

Germanic inflection wants to be empty

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Central thesis

Inflectional endings (in West-Germanic) desire to be phonologically minimal, since in this way they maximally satisfy mirroring requirements on the phonology-morphology interface. In particular, Limburgian tone-morphology interaction can be understood in this way.

1 Morphological mirroring

1.1 Basic assumptions

One ‘function’ of phonological structure is to express morphological structure. Two important ways of doing this:

- ‘Alignment’: edges of phonological constituents correspond to edges of morphological constituents
- Head reflection: morphological heads should be expressed by phonological heads and vice versa

Phonological and morphological constituents are always headed. The morphological head is the morpheme which specifies the category (contra minimalism/DM). The phonological head is the most prominent element (vowel in the syllable, stressed syllable in the foot, main stressed foot in the word)

Inflectional suffixes in Dutch:

- Are insensitive to stress
- Resyllabify (if they are vowel-initial)
- Are segmentally restricted

Dutch word stress displays quite some lexical variation, but there is also a system restricting the variation. A few virtually inviolable constraints:

- (1) If the final vowel is schwa, stress is on the penultimate ([oránjə, *óranjə] ‘orange’)
- (2) If the final syllable is superheavy, it bears stress ([olifánt, *ólifant, *olífant] ‘orange’)

In inflected forms we find exceptions to both generalisations:

- (3) [átlasə] ‘atlases’ (*[atlásə], from [átlas])
- (4) [ánvát] ‘start (3S)’ (*[anvát], from [ánvat])

Inflectional suffixes (as well as most function words) are composed of segments in the following inventory: [t, s, n, r, ə] The traditional solution does not have anything to say about this.

- (5)

derivation	inflection
<pre> A / \ N A / \ / \ half ling </pre>	<pre> N / \ N en / \ atlas </pre>
- (6)

derivation	inflection
<pre> ω / \ ω ω / \ / \ half ling </pre>	<pre> ω / \ ω en / \ atlas </pre>

Assume that marked material needs to be licensed by being in a constituent. Material adjoined to X, does not really count as being dominated by X (α is dominated by β iff α is dominated by every segment of β). If stress constituents need to be dominated by ω (or by N, V, A), stress behaviour follows. If segmental material needs to be dominated by ω (or by N, V, A), unmarkedness follows. Constraints of the following type:

- (7) WORD(F): A phonological feature F can only occur inside a word.

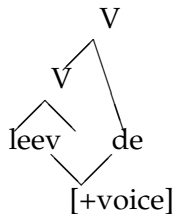
Assuming that features F are somehow arranged in an order of relative markedness (e.g. coronal \prec labial, velar) or some form of monovalency, we get the required result. If we also assume WORD(\pm consonantal), WORD(\pm sonorant), etc., we predict complete emptiness as the ultimate goal. (\Rightarrow section 3).

One potential problem: The past tense suffix sometimes contains a voiced [d]. [+voice] can hardly be considered unmarked.

- (8) *ik lee[t]* ‘I live’ - *ik lee[vdə]* ‘I lived’.

However, it can be assumed that this suffix is underlyingly $-/tə/$, voicing is shared with the preceding stem (which needs to have a voiced segment underlyingly):

(9) *Structure of leefde*



[+voice] is properly dominated by V; the fact that it also occurs outside, is irrelevant. This also explains why in this case we have progressive assimilation of voicing

1.2 Diachrony

It is well known that inflection has been in a state of diachronic ‘erosion’ in West-Germanic, where Dutch is somewhere between English and German:

(10) *saiwala - saiwalos* (‘soul - souls’, in Gothic) - *ziel- zielen* (in Dutch)

This ‘erosion’ can be given a rather precise place within OT, as a form of Lexicon Optimisation:

(11) *The structure of Gothic saiwalos*

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graph TD
    N1[N] --- N2[N]
    N1 --- os[os]
    N2 --- saiwal[saiwal]
    N2 --- os
  
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It is not possible to give this form a perfect structure under the assumptions given here. Observe that already in Gothic most inflectional endings contained coronals.

Either we have an imperfect match of morphological and phonological structure, or we allow marked features in adjoined position (i.e. violation of WORD([+round])). Assume IDENT-[+round] \gg WORD([+round]) in Early Germanic (as in Gothic)

(12)

saiwal + os	IDENT-[+round]	WORD([+round])
☞saiwalos		*
saiwaləs	*!	

saiwalos wins. However, it is not perfect (it violated the markedness constraint). Hence, there will be always some attraction to positing the underlying shape $-\text{əs}$ (for instance for the language learner).

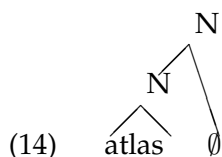
(13)

saiwal + əs	IDENT-[+round]	WORD([+round])
saiwalos	*!	*
☞saiwaləs		

Now the winning form is perfect. Notice that at some point after this, the order IDENT-[+round] \gg WORD([+round]) will be no longer detectable for the child. Who will then assume unmarked M \gg F — i.e. WORD([+round]) \gg IDENT-[+round]: language change completed.

