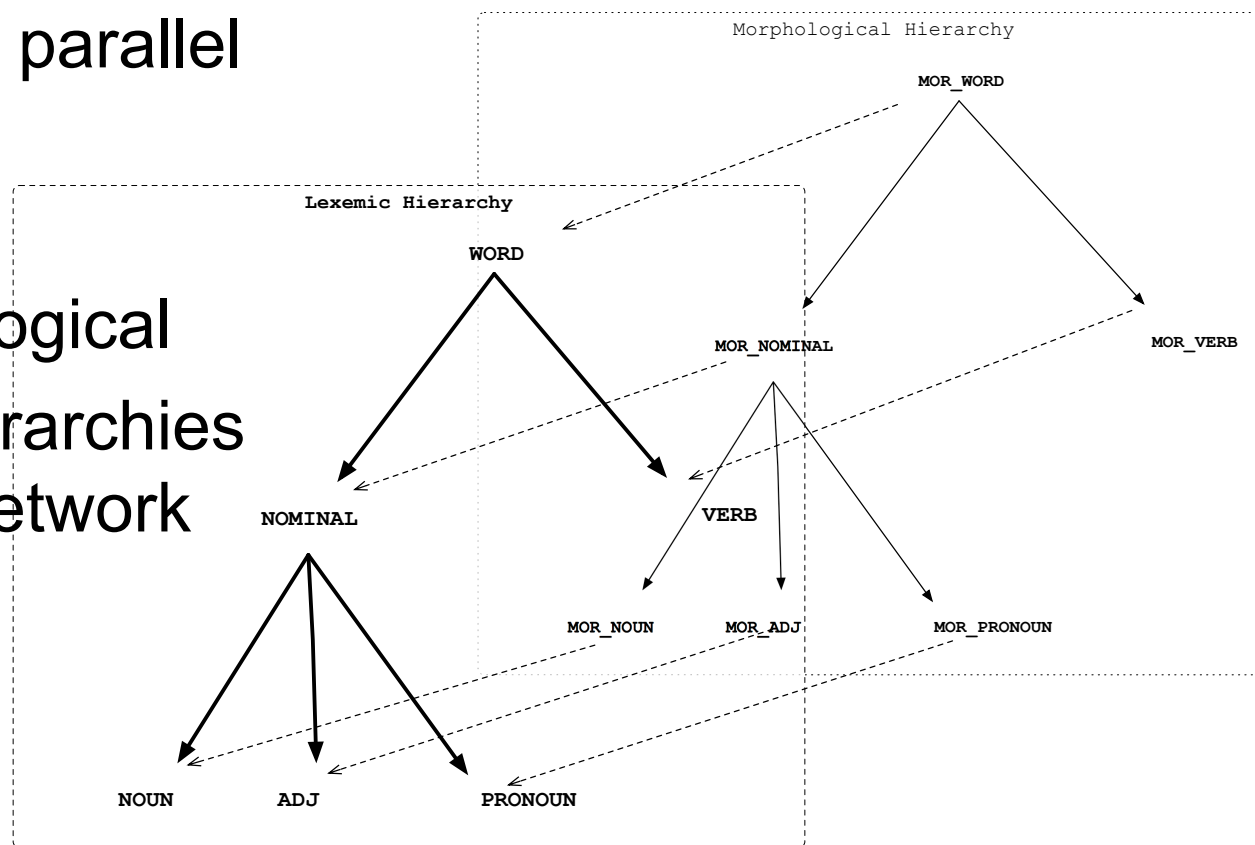
`<mor sg dat> = stol-ú`

`{MODULE:MOR, NUM:SG, CASE:DAT} = stol-ú`



# Network Morphology

- Orthogonal parallel hierarchies
  - Lexemic
  - Morphological
- Parallel hierarchies form one network





## *Principle of Morphological Projection*

Morphological classes reflect parts of speech: by default we expect parts of speech to have a corresponding morphological class.

(Brown and Hoppisley 2012: 107)

(see Spencer 2005: 101)



## Network Morphology

- Different degrees of autonomy
  - Type 1: Direct relationship between morphology and syntax
  - Type 2: Feature slippage
  - Type 3: Separate orthogonal hierarchies



# Network Morphology

---

	I	II	III	IV
NOM SG	zakón	kárt-a	rúkop'is'	bolót-o
ACC SG	zakón	kárt-u	rúkop'is'	bolót-o
GEN SG	zakón-a	kárt-i	rúkop'is'-i	bolót-a
DAT SG	zakón-u	kárt-e	rúkop'is'-i	bolót-u
INS SG	zakón-om	kárt-øj	rúkop'is'-ju	bolót-om
PREP SG	zakón-e	kárt-e	rúkop'is'-i	bolót-e



# Network Morphology

MOR\_NOUN:

<> == MOR\_NOMINAL

<mor sg dat> == "<mor sg prep>"

<mor sg prep> == "<stem sg>" ^ e "<stress sg>"

...

Global inheritance



# Network Morphology

- Global and local inheritance





# Network Morphology

---

	I	II	III	IV
NOM SG	zakón	kárt-a	rúkop'is'	bolót-o
ACC SG	zakón	kárt-u	rúkop'is'	bolót-o
GEN SG	zakón-a	kárt-i	rúkop'is'-i	bolót-a
DAT SG	zakón-u	kárt-e	rúkop'is'-i	bolót-u
INS SG	zakón-om	kárt-øj	rúkop'is'-ju	bolót-om
PREP SG	zakón-e	kárt-e	rúkop'is'-i	bolót-e



# Network Morphology

NOUN:

```
<> == NOMINAL  
<declensional_class> == DECLENSION:< "<sem sex>" >  
<syn cat> == n  
...
```

evaluatable path



Muzhik:

```
<> == NOUN  
<gloss> == peasant  
<root all> == muzhik  
<sem sex> == male  
...
```

Mama:

```
<> == NOUN  
<gloss> == mum  
<root all> == mam  
<sem sex> == female  
...
```



