

Vocabulary Insertion

Jochen Trommer

`jtrommer@uni-leipzig.de`

Universität Leipzig
Institut für Linguistik

Distributed Morphology – WS 2009/2010

Principles of Vocabulary Insertion

- ▶ Underspecification
- ▶ Specificity-Based Competition
- ▶ Context Sensitivity
- ▶ Partially Arbitrary Linearization

Two Types of Minimal Elements

Lexical Items: $\begin{bmatrix} +1 \\ -pl \\ +Nom \end{bmatrix}$

Vocabulary Items: $\begin{bmatrix} +1 \\ -pl \\ +Nom \end{bmatrix} \leftrightarrow /un\ddot{e}/$

Motivation for Two Types of Minimal Elements

- ▶ It is a pervasive property of natural language that syntactic differences are neutralized in morphological exponence (Syncretism)
- ▶ This is captured in DM by inserting underspecified VIs into fully specified syntactic nodes

Underspecification: Gender Agreement in Italian

lui e pazz-**o**
 he is nuts-masc



Pseudo-Syntax: Copy gender features
 from subject to adjective

lei e pazz-**a**
 she is nuts-fem

Vocabulary Insertion

$$\begin{bmatrix} +\text{Det} \\ +3 \\ +\text{masc} \end{bmatrix} \quad \text{e} \quad \text{pazz} \quad \begin{bmatrix} +\text{Agr} \\ +\text{masc} \end{bmatrix}$$

$$\begin{bmatrix} +\text{Det} \\ +3 \\ +\text{masc} \end{bmatrix} \quad \begin{bmatrix} +\text{Agr} \\ +\text{masc} \end{bmatrix}$$
 \updownarrow

/lui/

 \updownarrow

/-o/

Gender Agreement in 2nd Person

tu sei pazz-**o**
 you (masc.) are nuts-masc



tu sei pazz-**a**
 you (fem.) are nuts-fem

Underspecified Vocabulary Insertion

$$\begin{bmatrix} +\text{Det} \\ +2 \\ +\text{masc} \end{bmatrix} \quad \text{sei} \quad \text{pazz} \quad \begin{bmatrix} +\text{Agr} \\ +\text{masc} \end{bmatrix}$$

$$\begin{bmatrix} +\text{Det} \\ +2 \end{bmatrix}$$

$$\updownarrow$$

$$/\text{tu}/$$

$$\begin{bmatrix} +\text{Agr} \\ +\text{masc} \end{bmatrix}$$

$$\updownarrow$$

$$/-\text{o}/$$

Subset Principle (Preliminary Version)

1. Only VIs which specify a subset of a head's features can be inserted

Potential Problem with Underspecification

- ▶ More than one marker could be inserted into a syntactic head
- ▶ but empirically exponence is usually deterministic

Vocabulary Insertion

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

Syntax: [+Agr +2 -1 +pl]

Vocabulary Items

[+2 -pl] : **st**
 [+2 +pl] : **t**
 [+pl] : **en**



[+2 +pl]:**t**

Subset Principle (Full Version)

1. Only VIs which specify a subset of a head's features can be inserted
2. Only the most specific VI is inserted

Competition: English Verb Agreement

	sg	pl
1	come- \emptyset	come- \emptyset
2	come- \emptyset	come- \emptyset
3	come- s	come- \emptyset

Syntax: [+Agr +3 -pl]



Vocabulary Items

[+Agr +3 -pl] ↔ **s**
 [+Agr] ↔ \emptyset

[+ Agr +3 -pl] ↔ **s**

Georgian Present Tense Verb Inflection

	Object				
	1sg	1pl	2sg	2pl	3
1sg			g-vedav	g-V-t	v-V
1pl			g-V-t	g-V-t	v-V-t
2sg	m-V	gv-V			V
2pl	m-V-t	gv-V-t			V-t
3sg	m-V-s	gv-V-s	g-V-s	g-V-t	V-s
3pl	m-V-en	gv-V-en	g-V-en	g-V-en	V-en

