



Royal Netherlands Academy of Arts and Sciences (KNAW) KONINKLIJKE NEDERLANDSE AKADEMIE VAN WETENSCHAPPEN

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published in

Linguistics in the Netherlands 1996
1996

document version

Publisher's PDF, also known as Version of record

[Link to publication in KNAW Research Portal](#)

citation for published version (APA)

Cornips, L. (1996). The spread of the reflexive adjunct middle in the Limburg dialects: 1885-1994. In C. Cremers, & M. den Dikken (Eds.), *Linguistics in the Netherlands 1996* (pp. 49-60)

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The à-PP in the French examples in (30a) must follow the NP *le front*, that is, the position of the functor phrase is fixed. Leaving the à-PP in its base position in (29), however, would lead to a conflict with the requirement in (25), according to which the à-PP must be moved. Apparently, this conflict leads to the ungrammaticality of the examples in (29). However, if the complement of the à-PP is a clitic, movement of the functor phrase into SpecFP, which in (27) and (28b,c) accidentally proceeds through SpecP_{loc}P, is possible. From this, it follows that these clitic dative constructions are grammatical.

7. Conclusion

In this paper, we discussed inalienable possession in locational constructions without a(n overtly realized) accusative object. Following Hale and Keyser (1993), we argued that in a subset of these cases, the direct object has incorporated into the main verb, and hence that the analysis for inalienable possession in locational constructions with an accusative object in (2) covers these cases as well.

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The spread of the reflexive adjunct middle in the Limburg dialects: 1885-1994

Leonie Cornips

0. Introduction

It is intriguing that in Standard Dutch, unlike other Germanic languages such as English and German, a special kind of a middle construction shows up, namely the so-called adjunct middle in (1).¹ In general, it is assumed that the adjunct middle has the following characteristics: (i) the logical subject argument is syntactically absent but semantically present, (ii) the grammatical subject, such as *deze zaal* 'this hall' in (1a), denotes a location and (iii) the adverb, such as *gemakkelijk* 'easily', has to be present (if there is no focus intonation or negation) (cf. Hoekstra & Roberts (henceforth: H&R) 1993, Ackema & Schoorlemmer (henceforth: A&S) 1994/95) and Keyser & Roeper 1984); SD = Standard Dutch):

- (1) SD a. Deze zaal zingt gemakkelijk
 this hall sings easily
 SD b. Dit bed slaapt gemakkelijk
 this bed sleeps easily

Interestingly, in Standard Dutch another kind of construction exists which is at first sight similar to the adjunct middle in (1), namely the instrumental construction in (2). In (2), however, the grammatical subject does not denote a location, but an instrument:

- (2) SD Deze inkt schrijft goed
 this ink writes well

An interesting issue that arises is to what extent the instrumental construction in (2) corresponds to the adjunct middle in (1). Recently, the two kinds of constructions have been discussed by H&R and A&S. In A&S, it has been proposed that in the instrumental construction the logical subject argument is not

¹ I would like to thank Hans Broekhuis, Marcel den Dikken and Aafke Hulk for their valuable comments on an earlier version of this paper and Marianne Starren for questioning speakers of the Heerlen dialect.

syntactically present, as is the case in the adjunct middle. In H&R, however, it has been argued that in the instrumental construction the logical subject argument is realized as the grammatical subject. Thus, A&S's proposal differs from H&R's proposal in that in the former but not in the latter the two constructions are analyzed on a par and, hence, they have a similar underlying structure. It is relevant to note that since in Standard Dutch the instrumental construction and the adjunct middle have similar surface structures they do not provide direct clues for one of the two proposals.

