

Blocking, Intervention and Ablaut in German Verb Inflection

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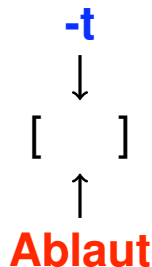
Strong and Weak Verbs in German

	Infinitive	Past participle	Past finite (2sg)
weak	schweb-en	ge-schweb-t	schweb-te-st
	geb-en	ge-geb-en	gab-st
strong	heb-en	ge-hob-en	hob-st
	sing-en	ge-sung-en	sang-st

Ablaut blocks past -t

Present 1pl	Past 2sg	Past Participle	
schweb-en	schweb- t -est	ge-schweb- t	'fly'
heb-en	h o b-st	ge-h o b-en	'carry'

Do -t and Ablaut compete for the same position?



Complication 1: -t and -n block each other

Present 2sg	Past 2sg	Past Participle	
schweb-st	schweb- t -e-st	ge-schweb- t	'fly'
heb-st	hob-st	ge-hob- en	'carry'

but -n and Ablaut don't

Complication 2: Ablaut doesn't block ge-

Present 2sg	Past 2sg	Past Participle	
schweb-st	schweb-t-e-st	ge-schweb-t	'fly'
heb-st	hob-st	ge-hob-en	'carry'
sing-st	sang-st	ge-sung-en	'sing'

Complication 3: Umlaut doesn't block 2sg/3sg affixes

Present 1sg	Present 2sg	Present 3sg	
lall-e	lall-st	lall-t	'sing'
fall-e	fäll-st	fäll-t	'fall'

Basic Ideas

- ▶ Ablaut is morphemic and realizes **different** functional heads
- ▶ Ablaut blocks -t at a featural, not a positional level
- ▶ Locality & Intervention account for crucial complications

Overview

Assumptions

Framework: Minimalist DM

Morphophonology of Umlaut/Ablaut

Phrase Structure of Verbs

Analysis

Blocking in the Past Tense

Zero in the Present Tense

Intervention in Participles

Exceptional Non-Blocking

Consequences

Unified -n

Wiese's Generalization

Allomorphic Assymetry

Terminology

Ablaut	Vowel change in [+past] verb forms
Umlaut	Vowel change in 2sg/3sg [-past] verb forms
Strong Verbs	Verbs showing Ablaut
Weak Verbs	Verbs not showing Ablaut

Standard Distributed Morphology (Halle & Marantz, 1993)

- ▶ Syntax manipulates abstract heads without phonological content
- ▶ Morphology interprets the output of Syntax
- ▶ Many different types of morphological operations

Operations in Standard DM

- ▶ **Impoverishment:** deletes morphosyntactic features
- ▶ **Fission:** dissect one head into different separate heads
- ▶ **Fusion:** fuses different lexical items into one
- ▶ **Vocabulary Insertion:** inserts VIs into lexical items, restricted by Elsewhere Condition and Feature Hierarchies
- ▶ **Readjustment:** Phonological modification of VIs

Minimalist Distributed Morphology (Trommer, 1999, 2003a,b)

Only 1 Morphological Operation: Vocabulary Insertion

Vocabulary insertion: If M is a VI with syntactic features α and phonological features β , and S is a head with features γ , where α is a subset of γ , then delete the features of α in γ and add β to the phonological representation of S

Georgian Verb Agreement

a. g-xedav
O2-see
'I see thee'

b. g-xedav-t
O2-see-PL
'I see you (pl.)'

c. g-xedav-en
O2-see-S3p
'they see thee'

d. g-xedav-en/*g-xedav-t-en
O2-see-S3p
'they see you (pl.)'

Derivation in Standard DM (Halle & Marantz, 1993)

	2pl ← 1sg	2pl ← 3pl
Syntax	[+2+pl] V	[+2+pl] V [+3+pl]
Fission	[+2] V [+pl]	[+2] V [+3+pl] [+pl]
Impoverishment	[+2] V [+pl]	[+2] V [+3+pl] ∅
Vocabulary Insertion	<i>g-</i> <i>-t</i>	<i>g-</i> <i>-en</i>

Derivation in Minimalist DM (Trommer, 2003)

	2pl ← 1sg	2pl ← 3pl
Syntax	[+2+pl] V	[+2+pl] V [+3+pl]
V. Insertion	g- [+2] V [+pl]	g- [+2] V [+3+pl] [+pl]
V. Insertion	V [+pl]	V [+3+pl] [+pl] ∅
V. Insertion	V [+pl] -t	V [+3+pl] -en