1.3 The teleology of erosion

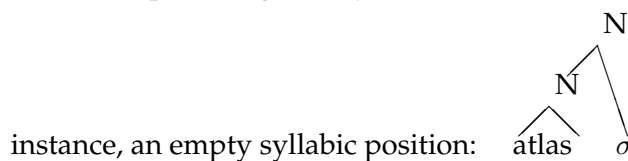
The optimal structure for inflection should have as few features as possible. However, if inflection does not get any phonological expression at all, we would get the following:



However, this runs against morphological mirroring: there is no phonological object corresponding to the plural suffix

There are two options:

- (15)
- morphological structure needs to go, or
 - we need a phonological object which does not have features. For



Almost empty inflection abounds in West-Germanic dialects. Arguably, any inflectional element is sometimes expressed as an empty syllable head. We concentrate on Dutch dialects, and on first person singular of verbs and singular/plural of nouns; similar points can also be made about adjectives, however.

In older stages of Dutch, the first person singular ending was $-\text{ə}$ in all dialects (*ik lev+e* 'I live'). After having been deleted (*ik leef* 'I live'), this ending still left traces all over the place.

- (16) Standard Dutch
- a. *tegen* 'against' (P) [teɣə / teɣən]
 - b. *open* 'open' (A) [opə / opən]
 - c. *teken* 'sign' (N) [tekə / tekən]
 - d. *teken+en* 'to draw' (V+INFINITIVE) [tekənə / tekənən]
 - e. *ik teken* 'I draw' [ik *tekə / tekən]
- (17) Brussels Dutch k-drop
- a. [puliŋk] 'eel' [puliŋə] 'eels'
[ɣɑŋk] 'corridor' [ɣɑŋə] 'corridors'
 - b. First person singular
 - i. *ik hang* 'I am hanging' [ikɑŋ]
 - ii. *ik zing* 'I am singing' [iksɪŋ]
- (18) Brussels Dutch lenition
- a. *kleden* 'to dress' [klejə]
 - b. *hij kleedt hem* 'he dresses himself' [a+klɪt+əm] (shortening)
 - c. *ik kleed mij* 'I dress myself' [ik+klej+ma]
- (19) Twente Dutch *ik geleeuw* 'I believe' [ik ɣəløv]
- (20) Stellingwerven Dutch
- a. ɪɔ bʌt ok ŋ kɪ:əɾ
I offer also a time
'I also made one offer'
 - b. ɪɔ bʌd ok ŋ kɪ:əɾ
 - c. hɛj də hu:t əl ɔp
have-you the hat already on
'Are you already wearing your hat?'
 - d. *hɛj də hu:d əl ɔp

Even though the first person singular seems to have gone in most varieties of Dutch, on closer inspection, it has left a trace, in the form of an empty (featureless) position.

2 The case of Limburg Dutch

2.1 Data

- (21) The tonal contrasts in Limburgian dialects (Gussenhoven 1999)

[wá:tər]	'water'	[pá:tər]	'father (clerical)'
[mó:dər]	'mother'	[mó:də]	'fashion'
[mí:n]	'my, neuter'	[mî:n]	'coal mine'
[ré:t]	'crevice'	[ré:t]	'reed'
[ká:l]	'nonsense'	[kál]	'to talk'
[má:n]	'man'	[pá:n]	'pan'

- (22) Invisibility of stress outside intonational peak

[mí:nə] vá:dər həltʲ vɔn mÓ:dər	'my dad loves mother'
[mí:nə] vá:dər həltʲ vɔn mÔ:də	'my dad loves fashion'
[mí:nə] pá:tər həltʲ vɔn mÓ:dər	'my father (cler.) loves mother'
[mí:nə] pá:tər həltʲ vɔn mÓ:də	'my father (cler.) loves fashion'

- (23) Autosegmental representation

H	H	level high tone
m	o : dər	
H	L	falling tone
m	o : də	

The tone of the first mora of the prominent syllable is also determined by intonation; in declarative intonation it receives H, overriding a lexical tone that might be there. (inspired by Gussenhoven's work)

Lexical tones are thus either invisible for intonational phonology, or overridden by it, unless they happen to be located in the second mora of the most prominent syllable of the intonational domain.

2.2 Interaction between tone and intonation

- (24) Proposal

- a. There are no constraints specifically restricting the domain of the lexical tones;

- b. The fact that lexical tones have this very restricted domain *phonetically* follows from the interaction between lexical tones and intonational tones.

(25) *Phonology - phonetics interaction*

lexical representations		pronunciation
L L H	→ intonation →	H L
m o : də		m o : də
L H L	→ intonation →	H H
m o : dər		m o : dər

There is nothing inherently wrong with lexical tones in unstressed syllables; they are just invisible in the intonational phonology (or overridden by it). Is there any evidence for lexical tones in unstressed syllables? Yes there is. The evidence comes from alternations in the inflectional system.