It is noteworthy, however, that some language varieties of Dutch, e.g. the Limburg dialects, show morphological marking in middle constructions. This is shown in the following example of an impersonal middle taken from the Limburg dialect. (3) indicates that this dialect differs from Standard Dutch in that it makes use of the reflexive *zich*. Generally, it is assumed that in the impersonal middle, like (3), (i) the pronoun 't 'it' is an expletive subject and (ii) in addition to the adverb *lekker* 'nicely' (cf. (1)), the locational PP, such as *op dizze stool* 'on this chair' is obligatorily present (SD = Standard Dutch, LD = Limburg dialect):

- (3) *SD/LD 't zit zich lekker op dizze stool
 it_{expl} sits REFL nicely on this chair

The purpose of this paper is to examine whether in the Limburg dialects the instrumental construction and the adjunct middle have an identical underlying structure (cf. A&S) or not (cf. H&R), or rather, to what extent the dialects of Limburg distinguish between the adjunct middle and the instrumental construction by means of the reflexive *zich*. In order to get a better insight into the syntactic properties of the instrumental construction and the adjunct middle in the dialects of the province of Limburg I will describe their geographical distribution in 1885 and the changes in it between 1885 and 1994 (cf. section 1).²

With respect to the Limburg dialects, I will demonstrate that (i) all middle constructions require the reflexive *zich*, (ii) since 1885 the instrumental construction has undergone a syntactic change such that it has become a reflexive middle construction and (iii) from a geographical and chronological point of view the adjunct middle in (1) follows the impersonal middle in (3) (cf. section 2). We will see that neither the proposal of H&R nor the proposal of A&S can fully account for the diachronic data we will encounter. This paper will be concluded with a possible analysis that (i) accounts for the presence of *zich* in the middles in the Limburg dialects and (ii) accounts for the geographical and chronological implicational relationship between the adjunct and impersonal middle in the Limburg dialects.

1. The geographical distribution of the instrumental construction and the adjunct middle in the dialects of Limburg in 1885 and 1994

In this section, I will present a detailed geographical distribution of the instrumental construction and the adjunct middle, based largely on data from the Limburg dialects but also taking into consideration data from the surrounding dialects in Belgium (Flemish) and Germany (Rhineland) (cf. Cornips 1995). In order to gain a better insight into the syntactic properties of the instrumental construction and the adjunct middle, I will first describe their geographical distribution in 1885; subsequently I will outline the 1994 state of affairs.

1.1 The instrumental construction and adjunct middle in 1885. With respect to the instrumental construction based on the verb *schrijven* 'write' the geographical distribution can be described as follows. First, the Flemish and Limburg dialects only use the instrumental construction as is exemplified in (4). Note that this construction is the Standard Dutch variant (cf. (2), FI = Flemish):

- (4) 1885 FI Hasselt a Dieën aenkt schrif gout
 1885 LD Maastricht b Deen ink shrief good
 1885 LD Heiden c Daen ink schriefe gôd
 this ink writes well

Secondly, in the Rhineland dialects two variants of the instrumental construction show up. The most frequent one is the Standard Dutch variant as illustrated in (5a). Strikingly, there are, however, two out of twenty-seven places that combine the instrumental construction with the reflexive *zich*, namely Düsseldorf and Grevenbroich, as shown in (5b,c). Note that neither Standard Dutch nor Standard German (cf. Fagan 1992) allows this reflexive instrumental construction. (Later, I will discuss these reflexive variants in more detail, RD = Rhineland dialect):

- (5) 1885 RD Aachen a Der Enk schrief got
 1885 RD Düsseldorf b Di Tint shriff *zich* jot
 1885 RD Grevenbroich c Da enk schrif *zich* god
 this ink writes REFL well

If we concentrate on the Limburg dialects, the data so far show that in these dialects the instrumental construction is construed similar to Standard Dutch. Let us turn now to the geographical distribution of the adjunct middle.

The geographical distribution of the adjunct middle differs considerably from the instrumental construction in that (i) more variants show up and (ii) the different variants are restricted to certain areas.

Again, the Flemish dialects only use the Standard Dutch adjunct middle:

² In this paper, I will not discuss the design of the survey and the methodology that is used to collect the data (cf. Goossens 1989 and Cornips 1995).

