

Modern German and Old English strong verbs :
two ways of running Ablaut.

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Preliminaries

[1] Ablaut / apophony : a [non-exhaustive] phenomenological survey :

<u>berb.</u>	f _a θ (imperat. 2S)	if _u θ (pret. 3MS)	
<u>mubi</u>	r _â t (perf. stem)	r _j d'ât (imperf. stem)	
<u>som.</u>	yiqiġn (past 3MS)	yaqaan[n-aa] (pres. 3MS)	má... qqóón (neg.past)
<u>cl. ar.</u>	ka _t ab- (st.1 act. - perf.)	ya-kt _u b- (st.1 act. imperf.)	
<u>hbr.</u>	š _e am _g r (qal - perf. 3MS)	yi-š _m g _r (qal - imperf. 3MS)	
<u>ge'ez</u>	xäšijr (adj. SMasc)	xäš _a ar (adj. SFem.)	
<u>gta'</u>	gs _e ġ (n. "chicken")	gs _i ġ (dimin.)	gs _a ġ (augm.)
<u>germ.</u>	[iç] h _e lf- _a (pres. 1S)	[iç] h _a lf (pret. 1S)	g _o -h _e lf- _a n (past. part.)
<u>engl.</u>	[ā] s _i ġ (pres. 1S)	[ā] s _a ġ (pret. 1S)	s _Δ ġ (past. part.)

[2] alternative views :

- the nature of the vowels involved in the related forms in [1] can be conceived as
 - a) lexically determined
 - b) lexically determined in the basis only, but predictable in all derived forms.

[3] general program :

show that Ablaut or apophony [= unconditioned vocalic alternations] in languages obey one invariant regularity. That is Ablaut phenomena are not encoded in the lexicon [2a], but are predictable [2b].

This implies :

- a) to show that all apophonic systems obey the same regularity
- b) to account for the differences observed in the various apophonic systems

[4] purpose of the present talk :

- a) point out the unique regularity observed by apophonic systems in languages as different as class. arabic and modern german
- b) account for the differences observed in the way of running general apophony in two parallel apophonic systems ["strong" verbs] of cognate languages :
 - 1- NHG = New High German
 - 2- OE = Old English.

NOTA : our analysis of apophonic systems is intended to be strictly synchronic.

B - Apophonic theory: Classical Arabic (CA),
(Guerssel/Lowenstamm 1994)

(5)

maximally simple vocalic system in CA:

i ii u uu
a aa

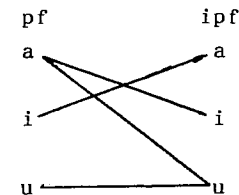
(6)

Form I (for the other forms, cf. Guerssel/Lowenstamm (1994)): aspectual opposition expressed by a vocalic alternation in V₂=C₂-C₃:

vocalic alternations in CA				
alternation	f	perfective	imperfective	sense
a - u	ktb	ka _t ab-a	ya-kt _u b-u	schreiben
a - i	Drb	Da _r ab-a	ya-Dr _i b-u	schlagen
i - a	lbs	lab _i s-a	ya-lb _a s-u	sich kleiden
u - u	kbr	ka _b ur-a	ya-kb _u r-u	wachsen

(7)

the following vowels are opposed



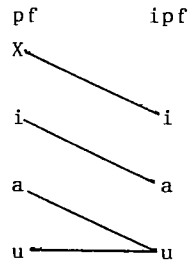
the two sets (pf- and ipf vowels) can be predicted one from the other by no means.

(8)

hypothesis:

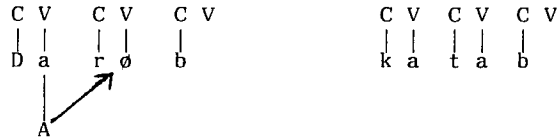
- a. CA vocalic alternations are not lexicalised
- b. the output-set is predictable from the input-set

(9) predictability assured under one condition: apart from the three surface-vowels [i,a,u], a fourth object exists: X



- (10) what is the identity of X?
 a. ex. pf Darab → ipf ya-Drib
 b. given (9), ipf [i] must originate in X
 c. thus, X must be different from the observable [a]
 d. X = ∅ the null set

(11) /D a r ∅ b/ /k a t a b/



(12) the set of ipf-vowels thereby is predictable from the underlying set of pf-vowels:

lexical identity	perf	imperf	example	
			perf	imperf
/∅/	[a]	[i]	Dar-a-b	yaDr-i-b
/a/	[a]	[u]	kat-a-b	yakt-u-b
/i/	[i]	[a]	lab-i-s	yalb-a-s
/u/	[u]	[u]	kab-u-r	yakb-u-r

(13)

(underlying) input	apophonic result	
∅	==>	i
i	==>	a
a	==>	u
u	==>	u

"X==>Y" means "X and Y contract an apophonic relation"

Apophonic Path¹
 ∅ ==> i ==> a ==> u ==> u

C - New-High-German (NHG) strong Verbs
 (Ségéral/Scheer 1994)

(14)

Classical Arabic: 2 degrees	German: 3 degrees
perf ==> imperf	pres. ==> past ==> past part.
kat <u>a</u> ba ya-kt <u>u</u> bu	s <u>i</u> ng-e s <u>a</u> ng ge-s <u>u</u> ng-en

(15) survey of NHG strong verbs
 column 1: historical classification (J.Grimm) in 7 classes (I-VII)
 column 2: our numbering of the different Ablaut-series
 columns 3,4,5: the three root-vowel defining the series (present, past, past participle)
 column 6: the verbs belonging to the Ablaut-series under interest
 column 7: number of the verbs functioning in the series

¹ - Guerssel/Lowenstamm (1994) claim that the apophonic path is not only underlying Form I alternations, but the whole CA verbal system.

