

# Bidirectional syncretism

Andrew Murphy

andrew.murphy@uchicago.edu

## 1 Baerman (2004)

- *Unstipulated syncretism*: Where the values involved form a natural class, so that the syncretism results from underspecification  $\approx$  underspecification without decomposition, e.g. syncretism spanning an entire row/column.
- *Symmetrical syncretism*: Where the syncretized values do not constitute a natural class (entire row/column)  $\approx$  underspecification without decomposed features.
- *Directional syncretism*: The stipulation of class membership exhibits directional effects: it looks as if the form is ‘borrowed’ from another value  $\approx$  rules of referral.

### Convergent bidirectional syncretism

There is a feature value  $x$  that takes the form associated with feature value  $y$  in some contexts, and in other contexts takes the form associated with feature value  $z$ .

#### (1) Bidirectional syncretism in Russian noun declension:

	o-stem		i-stem	
	INANIMATE	ANIMATE	INANIMATE	ANIMATE
	‘table’	‘student’	‘bone’	‘mother’
NOM SG	stol- $\emptyset$	student- $\emptyset$	kost’- $\emptyset$	mat’- $\emptyset$
ACC SG	stol- $\emptyset$	student-a	kost’- $\emptyset$	mat’- $\emptyset$
GEN SG	stol-a	student-a	kost-i	mater-i
LOC SG	stol-e	student-e	kost-i	mater-i
DAT SG	stol-u	student-u	kost-i	mater-i
INSTR SG	stol-om	student-om	kost-ju	mater-ju
NOM PL	stol-y	student-y	kost-i	mater-i
ACC PL	stol-y	student-ov	kost-i	mater-ej
GEN PL	stol-ov	student-ov	kost-ej	mater-ej
LOC PL	stol-ax	student-ax	kost-jax	mater-jax
DAT PL	stol-am	student-am	kost-jam	mater-jam
INSTR PL	stol-ami	student-ami	kost-jami	mater’-mi

#### (2) Directional analysis:

- ACC = NOM
- ACC in animate o-stem or in plural = GEN

#### (3) a. NOM SG = stem + $-\emptyset$

- GEN SG in o-stem = stem + -a
- GEN SG in i-stem = stem + -y/-i
- NOM PL = stem + -y/-i
- GEN PL in o-stem = stem + -ov
- GEN PL in i-stem = stem + -ej

#### (4) First attempt at a symmetrical analysis:

- {NOM  $\cup$  ACC} = X
- {GEN  $\cup$  ACC} = Y
- X SG = stem +  $-\emptyset$
- Y SG in o-stem = stem + -a
- X PL = stem + -y/-i
- X PL in o-stem = stem + -ov

- Why doesn’t this work?

- {NOM  $\cup$  ACC} = X
- {GEN  $\cup$  ACC} in animates = Y

- How does rule ordering help?
- What would an impoverishment version of this analysis look like?

### Divergent bidirectional syncretism

There is a feature value  $x$  that takes the form associated with feature value  $y$  in some contexts, while in other contexts  $y$  takes the form associated with  $x$ .

(6) *Bidirectional syncretism in the Latin second declension:*

	Neuter <sub>a</sub>	Masculine	Neuter <sub>b</sub>
	'war'	'slave'	'crowd'
NOM SG	bell-um	serv-us	vulg-us
ACC SG	bell-um	serv-um	vulg-us
GEN SG	bell-ī	servi-ī	vulg-ī
DAT SG	bell-ō	serv-ō	vulg-ō
ABL SG	bellō	serv-ō	vulg-ō

(7) *Dirrectional analysis:*

- NOM SG = stem + *-us*
- ACC SG = stem + *-um*
- NOM SG in neuter<sub>a</sub> = ACC
- ACC SG in neuter<sub>b</sub> = NOM

(8) *Symmetrical analysis:*

- {NOM SG ∪ ACC SG} = X
- X in neuter<sub>a</sub> = stem + *-um*
- {NOM SG ∪ ACC SG} = Y
- Y in neuter<sub>b</sub> = stem + *-us*

- What about the masculine forms?
- Does ordering help here like it did with the Russian case?