- (6) 1885 Fl Zoutleeuw a Deë zoal zingt gemäkkelek
 1885 Fl Tienen b Deeë zoäl zingt licht
 this hall sings easily

In contrast, the Limburg and Rhineland dialects use the reflexive impersonal middle, as is illustrated in (7a) and (7b,c), respectively (cf. (3)). Note that the expletive *et* in the Rhineland dialects is, just as 'impersonal middle' *es* in Standard German, not only restricted to sentence-initial position in main declarative clauses. This kind of expletive corresponds to Standard German *es* that has a distribution similar to referential subjects (Fagan 1992:45) or the Standard Dutch expletive *het*:

- (7) 1885 LD (nth)Posterholt a In dej zaal zingt 't *zich* goed
 1885 RD Lechenich b En däne sal sengt et *sich* god
 1885 RD Aachen c Ine der zaal singt et *sich* gemäckl
 in this hall sings it REFL easily

Furthermore, in the Rhineland dialects also the constructions in (8) occasionally show up. Interestingly, in contrast to the indispensable 'impersonal middle' *es* in Standard German, these impersonal middles lack the expletive subject. Of course, constructions like (8) are only grammatical if the expletive element does not occupy the first position in the sentence (cf. (3)):

- (8) 1885 RD Cranenburg a In den zâl zingt *zich* licht
 1885 RD Steele a/d Ruhr b In dann zal zingt *zich* godd
 in this hall sings REFL easily
 1885 RD Waldfeucht c En det bett shliëpt *zech* good
 1885 RD Kempen d En det bet shloep *zich* jut
 in this bed sleeps REFLeasily

Strikingly, the Limburg and Rhineland dialects do not only use the reflexive impersonal middle but in these dialects also the reflexive adjunct middle arises:

- (9) 1885 LD (north) Helden a Dae zâl zinkt *zich* gôd
 1885 LD (north) Stevensweert b Die zâl zink *zig* lig
 1885 RD Bûderich c Der saal sengt *sich* legt
 this hall sings REFLeasily

In addition, with respect to the two kinds of reflexive intransitive middles, a distinction has to be made between the northern part and the southern part of the province of Limburg since only in the former but not in the latter does the

reflexive adjunct middle arises. Consider the following contrast in (9a,b) and (10c):³

- (10) 1885 LD (sth) Maastricht a In die zaol zink et *zech* gemekelek
 1885 LD (sth) Epen b In dn zaal zingt 't *zich* good
 in this hall sings it REFL easily
 1885 LD (south) c *Deze zaal zingt (*zich*) good
 this hall sings REFL easily

Table 1 gives an overview of the Limburg and Rhineland data:

Table 1: Distribution of the instrumental and intransitive middle constructions in 1885

	south of Limburg		north of Limburg		Rhineland	
	+ <i>zich</i>	- <i>zich</i>	+ <i>zich</i>	- <i>zich</i>	+ <i>zich</i>	- <i>zich</i>
impersonal middle	o.k.	*	o.k.	*	o.k.	*
adjunct middle	*	*	o.k.	*	o.k.	*
instrumental	*	o.k	*	o.k	o.k	o.k

The findings so far can be captured as follows. It is evident that in 1885 in the Limburg dialects the instrumental construction and the adjunct middle cannot be treated on a par. The dialects in the northern part combine the adjunct middle with the reflexive *zich*. This reflexive, on the other hand, is excluded in the instrumental construction. What is more, in the southern dialects the instrumental construction is fully grammatical whereas it is clear that the (reflexive) adjunct middle cannot be construed in that area. We will discuss this findings more extensively in section 2.

Furthermore, with respect to the dependent variable *area*, table 1 reveals a pattern that involves an implicational relation between the impersonal middle, adjunct middle and the instrumental construction (see bold print). That is to say, it shows that the reflexive instrumental construction implies the existence of the reflexive adjunct middle whereas this latter, in its turn, implies the existence of the reflexive impersonal middle.

1.2 *The syntactic changes in the Limburg dialects between 1885 and 1994.* The geographical distribution of the variants of the adjunct middle and the instrumental construction has changed drastically between 1885 and 1994. The first important change is that the adjunct middle with the reflexive *zich*, i.e. the northern Limburg variant, has become fully acceptable in the southern dialects of the province of Limburg. This syntactic change is illustrated in (11):

³ The area that includes the locations Geleen and Sittard distinguishes the southern part of Limburg from the northern part.