Subset Principle

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

Locality Constraint on Allomorphic Conditioning

A VI V with context restriction R

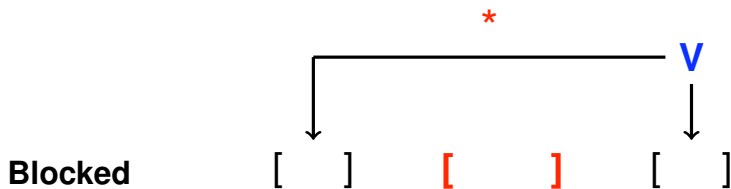
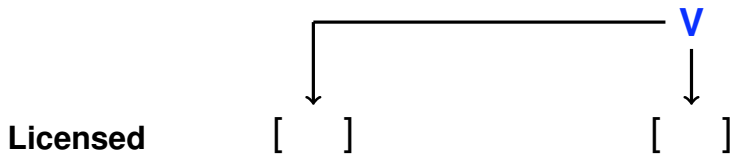
can only be inserted into a head H

if R is satisfied in H

or a head which is string-adjacent to H .

(Trommer, 2000, 2001)

Locality Constraint on Allomorphic Conditioning



The Morphophonology of Umlaut/Ablaut

- ▶ Umlaut/Ablaut are (part of) VIs
- ▶ Umlaut/Ablaut consist of floating vocalic features
- ▶ Umlaut/Ablaut features dock to root vowels by phonological fusion

(Similar Views in Lieber, 1987; Wolf, 2005)

The Morphophonology of Umlaut/Ablaut

singular	plural	
Vater	Väter	'father'
Mutter	Mütter	'mother'

	Root	Affix
Morphology	Vater	-back
Phonology	Väter	

Phrase Structure of Verbs

Finite Verbs

[[[[[]_v]_{Tense}]_{Finiteness}]_{Agree}

Infinite Verbs

[[[[[]_v]_{Tense}]_{Finiteness}]_{Participial}

Features in V

Features	Forms	Examples
[V]	Weak verbs	schweb-en ge-schweb-t
[V C ₁]	Strong verbs of class 1	heb-en ge-hob-en
[V C ₂]	Strong verbs of class 2	sing-en ge-sung-en
[V C _{...}]	Strong verbs of class

V = Verb (Categorial Feature)

Features in Tense

Features	Forms	Examples
[T -Past]	Present finite forms Present participles Infinitives	schweb-st schweb-end schweb-en
[T +Past]	Past finite forms Past participles	schweb-te-st ge-schweb-t

T = Tense (Categorical Feature)

Features in Finiteness

Features	Forms	Examples
[F Fin]	Finite present forms Finite past forms	schweb-st schweb-t-est
[F]	Infinitives Present Participles Past Participles	schweb-en schweb-end ge-schweb-t

F = Finiteness (Categorial Feature)

(cf. Wiese, 2006)

Features in Participial

Features	Forms	Examples
	Finite present forms Finite past forms	schweb-st schweb-t-est
[P]	Infinitives	schweb-en
[P Part]	Present Participles Past Participles	schweb-end ge-schweb-t

P = Participial (Categorial Feature)

Features in Agree

Features	Forms	Examples
[A +1 -2 -pl]	1sg	schweb-e
[A -1 +2 -pl]	2sg	schweb-st
[A -1 -2 -pl]	3sg	schweb-t
[A +1 -2 +pl]	1pl	schweb-en
[A -1 +2 +pl]	2pl	schweb-t
[A -1 -2 +pl]	3pl	schweb-en

A = Agree (Categorical Feature)

(cf. Müller, 2006)

Blocking in the Past Tense

Ablaut >>blocks -t >>blocks -n

Ablaut	[+Past]
-t	[Tense +Past]
-n	[Tense]

Vocabulary Items for Tense

- a. +Past : +round +back /____ T C₁ (ge-h**ob**-en)
- b. T +Past : /-t/ (ge-schweb-**t**)
- c. T : Ø /____ Fin (hob-**Ø**)
- d. T : /-n/ (ge-hob-**en**)

Ablaut blocks -t: **Strong** past finite forms (hob-st)[V C₁] [T +Past] [F Fin] 2sg | heb ||[V C₁] [T ~~APast~~] [F Fin] 2sg | hob+Past: +rd+bk /____ T C₁

