

'-Aar'

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Norval S.H. Smith, '-Aar.' In: *Leuvense bijdragen, Tijdschrift voor Germaanse filologie* 65 (1976), p. 485-496.

Zie voor verantwoording: http://www.dbnl.org/tekst/smit045_aar01_01/colofon.htm

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In a recent number of *Tabu* (Tabu, 1975-6), Frans Zwarts provides us with a study of several morphological processes of Dutch, illustrating some of the consequences of present generative morphological theory for our analysis of this language. The parts of Zwarts' paper that will concern us here are those dealing with the suffixes *-aar* and *-arij*.

The theory he follows is that of Siegel (1974). This theory claims that there are two types of suffixes, Class I suffixes and Class II suffixes. Class I suffixes can have an effect on the stress pattern of the word whereas Class II suffixes do not alter the stress pattern in any way. Consider the following examples:

w ¹ inkel (<i>shop</i>)	w ² inkell ¹ er (<i>shopkeeper</i>)
h ¹ erb ² erg (<i>inn</i>)	h ² erb ³ erg ¹ ler (<i>innkeeper</i>)
s ¹ omber (<i>dull</i>)	s ¹ omberh ² eid (<i>dullness</i>)
o ¹ pen (<i>open</i>)	o ¹ penh ² eid (<i>openness</i>)

While we will not attempt to formulate any of the stress-rules of Dutch here it is clear that one of these rules will operate to place the primary stress on the last strong cluster in some string, where strong cluster is used in the sense of Chomsky & Halle (1968). In the above examples all of the syllables bearing a number represent strong clusters. If we examine the examples in the first column the it is clear that with the exception of the word *herberg*, which we will not attempt to explain, the primary stress falls on the last strong cluster. The suffixes *-ier* and *-heid* both involve strong clusters so that we would expect that the result of their suffixation would be that the primary stress is shifted onto the last syllable. As we can see this does happen in the case of *-ier*, but not in the case of *-heid* where the primary stress remains as in the unsuffixed form while the suffix has only secondary stress. In other words *-ier* is a class I suffix while *-heid* is a Class II suffix.

Because of the differing effects of the two types of suffixation, it is necessary that the rules that assign stress to the

word operate when Class I suffixes are present but before Class II suffixes have been added¹, eg.

1. Class I word-formation rules
2. Stress rules
3. Class II word-formation rules

An important consequence of this theory is that Class II suffixes may not be followed by Class I suffixes. Further Class I suffixes are associated with the formative boundary + and Class II suffixes with the word boundary #. A further consequence of this distinction in Dutch concerns the operation of the final devoicing rule in Dutch, which devoices non-sonorant consonants before a word boundary # (cf. Booij, 1975).

Compare the following examples:

g ¹ ōd	(God)	g ² ōd ¹ in	(goddess)
Fries ¹	(Frisian (male))	Friezi ² n ¹	(Frisian (female))
g ¹ ōed	(good)	g ¹ ōedh ² eid	(goodness)
dwa ¹ as	(foolish)	dwa ¹ ash ² eid	(foolishness)

In the first column under a) and b) we give examples of stems ending in /d/ and /z/. Here final devoicing operates since these segments are located at the end of the word. In the second column we illustrate two suffixes, *-in*, which is of Class I, and *-heid*, which we already know is of Class II. In the first case final devoicing does not operate while in the second case this rule does operate. The rule can be formalized as:

$[-\text{son}] \rightarrow [-\text{voice}] / - \#$

As far as *-aar* is concerned Zwarts proceeds as follows. He gives the following word-formation rule:

W ₁	[	,	#	,	X	,	[	^V	-accent]	,	[⁺	son	]	,	#	,	]	V	,	W ₂
1	2	3	4		5		6		7	8	9											
→ [#2345678 [#aar] _S #] _N																						
W ₁ = e, W ₂ = e																						

Forms illustrating the operation of this rule would be the following:

babbelen (to babble)	babbelaar (babbl ^r)
weigeren (to refuse)	weigeraar ('refuser')
rekenen (to count)	rekenaar ('counter') ²

The last vowel of the stem of these words is a schwa, followed by a coronal sonorant, so that the segmental conditions for the operation of this word-formation rule are met in each case.