- (11) 1885 LD (sth)Heerlen a I dat bet shliëpt et zich goot
in this bed sleeps it-EXPL REFL well
1885 b *Dit bed slaapt zich lekker
this bed sleeps REFL easily
1994 LD (sth)Heerlen c Disse stool zit zich lekker
this chair sits REFL easily

The most striking change, however, is that today all Limburg dialects allow the reflexive *zich* in the instrumental construction, as can be seen in (12b) and (13b):

- (12) 1885 LD (sth)Maastricht a Deen ink shrief (*zich) good
1994 LD (sth)Heerlen b Dieze ink sjrief zich plezeerig
this ink writes REFL well
(13) 1885 LD (nth) Helden a Daen ink schriefe (*zich) gôd
1994 LD (nth) Swalmen b Deze ink sjrief zich plezerig
this ink writes REFL well

So far, it has become clear that the dialects in Limburg demonstrate interesting syntactic changes through time and space. In sum, after 1885 (i) the reflexive adjunct middle, i.e. the northern Limburg variant, has become fully grammatical in the southern Limburg dialects and (ii) the instrumental construction with the reflexive *zich* has emerged and it has spread throughout the dialects of the province of Limburg, too. Furthermore, in addition to the pattern in table 1, table 2 reveals from a geographical and chronological point of view that the creation of the reflexive instrumental middle follows the reflexive adjunct middle whereas this latter follows the reflexive impersonal middle. Thus, it is virtually certain that the spread of the reflexive adjunct middle has led to the appearance of the reflexive instrumental construction as a new variant.

Table 2: The syntactic changes in the Limburg dialects (1885-1994)

1885 → 1994	south of Limburg	north of Limburg	Limburg
	1885	1885	1994
reflexive impersonal	yes	yes	yes
reflexive adjunct	*	yes	yes
reflexive instrumental	*	*	yes

From the above, the following interesting questions arise: (i) why is *zich* ungrammatical in the instrumental construction in 1885 whereas it is fully grammatical in 1994? (ii) why is *zich* present in middle constructions? and (iii) how do we account for the geographical and chronological implicational relationship between the reflexive impersonal middle, the reflexive adjunct middle and the reflexive instrumental construction? I will address these questions in the following section.

2. Towards a possible analysis of the reflexive adjunct middle

2.1 *The presence of zich*. From the above, it is obvious that in 1885 (i) the northern Limburg dialects distinguished the adjunct middle from the instrumental construction by means of the reflexive *zich* and (ii) in the southern dialects, in contrast to the (reflexive) adjunct middle, the instrumental construction was fully grammatical. With respect to the reflexive, the contrast between the adjunct middle and the instrumental construction can be accounted for if we assume that the implicit argument in middles is reflected morphologically in the Limburg dialects, that is to say, that *zich* manifests the absorption of the logical subject (where absorption should be taken to be neutral with regard to the various theoretical instantiations of this phenomenon) (cf. Zubizarreta 1987, Hulk & Cornips (henceforth: H&C) 1994). If the assumption given above is on the right track, it does not come as a surprise that in the Limburg dialects *zich* shows up in other kinds of constructions in which it is generally assumed that an implicit argument is present too, for example, in impersonal passives and inchoative constructions, such as (14a) and (14b), respectively (cf. Cornips & Hulk 1996) (HD = Heerlen Dutch):

- (14) Heerlen Dialect a 't weëd zich gewessje
EXPL was REFL washed
HD b De papieren waaien zich uit de doos
the papers blow REFL out the box

Furthermore, we can account for the absence of the reflexive *zich* in the instrumental construction if we assume that this kind of construction lacks an implicit argument, that is to say, its grammatical subject must be analyzed as the logical subject. According to H&R (1993:218), this assumption is supported by the following observations. The contrasts in (15) and (16) indicate that in Dutch the verb in the instrumental construction differs from the verb in the adjunct middle in that (i) it can be combined with a different kind of adverb, for example *dik* 'thick' and (ii) it can be construed as a transitive verb, e.g. with a direct object, such as *de letter o* in (15a) and (16a), respectively (cf. H&R 1993: 218):

