

# How I learned how to stop worrying and love the derivation

Marc van Oostendorp

Dr. J.M. van de Weijer Symposion

June 10, 2009

## Representations vs. Derivations

- ▶ We define ‘derivation’ as a phonological computation in which crucially more than one separate representation is involved
- ▶ Typically, these representations are also ordered; but for my definition also monostratal OO approaches (such as that of Burzio) count as derivational
- ▶ Derivations are a very powerful device, and we should stay away from them as long as possible (at least when we also allow powerful representations).
- ▶ ‘Ordered’ derivations are more restricted than non-ordered ones.

# Comparing derivations and representations

- ▶ It is difficult to compare derivational and representational analyses, since often we can translate one into the other
- ▶ One moment when representational analyses definitely become too rich, is when they contain two full-blown subrepresentations

## Representations vs. Derivations: Opacity

- ▶ Opacity is typically seen as the crucial argument in favour of derivations
- ▶ However, representations are often sufficiently rich to deal with such derivational effects, so that we do not need the extra power.

# Hellendoorn Dutch

	orthography	underlying	surface	gloss
a.	<i>lopen</i>	lopən	lop <sub>ɪ</sub>	'to walk'
b.	<i>weten</i>	wetən	wet <sub>ɪ</sub>	'to know'
c.	<i>pakken</i>	pəkən	pək <sub>ɪ</sub>	'to grab'
d.	<i>loop een</i>	lop ən	lop <sub>ɪ</sub>	'(I) walk a (mile)'
e.	<i>rampnacht</i>	rampnaxt	rampnaxt	'disastrous night'
f.	<i>loop een keer</i>	lop ən ker	lop <sub>ɪ</sub> kɪ:r	'(I) walk one time'

(Nijen Twilhaar 1991, Van Oostendorp 2004)

# Hellendoorn Dutch

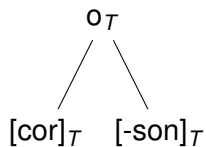
- ▶ /stɔp+t+n/ (stop+past+plural) >[stɔpŋ] ‘stopped’
- ▶ /zɛt+t+n/ (put+past+plural) >[zɛtŋ] ‘put’
- ▶ /pɑk+t+n/ (grab+past+plural) >[pɑkŋ] ‘grabbed’

# Hellendoorn Dutch

- ▶ t deletion:  $t \rightarrow \emptyset / C \_ \_ C$

- ▶ progressive assimilation (PA):  $\begin{array}{c} x \quad x \\ \diagdown \quad \diagup \\ [nasal] \end{array}$

/t/



When we delete /t/ for phonotactic reasons, the feature [coronal] can stay behind and link to the preceding consonant.



# Tableau

☞ pak̩			*	*
/pak+t+n/	*CCC	EXPRESS-TENSE	ASSIMILATE	FAITH(PLACE)
pak̩		*W	L	*
pak̩t̩	*W		L	L

## Advantage of a representational account

- ▶ Representational accounts are more parsimonious, they use a smaller amount of symbols, since derivational accounts usually have several complete representations
- ▶ This of course often comes at the cost of enriching representations, but for instance in this case the enrichment seems acceptable

## The strange behaviour of *aar*

(Zwarts 1976, Smith 1976, Van Oostendorp 1998)

- ▶ The Dutch agentive suffix *-aar* [a:r] has a peculiar phonology.
- ▶ It is a full vowel-initial suffix which triggers resyllabification of the stem-final consonant ('Class I'); but it is the only such suffix which is stress-neutral
- ▶ *wandel* 'walk', *wandelaar* 'walker' [vándəla:r] cognate *-ier* [i:r]: *winkel* 'shop', *winkelier* 'shop-keeper' [vɪnkəlɪ:r].
- ▶ Resyllabification is the clearest diagnostic for being 'root-level' in Dutch; since word-final superheavy syllables always attract stress, *-aar*'s stresslessness is surprising.