Phonetically we have:

babbelaar	[bɑbɛla:r]
weigeraar	[ʋɛjɛra:r]
rekenaar	[re:kɛna:r]

Exceptions of various kinds exist. We have for instance forms where the stem is not a verb-stem but a noun-stem, such as the following:

molen	(<i>mill</i>)	molenaar	(<i>mill</i>)
leugen	(<i>lie</i>)	leugenaar	(<i>liar</i>)

Other forms are irregular because the segmental structure is wrong, yet others are irregular because of the presence of both factors:

winnen	(<i>to win</i>)	winnaar	(<i>winner</i>) [ʋna:r]
leren	(<i>to teach</i>)	leraar	(<i>teacher</i>) [le:ra:r]
zonde	(<i>sin</i>)	zondaar	(<i>sinner</i>) [zɔnda:r]

According to Zwarts the last vowel in the stem does not require to be schwa, but merely requires to be unstressed. He gives here the example *beoordelen* (*to judge*) [bɛo:rde:lɛn] which forms the agentive *beoordelaar* [bɛo:rde:la:r]. Here the stress in the stem falls on the second, not the third syllable, which is relatively unstressed. However, he is in our opinion wrong here. Apart from the fact that we also have the form *beoordeler* [bɛo:rde:lɛr] with another variant of the agentive suffix (or another suffix depending on one's viewpoint), we do not find *-aar* with other verbs with a similar stress pattern. There we find only the agentive in *-er*. Compare the form *benadeler* [bɛna:de:lɛr] from the verb *benadelen* (*to disadvantage*). The form *beoordelaar* is therefore exceptional, and the last vowel in the stem must be schwa.

The suffix *-aar* is regarded by Zwarts as a Class II suffix. This because, despite its status as a strong cluster, it has no effect on the position of the primary stress, cf.

bābbelen	bābbel ² āar
wēigeren	wēiger ² āar
rēkenen	rēken ² āar

where the primary stress remains unchanged on the first syllable. By reason of *-aar*'s status as a Class II suffix, Zwarts is able to explain the non-occurrence of particular suffix-complexes like *-aar-ig* where *-ig*[ɛx] is a Class I suffix. Such a sequence of a Class II suffix followed by a Class I suffix is as we have

seen ruled out in terms Siegel's theory.

A 'potential problem' is caused by the suffix -ij [ɛj]. This is clearly a Class I suffix, since it causes a stress shift and does not cause final devoicing:

kleed [klé:t] (*cloth*) kledij [klé:d¹j] (*clothing*)

However, we also get examples like:

babbelaar [bábəla²:r] (*babbling*) babbelarij³[bábəla:r¹ɛj] (*babbling*)

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Since, it is claimed, -aar is a Class II suffix, we have here an ordering paradox - a Class I suffix seems to have been added later than a Class II suffix.

Zwarts indicates, however, that -arij formations are subject to more restrictions than are simple -aar formations. In fact -arij formations are not possible if the stem-final consonant is /r/. In other words we get the following paradigm:

babbel-aar	babbel-arij	[bɑbəla:rɛj]	(<i>babbling</i>)
metsel-aar	metsel-arij	[mɛtsəla:rɛj]	(<i>masonry</i>)
weiger-aar	*weiger-arij		(<i>refusing</i>)
woeker-aar	*woeker-arij		(<i>practising of usury</i>)

If we are to regard -arij as being composed of the two suffixes -aar and -ij then we have, as Zwarts points out, a unique situation in morphology. Normally morphological processes are only restricted or controlled in terms of the last cluster of the stem, not in terms of earlier segmental structure. Yet here we would have to say that the addition of the suffix -ij was controlled by the nature of just such a consonant.

