Core Mechanisms of Exponence

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Network Meeting – June 23, 2007

Overview

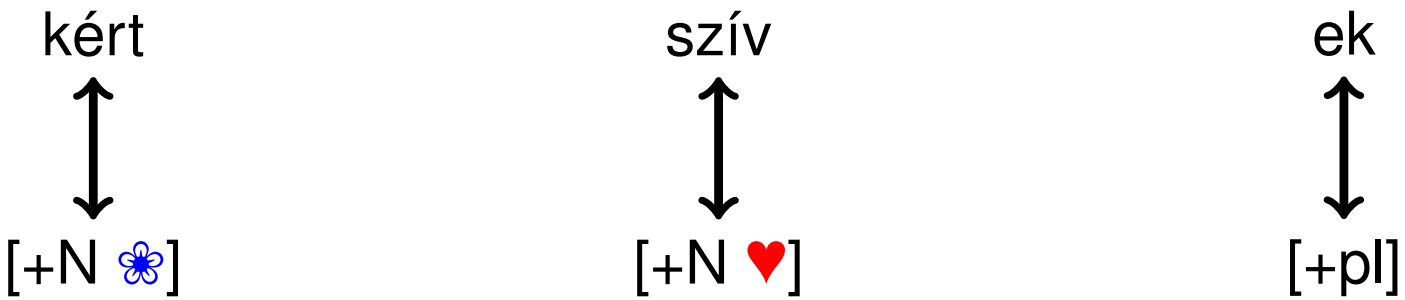
Mechanisms of Exponence

Lexical Exponence	Units of Exponence expone directly morphosyntactic/semantic features
Morphological Exponence	Units of Exponence are sensitive to other units of exponence
Phonological Exponence	Phonological processes/constraints are sensitive to units of exponence

Lexical Exponence

	sg	**pl**
‘garden’	kert	kert-ek
‘heart’	szív	szív-ek

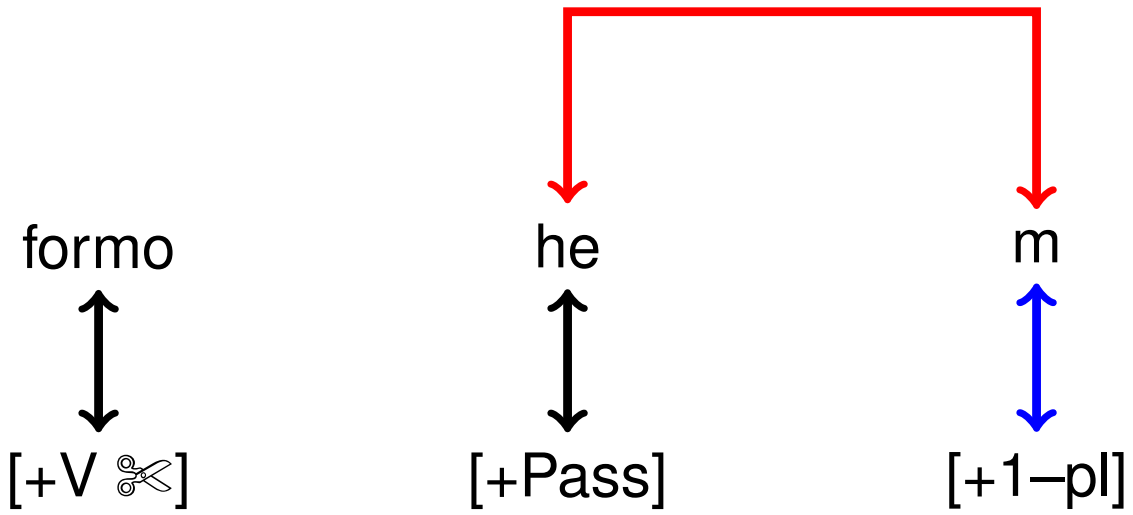
(Hungarian)



Morphological Exponence: Contextual Allomorphy

	Present	**Passive**	**Optative**	**Aorist**	**Impferf.**
1sg	formoj-Ø	formo-he-m	formo-fsh-a	formo-v-a	formo-j-a

(formoj, ‘to form; ’Albanian)



Phonological Exponence: Cophonologies

Dative Suffix: Velar Deletion

Nominative	Dative	
bebek	bebe-e	‘baby’
inek	ine-e	‘cow’

(Turkish)

Aorist Suffix: No Velar Deletion

Past	Aorist	
gerek-ti	gerek-ir	‘be necessary’
bırak-tı	bırak-ır	‘leave’

Phonological Exponence: Cophonologies

Dative: Cophonology Φ_1

Input: inek-e	*VKV	MAX-C
☞ a. ine-e		*
b. inek-e	*!	