- (15) a Deze inkt schrijft dik/goed
b Deze stoel zit (*dik)/goed
this ink/chair writes/sits thick/well
(16) a Deze inkt schrijft de letter o goed
this ink writes the letter o well
b *Deze zaal zingt een lied goed
this hall sings a song well

Let us turn now to the question of the diachronic development of the instrumental construction without a reflexive in 1885 into a construction with a reflexive in 1994. This syntactic change can be explained if we assume that the (transitive) verb in the instrumental construction which can be argued to project the logical subject argument into syntax has undergone 'middle formation' since 1885 and as a result a reflexive variant has emerged. So the idea is that nowadays the reflexive instrumental construction and the adjunct middle can be treated on a par. If the reflexive instrumental construction (cf. (12b), (13b)) is indeed comparable to adjunct middles, we would expect it to have other properties of adjunct middles as well, i.e. we would expect that it leads to an ungrammatical result if we combine it (i) with a different kind of adverb or (ii) with a direct object (cf. (15)-(16)). As is illustrated by means of the ungrammatical examples in (17a) and (17b), respectively, this expectation is borne out. Thus, the occurrence of *zich* goes hand in hand with a process of detransitivization or medialisation:

- (17) 1994 HD a Deze inkt schrijft (?**zich*) dik
 this ink writes REFL thick
 1994 HD b Deze inkt schrijft (**zich*) de letter o dik
 this ink writes REFL the letter o thick

Crucially, *zich* does not only manifests the absorption of the logical subject but it also acts as an aspectual marker (cf. H&C 1994). To see this, compare the following adjunct middles in Standard Dutch and Heerlen Dutch. The presence of *zich* in the (b)-sentences determines the event structure for the entire sentence, namely presentational aspect. First, the ungrammaticality of (18b) indicates that, as opposed to (18a), the reflexive middle only allows the present tense. Secondly, unlike (19a), it leads to an ungrammatical result to combine the adjunct middle in (19b) with a durative adverb, such as *altijd* 'always'. Hence, the reflexive in the adjunct middle alters (sub) parts of events that are characterized by the verb:

- (18) SD a Deze schoenen hebben lekker gelopen
 HD b ?*Deze schoenen hebben *zich* lekker gelopen
 these shoes have REFL nicely walked

 (19) SD a Deze schoenen lopen *altijd* lekker
 HD b Deze schoenen lopen *zich* (?**altijd*) lekker
 these shoes walk REFL always nicely

Given the assumption that the reflexive instrumental construction is structurally identical to the adjunct middle, we would expect the same contrasts show up. As (20) and (21) demonstrate, this expectation is indeed correct:

- (20) SD a Deze pen heeft goed geschreven
 HD b ?*Deze pen heeft *zich* goed geschreven
 this pen has REFL well written

 (21) SD a Deze pen schrijft *altijd* goed
 HD b Deze pen schrijft *zich* (?**altijd*) goed
 this pen writes REFL always well

The fact that *zich* alters the aspectual and temporal properties of the entire sentence and not only the Aktionsart of the verb can be accounted for if we tentatively assume that *zich* indicates a functional projection AspPhrase which must be outside the VP (cf. H&C 1994 for a more extensive discussion whether *zich* is the aspectual head or it occupies the SpecAspP position). The relevant part of the structure is: [_{ASPP} *zich* [_{VP}...