In order to avoid these problems Zwarts concludes that -arij must be a unitary suffix with its own word-formation rule. Since it attracts the primary stress it will of course be a Class I suffix.

I wish to propose an alternative solution to the problems of -arij. First let us look at -aar again.

In Dutch we find various suffixial morphs which are in more or less complementary distribution. For instance with diminutive formation we find the morphs [pjə ~ pi, kjə ~ ki, tɛə, ətɛə, (l) ə ~ si]. It is fairly simple, however, to derive all these variants from one basic form /tjə/. If we turn to plural formation we have a rather different situation, however. Here the main alternants are [s] and [(ə)n] which are clearly not phonologically related at all and represent therefore phonologically different underlying forms. What do we find if we examine agentive formations in Dutch? There seem to be three main types:

- ər
- dər
- a:r

These are in complementary distribution, if we ignore exceptional forms, as follows:

- | | |
|-------|-------------------------------------|
| - dər | after /r/ preceded a stressed vowel |
| - a:r | under the conditions stated above |
| - ər | elsewhere |

Further we have irregular formations derived from noun stems such as *molenaar* (*miller*) etc. Some of these involve an /-ən/ extension to the stem, and receive, as we might expect, the /-a:r/ suffix variant, like *moordenaar* (*murderer*) [mo:rdəna:r], derived from the noun stem *moord* [mo:rd] (*murder*).

Clearly we have various options as to how we describe this situation. The three most obvious are the following:

- i) 1 base form for all three variants
- ii) 2 base forms, 1 for /-dər/ and /-ər/, 1 for /-a:r/
- iii) 3 different base forms

Phonetically there is at least a common factor among all three variants, the fact that they all end in /r/. What effect would the first solution have on our problems with *-aar* and *-arij*.

Zwarts is compelled to say that *-aar* is a Class II suffix since if it had been a Class I suffix it would have attracted the primary stress to itself. If we were to work from the hypothesis that *-aar* is derived from underlying *-er* [ər] then we could claim that what we have here is a Class I suffix. *-er* does not for instance cause final devoicing, cf. *lader* (*loader*) [lardər] and not *[la:tər]. This hypothesis would allow the combination of suffixes *-aar-ij* since both would now be Class I suffixes, which is perfectly normal. In order to produce the different variants we would need the following rules:

SCHWA STRENGTHENING

ə → a: / ə [+son][+cor] + - r]_N

D-INSERTION⁴

∅ → d / Vr + - ər

The first rule is restricted to nominal formations, while the second operates freely, for instance with the comparative suffix *-er*, and the adjective-forming suffix *-erig*.

At this juncture we might point out that if *-aar* had been a Class II suffix we might have expected that the irregular

formation *zondaar* (see p. 3 above) would show final devoicing. This is not a crucial argument, however, since it could be claimed that final devoicing operates before the rule that causes the final schwa of the stem to drop.

A factor perhaps supporting the unitary analysis of the above-mentioned agentive formations involves 'inhabitatives' - derived nouns with the meaning 'inhabitant of a place'⁵. Zwarts refers to such forms, eg. *Overijsselaar* (*inhabitant of Overijssel*), as irregular, because they are based on noun stems. It would seem wrong to refer to such formations as irregular, however, since they seem to be freely formed from place-names and place-name-like proper nouns. There seems no cogent reason for identifying these suffixes with agentives. Segmentally they are the same, but there the similarity stops. The one process operates normally on verb-stems, the other on a restricted class of nouns, and the semantic effect is quite different.