## Network Morphology

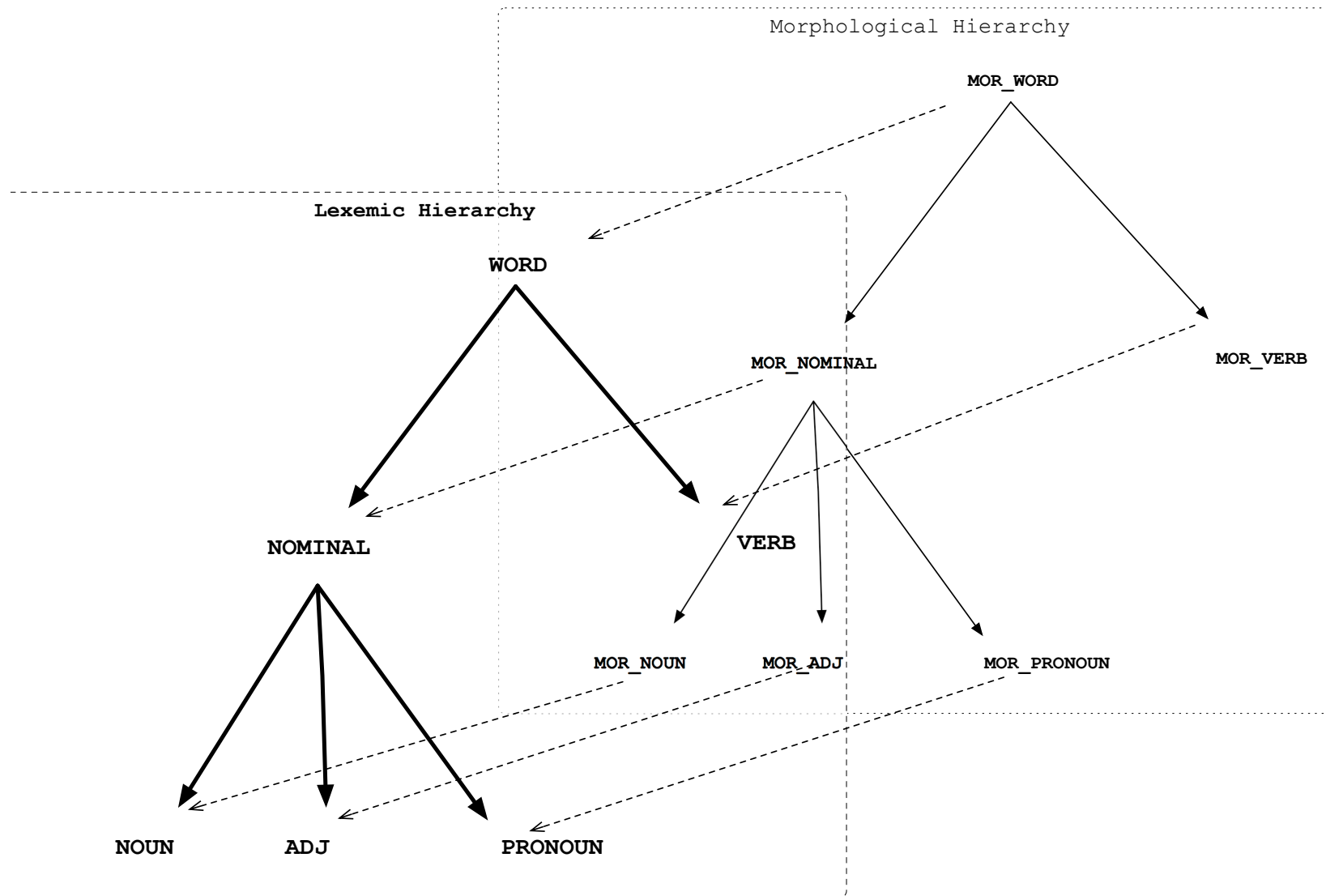
- How do we move to type 3 autonomy, and away from type 3 autonomy?
- *Morphological Projection* creates default morphological classes corresponding to parts of speech.
- *Node Elimination* does away with unnecessary classes.

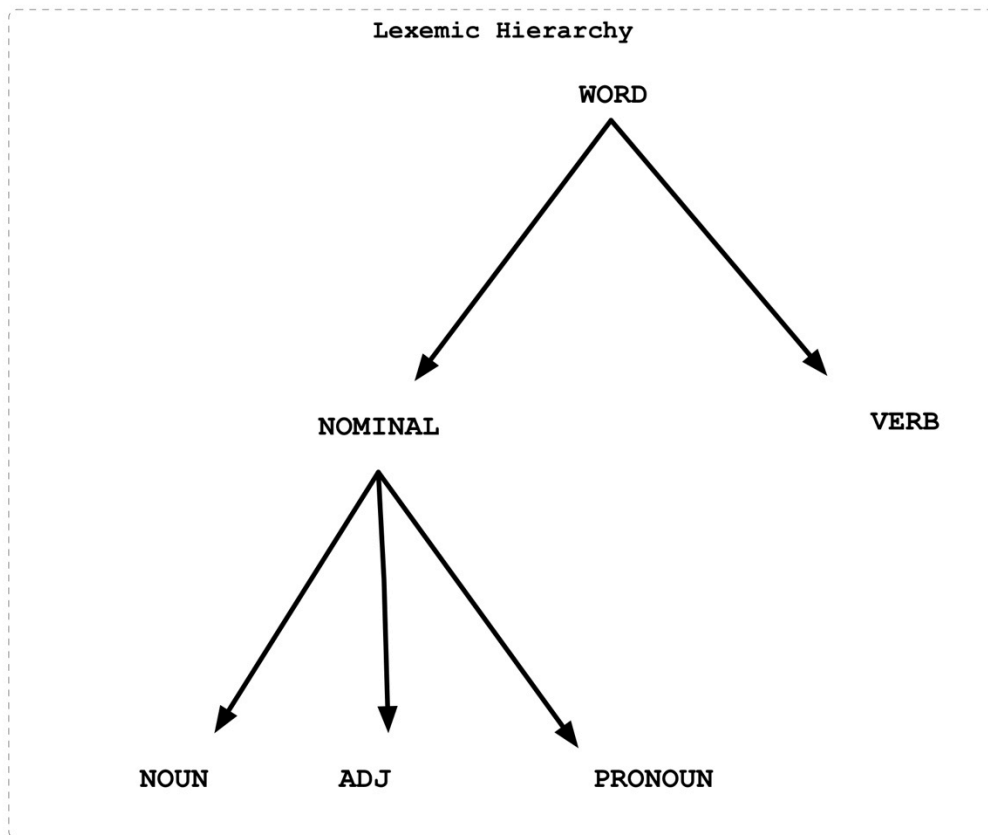


## *Node Elimination*

If a node  $N1$  inherits from another node  $N2$  (where  $N1 \neq N2$ ) via a non-evaluable\* inheritance relation, and there is no other node which inherits from  $N2$ , then  $N2$  is eliminable and the associated information can be stated at  $N1$ .