1	2	3	4	5	6	7	
I a	1	ai	l	l	[sich] befließen, beißen, bleichen, gleichen, gleiten, greifen, kneifen, kreischen, leiden, pfeifen, reißen, reiten, schießen, schleichen, schleifen, schleißten, schmeißen, schneiden, schreiten, spleißen, streichen, streiten, weichen	23	
b	2	ai	ii	ii	bleiben, gedeihen, leihen, meiden, preisen, reiben, scheiden, scheinen, schreiben, schreien, schweigen, speien, steigen, treiben, weisen, zeihen	16	
II a	1	3	ii	oo	oo	biegen, bieten, erkiesen, fliegen, fliehen, frieren, schieben, stieben, verlieren, wiegen, ziehen	11
	2	4	yy	oo	oo	lügen, küren, trügen	3
	3	5	aɔ	oo	oo	saugen, schnauben	2
	4	6	aɔ	ɔ	ɔ	saufen	1
b	1	7	ii	ɔ	ɔ	fließen, genießen, gießen, kriechen, riechen, schießen, schließen, siedeln, spritzen, triefen, verdrießen	11
III a	1	8	l	a	ɔ	binden, dingen, dringen, finden, gelingen, klingen, ringen, schlingen, schwinden, schwingen, singen, sinken, springen, stinken, trinken, winden, wringen, zwingen	18
	2	9	l	a	ɔ	beginnen, gewinnen, rinnen, schwimmen, sinnen, spinnen	6
	3	10	l	ɔ	ɔ	glimmen, klimmen	2
	4	11	l	a	a	bringen	1
	5	12	l	ɔ	ɔ	schinden	1
	6	13	ɛ	a	a	brennen, denken, kennen, nennen, rennen, senden, wenden	7
b	1	4	ɛ	a	ɔ	bergen, bersten, gelten, helfen, schelten, sterben, verderben, werben, werfen	9
	2	5	ɛ	ɔ	ɔ	dreschen, fechten, flechten, melken, quellen, schmelzen, schwellen	7
IV	1	6	ɛ	aa	ɔ	brechen, erschrecken, sprechen, stechen, treffen	5
	2	7	ee	aa	oo	befehlen, stehlen	2
	3	8	ee	aa	ɔ	nehmen	1
	4	9	ɔ	aa	ɔ	kommen	1
	5	10	ææ	aa	oo	gebären	1
	6	11	æ	ɔ	ɔ	erlöschen	1
V	1	2	ɛ	aa	ɛ	essen, fressen, messen, vergessen, stecken[IV]	5
	2	3	ee	oo	oo	bewegen, heben, pflegen, scheren, weben	5
	3	4	ee	aa	ee	geben, genesen, geschehen, lesen, sehen, treten	6
	4	5	ii	aa	ee	liegen	1
	5	6	l	aa	ee	bitten	1
	6	7	l	aa	ɛ	sitzen	1
	7	8	ææ	oo	oo	erwägen, gären, schwären	3
VI	1	2	a	uu	a	backen, schaffen, wachsen, waschen	4
	2	3	aa	uu	aa	fahren, graben, laden, schlagen, tragen	5
	3	4	æ	oo	oo	schwören	1
	4	5	a	ɔ	ɔ	schallen	1
VII a	1	3	aa	ii	aa	blasen, braten, raten, schlafen	4
	2	4	a	ii	a	fallen, halten, lassen	3
	3	5	a	l	a	fangen, hangen	2
b	1	3	aɔ	ii	aɔ	hauen, laufen	2
	2	3	ai	ii	ai	heißen	1
	3	3	uu	ii	uu	rufen	1
	4	3	oo	ii	oo	stoßen	1
ath	1	4	uu	aa	aa	tun	1
	2	4	ee	l	a	gehen	1
	3	4	ee	a	a	stehen	1
irr.	4	3	ɛ	a-ɔ	ɔ	werden	1

Total 180

(16) very complex vowel-system in NHG: 16 vowels, 3 diphthongs

ii i yy Y uu ũ
 ee ε øø ± ð oo ɔ
 ææ
 aa a aw aj ɔj

(17) challenge in comparison to CA:
 a. extreme fragmentation of the verbs: 180 verbs for 43 Ablaut-series, i.e. only 4,18 verbs per series
 b. 16 of the 19 different vowels are represented in the Ablaut-system

(18) in CA, all vowels appearing at the surface are members of the apophonic path.
 Which mechanism guarantees the interpretation of vowels such as [e,o] that are unknown in the apophonic path?

(19) apophonically irrelevant properties:
 a. vowel length: apophony as understood here manipulates the quality, not the quantity of vowels. Anyway, vowel-length is predictable in about 80% of the cases (controlled by the right context: geminate vs. single consonant, voiceless vs. voiced).
 b. ATR depends on vowel-length:
 short ==> -ATR
 long ==> +ATR
 the difference [ee] nehmen vs. [ææ] gebären is also context-driven ([ææ] / [lab/vel_r/vel], [ee] elsewhere: geBäRen, erWäGen, GäRen, schwäRen)
 c. diphthongs [aj,aw]: the vowel is /a/

O N O N
 | |
 a J
 a w

(20)

