Umlaut and Schwa-Epenthesis in German

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Schwa-Epenthesis

	'to send'	'to glue'	'to lend'
Infinitive	ʃɪk-n	pap-n	mi:t-n
2sg	ʃɪk-st	pap-st	mi:t-ə-st
3sg	ʃɪk-t	pap-t	mi:t-ə-t

⇨ between [CORONAL] and [CORONAL] ə is inserted

Umlaut and Schwa-Epenthesis

	'to put'	'to carry'	'to weed'	'to counsel'
Infinitive	leːg-n	tʀaːg-n	jɛːt-n	ʀaːt-n
2sg	leːk-st	tʀɛːk-st	jɛːtə-st	**ʀɛːt-st**
3sg	leːk-t	tʀɛːk-t	jɛːtə-t	**ʀɛːat**

⇨ Umlaut blocks schwa-epenthesis

Neef's (1997) Word-Design

- ▶ Word forms don't consist of morphemes

- ▶ Word forms have stems and bases

- ▶ Word forms are well-formed,
  if they satisfy all design conditions of a given language

- ▶ Design conditions are language-specific & inviolable

Neef (1997): Design Conditions for the 3sg

DC1: 3sg must end in [t]

DC2: 3sg must differ phonologically from its base

Regular 3sg-Forms

Base: [kɔm] (Stem)

	-t	**Base ≠ Form**
☞ kɔmt	✔	✔
kɔm	★	★

Base: [jɛːt] (Stem)

	-t	**Base ≠ Form**
☞ jɛːtət	✔	✔
jɛːt	✔	★

Umlauting 3sg-Forms with Final [t]

Base: [ʀaːt] (Stem)

	-t	Base $\neq$ Form
ʀɛːtət	✔	✔
☞ ʀɛːt	✔	✔

Problem: What excludes [ʀɛːtət]?

"The Schwa is . . . a kind of last ressort, which steps in, if there are no other means to satisfy a structural requirement."
(Neef, 1997:165)

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The Problem with 2sg

Base: [ʀaːt] (Stem)

	-st	Base ≠ Form
ʀɛːtəst	✔	✔
☞ ʀɛːtst	✔	✔

Base: [jɛːt] (Stem)

	-st	Base ≠ Form
jɛːtəst	✔	✔
☞ jɛːtst	✔	✔

Problem:

If schwa is last-ressort, it should be blocked by an affix
which makes the 2sg distinct from the stem

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The Problem with 2sg: Neef's Solution

"The consequence . . . is that the design of the [2sg] depends from the design of the [3sg], hence that the base of the [2sg] is the [3sg] and not the verb stem. . . .

In principle the form of the [2sg] is identical to the [3sg] apart from the fact that it must end on [st] instead on [t]" (Neef, 1997:173-174)

2sg [jɛtəst] is better than [jɛtəst]
because it is closer to the 3sg base [jɛtət]
Hence the schwa in [jɛtəst] is not epenthetic,
but already part of the base.

Trommer (2003) on Subject Agreement

Subject Agreement follows 3 tendencies:

- ▶ Person ➔ left

- ▶ Number ➔ right

- ▶ Agreement ➔ Tense

Split Agreement

Georgian (Carmack, 1997:315)

v-xedav	*v-xedav-t*	*xedav-s*	*xedav-en*
S1-see	S1-see-PL	see-S3s	see-S3p
'I see'	'we see'	'he sees'	'they see'

Amharic (Leslau, 1995:301)

yë-säbr	*yë-säbr-u*	*ë-säbër*	*ënnë-säbër*
S3-break	S3-break-SPl	S1-break	S1p-break
'he breaks'	'they break'	'I break'	'we break'

Observations

- ▶ Person Agreement is leftmost

- ▶ Number Agreement is rightmost

- ▶ The position of [Person+Number] Agreement
  differs according to the language

OT-Analysis

▶ Person Agreement should be as leftwards as possible
   L ⬅ PER

▶ Number Agreement should be as rightwards as possible
   NUM ➪ R

Split Person-Number Agreement

		L ⬐ PER	NUM ⬑ R
☙	P > V > N		
☞	P > N > V		*
☞	V > P > N	*	
☛	N > P > V	**	*
☛	V > N > P	*	**
✝	N > V > P	**	**

[Person+Number]-Agreement

Ranking1 (Amharic)

	L ⇦ Per	Num ⇨ R
☞ PN > V		*
V > PN	*!	