\*Non-evaluable = not involving evaluable paths







## EXAMPLE 1: No Morphological Hierarchy Required

- Kokota (Santa Isabel subgroup of Northwest Solomonic)
- Demonstratives at the right edge of a left-headed noun phrase
- Person and number marking on nouns (possession) and verbs



## No Morphological Hierarchy Required (marking of right-edge of phrase)

- a.     *(ira)*    *mane*    *tove=ro*  
          ART.PL man     old=DEM  
          ‘those old men’
- b.     *(ira)*    *mane*    *dou=ro*  
          ART.PL man     be.big=DEM  
          ‘those big men’
- c.     *(ira)*    *mane*    *vave=ro*  
          ART.PL man     in.law=DEM  
          ‘those men [who are] in-laws’

(Examples from Palmer and Brown (2007: 201))





## No Morphological Hierarchy Required (marking of syntactic head)

- a.      (*ia*)      *nene-gu*                      (*ara*)  
          ART.SG leg-1SG                      1SG  
          ‘my leg’
- b.      (*ia*)                      *no-gu*                                      *suga*      (*ara*)  
          ART.SG                      GENPOSS-1SG                                      house      1SG  
          ‘my house’
- c.      (*ia*)      *ye-gu*                                      *kaku*                                      (*ara*)  
          ART.SG   CONSPOSS-1SG                                      banana                                      1SG  
          ‘my banana (which I intend to eat)’



## No Morphological Hierarchy Required

MOR\_WORD:

```
<mor> ==
```

```
<mor dem pl not_visible> == -ro
```

```
<mor dem sg not_visible> == -no
```

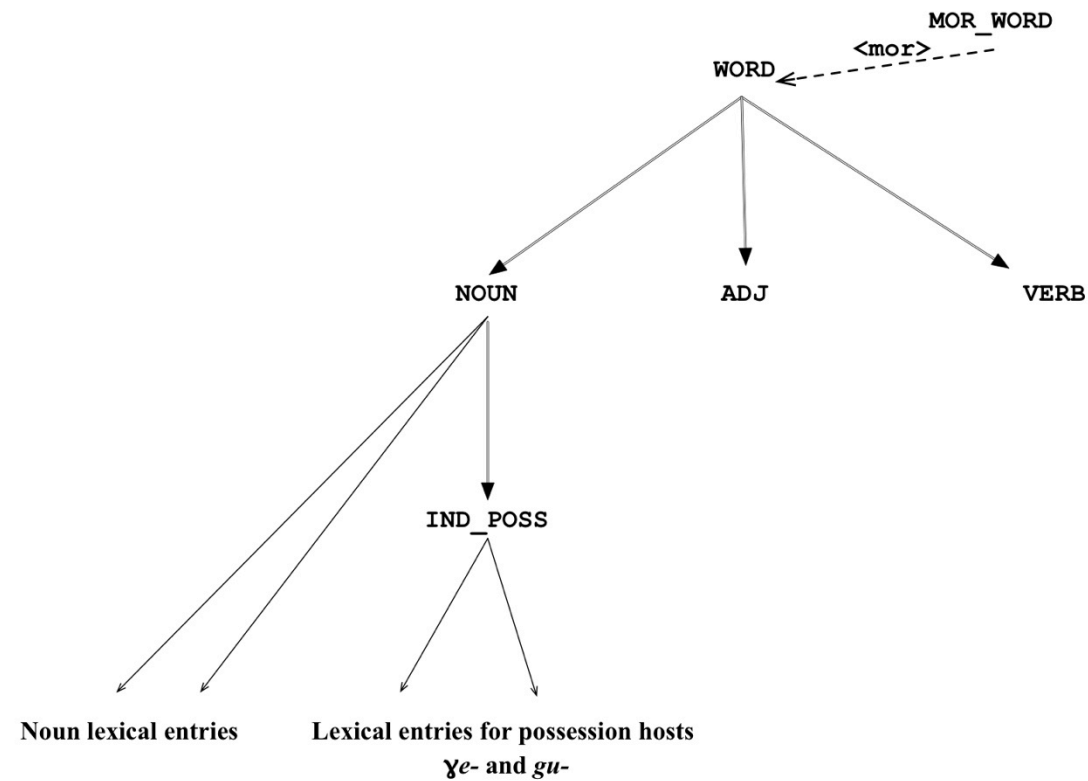
```
<mor dem sg within_reach> == -ine
```

```
<mor poss first sg> == -gu "<mor>"
```

```
<mor poss first pl> == -mai "<mor>".
```

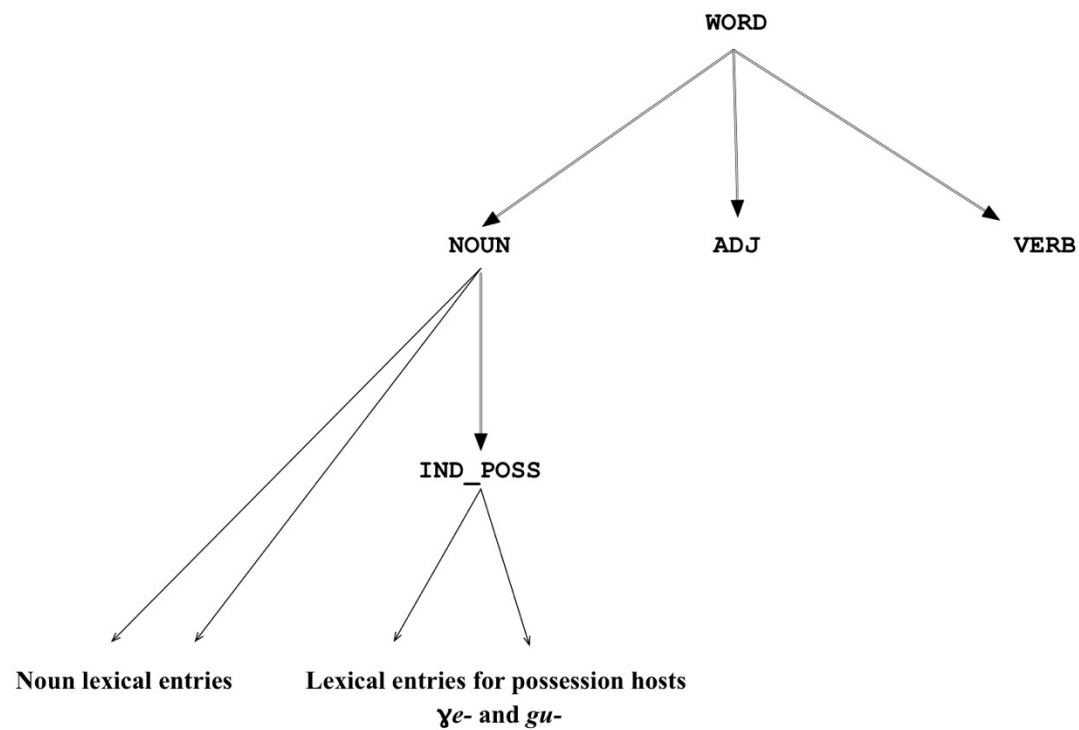


# No Morphological Hierarchy Required





# No Morphological Hierarchy Required



# EXAMPLE 2: Morphological Hierarchy Required



## Syntax of Russian nominals

- a. NOMINAL
- b. ADJ
- c. NOUN
- d. PRONOUN

## Morphology of Russian nominals

- a. MOR\_NOMINAL
- b. MOR\_ADJ
- c. MOR\_NOUN



## Morphological Hierarchy Required

---

<b>Adjectives</b>	<b>Third person</b>	<b>Non-third</b>	<b>Nouns</b>
<b>novij</b>	<b>pronoun</b>	<b>pronouns</b>	
<b>'new'</b>			