Aorist: Cophonology Φ_2

Input: gerek-ir	MAX-C	*VKV
a. gere-ir	*!	
☞ b. gerek-e		*

(Inkelas & Zoll, 2005)

Mechanisms of Exponence

Identity of Exponence	Syntagmatic Identity of Exponence	Copies (Reduplication, Affix Repetition)
	Paradigmatic Identity of Exponence	Syncretism
Non-Identity of Exponence	Syntagmatic Non-Identity of Exponence	Morphological OCP-Effects
	Paradigmatic Non-Identity of Exponence	Polarity and Constraints on Paradigm. Distinctness
Parasitic Exponence	Syntagmatic Parasitic Exponence	Allomorphy
	Paradigmatic Parasitic Exponence	Directional Syncretism
Zero Exponence	Syntagmatic Zero Exponence	Zero Affixes
	Paradigmatic Zero Exponence	Paradigmatic Gaps

A Convergence Model of Exponence

- Exponence is realizational

  (Wunderlich & Fabri, 1994; Stump, 2001; Halle & Marantz,1993; Trommer,2001)

- Exponence is governed by general rules/constraints inducing syncretism

  (Halle and Marantz, 1993; Stump, 2001; Trommer, 2003)

- Exponence is in a broad sense concatenative

  (Stump, 2001; Wunderlich and Fabri, 1994; Halle and Marantz, 1993)

- Subsegmental exponence has morphologically the same status as segmental (affixal) exponence

  (Zoll, 1996; Stump, 2001; van Oostendorp, 2005)

Exponence is Realizational: German Verb Inflection

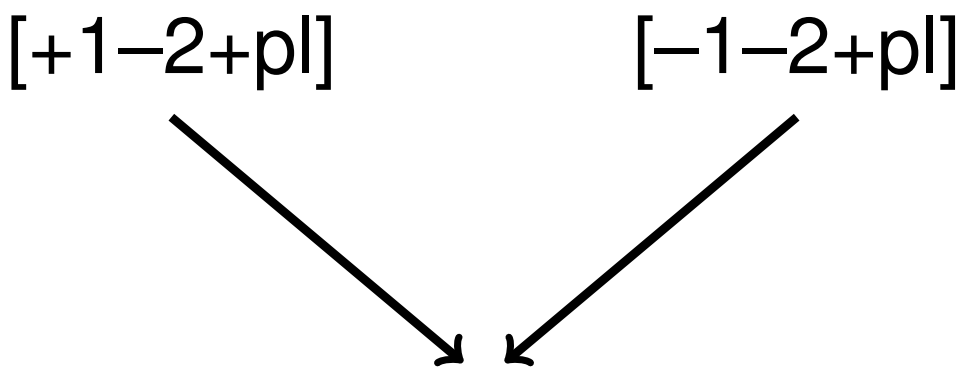
Present

	sg	pl
1	leg-**e**	leg-**en**
2	leg-**st**	leg-**t**
3	leg-**t**	leg-**en**

(ich lege, ‘I put’)

Exponence is Realizational: Distributed Morphology

Syntactic Heads



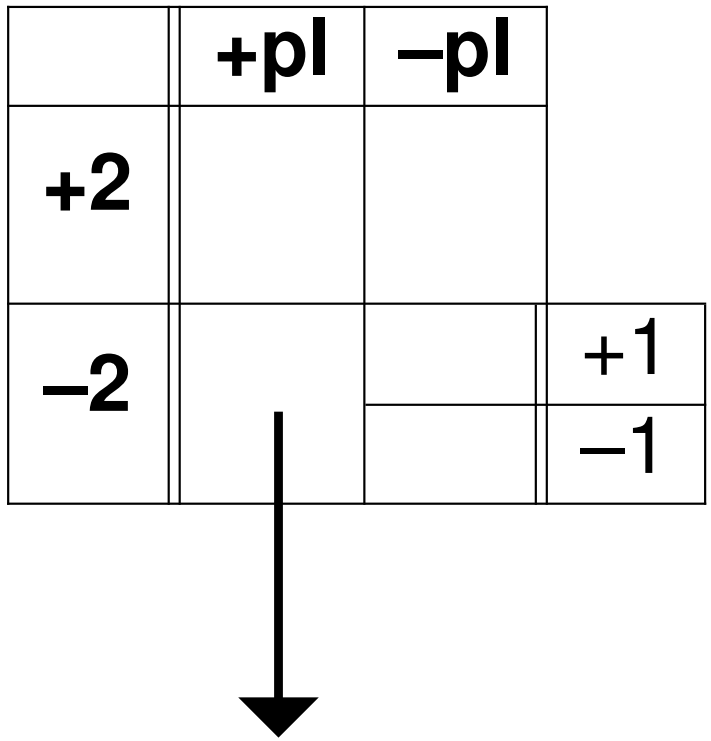
Vocabulary Items

-n ⟷ [-2+pl]

(Frampton, 2003; Müller, 2005; Trommer, 2005)