T +Past: /-t/

[V C₁] [] [F Fin] 2sg

T: Ø /____ Fin

T: /-n/

[V C₁] [] [F Fin] 2sg | hob ||

Emergence of -t: **Weak** past finite forms (schweb-te-st)

[V] [T +Past] [F Fin] 2sg | schweb

[V] [~~T +Past~~] [F Fin] 2sg

schweb-t

+Past: +rd+bk /____ T C₁

T +Past: /-t/

T: Ø /____ Fin

T:/-n/

[V] [] [F Fin] 2sg | schweb-t

-t blocks -n: **Weak** past participles (ge-schweb-t)

[V] [T +Past] [F] [P Par] | schweb

[V] [~~T +Past~~] [F] [P Par] | schweb-t+Past: +rd+bk /____ T C₁

T +Past: /-t/

T: Ø /____ Fin

T: /-n/

[V] [F] [P Par] | schweb-t

Emergence of -n: **Strong** past participles (ge-hob-en)[V C₁] [T +Past] [F] Par | heb ||[V C₁] [T ~~+/Past~~] [F] Par

hob

+Past: +rd+bk /____ T C₁

T +Past: /-t/

T: Ø /____ Fin

[V C₁] [] [F] Par

hob-en

T: /-n/

[V C₁] [] [F] Par | hob-en ||

Zero in the Present Tense: Tense

∅	[-Past]
∅	[Tense]
∅	[]

Exception:

-n	[Tense]
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(in infinite forms)

Zero in the Present Tense: Finiteness

[Fin]	∅
[F]	∅

Zero Vocabulary Items for Present Tense

a. [] : \emptyset / ____ -Past

b. -Past : \emptyset

c. [F (Fin)] : \emptyset - / V ____

Zero in present finite forms (weak: schweb-st)

[V] [T -Past] [F Fin] 2sg | schweb ||

[V] [T -Past] [F Fin] 2sg

[]: Ø / ____ -Past

[V] T ~~-Past~~ [F Fin] 2sg

-Past: Ø

[V] ~~T~~ [F Fin] 2sg

T: Ø / ____ Fin

[V] ~~Fin~~ 2sg

[F (Fin)]: Ø- / V ____

[V] 2sg | schweb ||

Zero in (present) Infinitives (schweb-en)

[V] [T -Past] [F][P] | schweb

[V] ~~[T -Past]~~ [F][P]

[]: Ø / ____ -Past

[V] T ~~-Past~~ [F][P]

-Past: Ø

T: Ø / ____ Fin

[V] ~~T~~ [F][P]

schweb-en

T: /-n/

[V] ~~[F]~~ [P]

[F (Fin)]: Ø- / V ____

[V] [P] | schweb-en

[+Past] vs. [-Past] after Spellout

[+Past]

[V] [] [F] [A 2sg] schweb-te-st

[-Past]

[V] [F] [A 2sg] (schweb-st)

Intervention in Participles

[Par]	-d
[Par]	-g

(in non-past forms)

(in past forms)

-d >>> blocks ge-

Vocabulary Items for Participles

a. Par : -d / V _____

b. Par : ge-

Derivation of present participle form (schweb-en-d)

[V] [T -Past] [F] [P Par] | schweb

[V] [T -Past] [F] [P Par] | schweb-en

[V] [T -Past] [F] [P Par]

[V] [T -Past] [F] [P Par]

[V] [F (Fin)] [P Par]

[V] [P Par] | schweb-en-d

[V] [P]

[V] [P] | schweb-en-d

T: /-n/

[]: Ø / ____ -Past

-Past: Ø

[F (Fin)]: Ø / V ____

Par: /-d/ / V ____

Par: /ge-/

Derivation of past participle form (weak: ge-schweb-t)

[V] [T +Past] [F] [P Par] | schweb

[V] [~~T +Past~~] [F] [P Par] | schweb-t

T +Past: /-t/

T: /-n/ /

[F (Fin)]: Ø / V ____

Par: /-d/ V ____

[V] [] [F] [P ~~Par~~] | ge-schweb-t

Par: /ge-/

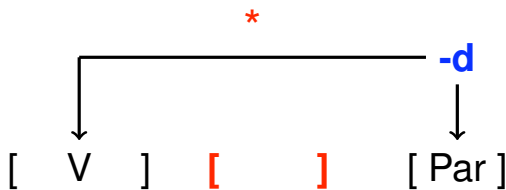
[V] [] [F] [P] | ge-schweb-t

Allomorphy and Intervention

Present Participle



Past Participle



Derivation of past participle form (strong: ge-hob-en)