---

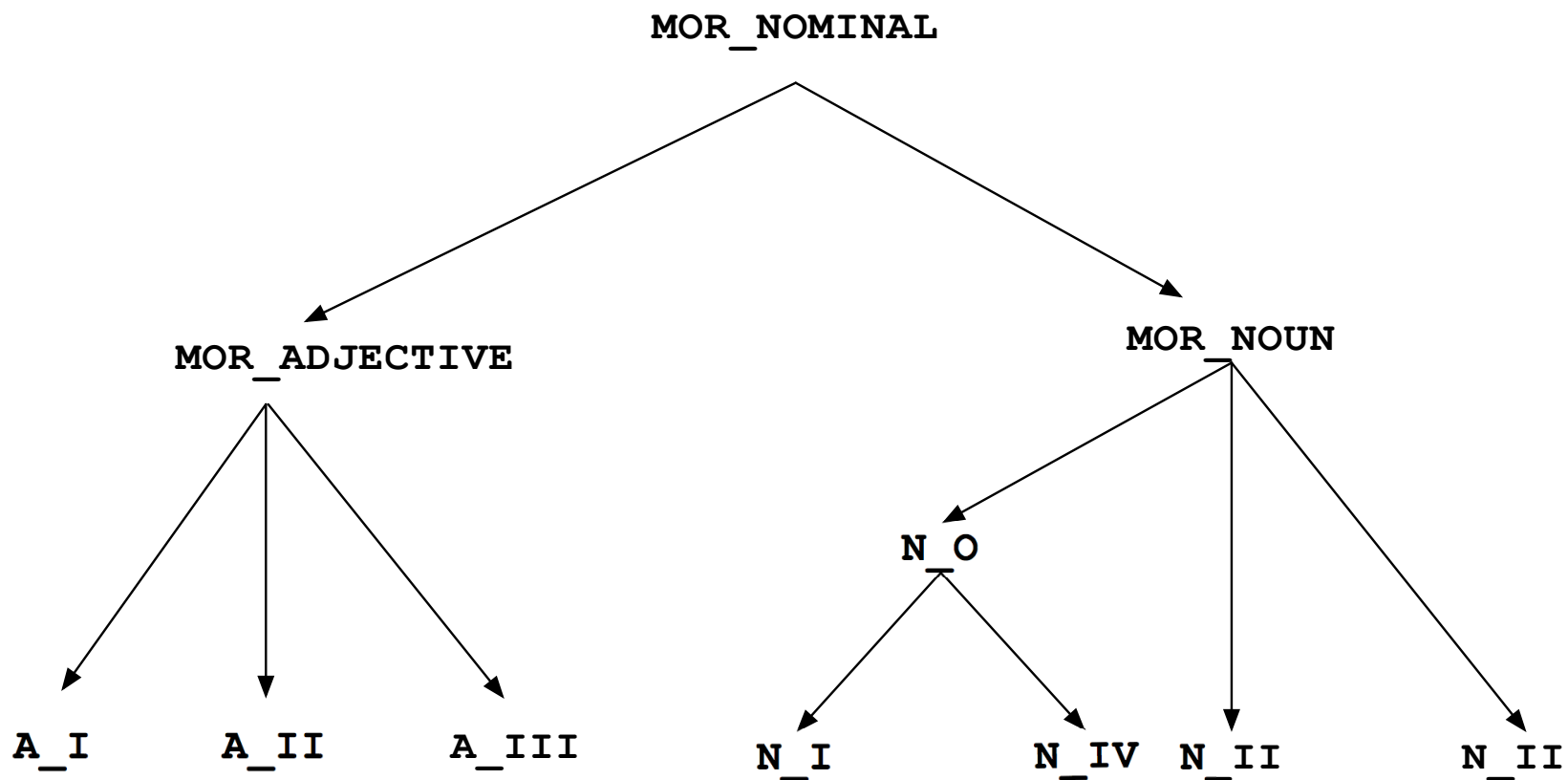
SG DAT *nov-omu* (M/N) *j-omu* (M/N) *mn'-e* ('me') *zavod-e* 'factory' (Class I)

*nov-oj* (F) *j-(e)j* (F) *teb'-e* ('you') *komnat-e* 'room' (Class II)

*tel-e* 'body' (Class IV)



# Morphological Hierarchy Required





# Morphological Hierarchy Required

## Lexemic Hierarchy

- NOUN
- ADJECTIVE
- PRONOUN

## Morphological Hierarchy

- N\_I, N\_II, N\_III, N\_IV
- A\_I, A\_II, A\_III
- A\_II (third person)
- N\_II, N\_I





## Summary

- Network Morphology allows for varying degrees of morphological autonomy
  - Type 1: Direct relationship between morphology and syntax
  - Type 2: Feature slippage
  - Type 3: Separate orthogonal hierarchies
- Under type 3 default classes still reflect parts of speech



## PART TWO

- Defaults and canonical inflectional classes



## Inflectional Classes

- Relevant properties
  - Form: rules of exponence
  - Paradigms: morphological signature
  - Paradigms: rules of referral
  - Stump's content and form paradigm



## Canonical Inflectional Classes

- Criterion 1:
    - “In the canonical situation, forms differ as consistently as possible across inflectional classes, cell by cell ...  
the existence of shared or default forms for some cells gives reduced canonicity”
- Corbett (2009)



## Canonical Inflectional Classes

- Criterion 2:  
“Canonical inflectional classes realize the same morphosyntactic or morphosemantic distinctions (they are of the same structure).”  
Corbett (2009)



## A Non-canonical Example (Rules of Exponence are Defaults)

DEFAULT\_CLASS:

<mor sg nom> == stem

<mor sg acc> == stem - a

<mor sg gen> == stem - e

<mor sg dat> == stem - i

<mor sg inst> == stem - o

<mor sg prep> == stem - u.



## A Non-canonical Example

CLASS\_1:

<> == DEFAULT\_CLASS

<mor sg dat> == "<mor sg gen>".

CLASS\_2:

<> == DEFAULT\_CLASS

<mor sg inst> == "<mor sg prep>".