## The role of allomorphy

- ▶ Smith (1976) points out that *-aar* actually has an unmarked allomorph *-ər*.
- ▶ we find *-aar* after stems ending in a schwa-headed syllable, and *-ər* elsewhere.
- ▶ Suffixes with schwa are always stress-neutral, so that the stress in *wandelaar* would be exactly what we expected if we would indeed have chosen *-ər*.
- ▶ Smith (1976) suggests that *-ər* is underlying for both allomorphs, and a rule turns schwa into [a:] after stress rules have applied.

# Opacity

UR        /ʊændəl/+/əɾ/  
stress    /ʊáɳdələɾ/  
ə→a:    /ʊáɳdələ:r/

## Problems with Smith (1976)

- ▶ Note that Smith's phonological rule is specific to this one suffix, and furthermore that it is rather unnatural;
- ▶ it is overdone to change a schwa into a long low vowel.
- ▶ The rule feels like morphology in a phonological guise.
- ▶ We are dealing with a case of opaque allomorphy
- ▶ However, it is not clear how we can deal with that in a rule-based approach

# Opaque allomorphy and representation

- ▶ If allomorph selection can be opaque, we have to give up our representational ideals
- ▶ Since it looks as if both allomorphs are present, a representational account would need both of them
- ▶ But this would be just as strong as having both of them in separate representations, i.e. a derivational relation
- ▶ Where derivations can be further restricted, i.e. by ordering

## Theoretical tools

- ▶ Derivationalism *à la* Stratal OT, Distributed Morphology etc. is of no use, since there is no reason to assume the two allomorphs are on different strata; we need phonology-internal derivation
- ▶ For this, we can use Harmonic Serialism
- ▶ However, we need to interact with the lexicon in some way: lexicon insertion is a function of Gen (Wolf 2008, Van Oostendorp 2009)



# Harmonic Serialism

- ▶ Harmonic Serialism works like standard OT, except that
  - ▶ Gen only makes (at most) one change at a time to the input
  - ▶ If the output is the same as the input (the FFC wins), the procedure stops
  - ▶ Otherwise, the output is made to input and the procedure starts again

## Lexicon Insertion as part of Gen

- ▶ The input can be either an unstructured set of abstract morphemes, or a complex word consisting of morphemes arranged in some structure
- ▶ Lexical insertion is the job of Gen (Van Oostendorp 2007, Wolf 2007, 2008)
- ▶ The optimal output consists of a morphological and a phonological word, which mirror each other

## Derivational steps (sketch)

1. **Input:**  $\{ \{V, \lambda x : \text{WALK}(x)\}, \{N, \lambda P : \lambda x : P(x)\} \}$
2.  $\{ \{V, \dots, \text{uandəl}\}, \{N, \dots\} \}$  (insertion)
3.  $\{ \{V, \dots, \text{uandəl}\}, \{N, \dots, \text{ər}\} \}$   $\text{uandələr}$  (insertion)
4.  $\{ \{V, \dots\}, \{N, \dots\} \}$  ( $\text{uándələr}$ ) (footing)
5.  $\{ \{V, \dots\}, \{N, \dots\} \}$  ( $\text{uándəla:r}$ ) (reinsertion because of  $^*\text{əə}$ )
6. No further changes possible because of faithfulness to foot structure

# Constraints

- ▶ MPARSE: every morpheme needs to have a phonological expression (maybe relativized for
- ▶ \*a: (probably a cover constraint for featural markedness)
- ▶ PARSE- $\sigma$ : Syllables should be parsed into feet
- ▶ \* $\text{ə}\text{ə}$
- ▶ Faithfulness to 'underlying' foot structure

An important (maybe controversial) assumption is that lexical insertion (and even reinsertion) counts as one change.

## Conclusions

- ▶ Opaque allomorphy selection can only be accounted for by derivational means (all analyses are always derivational, including Van Oostendorp 1998, which used ✱ Theory)
- ▶ This analysis provides an argument for a specific idea of morphological exponence: phonological representations are inserted by the phonological function Gen
- ▶ Derivation triggered by the interface with morphosyntax doesn't work
- ▶ The argument given here interestingly is still based on interleaving of interfaces, viz. with the lexicon