phonologically and apophonically relevant vowel-system of NHG

I Y U
 E ě O
 A

(21) Phonological table of the Ablaut-series

	PRES	PRET	PART	GRIMM	Verbs	Nbr
A	I	A	E	V 4	2 5 liegen	3
				V 5	2 6 bitten	
				V 6	2 7 sitzen	
B	I	A	A	III a 4	1 1 bringen	1
C	I	A	U	III a 1	8 binden, dingen, dringen, finden, gelingen, klingen, ringen, schlingen, schwinden, schwingen, singen, sinken, springen, stinken, trinken, winden, wringen, zwingen	18
D	I	A	O	III a 2	9 beginnen, gewinnen, rinnen, schwimmen, sinnen, spinnen	6
E	I	U	U	III a 5	1 2 schinden	1
F	I	O	O	III a 3	1 0 glimmen, klimmen	24
				I a 1	3 biegen, bieten, erkiesen, fliegen, fliehen, frieren, schieben, stieben, verlieren, wiegen, ziehen	
				II b 1	7 fließen, genießen, gießen, kriecken, riechen, schießen, schließen, sieden, sprießen, triefen, verdrießen	
G	E	I	A	ath 2	4 1 gehen	1
H	E	A	A	III a 6	1 3 brennen, denken, kennen, nennen, rennen, senden, wenden	8
				ath 3	4 2 stehen	
I	E	A	E	V 1	2 2 essen, fressen, messen, vergessen, stecken[IV]	11
				V 3	2 4 geben, genesen, geschehen, lesen, sehen, treten	
J	E	A	O	III b 1	1 4 bergen, bersten, gelten, helfen, schelten, sterben, verderben, werben, werfen	18
				IV 1	1 6 brechen, erschrecken, sprechen, stechen, treffen	
				IV 2	1 7 befehlen, stehlen	
				IV 3	1 8 nehmen	
				IV 5	2 0 gebären	
J *	E	A-U	O	irr.	4 3 werden	1
K	E	O	O	III b 2	1 5 dreschen, fechten, flechten, melken, quellen, schmelzen, schwellen	15
				V 2	2 3 bewegen, heben, pflegen, scheren, weben	
				V 7	2 8 erwägen, gären, schwären	
L	A	I	I	I a	1 sich) befeißten, beißen, bleichen, gleichen, gleiten, greifen, kneifen, kreischen, leiden, pfeifen, reißen, reiten, schießen, schleichen, schleifen, schleißten, schmeißen, schneiden, schreiten, spleißen, streichen, streiten, weichen	39
				I b	2 bleiben, gedeihen, leihen, meiden, preisen, reiben, scheiden, scheinen, schreiben, schreien, schweigen, speien, steigen, treiben, weisen, zeihen	
M	A	I	A	VII a 1	3 3 blasen, braten, raten, schlafen	12
				VII a 2	3 4 fallen, halten, lassen	
				VII a 3	3 5 fangen, hangen	
				VII b 1	3 6 hauen, laufen	
				VII b 2	3 7 heißen	
N	A	U	A	VI 1	2 9 backen, schaffen, wachsen, waschen	9
				VI 2	3 0 fahren, graben, laden, schlagen, tragen	
O	A	O	O	II a 3	5 saugen, schnauben	4
				II a 4	6 saufen	
				VI 4	3 2 schallen	
P	Y	O	O	II a 3	4 lügen, kügen, trügen	3
Q	Ě	O	O	IV 6	2 1 erlöschen	2
				VI 3	3 1 schwören	
R	U	I	U	VII b 3	3 8 rufen	1
S	U	A	A	ath 1	4 0 tun	1
T	O	I	O	VII b 4	3 9 stoßen	1
U	O	A	O	IV 4	1 9 kommen	1

- (22) functioning of apophony
verbs enter the apophonic path with their lexical vowel
- (23) partial apophony: verbs where only two of the three degrees contract an apophonic relation
- *A-B=>C is excluded because the entering vowel B is not lexical but the product of a non-apophonic derivation.
 - A=>B-C: only A and B contract an apophonic relation. B and C are not related apophonically.
E.g. *graben => grub - gegraben*

- (24) working definitions
- apophonic series:
A ==> B ==> C
 - half-apophonic series:
A ==> B - C
 - non-apophonic series:
A - B - C or A - B ==> C

- (25) 16 logically possible series with three degrees where vowels may be identical. According to the above definitions, these are
- apophonic series
 - half-apophonic series

(26)

	3 differ. vowels	2 different vowels			1 vowel
	A, B, C	A, A, B	A, B, B	A, B, A	A, A, A
<u>APOPH.</u> X=>Y=>Z	1 $\emptyset \Rightarrow i \Rightarrow a$ 2 $i \Rightarrow a \Rightarrow u$		3 $a \Rightarrow u \Rightarrow u$		4 $u \Rightarrow u \Rightarrow u$
<u>HALF-APOPH.</u> X=>Y-Z	5 $\emptyset \Rightarrow i - u$ 6 $i \Rightarrow a - \emptyset$ 7 $a \Rightarrow u - \emptyset$ 8 $a \Rightarrow u - i$	9 $u \Rightarrow u - \emptyset$ 10 $u \Rightarrow u - i$ 11 $u \Rightarrow u - a$	12 $\emptyset \Rightarrow i - i$ 13 $i \Rightarrow a - a$	14 $\emptyset \Rightarrow i - \emptyset$ 15 $i \Rightarrow a - i$ 16 $a \Rightarrow u - a$	

(27)

STEP 1:

first confrontation of the theory with the existing series we first look at series with only [i,a,u], i.e. the vowels present in the path.

Concerned series: B,C,E,L,M,N,R,S.

(28)

- results:
- apophonic
- series C = 18 verbs
 - half-apophonic
- series N = 9 verbs
- series B = 1 verb (*bringen*)

	3 differ. vowels	2 different vowels			1 vowel
	A, B, C	A, A, B	A, B, B	A, B, A	A, A, A
<u>APOPH.</u> X=>Y=>Z	1 $\emptyset \Rightarrow i \Rightarrow a$ 2 $i \Rightarrow a \Rightarrow u$		3 $a \Rightarrow u \Rightarrow u$		4 $u \Rightarrow u \Rightarrow u$
<u>HALF-APOPH.</u> X=>Y-Z	5 $\emptyset \Rightarrow i - u$ 6 $i \Rightarrow a - \emptyset$ 7 $a \Rightarrow u - \emptyset$ 8 $a \Rightarrow u - i$	9 $u \Rightarrow u - \emptyset$ 10 $u \Rightarrow u - i$ 11 $u \Rightarrow u - a$	12 $\emptyset \Rightarrow i - i$ 13 $i \Rightarrow a - a$	14 $\emptyset \Rightarrow i - \emptyset$ 15 $i \Rightarrow a - i$ 16 $a \Rightarrow u - a$	

- non-apophonic
- series E,R,S = 3 verbs (*schinden, rufen, tun*): lost
- series L,M = 51 verbs (39+12): important setback

(29)

- confirmation of the predictions
- there is NO verb of the shape A - A ==> B
if the present and the past degree don't contract an apophonic relation, the past and the participle degree cannot be related apophonically.
 - the directionality of the derivation is confirmed
 $\emptyset \Rightarrow i \Rightarrow a \Rightarrow u \Rightarrow u$: NO verb with three different vowels (type A-B-C) is non-apophonic.

(30)

STEP 2:

complex vowels
how does apophony treat vowels that don't occur in the path?