Ranking2 (Georgian)

	Num ⇨ R	L ⇦ Per
PN > V		*
☞ V > PN	*!	

Typological Evidence

	Both Prefixes	**Both Suffixes**	**Mixed**	alle
P > N	8 80.0%	13 68.4%	25 100%	46 85.2%
N > P	2 20.0%	6 31.6%	0 0%	8 14.8%
Summe	10	19	25	54

	Both Prefixes	**Mixed**	**Both Suffixes**
P > N	Person Number V	Person V Number	V Person Number
N > P	*Number Person V	*Number V Person	*V Number Person

Fission in Udmurt

	Future		**Primary Past**	
	sg	**pl**	**sg**	**pl**
1	*mïn-o-(m)*	*mïn-o-m(-ï)*	*mïn-i-(m)*	*mïn-i-m(-ï)*
2	*mïn-o-d*	*mïn-o-d-ï*	*mïn-i-d*	*mïn-i-d-ï*
3	*mïn-o-z*	*mïn-o-z-ï*	*mïn-i-z*	*mïn-i-z-ï*

Problem with Udmurt

Input: $[+V]_1$ $[+Tense]_2$ $[+2\ +pl]_3$ (2pl, Udmurt)

		NUM ⇨ R	L ⇦ PER
☛	a. V_1-d:$[+2]_3$-ï:$[+pl]_3$		*!
☞	b. d:$[+2]$-V_1-ï:$[+pl]_3$		
	c. d:$[+2]_3$-ï:$[+pl]_3$-V_1	*!	

Coherence

Vocabulary Items, which realize the same syntactic head

should appear as closely together as possible

(very informal version)

Coherence in Udmurt

Input: $[+V]_1$ $[+Tense]_2$ $[+2 +pl]_3$ (2pl, Udmurt)

	COH	NUM ⇨ R	L ⇦ PER
☞ a. V_1-d:$[+2]_3$-ï:$[+pl]_3$			*
b. V_1-ï:$[+pl]_3$-d:$[+2]_3$		*!	***
c. d:$[+2]_3$-ï:$[+pl]_3$-V_1		*!	
d. d:$[+2]_3$-V_1-ï:$[+pl]_3$	*!		

Reanalysis

- ▶ Umlaut is the realization of a person feature

- ▶ Different Vocabulary Items,
  which realize the same head
  should be as close together as possible

- ▶ Schwa-epenthesis blocks closeness
  and is therefore avoided

Schwa-Epenthesis

Input: $mi:t_1+t_2$

	*FUSE	*[COR][COR]	DEP
a. $mi:t_{1,2}$	*!		
b. $mi:t_1t_2$		*!	
☞ c. $mi:t_1ət_2$			*

Input: mi:t+st

	*FUSE	*[COR][COR]	DEP
a. mi:t-st		*!	
☞ b. mi:t-ə-st			*

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Vocabulary Items for Agree (following Müller, 2006)

	sg		pl	
1	[+1 −2 −pl]	-e	[+1 −2 +pl]	-n
2	[−1 +2 −pl]	-s-t	[−1 +2 +pl]	-t
3	[−1 −2 −pl]	-t	[−1 −2 +pl]	-n

$$-2+pl \quad : \quad \text{-n}$$
$$+2 \quad\quad : \quad \text{-s} \quad\quad / \underline{\quad\quad} -pl$$
$$-1 \quad\quad : \quad \text{-t}$$

$$\textbf{-pl} \quad\quad : \quad \textbf{--back} \quad / \underline{\quad\quad} \textbf{--1 C}_x$$
$$-2 \quad\quad : \quad \text{-e}$$

Blocking of Schwa-Epenthesis in Umlauting Stem

Input: $r_1a:_2t_3$+[-back]$_4$+t_5

		COH	*FUSE	*[COR][COR]	DEP
☞	a. $r_1\varepsilon:_{2,4}t_{3,5}$		*		
	b. $r_1\varepsilon:_{2,4}t_3t_5$	*!		*	
	c. $r_1\varepsilon:_{2,4}t_3\partial t_5$	*!*			*

Input: $r_1a:_2t_3$+[-back]$_4$+s_5 + t_6

		COH	*FUSE	*[COR][COR]	DEP
☞	a. $r_1\varepsilon:_{2,4}t_3$-s_5-t_6	*		*	
	b. $r_1\varepsilon:_{2,4}t_3$-∂-s_5-t_6	**!			*