Exponence is Realizational: Minimalist Morphology

Paradigm



Morphemes

/n/ –2+pl

(Wunderlich & Fabri, 1995)

Exponence is Realizational: Other Frameworks

- Extended Word- and Paradigm Models

  (Anderson, 1992)

- Paradigm-Function Morphology

  (Stump, 2001)

- Optimality-Theoretic Approaches

  (Grimshaw, 1997,2000; Trommer, 2001; Wunderlich, 2001, 2003)

Syncretism is governed by general rules/constraints

Present

	sg	pl
1	leg-**e**	leg-**en**
2	leg-**st**	leg-**t**
3	leg-**t**	leg-**en**

	sg	pl
1	bi-**n**	sind-**Ø**
2	bi-**st**	sei-**t**
3	is-**t**	sind-**Ø**

Past

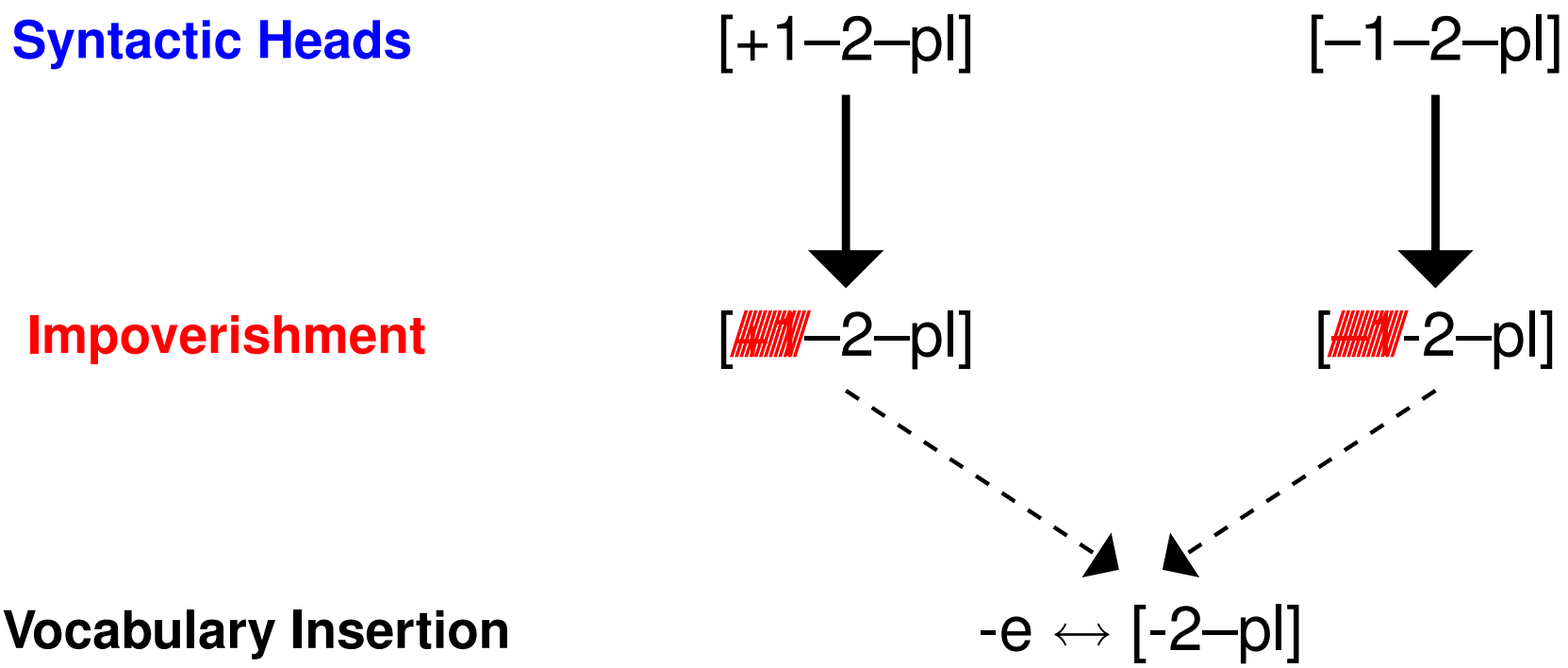
	sg	pl
1	leg-t-**e**	leg-t-**en**
2	leg-t-**est**	leg-t-**et**
3	leg-t-**e**	leg-t-**en**

	sg	pl
1	war-**Ø**	war-**en**
2	war-**st**	war-**t**
3	war-**Ø**	war-**en**

(German; lege, ‘I put’; bin, ‘I am’)

Syncretism is governed by general rules/constraints:

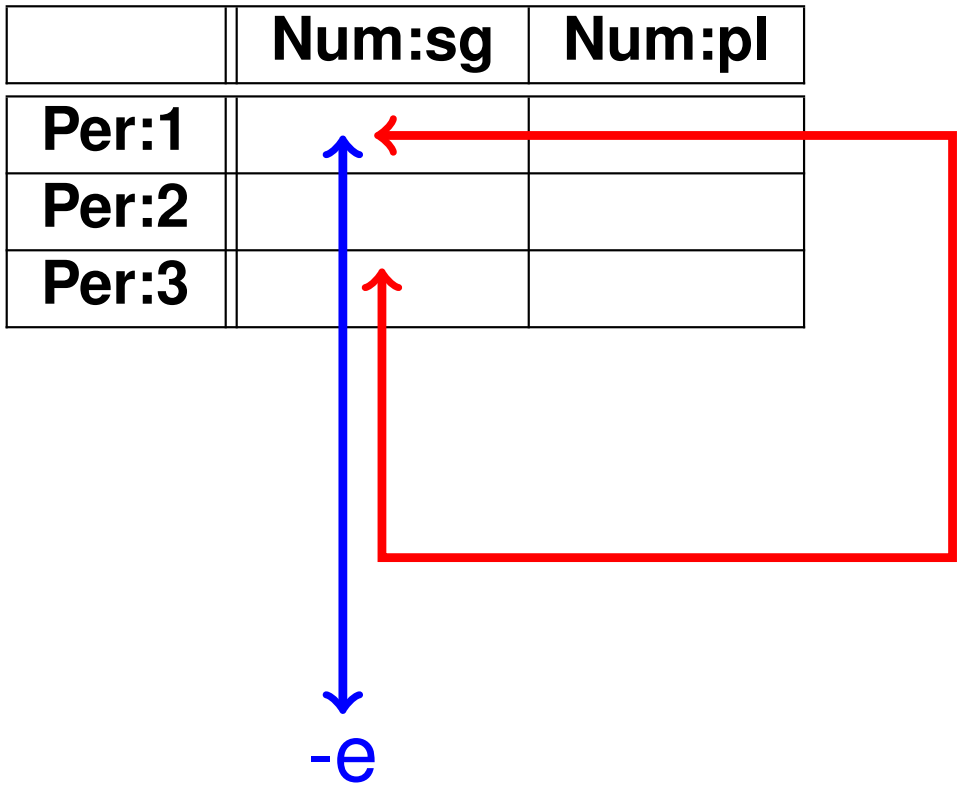
Distributed Morphology



Syncretism is governed by general rules/constraints:

Paradigm Function Morphology

Rule of Referral



Rule of Exponence

(Stump,1993,2001)

Syncretism is governed by general rules/constraints:

Other Frameworks

- Minimalist Morphology

  (Wunderlich & Lakämper, 1998)

- Meta-Paradigms

  (Williams, 1994)

- Optimality-Theoretic Approaches

  (Grimshaw, 1997,2000; Trommer, 2001; Wunderlich, 2001, 2003)

Exponence is Broadly Concatenative:

an.tθro.pos ‘man’

ku.**bá**.ros ‘godfather’

u.ra.**nós** ‘sky’

	Present	**Simple past**
1sg	**ɣrá**.f-o	**é**.-ɣra.f-a
2sg	**ɣrá**.f-is	**é**.-ɣra.f-es
3sg	**ɣrá**.f-i	**é**.-ɣra.f-e
1pl	**ɣrá**.f-u.me	**ɣrá**f-a.me
2pl	**ɣrá**.f-e.te	**ɣrá**.f-a.te
3pl	**ɣrá**.f-u.n(e)	**ɣrá**.f-a.ne/ **é**.-ɣraf-an

(Modern Greek; ɣráf-o, ‘I write’; van Oostendorp, 2006)

Past Tense Stress is as leftmost as possible –

inside a 3-syllable window from the right word edge

Exponence is Broadly Concatenative

Input: [+Past]:$(\acute{\sigma}\sigma)_F$ [+V]:ɣráf [+1+pl]:ame

		3-σ window	MORPH LINEARITY	DEP
☞	a. (ɣrá.fa)$_F$me		*	
	b. ɣra (fá.me)$_F$		**!	
	c. (é.ɣra)$_F$fa.me	*!		*

Input: [+Past]:$(\acute{\sigma}\sigma)_F$ [+V]:ɣráf [+1-pl]:a

		3-σ window	MORPH LINEARITY	DEP
	a. (ɣrá.fa)$_F$		*!	
☞	b. (é.ɣra)$_F$fa			*

(van Oostendorp, 2006)

Exponence is Broadly Concatenative

- Mutation

  (Lieber, 1987; Zoll 1996; Wolf, 2005)

- Reduplication

  (Marantz, 1982; McCarthy & Prince, 1995)