2.2 *The derivation of the adjunct middle.* Recall that we still have to account for why, chronologically, the reflexive impersonal middle precedes the reflexive adjunct middle and this latter, in its turn, precedes the reflexive instrumental construction (cf. table 1 and 2). Let us propose that this implicational relationship can be accounted for if we assume that (i) the adjunct middle is created on the basis of the existing reflexive impersonal middle and that (ii) this creation has become productive to such an extent that the instrumental construction has undergone middle formation and as a result a reflexive variant has emerged. To this end, consider the two kinds of middles in the following (a)- and (b)-sentences. As is clear from (22), the impersonal middle requires the preposition whereas in the corresponding adjunct middle the subject NP shows up without this preposition:

- (22) a it-EXPL V REFL ADV P NP
 a' Het slaapt *zich* goed in dit bed
 a'' Het schrijft *zich* goed met die pen
 b NP V REFL ADV
 b' Dit bed slaapt *zich* goed
 b'' Deze inkt schrijft *zich* goed

According to H&R the relationship between the impersonal middle and the adjunct middle is to some extent similar to the Dutch complex adjective constructions with the frame 'it is PP nice for to V' and 'NP is nice for to V', as demonstrated in (23a) and (23b), respectively. These constructions share the same property as the middles in (22), that is to say, the (a)-sentence requires the preposition while in the (b)-sentence the subject NP shows up without the preposition:

- (23) a Het is in Amsterdam leuk om te wonen
 it is in Amsterdam nice for to live
 b Amsterdam is leuk om te wonen
 Amsterdam is nice for to live

However, it seems that this relationship does not hold more generally. If it is indeed the case that the complex adjective constructions like (23) share the same property as the middles in (22), we would expect them to express the same relationship with other verbs that have the frame 'V-PP' as well. As can be seen from (24b) and (25b), this expectation is not borne out for the (b)-examples still require the locational preposition:

- (24) a Het is in deze zaal prettig om te zingen
 it is in this hall nice for to sing
 b Deze zaal is prettig om *(in) te zingen
 this hall is nice for in to sing

- (25) a Het is in dit bed prettig om te slapen
 it is in this bed nice for to sleep
 b Dit bed is prettig om *(in) te slapen
 this bed is nice for in to sleep

It is for this reason that I assume that the creation of the adjunct middle can be accounted for if we partially adopt the proposal by A&S in which the adjunct middle is derived from an underlying PP by means of incorporation of the $P_{loc/instr}$ into the verb, as is illustrated in (26). The process of incorporation accounts for the facts that (i) the preposition in the impersonal middle really 'disappears' in the adjunct middle, (ii) the NP subject is still interpreted as a location or instrument as a result of function composition by which the verb expresses the combined semantics of the verb and the $P_{loc/instr}$ (cf. A&S) and (iii) unlike the impersonal middle, it is only possible to derive the adjunct middle if some syntactic requirements are met (see (28) - (29) below).

- (26) a V....[PP [$P_{loc/instr}$ NP]]
 b V + $P_{loc/instr}$ [PP [t_p NP]]

According to A&S, incorporation takes place at a presyntactic level and it has to take place if the logical subject is semantically arbitrary and as a result, cannot project in syntax. By incorporation, the NP embedded in the PP becomes the argument of the complex verb (cf. (26b)), and, since there is no other NP-argument available at LCS this NP is projected as an external argument. In the Limburg dialects, there is, however, no *a priori* reason why incorporation has to take place at a presyntactic level since the Limburg dialects express middle

constructions morphologically. Note also that A&S (1993:69) 'expect that in a language where a middle construction is not marked morphologically (as opposed to passives, LC) it is derived presyntactically'. Consequently, I assume that in the Limburg dialects the process of incorporation will take place at the syntactic level. Thus, the adjunct middle is derived by incorporation of $P_{loc/instr}$ into the verb. Since in the impersonal middle the PP is obligatorily present it is rather clear that this PP is a complement of the verb in which the preposition incorporates (cf. A&S 1994:85 for a more extensive discussion). By incorporation, the complement of the preposition turns into a direct object of the complex verb. What is more, since the Limburg dialects mark both passives and middles morphologically it can be argued that, as in passives, this object becomes the grammatical subject by means of NP-movement to receive nominative case. Note that in the Limburg dialects the verb can always assign (abstract) dative case both in the impersonal and in the adjunct middle. However, only the element *zich*, unlike a lexical NP, is able to absorb this dative case:

- (27) a *Het slaapt Piet_{dat.} goed in dit bed
 it sleeps Piet well in this bed
 b *Jan slaapt dit bed_{dat.} goed
 Jan sleeps this bed well

Furthermore, consider the following relative clauses in which the relative pronoun *waar* 'where' has been extracted from the PP (so-called R-extraction, cf. Van Riemsdijk 1978). Only if the PP is an adjunct does it constitute a barrier for R-extraction whereas it is fully grammatical if the PP is an argument, as can be seen in (28a) and (29a), respectively. Consequently, incorporation or deriving an adjunct middle is blocked if the PP is an adjunct (cf. (26b)). From this, we may probably conclude that extraction of the prepositional head of the $PP_{loc/instr}$ should be allowed for, too.

- (28) a ??het restaurant waar_i het prettig [PP in t_i] eet
 the restaurant where it nicely in eat
 b ??Dit restaurant eet prettig
 this restaurant eats nicely
- (29) a het bed waar_i het prettig [PP in t_i] slaapt
 the bed where it nicely in sleeps
 b Dit bed slaapt prettig
 this bed sleeps nicely

From the above, we may conclude that in the Limburg dialects a syntactic rule of incorporation is allowed if (i) the PP is the verbal complement and (ii) if the NP is the complement of the locative or instrumental P. In that case,

incorporation or middle formation creates an adjunct middle out of an underlying locative or instrumental preposition.

3. Conclusion

In this paper I have presented syntactic changes that have taken place in the dialects of Limburg between 1885 and 1994. The most important change is that incorporation or middle formation which creates an adjunct middle out of a locative and instrumental PP has become a productive process such that this rule comes to cover a larger area, in particular, (i) the adjunct middle with *zich*, e.g. the northern Limburg variant, has expanded to the south and further to the north and (ii) the instrumental construction has come to undergo middle formation and as a result a reflexive variant has emerged.

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Ternary rhythm in Sentani

Nine Elenbaas

0. Introduction

The stress system of Sentani, a Papuan language spoken in Northern Irian Jaya, combines the properties of rhythmic binarity and ternarity.¹ In this paper we will have a look at these patterns, and I will propose a constraint based analysis within the framework of Optimality Theory. I will argue that two constraints which has been proposed for other so called ternary stress patterns like those found in Estonian and Chugach Alutiiq result in ungrammatical forms as the optimal candidate in Sentani. These constraints are PARSE-2 (Kager 1994) and LAPSE (Green & Kenstowicz 1995). Both refer to metrical constituent structure. I will propose a different constraint, *LAPSE, which is defined as a rhythmic constraint and refers to the grid only. This constraint allows us to analyse the data of Sentani correctly.

1. Observations

Before we can address the main issue of this paper, we have to look into the stress patterns in general. This discussion will result in a preliminary list of constraints that appear to be active in Sentani.

1.1 Stress patterns. In Sentani main stress falls on the penultimate syllable, when the final syllable is light and on the final syllable when this syllable is heavy. Closed syllables and diphthongs are heavy, open syllables are light.² In the examples /j/ represents the palatal-alveolar fricative and /y/ the palatal glide.

- | | | | |
|-----|---|-----------|-------------------------------|
| (1) | a | ijàxawáte | 'they always explain/clarify' |
| | b | omòxoyéj | 'not do' |

¹ The analysis of Sentani stress is based partly on data given in Cowan (1965) and M. Hartzler (1976), but mostly it is based on data collected by the author during fieldwork in Irian Jaya in the fall of 1994. I am grateful to the Netherlands Foundation for Advancement of Tropical Research (WOTRO) and the Research Institute for Language and Speech (OTS) for their financial support, which made this fieldwork possible. I would like to thank René Kager and Jan Don and an anonymous reviewer for useful comments on an earlier version of this paper.

² In monosyllabic content words there is a vowel length contrast.

/a/	'voice, word'	/ro/	'egg'	/ya/	'rain'
/a:/	'down'	/ro:/	'man'	/ya:/	'day'

This points in the direction of subminimal words and Degenerate Feet. I will not address this issue in this paper.