(31)

internal structure of segments: Government Phonology (KLV 1985, 1987)

a. phonological primitives: Elements

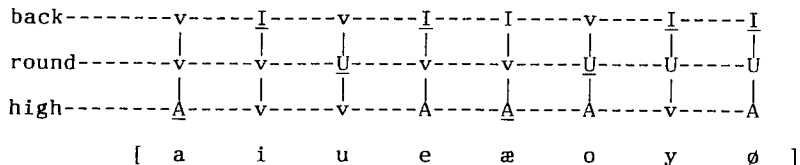
I	U	A	v
$\begin{bmatrix} \text{-round} \\ \text{-back} \\ \text{+high} \\ \text{-ATR} \\ \text{-low} \end{bmatrix}$	$\begin{bmatrix} \text{+round} \\ \text{+back} \\ \text{+high} \\ \text{-ATR} \\ \text{-low} \end{bmatrix}$	$\begin{bmatrix} \text{-round} \\ \text{+back} \\ \text{-high} \\ \text{-ATR} \\ \text{+low} \end{bmatrix}$	$\begin{bmatrix} \text{-round} \\ \text{+back} \\ \text{+high} \\ \text{-ATR} \\ \text{-low} \end{bmatrix}$

b. combination of different Elements: segments

a segment is an asymmetrical object: one of the Elements it is defined by is its head (heads appear ununderscored hereafter)

example: [e] = I-A because its articulation is nearer to the I-position

[æ] = I-A because its articulation is nearer to the A-position

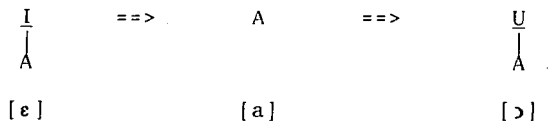


(32)

Example of a series with complex vowels: series J

bErgen - bArg - gebOrgen:

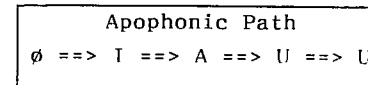
present past past participle



(33)

such a series is obviously apophonic interpretation if the apophonic path is

not expressed in vowels but in phonological Elements.



(34)

if apophony concerns Elements and not vowels, there must be two kinds of Elements in a complex vowel:

a. one Element that carries the apophonic information.

We call it

"apophonic Element"

b. one or more Elements that do not participate in the apophonic relation. We call them

"parasitic Elements"

(35)

How do speakers know which Element within a complex vowel is apophonic, and which is (are) parasitic?

(36)

the Apophonic Path makes the following prediction:

if the series with complex vowels A,D,F,G,H,I,J,K,O,P,Q,T,U (=98 out of 180 verbs, 55%) function apophonically, the distribution of apophonic and parasitic Elements must be as follows:

(37)

Series	optimal apoph. lecture of the series	parasitic elements to be supposed			Nbr	
		PRES	PRET	PART		
A	i => a => e	half-apoph. i => a	....	....	/	3
D	i => a => o	APOPH i => a => u	....	....	A	6
F	i => o => o	APOPH i => a => u	....	U	A	24
G	e => i => a	lost (gehen)	/	/	/	1
H	e => a => a	half-apoph i => a	A	....	/	8
I	e => a => e	half-apoph i => a	A	....	/	11
J	e => a => o	APOPH i => a => u	A	....	A	19
K	e => o => o	APOPH i => a => u	A	U	A	15
O	a => o => o	APOPH a => u => u	....	U	A	4
P	y => o => o	APOPH i => a => u	U	U	A	3
Q	œ => o => o	APOPH i => a => u	A + U	U	A	2
T	o => i => o	APOPH ∅ => i => a	A + U	....	A	1
U	o => a => o	lost(kommen)	/	/	/	1

- (38) results:
 a. A and U may be parasitic
 b. I is NEVER parasitic

- (39) definition "entering Element":
 the *entering Element* is the apophonic Element of the lexical vowel. It is the Element the verb enters in the apophonic path with.

- (40) **Lisibility-Theorem of the German Ablaut**
 (answering question (35))
 parasitic and entering Elements are complementarily distributed:
 - entering Elements are never parasitic
 - parasitic Elements are never entering Elements

	entering Element	parasitic Element
∅	x	
I	x	
A		x
U		x

- (41) the question "how do speakers distinguish between parasitic and apophonic Elements" is raised for the first degree = present only: in the following degrees (past, past participle), the apophonic Element is always the result of the apophonic derivation performed on the former degree.

- (42) the following situation obtains for the first degree in NHG:
 a. A and U are always parasitic
 b. neither A nor U may be an entering Element

- (43) structure of lexical entries of NHG strong verbs:
 $\int C_C = a$, where a is the surface-vowel of degree 1
singen : $\int s_{ng} = I$
helfen : $\int h_{lf} = E$
gleiten : $\int gl_{jt} = A$

- (44) if it is true that apophony is active **synchronically**, the root-vowels of degree 2 = past and 3 = past participle are absent from the lexicon. They combine from
 a. an apophonic Element that is delivered by the apophonic path
 b. and should the occasion arise, a parasitic Element that must be predictable independently from apophony

- (45) predictability
 a. of the parasitic U in degree 2 (series F,K,O,P,Q):
 always in the neighbourhood of velar/ labial consonant or [r,∅] (cf. details in (46))
 b. of the parasitic A in degree 3 (series D,F,J,K,O,P,Q,T):
 A is always present save in __NC-contexts (cf. diachrony)

- (46) a. class II: U is lexically present
 1. U is always present in degrees 2 and 3: e.g.
biegen-bog-gebogen
 2. it doesn't come from the context: IIb *fließen, siedēn...*
 3. the length of the root-vowel in classes I and II is driven by the following consonant:
 long before __C_{son} *blieb, mied, bog, schob,...*
 short before __C_{-son} *biß, litt, floß, troff,...*
 in the present of class IIb where it should thus be short, it is long: [ii] *fließen, riechen,...*
 Why?

4. ==> U is lexically present. This explains the long [ii] in IIa-presents: in the present of class IIa [ii], a conflict arises: the lexically present /__w/ stands besides a I. Such a sequence /I U/ = [iw] is illicit in NHG: it does never ever occur.