- Root-and-Pattern Morphology

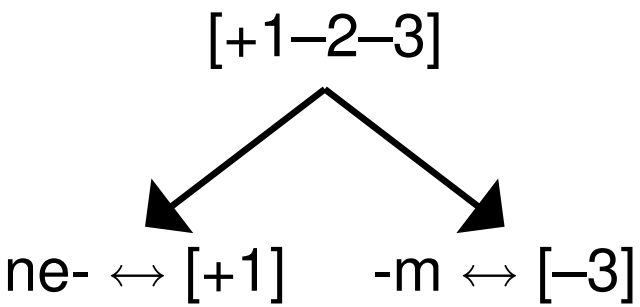
  (Chomsky,1951;Ussishkin,2000;Trommer,2005)

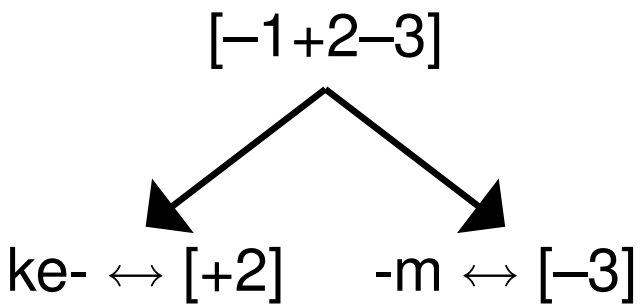
Subsegmental Exponence $\approx_{\text{morph}}$ Segmental Exponence

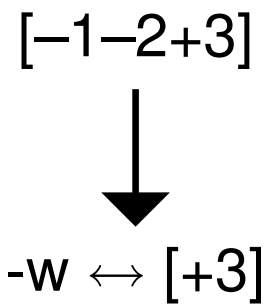
ne-po:se**-m**
[+1]-embark-[–3]
‘I embark’

ke-po:se**-m**
[+2]-embark-[–3]
‘you embark’

po:se**-w**
embark-[+3]
‘he embarks’



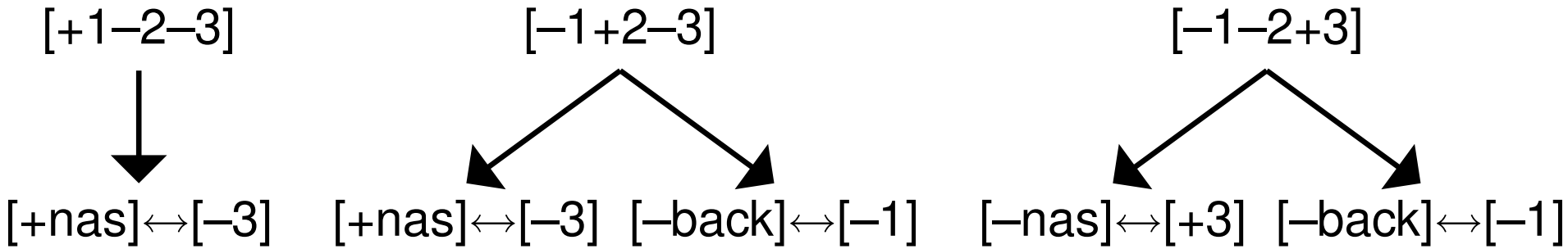




Menominee (Trommer, 2007; data from Bloomfield, 1962)

Subsegmental Exponence $\approx_{morph}$ Segmental Exponence

nastah	**n**^{j}astah	**d**^{j}astah
'I/we dig'	'you dig'	'he/they dig(s)'



(cf. dastah, 'dig'; Texistepec Popoluca; Reilly, 2002)

Subsegmental Exponence $\approx_{\text{morph}}$ Segmental Exponence

- Constraints on Affix Position

  (Zoll, 1996; Horwood, 2002)

- Interaction with Class Features

  (Trommer, 2005)

- Blocking

  (Stump, 2005; Trommer, 2007)

Mechanisms of Exponence

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Questions

Restrictiveness: What mechanisms do we really need?

Modularity: What is morphology, what is phonology?

Division of Labour: What is due to representation
and what to rules/constraints?

Voicing Polarity in Luo

Voiceless → Voiced

	singular		**plural**	
[–voiced]	a. ari**p**	‘milky way’	ari**b**-e	[+voiced]

Voiced → Voiceless

	singular		**plural**	
[+voiced]	b. co**g**o	‘bone’	co**k**-e	[-voiced]

(Tucker, 1994)

Voicing Polarity as Paradigmatic Non-Identity

Gregersen (1972): αvoice $\rightarrow -\alpha$voice

Alderete (2001): ¬IDENT[voice]

Base		Derivative	¬IDENT[voice]	IDENT[voice]
a./arip/	☞	i. arib-e	*	
		ii. arip-e		*
b./cogo/	☞	i. cok-e	*	
		ii. cog-e		*