This suggests that we need two different word-formation rules:

W_1	[	,	#	,	X	,	#	,	]	W_2	→	[	#	23456	[	+ər	]	S	#	]	N
1	2	3	4	5	6	7															
W_1	[	,	#	,	X	,	#	,	]	W_2	→	[	#	23456	[	+ər	]	S	#	]	N
1	2	3	4	5	6	7															

Note that we get precisely the same distribution of suffix-variants as with the agentives:

a) -dər	varen - vaarder	Bijlmermeer - Bijlmermeerder
	huren - huurder	Alkmaar - Alkmaarder
b) -a:r	babbelen - babbelaar	Overijssel - Overijsselaar
	rekenen - rekenaar	Diemen - Diemenaar
	weigeren - weigeraar	Vlaander+en - Vlaanderaar ⁶
c) -ər	bakken - bakker	Harderwijk - Harderwijker
	meppen - mepper	De Rijk - Rijper

Just as with the irregular agentive formations based on noun stems we get with the inhabitatives also frequently a stem-extension *-en-*,

d) -en-aar	moord - moordenaar	Aalst - Aalstenaar
	ambt - ambtenaar	Luik - Luikenaar

In other words, if we assume that the agentive suffixes are not to be identified with the inhabitative suffixes then we have an additional reason for deriving all three variants from one

underlying form. This clearly yields the most economical description of the facts.

There are also semantic factors which suggest that an analysis of *-arij* as a unit is wrong. Compare the following forms:

<i>ambt</i>	office, function, position
<i>ambtenaar</i>	official, civil servant
<i>ambtenarij</i>	officialdom, red tape

Here it is clear that the form *ambtenarij* must be directly derived from the form *ambtenaar*, since these both have a more specific semantic range than the root-word *ambt*.

A further problem for Zwarts' analysis is caused by the feminine suffix *-es* [ɛs] (or *-esse* [ɛsɛ]). This is clearly a Class I suffix since it attracts the primary stress onto itself, eg.

<i>barón</i>	baron	<i>baronés(se)</i>	baroness
<i>príns</i>	prince	<i>prinsés(se)</i>	princess
<i>schílder</i>	painter	<i>schilderés</i>	female painter

Normally we do not find this suffix with *-aar*-agentives. These normally add the suffix *-ster*[stər]. However, all the irregular deverbal formations plus a few others seem to take *-es* instead.

<i>díenaar</i>	servant	<i>dienarés(se)</i>	female servant ⁷
<i>léraar</i>	teacher	<i>lerarés</i>	female teacher
<i>wíinnaar</i>	winner	<i>winnarés</i>	female winner
<i>zónndaar</i>	sinner	<i>zondarés</i>	female sinner

Clearly Zwarts would here be forced, in order to avoid an ordering paradox with a Class II suffix (*-aar*) followed by a Class I suffix (*-es*), to treat *-ares* like *-arij* as an unanalysable unit. It seems quite obvious that this is the wrong analysis. The parallelism between the above two groups of examples is complete.

For yet another argument I am indebted to G. Booij. He has pointed out to me that Class II (#) suffixes in Dutch generally allow conjunction-reduction, cf.

<i>beestachtig</i>	animal-like	[be:staxtəx]
<i>visachtig</i>	fishlike	[visaxtəx]
<i>beest- en visachtig</i>	animal-like and fishlike	[be:stənvisaxtəx]

Class I suffixes do not allow this:

<i>barones</i>	baroness
<i>prinses</i>	princess

**baron- en prinses*

baroness and princess

(this can only mean 'baron and princess')

The suffix *-aar* does not allow conjunction-reduction, like Class I suffixes.

There seems, in short, to be a sufficient body of evidence that *-aar* is a Class I suffix. A reasonable conclusion is that it derives from underlying /-ər/. This explains the position of the primary stress. As to why *-er* is replaced by *-aar*, a possible functional explanation might be that it helps to avoid series of schwas and sonorant consonants. Such series are avoided by various means in Dutch morphological and phonological processes.

We are still left with Zwarts' second problem, however, - how do we explain that *-arij* occurs in a more restricted set of environments than *-aar*. Observe first what kind of structure we would get if we allowed the occurrence of *-arij* after root ending in /-ər/.

w¹eiger²āar *w²eigerari¹j

Observe that the penultimate syllable would be completely unstressed.