Two solutions:

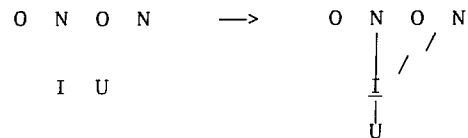
- the I occupies both positions:

result [ii]: series IIa1, IIb (z.B. *biegen*)



- I and U combine:

result [yy]: series IIa2 (z.B. *lügen*)



there is no such conflict in degree 2 because the /__U/ can freely combine with the apophonically derived A, the result being [o].

b.

predictability of the U in the past					
series	example	Grimm	origin of the U in degree 2		counter-examples
F	glimmen	IIa3	__mm		-
	biegen riechen	IIa1 IIb	__U lexically present		-
K	dreschen	IIIb2	dreschen	lexical U: < ahd dreskan	-
			fechten flechten	lexical U in / /: [ç]=/χ/, ahd fehtan, flehtan, s. Flachs	-
			melken quellen schmelzen schwellen	C ₁ C ₂ __LC, wo C ₂ =[v,m] oder m__	maybe schwinden, schwingen, zwingen, but C ₁ C ₂ __NC
	heben scheren weben	V2,7	__[vel,lab] _{son,r} /r/: mhd [r] > nhd [R]!		geben, liegen (but mhd licken, too)
Q	erlöschen	IV6	lexical U: < ahd lesan (the [ö] for the same reason)		-
	schwören	VI3	class VI = non-apophonic (s.(49))		-
O	saugen	IIa3,4	non-apophonic (s.(49))		-
	schallen	VI4	non-apophonic (s.(49))		-
P	lügen	IIa2	__U lexically present		-

(47)

the observation (42a) "A and U are always parasitic" sheds new light on the "important setback" (28a) (=the 51 verbs of the series L,M seemed to be lost) and the series N,O:

according to (42a), A is always parasitic in the present. Thus, any series that is provided with an [a] in the present has an apophonically relevant underlying [a] minus [a] = /ø/.

a. series	apophony	lisibility	number
L	a-i-i half-apophonic	ø ==> i	39 (beißen)
M	a-i-a APOPHONIC	ø ==> i ==> a	12 (raten)

b. new evaluation of series N (a-u-u), half-apophonic according to (28b), and O (a-o-o), apophonic according to (37):

series	apophony	lisibility	number
N	a-u-u lost	impossible	9 (laden)
O	a-o-o lost	impossible	4 (saugen)

(48)

apophonic recipe for learners of NHG

- take the present-vowel
- if present, get rid of A and U
- the result is your input into the apophonic path
- according to the context, join U in the past, A in the past participle

(49) results

a) apophonic verbs : 1- ø => i => a

M	A	I	A	VII a 1	3 3	blasen, braten, raten, schlafen	
				VII a 2	3 4	fallen, halten, lassen	
				VII a 3	3 5	fangen, hangen	
				VII b 1	3 6	hauen, laufen	
				VII b 2	3 7	heißen	12

2 - i => a => u

C	I	A	U	III a 1	8	binden, dingen, dringen, finden, gelingen, klingen, ringen, schlingen, schwinden, schwingen, singen, sinken, springen, stinken, trinken, winden, wringen, zwingen	18
D	I	A	O	III a 2	9	beginnen, gewinnen, rinnen, schwimmen, sinnen, spinnen	6
F	I	O	O	III a 3	1 0	glimmen, klimmen	
				I a 1	3	biegen, bieten, erkiesen, fliegen, fliehen, frieren, schieben, stieben, verlieren, wiegen, ziehen	
				II b 1	7	fließen, genießen, gießen, kriechen, riechen, schießen, schließen, sieden, sprießen, triefen, verdrießen	24
J	E	A	O	III b 1	1 4	bergen, bersten, gelten, helfen, schelten, sterben, verderben, werben, werfen	
				IV 1	1 6	brechen, erschrecken, sprechen, stechen, treffen	
				IV 2	1 7	befehlen, stehlen	
				IV 3	1 8	nehmen	
				IV 5	2 0	gebären	
J *	E	AU	O	irr	4 3	werden	1
K	E	O	O	III b 2	1 5	dreschen, fechten, flechten, melken, quellen, schmelzen, schwellen	
				V 2	2 3	bewegen, heben, pflegen, scheren, weben	
				V 7	2 8	erwägen, gären, schwären	15
P	Y	O	O	II a 3	4	lügen, kügen, trügen	3
Q	œ	O	O	IV 6	2 1	erlöschen	
				VI 3	3 1	schwören	2

b) half-apophonic verbs : 1 - ø => i - X

L	A	I	I	I a	1	sich befleißigen, beißen, bleichen, gleichen, gleiten, greifen, kneifen, kreischen, leiden, pfeifen, reißen, reiten, schießen, schleichen, schleifen, schleißigen, schmeißen, schneiden, schreiten, spleißen, streichen, streiten, weichen	39
				I b	2	bleiben, gedeihen, leihen, meiden, preisen, reiben, scheiden, scheinen, schreiben, schreien, schweigen, speien, steigen, treiben, weisen, zeihen	
R	U	I	U	VII b 3	3 8	rufen	1
T	O	I	O	VII b 4	3 9	stoßen	1

2 - i => a - X

A	I	A	E	V	4	2 5 liegen 2 6 bitten 2 7 sitzen	3
B	I	A	A	III a 4	1 1	bringen	1
H	E	A	A	III a 6	1 3	brennen, denken, kennen, nennen, rennen, senden, wenden	
				r.a	3 4	stehen	8
I	E	A	E <td>V</td> <td>1 2</td> <td>essen, fressen, messen, vergessen, stecken[IV]</td> <td></td>	V	1 2	essen, fressen, messen, vergessen, stecken[IV]	
				V	3 2	geben, genesen, geschehen, lesen, sehen, treten	11

c) non-apophonic verbs :

E	I	U	U	III a 5	1 2	schinden	1
G	E	I	A	r.a	2 4	gehen	1
N	A	U	A	VI 1	2 9	backen, schaffen, wachsen, waschen	
				VI 2	3 0	fahren, graben, laden, schlagen, tragen	9
O	A	O	O	II a 3	5	saugen, schnauben	
				II a 4	6	saufen	
				VI 4	3 2	schallen	4
S	U	A	A	r.a	1 4	lun	1
U	O	A	O	IV 4	1 9	kommen	1

(50)

remarks on the non-apophonic verbs

- a. *gehen, tun, kommen, schinden*: these are notoriously irregular verbs. Their exclusion from the group of apophonic verbs supports our analysis: it would be very uncomfortable for any theory of NHG Ablaut to be able to account for them.
- b. series N plus *schallen* (series O): apart from *schallen*, these are all and only the verbs of Grimm's class VI. This is an outstanding result that demonstrates the chiral precision apophony operates with: class VI historically did never oppose different qualities, but different quantities of vowels, it thus couldn't possibly be driven by an apophonic mechanism. Even several thousand years later when the quantitative oppositions were transformed into qualitative ones by sound change, apophonic theory is able to point them out as "aliens".