Voicing Alternations in Luo Revisited

		singular	**plural**	
V-final	a.	[–voice]	[+voice]	**well-attested**
	b.	**[–voice]**	**[–voice]**	
	c.	**[+voice]**	**[–voice]**	**marginal**
	d.	[+voice]	[+voice]	
C-final	e.	[–voice]	[+voice]	**well-attested**
	f.	**[–voice]**	**[–voice]**	
	g.	[+voice]	[+voice]	**not attested**
	h.	**[+voice]**	**[–voice]**	

■ = attested non-polarity

■ = unattested polarity (Trommer, 2007)

Voicing Polarity as Phonology

singular
a. ari**p**

↑

Final Devoicing

plural
a. ari**b**-e

singular
a. co**g**o

↑

Intervocalic Voicing

singular
a. co**k**-e

(Trommer, 2005; cf. also de Lacy, 2002; Pulleyblank, 2006; Bye, 2006; Baerman, 2007; Trommer, 2007)

Proposal

- Luo Polarity is phonology, not morphology
- There are no specific mechanisms enforcing paradigmatic non-identity of exponence

Further Evidence

- Other cases of of apparent polarity can be reanalysed phonologically (Fery, 2002; van Oostendorp, 2005)
- Many cases of alleged polarity involve massive lexical idiosyncrasy (Dinka: Wolf, 2005 or Tübatulabal, Baerman, 2007)

Problems

- a~e polarity in Romance subjunctives (Pomino, 2005); Pronominal suffixes in Neo-Aramaic (Baerman, 2007); . . .

Phonologically conditioned suppletive allomorphy

	Non-Sibilants		Sibilants	
1sg	lát-**ok**	dob-**om**	olvas-**ok**	okoz-**ok**
2sg	lát-**sz**	dob-**sz**	olvas-**ol**	okoz-**ol**
3sg	lát-**Ø**	dob-**Ø**	olvas-**Ø**	okoz-**oØ**

(Hungarian; lát, ‘see’; dob, ‘throw’; olvas, ‘read’; okoz, ‘cause’)

- The alternation is true allomorphy:
  -sz and **-ol** are not related by productive phonology
- The alternation is phonoloogically conditioned:
  -ol appears after sibilants, **-sz** elsewhere

Phonological Suppletion as Phonology

Input: olvas+{-ol, -sz}	*[+sib][+sib]	2sg=sz
☞ a. olvas-ol		*
b. olvas-sz	*!	

Input: la:t+{-ol, -sz}	*[+sib][+sib]	2sg=sz
a. la:t-ol		*!
☞ b. la:t-sz		

(Similar approaches in Kager, 1996; Mascaro, 1996; Perlmutter, 1998; Wolf, 2005)

Phonological Suppletion as Morphology

-ol $\leftrightarrow$ [+2–pl] /[+sibilant] ____

-sz $\leftrightarrow$ [+2–pl]

(Paster, 2005)

Arguments for Phonological Suppletion . . .

. . . as Morphology

- doesn't require to loosen modularity between phonology and morphology

. . . as Phonology

- makes the restrictive prediction that phonological suppletion is morphologically optimizing

Non-optimizing Phonological Suppletion in Tzeltal

Monosyllabic Stems ➔ **-óh**

Polysyllabic Stems ➔ **-ɛ́h**

s-ku'tʃ**-óh**	"she carried it"	s-kutʃ-laj**-ɛ́h**	"she carried it repeatedly"
s-nuts**-óh**	"he chased sth.."	h-pak'-anta'j**-ɛ́h**	"I patched it"

oh ↔ perf /____ [#σ#]

ɛh ↔ perf

(Paster, 2005)

Tzeltal by indexed-constraint optimization

Input: skutʃ+{ ɛh / oh }

	PWD=BINFT$_{oh}$	perf=oh
☞ a. (sku.tʃ.oh)		
b. (sku.tʃɛh)		*!

Input: skutʃlaj+{ ɛh / oh }

	PWD=BINFT$_{oh}$	perf=oh
☞ a. sku.tʃ(la-j.oh)	*!	
b. sku.tʃ(la.jɛh)		*

Tzeltal by underlying prosodic template

Input: skutʃ+{ εh / $[(\sigma\sigma_{oh})]_\omega$ }

		TEMPLATESATISF	MAX	PRF=oh
☞	a. [(sku.tʃoh)]$_\omega$			
	b. [(sku.tʃεh)]$_\omega$			*!