CLASS\_3:

<> == DEFAULT\_CLASS

<mor sg prep> == "<mor sg nom>".

CLASS\_4:

<> == DEFAULT\_CLASS

<mor sg gen> == "<mor sg prep>".



# Output (syncretism not systematic)

<p>CLASS_1</p> <p>&lt;mor sg nom&gt; = stem. &lt;mor sg acc&gt; = stem - a. <u>&lt;mor sg gen&gt; = stem - e.</u> <u>&lt;mor sg dat&gt; = stem - e.</u> &lt;mor sg inst&gt; = stem - o. &lt;mor sg prep&gt; = stem - u.</p>	<p>CLASS_2</p> <p>&lt;mor sg nom&gt; = stem. &lt;mor sg acc&gt; = stem - a. &lt;mor sg gen&gt; = stem - e. &lt;mor sg dat&gt; = stem - i. <u>&lt;mor sg inst&gt; = stem - u.</u> <u>&lt;mor sg prep&gt; = stem - u.</u></p>
<p>CLASS_3</p> <p><u>&lt;mor sg nom&gt; = stem.</u> &lt;mor sg acc&gt; = stem - a. &lt;mor sg gen&gt; = stem - e. &lt;mor sg dat&gt; = stem - i. &lt;mor sg inst&gt; = stem - o. <u>&lt;mor sg prep&gt; = stem.</u></p>	<p>CLASS_4</p> <p>&lt;mor sg nom&gt; = stem. &lt;mor sg acc&gt; = stem - a. <u>&lt;mor sg gen&gt; = stem - u.</u> &lt;mor sg dat&gt; = stem - i. &lt;mor sg inst&gt; = stem - o. <u>&lt;mor sg prep&gt; = stem - u.</u></p>





## Non-canonical Example

- syncretism is not systematic
- inflectional classes only established on the basis of referrals (not very canonical)
- still has primary exponents for each morphosyntactic combination
- default class is never instantiated by a lexical item



## Nuer

	‘milk’	‘kind of tree’	‘bump’	‘rank’	‘potato’	‘fat’	‘hair’	‘ring’
NOM SG	cak	kēc	p <u>o</u> ny	gatot	tac	lieth	n <u>h</u> im	nyanyet
GEN SG	caak	kēc-kā	p <u>o</u> ny-kā	gat <u>o</u> t-kā	tac-kā	lieth-kā	n <u>h</u> im	nyanyet
LOC SG	caak	kēc-kā	p <u>o</u> ny-kā	gat <u>o</u> t-kā	tac	lieth	n <u>h</u> im-kā	nyanyet-kā
NOM PL	<u>c</u> ak	kεεc	p <u>o</u> ny	gaatuut-ni	tac-ni	lieth	n <u>h</u> iäm	nyanyet-ni
GEN PL	<u>c</u> ak	kεεc-ni	p <u>o</u> ny-ni	gaatuut-ni	tac-ni	lieth-ni	n <u>h</u> iäm-ni	nyanyet-ni
LOC PL	<u>c</u> ak-ni	kεεc	p <u>o</u> ny-ni	gaatuut-ni	tac-ni	lieth-ni	n <u>h</u> iäm-ni	nyanyet-ni

As discussed by Baerman *et al.* (2005) and Baerman (forthcoming)



## Nuer

- In Baerman's analysis defaults describe a maximal distribution:
  - Global Rules
    - a. By default, genitive and locative singular are KÄ
    - b. By default, genitive and locative plural are NI
    - c. By default, nominative plural is ZERO
- Interaction with suffixation-contingent and stem-contingent rules
- Constrained lexical specification



## Burmeso

- Exponents differ
- Patterns of syncretism are shared
- Defaults stipulate shape of the paradigm



## canonical inflectional classes

**Table 1: verbal inflectional classes in Burmeso (Corbett, 2008; Donohue, 2001: 100, 102)**

	assignment	inflectional class 1		inflectional class 2	
		e.g. -ihi- ‘see’		e.g. -akwa- ‘bite’	
		S G	PL	S G	PL
I	male	<i>j-</i>	<i>s-</i>	<i>b-</i>	<i>t-</i>
II	female, animate	<i>g-</i>	<i>s-</i>	<i>n-</i>	<i>t-</i>
III	miscellaneous	<i>g-</i>	<i>j-</i>	<i>n-</i>	<i>b-</i>
IV	mass nouns	<i>j-</i>	<i>j-</i>	<i>b-</i>	<i>b-</i>
V	banana, sago tree	<i>j-</i>	<i>g-</i>	<i>b-</i>	<i>n-</i>
VI	arrows, coconuts	<i>g-</i>	<i>g-</i>	<i>n-</i>	<i>n-</i>



## NM Principle: rules of referral beat rules of exponence

- Brown and Hippisley (2012: 126) *Referrals beat affixes* used to determine default
- Compare: Stump's (2001: 142) of the *Function Composition Default* to deal with portmanteau rule blocks. (not for syncretism as such)



## PART THREE

- Shape of paradigms
- There are examples where the shape of paradigms differs at other points in the hierarchy



## Shape of paradigms

- Morphological signatures are flexible  
(Evans n.d. Brown and Hipsley 2012)
  - second locative (Brown 2007)





## shape of paradigms

### *Morphological Signature Constraint*

For two paths A and B in the morphological analysis, if feature value  $V_a$  in path A and feature value  $V_b$  in path B belong to different features,  $F_1$  and  $F_2$ , then paths A and B cannot be extensions of the same sub-path.

(Brown and Hippisley 2012: 66 )



## Shape of paradigms

OK (on verbs)

<mor sg non-past first> (čítaju)

<mor sg past masc> (čital)

The past tense has gender but not person. Although these are different features, the split is determined by different values of tense, and therefore we are dealing with extensions of different paths.

(i.e. <mor sg non-past> and <mor sg past> are not the same path)



## Shape of paradigms

OK (on nouns)

<mor sg prep> (lese)

<mor sg prep loc> (lesú)

The second locative is an extension of <mor sg prep>, but nouns have no other paths where <mor sg prep> is extended by a value of a different feature.

**There is no default specification of the second locative for nouns.**



## Shape of paradigms

NOT OK (on adjectives)

<mor sg prep fem>

<mor sg prep loc>

A value of gender and a value of sub-case extend the same path, <mor sg prep>. Brown (2007) argues that this is a key reason why the second locative in Russian always remains marginal, as it could never spread to adjectives.



