

# German Umlaut, Compositionality vs. non-compositionality

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## 1. The problem and the program.

German Umlaut is the process, documented in (1), whereby the vowel of a stem undergoes fronting upon suffixation.

(1)

'Stem'		Suffix		'Stem'+Suffix and Umlaut
a. Tag 'day'	[ta:k]	+ig <sub>Adj</sub>		tägig 'daily' [te:gig]
b. Busch 'bush'	[buʃ]	+e <sub>Plural</sub>		Büſche 'bushes' [büşə]
c. Haus 'house'	[haws]	+er <sub>Plural</sub>		Häuser 'houses' [hɔyzər]

What has made Umlaut one of the most vexing problems of phonological analysis is the unpredictable 'umlauting' behavior of some suffixes, e.g. (1a,b). Thus, *Busch* 'bush' undergoes Umlaut before Plural marker *+e*, but not before adjectival *+ig* while the same affixes have the exactly opposite behavior when they attach to *Tag* 'day': *Tag* undergoes no Umlaut before *+e* though it does before *+ig*; thus, *Busch/Büſche/buschig* but *Tag/Tage/tägig*. To make things worse, random umlauting can't even be viewed as the rule, as some affixes (e.g. *+er<sub>Plural</sub>* in 1c above) always trigger Umlaut.

Without exception, phonological solutions offered so far have been disappointing, either because they were inadequate or else intricate to the point of merely recapitulating the complexity of the data itself. But, more strikingly, phonologists have missed the two-pronged generalization in (2).

(2)

- i. Umlautless outputs of suffixation are *exceptionlessly* compositional
- ii. Umlauted outputs may or may not be compositional

An alternative non-phonological account will be developed in this talk. It is couched in a 'syntactic-morphological' framework inspired by work by Borer (2005) and Embick (2010). It will be shown to derive (2) as a theorem.

## 2. The foundations of the proposal.

The proposal rests on the apparatus in (3).

(3)

- i. affixes are bound roots,  $\sqrt{+}$
- ii. bound roots select other roots,  $[\sqrt{P} \dots \sqrt{+} \dots [\dots \sqrt{\dots}]]$ ; and/or 'little' phrases  $[\sqrt{P} \dots \sqrt{+} \dots [a/n/vP \dots \sqrt{\dots}]]$
- iii. the canonical order of projections is  $[\text{XP } a/n/v [\sqrt{P} \sqrt{\dots}]]$ , not  $[\sqrt{P} \sqrt{[\text{XP } a/n/v \dots]}]$

In this framework, the classical descriptive generalization in (4) can be characterized as in (5).

(4)

- i. Umlauters (sporadic or regular) operate under strict adjacency
- ii. Regular umlauters exclusively target unsuffixed objects

(5)

- i. Regular umlauters exclusively select roots
- ii. Sporadic umlauters target roots or little phrases
- iii. Umlaut takes place within complex roots

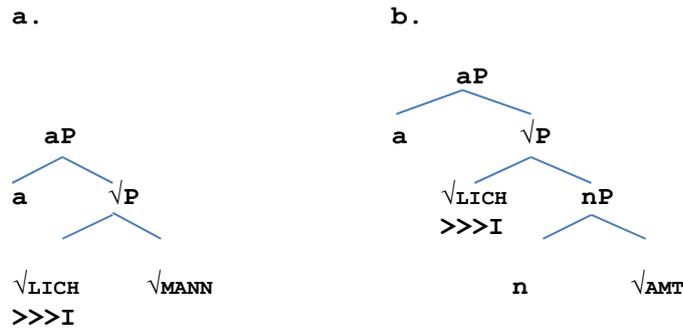
## 3. Implementation.

Consider the data in (6).

- (6)
- a. Mann männlich
  - b. Amt amtlich

The difference in umlauting output reflects a difference in the level targeted by  $\sqrt{\text{LICH}}$ : the target in (6a) is  $\sqrt{\text{MANN}}$ ; the target in (6b) is  $[_{\text{nP}} \sqrt{\text{AMT}}]$ . This is graphically represented in (7), with  $\sqrt{\text{LICH}}$  equipped with its umlauting property (noted  $\ggg>>I$ ). It will be shown that the difference depicted in (7) does not require an 'active lexicon' in the sense of Chomsky (1970).

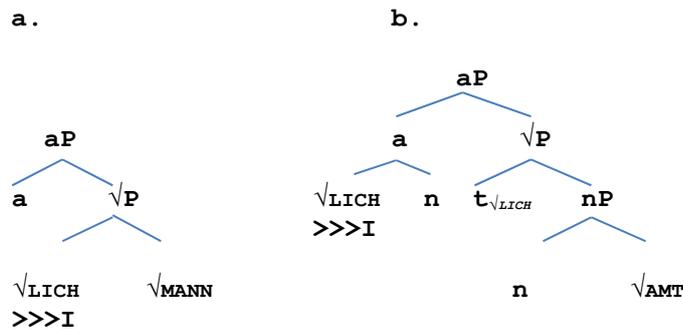
(7)



How does the phasal mechanism kick in to interpret the structures in (7) ?

I assume a version of phasal interpretation as in Marvin (2003) whereby each phase head triggers the spellout of its complement. Following Embick (2010), I assume moreover that the two relevant phases are those headed by aP since both contain the two partners of  $\sqrt{\text{LICH}}$ . As things stand in (7),  $\sqrt{\text{LICH}}$  is likely to be interpreted during the same interpretive phase as its partner in both (7a) and (7b). However, (7b) incorporates a violation of the canonical order of projections (3iii) inasmuch as  $\sqrt{\text{LICH}}$  dominates an nP. But after the operation of a repair strategy left-adjoining  $\sqrt{\text{LICH}}$  to the head of aP,  $\sqrt{\text{LICH}}$  finds itself outside the scope of spellout of the adjectival phase and will be realized independently of  $\sqrt{\text{AMT}}$ . Accordingly, its umlauting potential remains unspent, as shown in (8b).

(8)



#### 4. Compositionality.

That Umlaut and non-compositionality go hand in hand will be documented by means of one example only here. Two adjectives can be derived from *Sache* 'thing' via suffixation of *+lich*, viz. *sachlich* 'concrete, substantive' and *sächlich* '(grammatical) neuter'. Absence of Umlaut in *sachlich* indicates that suffixation has taken place *above first merge*  $[_{\text{aP}} a \sqrt{\text{LICH}} [_{\text{nP}} n [_{\sqrt{\text{P}}} \sqrt{\text{SACH}}]$  or, in other words, *sachlich* is a denominal adjective. By contrast, *sächlich*, unumlauted and non-compositional is a de-radical adjective.

Borer, H. (2005) *In Name Only*, Oxford & New York: Oxford University Press

Chomsky, N. (1970) *Remarks on Nominalizations*

Embick, D. (2010) *Localism versus Globalism in Morphology and Phonology*, MIT Press

Marvin, T. (2003) *Topics in the Stress and Syntax of Words*, Doctoral Dissertation, MIT