Input: skutʃlaj+{ εh / $[(\sigma\sigma_{oh})]_\omega$ }

		TEMPLATESATISF	MAX	PRF=oh
	a. [skutʃ.(la.joh)]$_\omega$	*!		
	b. [(sku.tʃoh)]$_\omega$		*!**	
☞	c. [(skutʃ.la.jεh)]$_\omega$			*

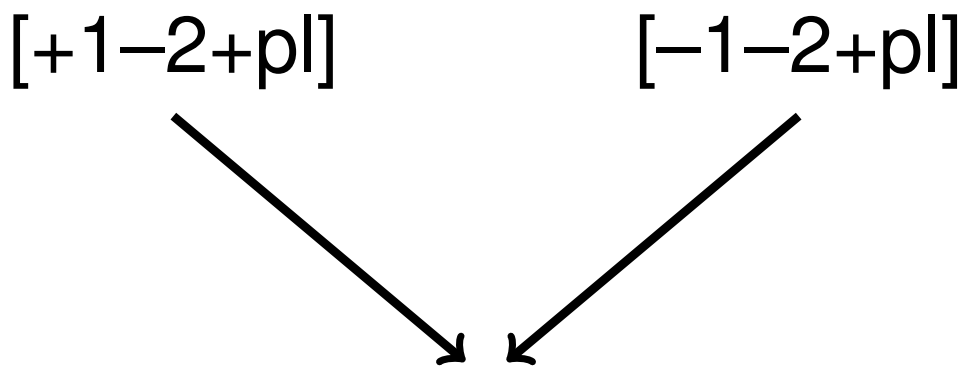
Proposal

- It is unclear whether a morphological or a phonological account is conceptually preferable

- It is unclear whether a phonological account can be extended to all cases

Natural Syncretism by Representation

Syntactic Heads

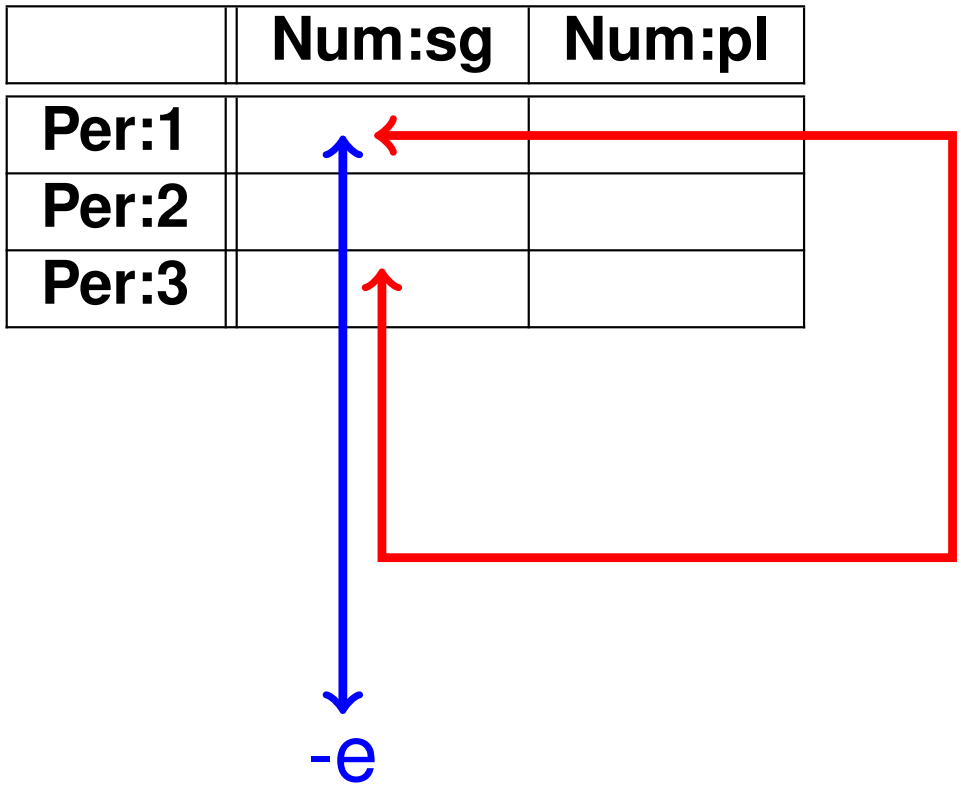


Vocabulary Items

-n ⟷ [-2+pl]

Natural Syncretism by Rules/Constraints

Rule of Referral



Rule of Exponence

Unnatural Syncretism: Dhaasanac

A	B	
leeðɨ	leetɨ	‘fall down.PERF’
kufɨ	kuyyɨ	‘die.PERF’
guurma	guuranna	‘migrate.IMPERF’
ʔuufumɨ	ʔuufeenɨ	‘cough.PERF’

	sg	pl
1 incl.	—	A
1 excl.	A	B
2	B	B
3f	B	A
3m	A	A

Neither A nor B variants form a natural class

(Baerman, 2004 based on Tosco, 2001)