## PART FOUR

- Further issues
  - Stems vs. Inflectional Classes  
(e.g. Montermini & Boye 2012)
  - Udihe Nouns and Adjectives  
(Nikolaeva 2008)

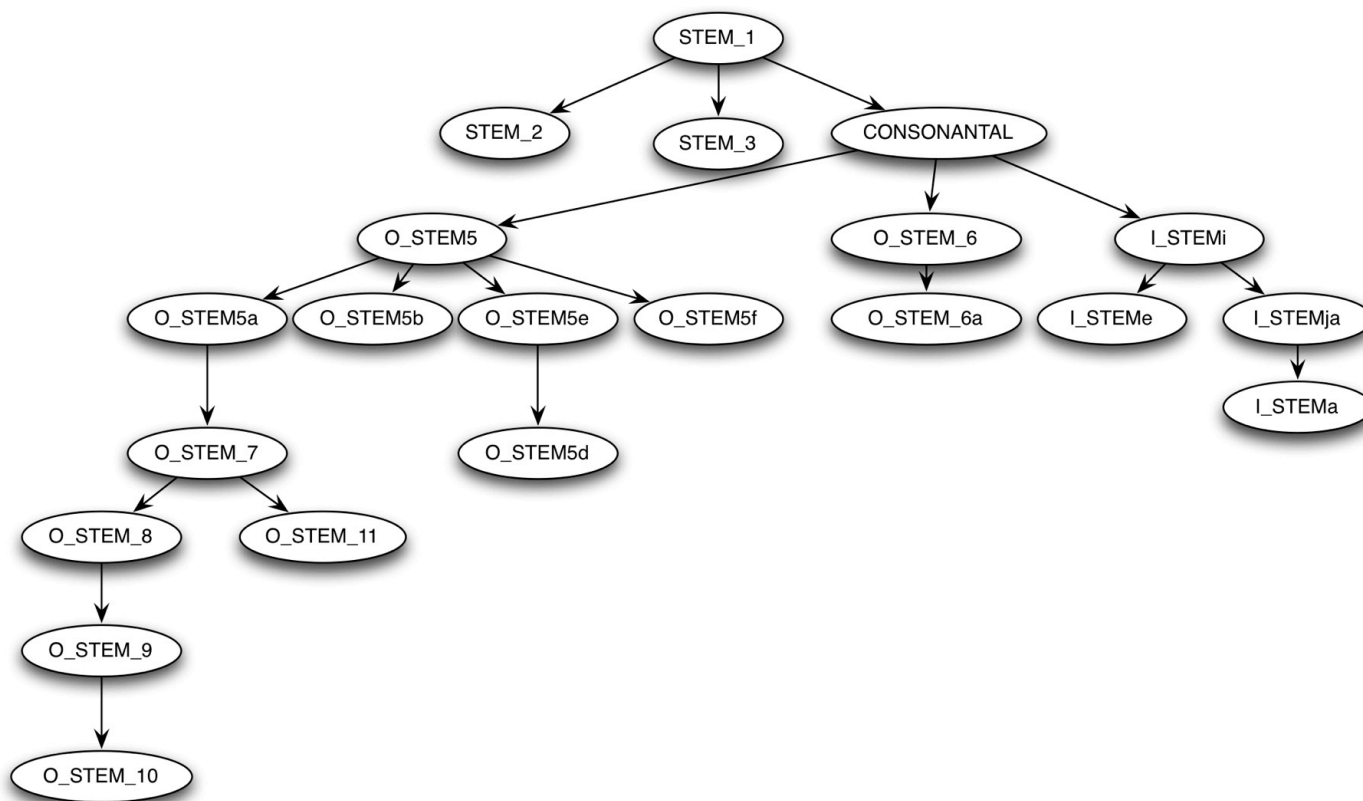


## Russian Verb Stems

<b>Present Stem</b>	<stem 2>	(First Sg or Third Pl) <stem 2 a>
<b>Infinitive/Past Stem</b>	<stem 1>	(Past) <stem 1 b>



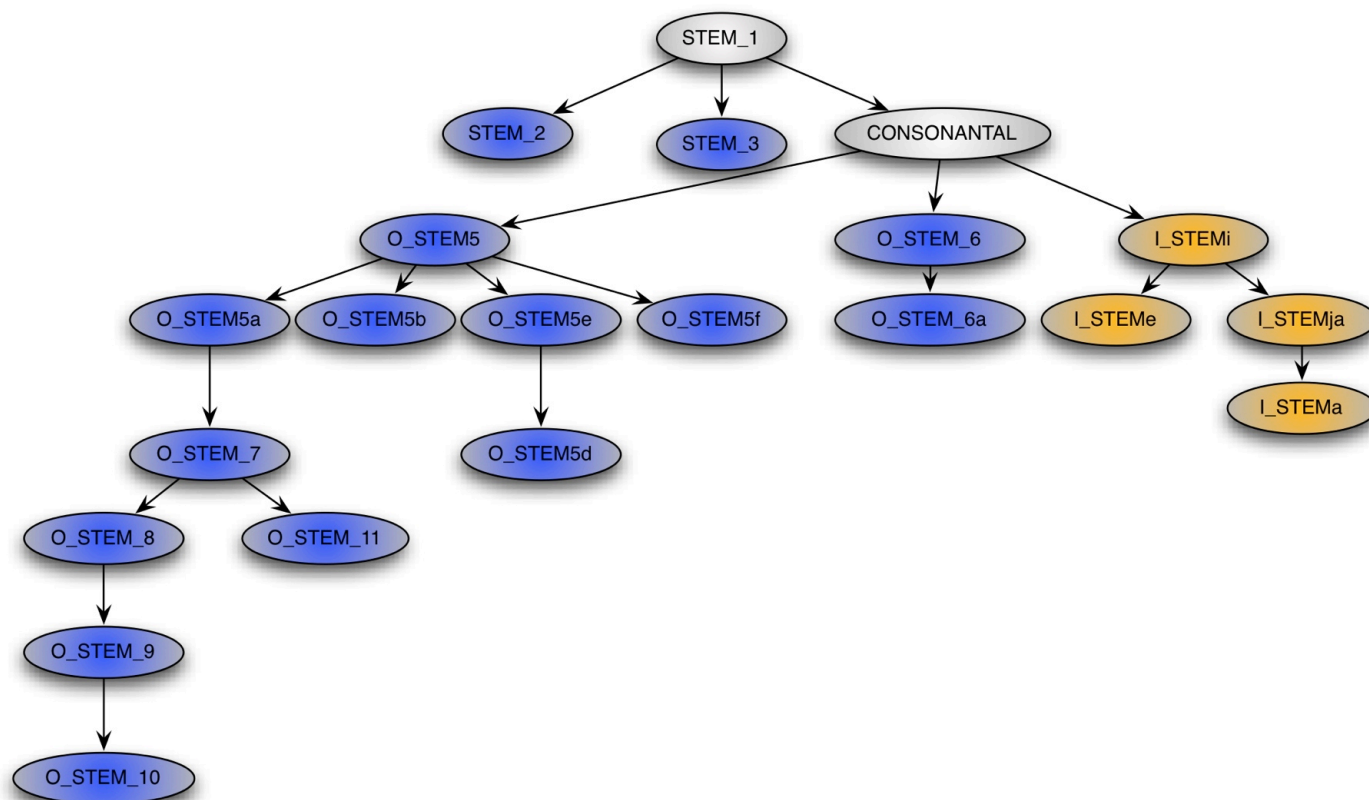
# Russian Verb Stems



Brown (1998)