(51)

numeric survey				
	∅→I→A	I→A→U	sum	percentage
apophonic	12	87	99	55
half-apophonic	41	23	64	35,5
sum	53	110	163	90,5
non-apophonic			17	9,5
			180	100

(52)

conclusion

- a. CA and NHG Ablaut systems obey the same apophonic regularity: ∅→I→A→U
- b. the analysis of the NHG Ablaut shows how apophony can manage to deal with a vowel-system that is provided with complex vowels: Lisibility Theorem (40).

Diachronic issues

(53)

- a. apophonic theory predicts that U in degree 2 and A in degree 3 are parasitic (s.(44)). This is a diachronic fact.

1. U in the past of classes III,IV,V is a NHG innovation

	Mhd	Mhd	Nhd
IIIa	binden-bant-gebunden	i- <u>a</u> -u	i-a-u
	glimmen-gl <u>amm</u> -gegl <u>ummen</u>		i- <u>o</u> -o
IIIb	helfen-half-geholfen	e- <u>a</u> -o	i-a-o
	mälken-m <u>alk</u> -gemolken		i- <u>o</u> -o
IV	nēmen-nam-genomen	e-a-o	e-a-o
	leschen-l <u>asch</u> -loschen		ō- <u>o</u> -o
V	gēben-gap-gegēben	e- <u>a</u> -e	e-a-e
	pflēgen-pfl <u>ak</u> -gepflēgen		e- <u>o</u> -o

2. this innovation is context-driven (cf.(46b)). As for class II, the U is lexically present since IE times

class	primitive IE context
I	__j
II	__w
IIIa b	__NC __LC
IV	__N/L
V	__C
VI	quantitative opposition
VII	formerly reduplicating

3. the presence of A in the result past participle is well known diachronic processes:

- a-Umlaut: non-high vowels lower immediately preceding high vowels iff no NN or [NC]_{hom} intervenes. The OHG suffix of the past participle [-an] thereby lowers the root vowel of all past participles save those of classe IIIa = __NC/NN.
- within IIIa, another phenomenon is responsible for the [o] before NN, that is lowering under the influence of a following nasal (MHG münech > NHG Mönch). Therefore *gebuNDen*, but *begoNNen*.

c. the apophonic behaviour of class VII sheds light on the circumstances under which the formerly reduplicating verbs were integrated into the ablauting system when reduplication broke down. The surviving verbs have a very wide variation of present-vowels (OHG a,aa,ei,ou,uo), whereas the past I is absolutely uniform. The reason is the interpretation as an apophonic \emptyset of any vowel defined by A and U in the present.

D - OE strong verb apophony

[54] spelling problems / vocalic system [Mossé 45, Lass 94...]

- a) [ʊ] (written a or o) : variant of a / ___ N
- b) short and long vowels (front rounded vowels let aside) :

i	ii	u	uu
e	ee	o	oo
æ	ææ	a	aa

c) "short diphthongs" : ea, eo, ie = spellings of monophthongs where one element of the digraph is a diacritic indicating the quality of the following or preceding consonant

	/ C[+pal] {k=[ç], g=[j], sk [ʃ] } ___		/ ___ LC or h = {x}
	+acc	-acc	
ea	æ	a	æ
ie	e		i
eo	e		e

- d) diphthongs :

spelling	phonetic interpretation
ēā or ēa	[æ̃]
ēō or ēo	[ẽ]

[55] OE strong verbs

a) notes on the table [55b] :

- 1 : only one example is given below for each series (see appendix for more examples)
- 2 : grade 2 "PRTsg" stands for Pret.1-3 sg. and grade 3 "PRTpl" for 2 Sg. and 1-2-3 pl.
- 3 : the "contract verbs" (appendix : series 2, (3), 14, 16, 30), resulting in monosyllabic infinitives because of the disappearance of a stem final velar and vowel coalescence (diphthong), are not retained here as autonomous series.
- 4 : the table neglects some deviant series. In particular :
 - the highly puzzling verbs (Lass 94:157 "...a mystery...") with uu or u in the present (appendix : series 4 and 8)
 - some irregular verbs : niman, kuman (appendix : series 10 and 11) and verbs with L-metathesis like birnan or irnan (appendix : series 7)
- 5 : for groups VI and VII, the different vowels in the present are compacted, only the 2-grade vowel being considered

b) OE strong verb series

		PRES				example	Nbr	
		1	2	3	4			
_j	I	i i	aa	i	i	biidan wait		
_w	II	e o	æ̃	u	o	bēōdan command		
_NC	III	a	i	ʊ	u	bindan bind		
_LC		b	e	æ	u	o	helpan help	
_L/N	IV		e	æ	ææ	o	beran carry	
_C	V	a	e	æ	ææ	e	metan measure	
_*Cj		b	i	æ	ææ	e	sittan sit	
Quant.	VI		a æ̃ æ e i ʊ	oo	a	dragan draw		
Redup.	VII	a	æ̃̃ oo aa ee æ ʊ	ẽ̃	æ̃̃ oo aa æ ʊ	bēātan beat		
		b	aa oo ææ ʊ	ee	aa ʊ	swaapan sweep		

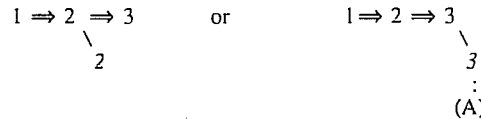
[56] how many grades in OE ?

- a) seemingly, four
- b) but :

- 1- the system is evolving to a 3-grade system [see Modern English]
- 2- grade 3 is, in general, either similar to grade 4 [I, II, III], or similar to

grade 2 [IV, V, VI, VII]

c) that is, the situation is :

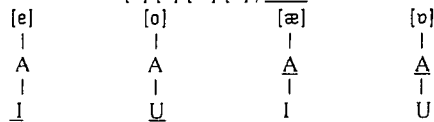


d) that is, only three apophonic grades are to be considered in OE as in NHG.

[57] KLV theory of Elements : heads and operators

a) in a complex vocalic expression one Element is the head, the other(s) the operator(s)

b) representation of [e] [o] [æ] [v]; head Element is underlined



[58] OE series I to V : apophonic reading

a) the series I to V

I		I	A	I
II		E	Æ	O
III	a	I	<u>A</u>	U
	b	E	Æ	O
IV		E	Æ	O
V	a	E	Æ	E
	b	I	Æ	E

(NOTA : vocalic length is not taken into account as irrelevant regarding apophony)

b) observation :

these series can all be read as :

- apophonic I ⇒ A ⇒ U : series II, III and IV
- or half-apophonic I ⇒ A -- x : series I and V

[59] How is the entering-element recognized ?