[V C ₁] [T +Past] [F] [P Par]	heb	
[V C ₁] [T +Past] [F] [P Par]	hob	+Past: +rd+bk / ____ T C ₁
		T +Past: /-t/
[V C ₁] [V] [F] [P Par]	hob-en	T: /-n/
		[F (Fin)]: Ø / V ____
		Par: /-d/ / V ____
[V C ₁] [] [F] [P Par]	ge-hob-en	Par: /ge-/
[V C ₁] [] [F] [P]	ge-hob-en	

“Exceptional” Non-Blocking with Umlaut

Present 1sg	Present 2sg	Present 3sg
lall-e	lall-st	lall-t
fall-e	fäll-st	fäll-t

VIs for Agree (following Müller, 2006)

	sg		pl	
1	[A +1 -2 -pl]	-e	[A +1 -2 +pl]	-en
2	[A -1 +2 -pl]	-st	[A -1 +2 +pl]	-t
3	[A -1 -2 -pl]	-t	[A -1 -2 +pl]	-en

A -2+pl : -n
 +2-pl : -s
 -1 : -t

A : **-back** / _____ -1 -pl C_x
 A : -e

Derivation of present finite form (weak: fäll-st)

[V C _x]	[A +2 -1 -pl]	fall	
[V C _x]	[A +2 -1 -pl]	fäll	A:-bk / _____ -1 -pl C _x
[V C _x]	[A -1 pl]	fäll-s	+2-pl:-s
[V C _x]	[A]	fäll-s-t	-1:t
[V C _x]	[]	fäll-s-t	

Exceptional Non-Blocking: Verbs with Ablaut **and** participle -t

Present 1pl	Past 2sg	Past Participle
schweb-en	schweb- te -st	ge-schweb- t
heb-en	h o b-st	ge-h o b-en
kenn-en	k a nn t -est	ge-k a nn- t

Analysis of Verbs with Ablaut and -t

Ablaut expresses the class feature

C_y : +low / _____ +Past

(C_y = Class feature of *kennen*)

Derivation of past participle form (ge-kann-t)

[V C_y] [T +Past] [F] [Par] | kenn

[V **o**] [T +Past] [F] [Par]

k**ann**

C_y : +low / ____+Past

[V] [**ll+Past**] [F] [Par]

kann-**t**

T +Past: /-t/

T: /-n/ / ____ infin

Par: -d / V ____

[V] [] [F] [**Par**]

ge-kann-t

Par: ge-

[V] [] [F] []

ge-kann-t

Unified infinite -n (cf. Sternefeld, 2006)

Past participle	ge-sung- en
Present Participle	sing- en -d
Infinitive	sing- en

⇒

T : /-n/

Wiese's Generalization

Infinitive	Past participle	Past finite (2sg)
schweb-en	ge-schweb-t	schweb-te-st
geb-en	ge-geb-en	gab-st
schieb-en	ge-sch o b-en	sch o b-st
sing-en	ge-s u ng-en	s a ng-st
*teb-en	*ge-t a b-en	*teb-st

Ablaut in past participle implies ablaut in past finite forms

Deriving Wiese's Generalization

No allomorphy of +Past specific to infinite (participle) forms:

- ▶ Fin is a privative feature
- ▶ Part/P is not adjacent to Tense

Deriving Wiese's Generalization

Three Possibilities for +Past:

Allomorph sensitive to Class + Fin	⇒	Ablaut in past finite forms
Allomorph sensitive to Class	⇒	Same Ablaut in past finite and past participle forms
Allomorphs of both types	⇒	Different Ablaut in past finite and past participle forms

The Allomorphic Sensitivity Asymmetry

Ablaut is sensitive to Tense, but not to Agr

Umlaut is sensitive to Agree, but not to Tense

Deriving the Allomorphic Sensitivity Asymmetry

Past Finite Forms

[[[[Class]_V]_{Tense}]_{Fin}]_{Agr}

Present Finite Forms

[[[[Class]_V]_{Agr}

Summary

Observation	Explanation
Ablaut blocks past -t	Both realize [+Past]
-t and -n block each other	Both realize [T]
Ablaut, ge-, -and n don't block each other	Ablaut realizes [+Past] ge- realizes [Part]
Umlaut and Agreement don't block each other	Umlaut and Affixes realize different Agr-features
Exceptional Non-Blocking of Ablaut and -t	Ablaut realizes Class

Summary

Distribution of Ablaut is governed

by featural blocking and locality