# Russian Verb Stems



Brown (1998)





## Udihe Nouns and Adjective

- Nouns
  - Number, Case and Possession Marking
  - Two declensions/stem classes:
    - I (vowel-final stems)
    - II (n-final stems)
  - Classes differentiate ACC, LOC, PROL cases and the first singular and first plural exclusive possessive forms



## Udihe Nouns and Adjective

- Adjectives
  - When attributive they do not inflect, except for the optional plural marker *-ŋku*
  - Number, Case and Possession Marking when in other syntactic functions
  - Declensions/stem types
    - Tendency for Class I to take over (Nikolaeva & Tolskaya 2001: 173)



## Udihe Nouns and Adjectives

- Propriative form is unique to nouns
  - creates a 'mixed category' item
  - modifies a noun head
  - can be modified itself
- *-ŋku* plural marker unique to adjectives

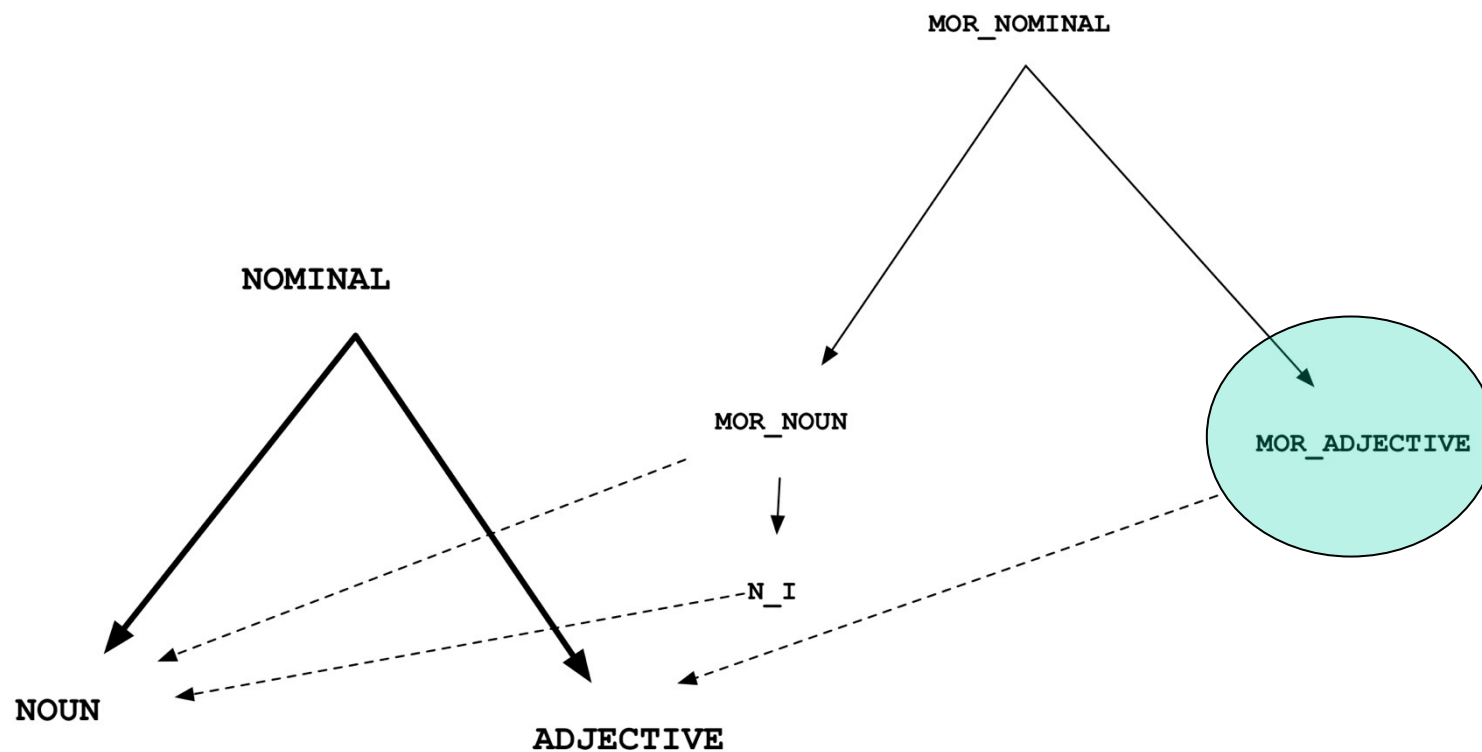


## Udihe Proprietives

- a.    xulaligi        waptä-xi        koŋzo  
      red            lid-PROPR    box  
      ‘box with a red lid’ (Nikolaeva 2008: 970)
- b.    ic’a    sita-xi                    a:nta  
      small child-PROPR        woman  
      ‘woman with a small child’  
      (Nikolaeva 2008: 977)



# Udihe Nouns and Adjectives





## Udihe Nouns and Adjectives

- Little evidence for a separate morphological hierarchy for Udihe nominals
- There is morphology which is unique to each part of speech
- Stem hierarchy required
- Cross-classifies nouns and adjectives (historically at least)



## Udihe Nouns and Adjectives

- Noun paradigm includes rules such as:

```
<mor word prop_true> ==  
    "<stem 1>" -xi "<mor suffix>"
```

```
<mor word pl> ==  
    "<stem 2>" -ziga "<mor suffix>"
```



## Udihe Nouns and Adjectives

NP\_A:

```
<syn> == DEFAULT_VALUES  
<syn form> == <syn head form [1]>  
<syn head index> == [1]  
<syn head> == HEAD  
<syn head lex [1]> == "<n1>".
```





## Udihe Nouns and Adjectives

NP\_B:

<> == NP\_A

<syn form> == <syn mod form [2]> NP\_A

<syn mod index [2]> == [2]

<syn mod> == MOD

<syn mod lex [2]> == "<a1>".



## Udihe Nouns and Adjectives

NP\_C:

<> == NP\_B

<syn head index [2]> == <syn mod index [2]>

<syn mod lex [2]> == "<n2>".