If we suppose that the entering-element = I is known, the apophonic element in the derivated stem is automatically given by the apophonic path : A in the 2nd grade, U in the third one.

But how do speakers known the entering-element is I ?

[60] learnability

a) NHG : the learnability of which elements cannot be entering-elements depends on the regularity of parasitic element distribution in derivated forms. In particular, I is a possible entering-element because it is never a parasitic element in derivated forms.

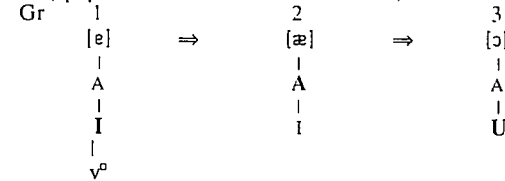
b) OE :

the distribution of elements into parasitic and possible entering-elements is not complementary.

Therefore the learner cannot capture the set of possible entering-elements

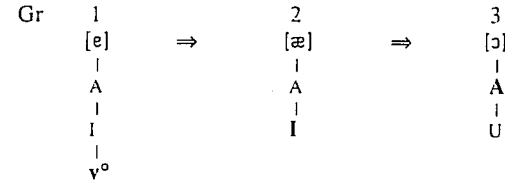
[61] ambiguity

a) since no clear [= complementary] distribution between possible entering-elements and parasitic elements can be captured in OE strong verbs, the series IIIb could be read as (apophonic elements in bold characters) :



i.e. as a series I ⇒ A ⇒ U

but also as :



i.e. as a series ø ⇒ I ⇒ A

b) in itself this could be innocuous, but in such a situation parasitic elements could not be predicted any longer : parasitic elements come from the context. One single context cannot account for two different sets of parasitic elements.

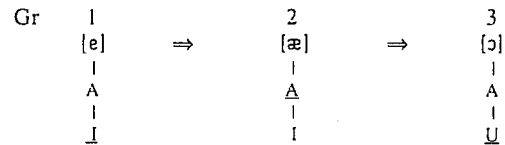
[62] low vowels :

the fronted low vowel (æ) and the back low rounded one before nasals (ɔ) show that the influences low vowels undergo in OE don't lead to a merging with existing mid vowels. Why ?

[63] Alternative proposal :

OE-ablaut parameter : apophonic elements are heads

[64] Example of class IIIb



the heads of the expressions (underlined) are also the apophonic elements (series I ⇒ A ⇒ U).

[65] Consequences :

- a) in the lexical vowel, the entering-element is the head of the expression
- b) all elements can be parasitic
- c) all elements can be entering-elements but ø
- c) no series can start with ø

[66] OE classes VI and VII

a) the series VI and VII

Quant.	VI		A Æ E I Ā	O	A
Redup.	VII	a	Æ O A E Ā	E	Æ O A Ā
		b	A O Æ Ā	E	Ā Ā

b) apophonic reading according to [63]

1- almost all series of class VI (but 17 and 19) are to be read as half-apophonic (A ⇒ U--x). The original phonetic alternation *o / oo in these verbs results in an apophonically readable one, since it becomes a / oo. Note that the verbs of series 17 and 19 are diachronically root-verbs suffixed in -ja, like weak verbs.

2- none of the series of class VII (but one with only one verb weepan) can be read apophonically.

c) that is : the situation is the contrary of what we saw for NHG where class VI is lost and class VII is integrated.

[67] Further hypothesis

a) OE ablaut parameter [63] is the normal and natural way for apophony to work. That is : apophonic elements are heads

b) this can be violated iff there is a substitute [learnable] way of identifying with certainty the entering-elements within the lexical form. NHG is the model of such a case.

E - Conclusion

1- The apophonic systems of quite different languages (Classical Arabic, New High German and Old English - to which Berber [Bendjaballah 95], Ge'ez, Akkadian [Ségéral 95], onomatopoeia [see below]... should be added) appears to be underlain by a unique apophonic formula :

$$\emptyset \Rightarrow I \Rightarrow A \Rightarrow U \Rightarrow U$$

Accordingly, these systems return in the field of derivational predictability.

2- The differences observed between NHG and OE apophonic systems can be related to the difference in the way of identifying the same objet : entering-elements :

- OE : entering-elements are heads

- NHG : a complementary distribution between entering-elements and parasitic ones assures the correct selection of entering-elements.

Onomatopoeic and expressive words

German :

rItsch - rAtsch plItsch - plAtsch rI - rA - rUtSch
dIng - dAng - dOng der BI - BA - BUtzemann ...&c

French :

zIg - zAg tIc - tAc mIc - mAc fIrc - frAc patatI - patatA
cahIn - cahA zAzOU cAcOU AtchOUm