### Baerman's conclusions

- Directional rules (i.e. rules of referral) can capture all kinds of directional syncretism.
- Symmetrical rules can describe unidirectional syncretism.
- Symmetrical rules + ordering can describe convergent bidirectional syncretism.
- Symmetrical rules cannot describe divergent bidirectional syncretism.

What about impoverishment + underspecification + ordering?

- What do we notice about the paradigmatic 'shape' of convergent vs. divergent bidirectional syncretism?

## 2 Müller (2013)

### Müller's approach

- Since bidirectional syncretism is problematic for feature-based natural class approaches, he abandons natural classes.
- Radically 'non-morphemic' approach – what does this mean?
- Feature co-occurrence restrictions + phonologically-driven marker selection.
- The exponent chosen for a given cell is the most phonologically well-formed (i.e. least marked) exponent that is not blocked by an FCR.

(9) *Bidirectional syncretism in Bonan noun declension:*

	Noun	Pronoun
	'foliage'	'he'
NOM	labčon-∅	ndžan-∅
GEN	labčon-ne	ndžan-ne
ACC	labčon-ne	ndžan-de
DAT	labčon-de	ndžan-de
ABL	labčon-se	ndžan-se
INS	labčon-gale	ndžan-gale

(10) *Symmetrical analysis:*

- ACC in nouns = GEN
- ACC in pronouns = DAT
- GEN = stem + *-ne*
- DAT = stem + *-de*

*Müller's analysis of Bonan:*

(11) *Inventory of markers in Bonan:*

{/se/, /∅/, /ne/, /gale/, /de/}

(12) *Phonological well-formedness scale for Bonan:*

/∅/ > /ne/ > /se/ > /de/ > /gale/

NB: /n/ is more sonorous than /s/, /s/ is more sonorous than /d/

(13) *Phonological natural classes:*

- {/∅/} = [∅]
- {/ne/, /de/} = [-continuant]
- {/se/, /de/} = [+consonantal<sub>a</sub>]
- {/ne/, /se/} = [+consonantal<sub>b</sub>]

- (14) *Binary sonority scale:*  
 /ne/ > /se/ > /de/  
 a. /ne/ > /se/, /de/ [-cons<sub>a</sub>] > [+cons<sub>a</sub>]  
 b. /ne/, /se/ > /de/ [-cons<sub>b</sub>] > [+cons<sub>b</sub>]
- (15) *Case decomposition:*  
 a. nominative = +subj, -obj, -obl, -adv  
 b. genitive = +subj, +obj, -obl, -adv  
 c. accusative = -subj, +obj, -obl, -adv  
 d. dative = -subj, +obj, +obl, -adv  
 e. ablative = -subj, +obj, -obl, +adv  
 f. instrumental = -subj, +obj, +obl, +adv
- (16) *FCRs for Bonan:*  
 a. FCR 1: [+obj] ⊃ ¬[∅] \*/∅/  
 b. FCR 2: [-subj, -adv], [+pron] ⊃ ¬[-cons<sub>b</sub>] \*/ne/, \*/se/  
 c. FCR 3: [+obj, +obl] ⊃ ¬[-cons<sub>b</sub>] \*/ne/, \*/se/  
 d. FCR 4: [+adv] ⊃ ¬[-continuant] \*/ne/, \*/de/

What about the second declension in Latin?

- (17) *Phonological well-formedness scale:*  
 /∅/ > /m/ > /s/
- (18) *Inflection class decomposition:*  
 a. Neuter<sub>a</sub> = [-masc, -fem, -α]  
 b. Masculine = [+masc, -fem, +α]  
 c. Neuter<sub>b</sub> = [-masc, -fem, +α]
- (19) a. FCR<sub>II</sub> 1: [-obl] ⊃ ¬[∅]  
 b. FCR<sub>II</sub> 2: [-masc, -fem, +α] ⊃ ¬[+sonorant]  
 c. FCR<sub>II</sub> 3: [+subj, -obj, -obl], [+α] ⊃ ¬[+sonorant]

NB: II refers to the position class for the final consonant in the markers (subanalysis).

## References

- Baerman, Matthew (2004). Directionality and (Un)Natural Classes in Syncretism. *Language* 80(4). 807–827.  
 Müller, Gereon (2013). A Radically Non-Morphemic Approach to Bidirectional Syncretism. *Morphology* 23(2). 245–268.