Observe also that we never get sequences like *-rər-* in Dutch. Such a sequence never occurs within a root. When this sequence occurs over a formative boundary then the above-mentioned rule of D-INSERTION operates automatically. Note that both the non-occurrence of forms like **weigerarij* and the rule of D-INSERTION have the same effect - the avoidance of structures of the type:

X V r V r Y
[-stress]

We could then claim that Dutch has a constraint against the production of structures of this type. The word-formation rules would only allow the creation of such structures if the later phonological rules will alter the structure in question so that it no longer violates the constraint. Thus while a word like *uitvoerder* ('*carrier-out*') is initially created in the form

#äwt # vūr + ər#

this structure will later be altered by the rule of D-INSERTION so that we get an acceptable structure. Similarly a word like *weigeraar* will begin life as

#wɛjxər + əɾ#

The /ə/ in the last syllable will be replaced by a /a:/ which vowel will later receive secondary stress, so that we no longer have an unstressed vowel between two occurrences of /r/. With inhabitatives we have an interesting situation. Place-names like *Deventer* [de: vɛntər] and *Losser* [lɔsər] would normally receive inhabitatives like

Deventer	*Deventeraar
Losser	*Losseraar

Instead, however, we get the following forms:

Deventenaar
Lossenaar

In other words we seem to have the operation of a rule like the following

R-NASALIZATION

$r \rightarrow n / \text{ə} - + \text{əɾ}$

This rule may well be regular for inhabitatives. The only counter-example I have found is the above-mentioned *Vlaanderaar*. This form, derived from Van Dale (1970), the standard Dutch dictionary, is given there as a Belgian form. It was not recognized by my Dutch informants.

Significantly, this rule seems to apply rarely to agentives as well. For instance, from the verb *toveren* [to:vərən] (*practise witchcraft*) we get beside the regular but rare *toveraar* the much more normal *tovenaar* (*magician*). Needless to say **toverarij* is impossible but *tovenarij* is fine. At the stage of the word-formation rules when we create the structure

tōvər + əɾ + εj

we have to know whether R-NASALIZATION will apply or not. If not the structure must in fact not be produced. Another similar case concerns the verb *veroveren* [vəro:vərən] (*conquer*). This has the agentive *veroveraar* where R-NASALIZATION cannot apply.

**Veroverarij* is obvious impossible since it would violate our constraint. Several speakers did however accept *verovenarij* where R-NASALIZATION has applied⁸.

Note that it has been shown by Halle (1973) that it is necessary for the word-formation rules to have access to the output of the phonological component. The only difference between his

- 1) the non-occurrence of roots containing -rər-
- 2) the insertion of /d/ in complex structures of the type -Vr+ər-
- 3) the non-production of complex structures of the type [- r V][[-stress] rV - where the non-stressed vowel is not schwa, unless the first /r/ is subject to R-NASALIZATION.

Zwarts' solution would not associate these facts, incorrectly we would assume. Zwarts' first problem was, of course a problem for Siegel's theory. Our treatment of this problem is entirely compatible with this theory in that Zwarts' ordering paradoxes have been removed. As far as the portion of Dutch grammar we have dealt with is concerned, then, Siegel's theory is satisfactory.

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Eindnoten:

- 1 In fact Zwarts shows that certain stress rules have to operate after the addition of Class II suffixes.
- 2 'counter' in the sense of 'one who counts'.
- 3 [babbelarij]: Obviously, the rule of final devoicing does not operate here.
- 4 Another version of this rule appears in Brink (1969).
- 5 This formation is also extended to the association between an organisation and its members, a type of school and its pupils, etc.
- 6 See below p.
- 7 There exist also the forms:

diender

policeman (with irregular D-INSERTION)

dienster

waitress

- 8 I am grateful to Jaap van Marle for observing this form. The existence of this form *verovenarig* (beside *tovenarij*) shows that there is no restriction as such on the formation of derivation in *-arij* from the verb-stems in /-ər/.