bAdabOUm dIng - dIng [ɛ] - dOng pIf - pAf - pOUf ...&c

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Appendix

	PRES 1	PRTsg 2	PRTpl 3	PART 4	verbs (orthography)	nb	
I __j	1	ii	aa	i	i	grípan greifen, nípan dunkel werden, klífan kleben, drífan treiben, belífan bleiben, skrífan vorschreiben, tóslífan spalten, swífan umgeben, bítan beißen, drítan cacare(?), flítan wetteifern, hnítan stoßen, skítan cacare, slítan zerreißen, besmítan beschmutzen, öwítan hauten, gewítan gehen, ætwítan schellen, wlítan schauen, wrítan schreiben, bídan warten, glídan gleiten, gnídan/knídan zerreiben, hlídan bedecken, rídan reiten, slídan gleiten, strídan schreiten, wrídan wachsen(?), blíkan glänzen, síkan seufzen, sníkan kriechen(?), strikan streichen, swíkan verlassen, wíkan weichen, (*fígan rösten, nur Part amfigen), hnígan neigen, mígan mingere, sígan sinken, stígan steigen, kínan sich spalten, amkwínan/dwínan schwinden, gínan klaffen, hrínan berühren, hwínan zischen(?), skínan (Prät skán/skéan, §76) scheinen, öwínan weich werden(?), spiwan speien, amrísan sich erheben, gerísan geziemen, míðan meiden, wríðan drehen, wíndan, sníðan schneiden, líðan gehen, skríðan schreiten, (ætklíðan anhängen)	53
	2	eo	aa	i	i	téon <*tíhan ziehen, ðéon <*ðíhan gedeihen, wréon <*wríhan bedecken	3
II __w	3	eo	æð	u	o	béodan bieten, kéowan kauen, kréopan kriechen, dréopan tröpfeln, géopan in sich aufnehmen, kléofan spalten, (réofan (nur Part rofen/berofen) zerbrechen), bréotan brechen, fléotan fließen, géotan gießen, gréotan weinen, hléotan (er)losen, néotan genießen, réotan fallen, skéotan (Part skoten/skeoten §76) schießen, ðéotan heulen, amðréotan verdießen, hréodan schmücken, léodan wachsen, réodan röten, ambréodan vergehen, entarten, réokan erdulden, fléogan fliegen, léogan lügen, bréowan brauen, hréowan reuen, kéosan wählen, séoðan sieden, dréosan fallen, fréosan frieren, hréosan fallen, forléosan verlieren, téon <*téohan ziehen, fléon <*fléohan fliehen	34
	4	uu	æð	u	o	slúpan schlüpfen, súpan schmecken, trínken, dúfan tauchen, skúfan schieben, lútan sich neigen, hrútan schnarchen, ðútan (aussi en IIa ðéotan) heulen, strúdan rauben, brúkan brauchen, lúkan schließen, súkan/súgan saugen, búgan sich biegen, smúgan schmiegen	13

	PRts 1	PRTsg 2	PRTpl 3	PART 4	verbs (orthography)	nb	
III __NC	5	i	a	u	u	bindan binden, findan finden, grindan schleifen, hrindan stoßen, swindan schwinden, ðindan schwellen, windan winden, ðrintan schwellen, sprintan eructavit, (on-)ginnan beginnen, linnan aufhören, sinnan denken, spinnan spinnen, winnan arbeiten, klingan sich zusammenziehen, kringan/krinkan fallen, singan singen, springan springen, stingan stechen, swingan schwingen, ðringen dringen, wringan ausdrücken, ausringen, drinkan trinken, amkwinkan erlöschen, skrinkan/skringan verdorren, sinkan sinken, slinkan kriechen, stinkan riechen, swinkan sich abmühen, klimban/klimman klimmen, (ge)limpan sich ereignen, (h)rimpan runzeln, krimman einfügen, grimman wüten, hlíman brüllen, skrimman(?)/swimman schwimmen	36
__LC	6	e	æ	u	o	helpan helfen, delfan graben, belgan zürnen, swelgan verschlingen, beteldan bedecken, meltan schmelzen, sweltan sterben, bellan bellen, swellan schwellen, (*kwellan quellen, *wellan(?) wallen), meolkan melken, seolkan erschlaffen, feolan < *feolhan verbergen, übergeben, weorpan werfen, feohtan fechten, keorfan schneiden, deorfan sich abmühen, hweorfan sich wenden, skeorfan schürfen, steorfan sterben, sweorfan abwischen, skeorpan schrapen, beorgan bergen, beorkan bellen, *sneorkan excidere, sweorkan dunkeln, smeortan schmerzen, *keorran (only Prät pl kurron) knarren, weorðan werden, bregðan schwingen, stregðan streuen, berstan bersten, ðerskan dreschen, frignan (Part frugnen) (er)fragen.	35
__r/jN	7	i	æ	u	u	iernan=got rinnen laufen, biernan=brinnan brennen	2
	8	u	æ	u	o	murnan (Prät sg mearn) trauern, spurnan (Prät sg spearn) treten	2
IV __L/N	9	e	æ	ææ	o	beran tragen, kwelan sterben, helan verhehlen, *hwelan (?) tosen, stelan stehlen, skieran/skyran scheren, teran reißen, ðweran rühren, brekan brechen	9
	10	i	a	aa	u	níman nehmen	1
	11	u	woo	woo	u	kuman kommen	1
V __C	12	e	æ	ææ	e	metan messen, drepan erschlagen, skrepan schrapen, swefan schlafen, wefan weben, fetan fallen, knedan kneten, tredan treten, sprekan sprechen, wrekan verfolgen, wegan tragen, lóten, lesan sammeln, genesan genesen, kweðan ... wesan ...	15
	13	i	æ	ææ	e	biddan bitten, líkg(e)an liegen, sittan sitzen	3
	14	eo	æ	aa	e	geféon <*-fehan sich freuen, pléon <*plehan wagen, séon <*seh(w)an sehen	3

	PRES 1	PRTsg 2	PRTpl 3	PART 4	verbs (orthography)	nb
VI Quant	15	a	oo	a	farán gehen, alan wachsen, kalan frieren, galan singen, grafan graben, sk(e)afan schaben, hládan laden, wádan gehen, dragan ziehen, gnagan nagen, (akan schmerzen), bakan backen, sakan streiten, sk(e)akan schütteln, waskan waschen	15
	16	æð	oo	a	fléan schinden, léan tadeln, sléan (got slahan) schlagen, ðwéan (got pwahan) waschen	4
	17	e	oo	a	swerjan schwören, hebban heben, skieppan schaffen, skeððan schädigen	4
	18	æ	oo	a	stæppan gehen	1
	19	i	oo	æ	hlihhan lachen	1
	20	ɑ	oo	ɑ	standan stehen	1
VII Redup.	21	æð	eo	æð	beatan beat, heawan frapper, hleapan sauter	3
	22	oo	eo	oo	flówan flow, grówan grow, rówan naviguer, spówan prospérer	4
	23	aa	eo	aa	bláwan blow, knáwan connaitre, sáwan semer, lákan spielen	4
	24	ee	eo	aa	wépan weep	1
	25	æ	eo	æ	fællan fall, hældan tenir, wældan gouverner, wællan jaillir, wæksan croitre	5
	26	ɑ	eo	ɑ	gangan go, bannan convoquer, spannan attacher	3
	27	aa	ee	aa	swápan sweep, hátan s'appeler, wáwan souffler, skeádan séparer	4
	28	ææ	ee	aa	slápan sleep, létan laisser, rádan considérer, ond-rádan craindre	4
	29	ɑ	ee	ɑ	blandan mix	1
	30	oo	ee	ɑ	fón seize, hón suspendre	2
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