Unnatural Syncretism: German Weak Adjectival Declension

	Masc	Neut	Fem	Plu
Nominative	-e			-en
Accusative		-e		
Dative	-en			
Genitive				

Neither -e nor -en forms a natural class

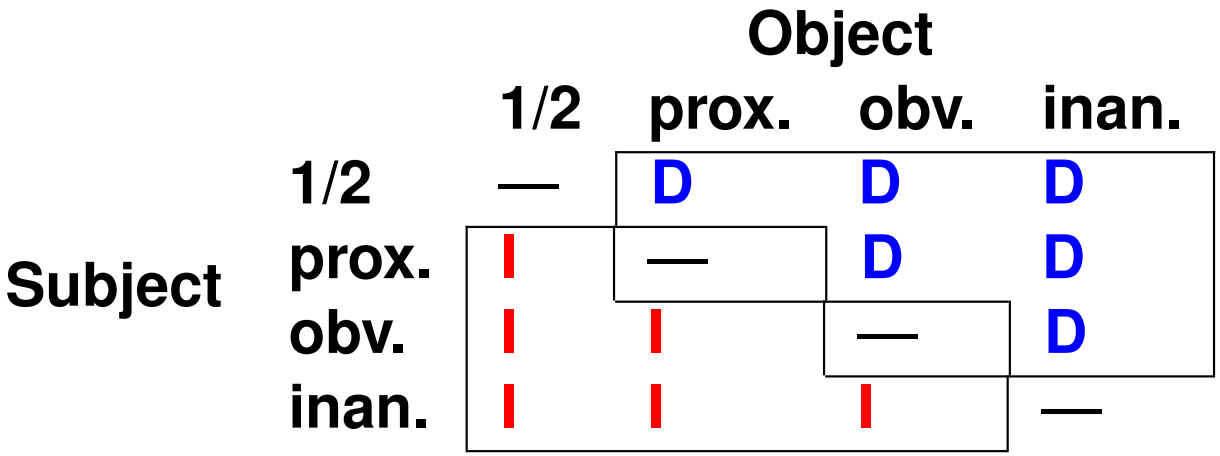
Direct-Inverse Marking in Algonquian (Menominee)

Direct: If the subject is higher on the hierarchy than the object, the verb is marked by **-a:**

1st/2nd person $\succ$ indefin. actor $\succ$ proximate $\succ$ obviative $\succ$ inanimate

Inverse: If the object is higher on the hierarchy than the subject, the verb is marked by **-ek**

Direct-Inverse Marking as Unnatural Syncretism



Direct/Inverse cannot be captured by Natural Classes

Direct-Inverse Marking as Relational Markedness

Stump (2001): If the subject has the feature [MR], **-a:** appears
If the object has the feature [MR], **-ek** appears

In a transitive form where subject $\gg$ object,
the subject has the feature MR.

In a transitive form where object $\gg$ subject,
the object has the feature MR

1st/2nd person $\gg$ indefin. actor $\gg$ proximate $\gg$ obviative $\gg$ inanimate

(Similar Approach in Wunderlich (1996) and Fabri (1996))

Syncretism in Dhaasanac as Relational Markedness

	sg	pl
1 incl.	—	A
1 excl.	A	B
2	B	B
3f	B	A
3m	A	A

Plural is unmarked for 1 incl. (**A**)
Plural is marked for 1 excl. (**B**)

Masc. is unmarked for [+3] (**A**)
Fem. is marked for [+3] (**B**)

[–2] is unmarked for [–1] (**A**)
[+2] is marked for [–1] (**B**)

B ≈ marked /____ [1]

Feature Decomposition for German Case (Bierwisch, 1967)

Nominative	=	[–governed **–oblique**]
Accusative	=	[+governed **–oblique**]
Dative	=	[+governed **+oblique**]
Genitive	=	[–governed **+oblique**]

Weak Adjective-Inflection as Markedness

	Masc	Neut	Fem	Plu
Nominative				[**m**pl]
Accusative	[**m**gov]			
Dative	[**m**gov] [**m**obl]			
Genitive	[**m**obl]			

[+/-masc +/-fem]$_{\text{gend}}$ [**+**/-gov **+**/-obl]$_{\text{case}}$ [**+**/-pl]$_{\text{num}}$

m / ____ [ ]$_{\text{gend}}$: **-en**

Default : **-e**

Proposal

Directional Syncretism might be dispensable
if abstract meta-features referring to markedness are allowed
(cf. also Bejar & Hall, 1999)

Alternatives

- Massive Zero Exponence (Nevins, this morning)
- Closer Integration with Phonological Mechanisms (Müller, this morning)
- Retaining Rules of Referral
- . . . |

The Central Question

What are (possible) minimal units of exponence?

Meetings

Meeting 1	Introductory Meeting
Meeting 2	Minimal Units of Exponence: Allomorphy, Distinctness, Copies
Meeting 3	Paradigm. Identity, Zero Exponence and (Directional) Syncretism
Meeting 4	Phonological and Morphological Determinants of Exponence
Meeting 5	Triggers and Effects
Meeting 6	Final Discussion