## Udihe Nouns and Adjectives

HEAD:

```
<> == UNDEF
<syn head form> ==
    "<syn head lex "<syn head index>"
    word "<syn head feat>" >"
<syn head feat> ==
    <syn "<syn head lex "<syn head index>"
    syn cat>">
<syn noun> == "<syn num>"
    "<syn case>"
    "<syn poss>".
```



## Udihe Nouns and Adjectives

HEAD:

```
<> == UNDEF
<syn head form> ==
    "<syn head lex "<syn head index>"
    word "<syn head feat>" >"
<syn head feat> ==
    <syn "<syn head lex "<syn head index>"
    syn cat>">
<syn noun> == "<syn num>"
    "<syn case>"
    "<syn poss>".
```



## Udihe Nouns and Adjectives

MOD:

```
<> == UNDEF
<syn mod form> ==
    "<syn mod lex "<syn mod index>"
    word "<syn mod feat>" >"
<syn mod feat> == <syn "<syn mod lex
    "<syn mod index>" syn cat>" >
<syn noun> == "<syn prop>"
<syn adj> == "<syn num "<syn head index>" >".
```



## Udihe Nouns and Adjectives

EXAMPLE1:<syn form> = aanta -ziga -du.

EXAMPLE1:<translation> = to the women.

EXAMPLE2:<syn form> = ic\_'a -ŋku aanta -ziga -du.

EXAMPLE2:<translation> = to the small women.

EXAMPLE3:<syn form> = sita -xi aanta -ziga.

EXAMPLE3:<translation> = women with child.

EXAMPLE4:<syn form> = ic\_'a sita -xi aanta.

EXAMPLE4:<translation> = woman with a small child.

EXAMPLE5:<syn form> = ic\_'a -ŋku sita -xi aanta. [?]

EXAMPLE5:<translation> = woman with small children.



## SUMMARY

- Varying degrees of morphological autonomy
- Clearcut cases where morphological (i.e. inflectional) hierarchies are/are not required
- Default classes in morphological classes correspond to parts of speech classification
- Hierarchies of stem classes are also required



## CONCLUSION

- Default classes in hierarchy of stems are perhaps more likely to cross-cut parts of speech
- Examples such as the Udihe proprietive represent the opposite type of mismatch, where the syntax doesn't match exactly with the lexemic hierarchy





## References

- Aronoff, Mark. 1994. *Morphology by itself*. The M.I.T. Press: Cambridge, Mass.
- Baerman, Matthew. Forthcoming. Paradigmatic chaos in Nuer. To appear in *Language*.
- Baerman, Matthew, Dunstan Brown & Greville G. Corbett. 2005. *The Syntax-Morphology Interface: A study of syncretism*. Cambridge: Cambridge University Press
- Brown, Dunstan. 2007. Peripheral Functions and Overdifferentiation: The Russian Second Locative. *Russian Linguistics* 31, 61-76.
- Brown, Dunstan, Marina Chumakina, Greville Corbett, Gergana Popova & Andrew Spencer. 2012. Defining 'periphrasis': key notions. *Morphology* .



## References

- Brown, Dunstan and Andrew Hippisley. 2012. *Network Morphology*. Cambridge : Cambridge University Press.
- Corbett, Greville G. 2005. The canonical approach in typology. In: Zygmunt Frajzyngier, Adam Hodges & David S. Rood (eds) *Linguistic Diversity and Language Theories* (Studies in Language Companion Series 72), 25-49. Amsterdam: John Benjamins.
- Corbett, Greville G. 2009. Canonical inflectional classes. In: Gilles Boyé, Nabil Hathout and Fabio Montermini (eds) Proceedings of Décembrettes 6: Morphologie et classes flexionnelles, Université de Bordeaux 3, 4-5 December 2008, 1-11. Cascadilla Proceedings Project. [available at: <http://www.lingref.com/cpp/decemb/6/>]



## References

- Donohue, Mark. 2001. Animacy, class and gender in Burmeso. In: Andrew Pawley, Malcolm Ross & Darrell Tryon (eds) *The boy from Bundaberg: Studies in Melanesian linguistics in honour of Tom Dutton* (Pacific linguistics 514), 97–115. Canberra: Pacific Linguistics.
- van Helden, W. Andries. 1993. *Case and gender: Concept formation between morphology and syntax (II volumes)* (Studies in Slavic and General Linguistics 20). Amsterdam: Rodopi.
- Malouf, Rob. 2000. Verbal gerunds as mixed categories in HPSG. In: Robert Borsley (ed.), *The Nature and Function of Syntactic Categories*, 133–166. New York: Academic Press.
- Meyer, Peter. 1994. Grammatical categories and the methodology of linguistics: Review article on van Helden, W. Andries: 1993, *Case and gender: concept formation between morphology and syntax*. *Russian Linguistics* 18.341-377.



## References

- Montermini, Fabio and Gilles Boyé. 2012. Stem relations and inflection class assignment in Italian. *Word Structure* 5, 69-87.
- Nikolaeva, Irina. 2008. Between nouns and adjectives: A constructional view. *Lingua* 118, 969–996.
- Ross, Malcolm. 2005. Pronouns as a preliminary diagnostic for grouping Papuan languages. In: Andrew Pawley, Robert Attenborough, Robin Hide & Jack Golson (eds) *Papuan Pasts: cultural, linguistic and biological histories of Papuan-speaking peoples*, 15-66. Canberra: Pacific Linguistics.
- Palmer, Bill. 2009. *Kokota grammar: Oceanic Linguistics Special Publication*. Honolulu: University of Hawai'i Press.
- Palmer, Bill and Dunstan Brown. 2007. Heads in Oceanic indirect possession. *Oceanic Linguistics* 46, 199–209.



## References

- Sadock, Jerrold M. 1985. Autolexical syntax: a proposal for the treatment of noun incorporation and similar phenomena. *Natural Language and Linguistic Theory* 3, 379–439.
- Spencer, Andrew. 1999. Transpositions and argument structure. In: Geert Booij and Jaap van Marle (eds.), *Yearbook of Morphology 1998*, 73–102. Dordrecht: Foris.
- Spencer, Andrew. 2005. Towards a typology of ‘mixed categories’. In: C. Orhan Orgun, and Peter Sells (eds.), *Morphology and the Web of Grammar: Essays in Memory of Steven G. Lapointe*, 95–138. Stanford, CA: CSLI.
- Stump, Gregory T. 2001. *Inflectional Morphology : A Theory of Paradigm Structure*. Cambridge: Cambridge University Press



## References

Zaliznjak, A. A. 1973. O ponimanii termina 'padež' v lingvističeskix opisanijax. In: A. A. Zaliznjak (ed.) *Problemy grammatičeskogo modelirovanija*, 53-87. Moscow: Nauka.