Georgian Imperfect Verb Inflection

Object

	1sg	1pl	2sg	2pl	3
1sg			g-vedaV- i	g-V- i -t	v-V- i
1pl			g-V- i -t	g-V- i -t	v-V- i -t
2sg	m-V- i	gv-V- i			V- i
2pl	m-V- i -t	gv-V- i -t			V- i -t
3sg	m-V-a	gv-V-a	g-V-a	g-V-a-t	V-a
3pl	m-V- n -en	gv-V- n -en	g-V- n -en	g-V- n -en	V- n -en

- ▶ [+imperfect] is realized as **-n** before 3pl **-en**
- ▶ Otherwise [+imperfect] is realized as **-i**
- ▶ this is a typical case of **contextual allomorphy**

Contextual Allomorphy in DM

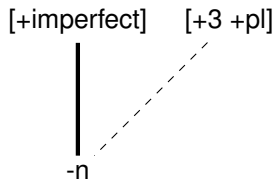
a. [+Imperfect] : -n /_____ [+3 +pl]

b. [+Imperfect] : -i

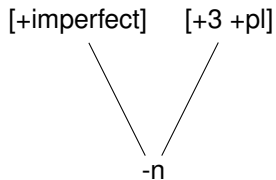
a. has precedence over b. by virtue of the Subset Principle

Allomorphy is Asymmetric

Allomorphy as an Asymmetric Phenomenon (DM)



Allomorphy as a Symmetric Phenomenon (e.g. Anderson 1992)



Uniqueness of Vocabulary Insertion

Every Vocabulary Item is inserted into maximally 1 Head

Every Head undergoes insertion by maximally 1 Vocabulary Item

A Portmanteau in Georgian

Present

	1sg	1pl	2sg	2pl	3
3sg	m-V-s	gv-V-s	g-V-s	g-V-t	V-s
3pl	m-V-en	gv-V-en	g-V-en	g-V-en	V-en

Imperfect

	1sg	1pl	2sg	2pl	3
3sg	m-V- a	gv-V- a	g-V- a	g-V- a -t	V- a
3pl	m-V- n-en	gv-V- n-en	g-V- n-en	g-V- n-en	V- n-en

- ▶ -a seems to block insertion of both -s and -en (or -i)
- ▶ We might want to say that -a is a portmanteau VI which is inserted into two heads at the same time
- ▶ but this would violate Uniqueness of Vocabulary Insertion

Possible Analysis in DM

Portmanteau = Allomorphy + Ø-Exponence

Present

	1sg	1pl	2sg	2pl	3
3sg	m-V-s	gv-V-s	g-V-s	g-V-t	V-s
3pl	m-V-en	gv-V-en	g-V-en	g-V-en	V-en

Imperfect

	1sg	1pl	2sg	2pl	3
3sg	m-V-a-Ø	gv-V-a-Ø	g-V-a-Ø	g-V-a-Ø-t	V-a-Ø
3pl	m-V-n-en	gv-V-n-en	g-V-n-en	g-V-n-en	V-n-en

Possible Analysis in DM

Portmanteau = Allomorphy + \emptyset -Exponence

a. [+Imperfect] : -n /____[+3 +pl]

b. [+Imperfect] : -a /____[+3 -pl]

c. [+Imperfect] : -i

d. [+3 -pl] : $-\emptyset$ /____-a

e. [+3 -pl] : -s

Order of Insertion: *unbezwingbar*, ‘invincible’

zwing ‘to force’

(**be** zwing) ‘to overcome’

((be zwing) **bar**) ‘possible to overcome’

(**un** ((be zwing) bar)) ‘impossible to overcome’

Syntactic Representations are non-linear

(UN ((BE ZWING) BAR))

=

(UN(BAR(BE ZWING)))

=

(((ZWING BE)BAR)UN) = **Canonical Order**

or

ZWING BE BAR UN

Vocabulary Insertion Inside Out

ZWING BE BAR UN **zwing** /zwing/

ZWING **BE** BAR UN **be-**zwing /be-/

ZWING BE **BAR** UN be-zwing-**bar** /-bar/

ZWING BE BAR **UN** **un-**be-zwing-bar /un-/