2.3 Tone and inflection

(26) *Alternations in verbs*

1st person sg.	1st person pl.	
[rɪ:f]	[rɪ:və]	'write'
[blɪ:f]	[blɪ:və]	'stay'
[mó:x]	[mó:yə]	'be allowed'
[bé:j]	[bé:jə]	'pray'
[yɔ:n]	[yɔ:n]	'go'
[ké:s]	[ké:zə]	'choose'
[vərlé:s]	[vərlé:zə]	'lose'
[vø:l]	[vø:lə]	'feel'
[lɪðn]	[lɪðnə]	'borrow'
[ɣrɪ:p]	[ɣrɪ:pə]	'grasp'
[rɪ:t]	[rɪ:tə]	'pull'
[blɪ:k]	[blɪ:kə]	'appear'

Generalisations

- alternations go from level high tone to falling tone, not the other way around;
- alternations are only possible if no voiceless consonant intervenes.

(27) *Alternations in adjectives*

neuter sg.	masc. sg.	fem. sg.	plur.	comparative	
[brú:ín]	[brú:ínə]	[brú:ín]	[brú:ín]	[brú:ínər]	'brown'
[γé:í]	[γé:ílə]	[γé:í]	[γé:í]	[γé:íləər]	'yellow'
[zú:ír]	[zú:írə]	[zú:ír]	[zú:ír]	[zú:írdər]	'sour'
[rú:]	[rú:wə]	[rú:w]	[rú:w]	[rú:wər]	'raw'
[bré:ít]	[bré:íjə]	[bré:íj]	[bré:íj]	[bré:íjər]	'broad'
[ó:ít]	[ó:íjə]	[ó:íj]	[ó:íj]	[ó:íjər]	'old'
[wí:t]	[wí:jə]	[wí:j]	[wí:j]	[wí:jər]	'wide'
[wí:s]	[wí:zə]	[wí:s]	[wí:s]	[wí:zər]	'wise'
[hé:ít]	[hé:ítə]	[hé:ítə]	[hé:ítə]	[hé:ítər]	'hot'
[hé:ís]	[hé:ísə]	[hé:ísə]	[hé:ísə]	[hé:ísər]	'coarse'

(28) *Alternations in nouns (1)*

singular	plural	
[γrɑ:í:f]	[γrɛ:í:f]	'grave'
[slɑ:í:x]	[slɛ:í:x]	'blow'
[hó:ís]	[hó:ɛ:s]	'stockings'
[tí:t]	[tí:j]	'time'
[nó:ít]	[nó:ít]	'nut'
[ló:ít]	[ló:ít]	'lottery ticket'

(29) *Alternations in nouns (2)*

	diminutive	
[γrɑ:í:f]	[γrɛ:í:fkə]	'grave'
[hó:ís]	[hó:ɛ:skə]	'stockings'
[γrɑ:ís]	[γrɛ:í:skə]	'grass'
[sté:ín]	[sté:ínkə]	'stone'
[bé:ín]	[bé:ínkə]	'leg'
[lú:ík]	[lú:í:kskə]	'hatch'
[pú:p]	[pú:í:pkə]	'fart'

(30) *Derivations: ər*

agentive suffix -ər is in the same prosodic word as the stem

[rɪ:f]	[rɪ:í:və]	'write'	[rɪ:í:vər]
[blɪ:f]	[blɪ:í:və]	'stay'	[blɪ:í:vər]
[bé:íj]	[bé:í:jə]	'pray'	[bé:í:jər]
[ké:ís]	[ké:í:zə]	'choose'	[ké:í:zər]
[lí:ən]	[lí:ənə]	'borrow'	[lí:ənər]
[vɔ:rlé:ís]	[vɔ:rlé:í:zə]	'lose'	[vɔ:rlé:í:zər]

(35)	[sná:vəl]	'beak'	[sné:vəlkə]
	[ká:bəl]	'cable'	[ké:bəlkə]
	[vó:γəl]	'bird'	[vó:γəlkə]
	[kó:γəl]	'bullet'	[kó:γəlkə]
	[bó:dəm]	'bottom'	[bó:dəmkə]
	[nó:zəm]	'yob'	[nó:zəmkə]
	[vá:dər]	'father'	[vé:dərkə]
	[mó:dər]	'mother'	[mó:dərkə]
	[má:γər]	'slim'	[má:γər] fem.sg.

This is predicted by our analysis. The tone flees from the inflectional site. It is sufficient to reach the stem, where it feels perfectly safe. In intonational phonology it is not pronounced.

		H		L
				↙ ↘
(36)	m a a	γ	ə	r •

This generalization cannot be expressed in an analysis where the restricted tonal domain is directly expressed (in terms of requirements stating that tones are only allowed in the main stress syllable of the intonational phrase). In such an analysis one would expect that the tone moves one syllable further. There is nothing to block this.

3 Conclusions

- Morphological mirroring and headedness conspire to make inflection in Germanic very empty — but hardly ever completely so
- Some aspects remain to be worked out. E.g. we need some notion of a hierarchy of morphological features which need to be expressed (e.g. plural on nouns is more stable than adjectival flection)
- Thus this theory needs to be embedded in a wider theory of morphology - phonology interaction and faithfulness
- Given this theory, we can understand the tonal behaviour of Limburgian dialects without reference to (lexical) tonal domains.