

**ON THE SPLIT NATURE OF THE DUTCH
*LATEN-CAUSATIVE***

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Abstract

We present a discussion of the *laten*-perception-causative construction in Dutch, formed by combining *laten* ‘let’ and a non-volitional perception/cognition verb like *zien* ‘see’. On the basis of partly novel argument alternation and binding data, we show that these causatives cannot be captured by a standard raising analysis. This sets these data apart from other uses of causative *laten*. The *laten*-perception-causative is best analyzed as a complex predicate. Interestingly, although its behaviour cannot be explained from the syntactic combinatory rules, the observed argument alternations and binding effects are predictable from Dutch syntax if we were to assume that the *laten*-perception-causative is a complex member of a semantically coherent group of communication verbs.

After having introduced the monoclausal complex predicate analysis, we approach the question of how the intermediate status of *laten*-perception-causatives between idiomatic constructions and transparent phrasal combinations could be formally captured in an extension of the LFG architecture. We believe that the construction sheds some interesting light on long-standing issues from the complex predicate formation debate, especially when viewed from the perspective of recent considerations about the use of a template hierarchy as a theoretically motivated device in LFG.

1 Introduction

The Dutch verbs *laten* ‘let’, *doen* ‘do’ and *dwingen* ‘force’ all take verbal complements and allow one to express causation of the embedded event by the matrix subject. Examples are given in (1).¹

- (1) a. Ik laat mijn man de uien snijden!
ik let my husband the onions cut
‘I have my husband cut the onions.’²
- b. Maar een glas wijn doet de gemoederen steeds weer bedaren.
but a glass wine does the moods always calm
‘But a glass of wine will always calm people down.’³
- c. Economische crisis dwingt Hongarije wereldwijd ambassades te sluiten.
economic crisis forces Hungary worldwide embassies to close
‘Economic crisis forces Hungary to close embassies worldwide.’⁴

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¹Some of the examples in this paper are attested sentences. For these, the source is cited. For volatile sources like the WWW, we also cite the consultation date.

²nl.yunomi.be/artikel/uien-snijden-zonder-tranen, 28/9/2009

³http://www.ru.nl/csmr/disclaimer/fmpgdo_producties/, 28/9/2009

⁴<http://media.europa-nu.nl/9353000/1/j9vvhjsfpncqhs/vi5zbeznuuqj?ctx=vh72mb14wkwh>, 28/9/2009

Causatives in Dutch, and then especially the *laten*-causative (1a) and the *doen*-causative (1b), have been extensively studied, for instance in the Dutch functionalist literature (Dik, 1980; Verhagen, 1997; Verhagen and Kemmer, 1997; Loewenthal, 2003). As AcI verbs and (possible) cases of object-control, they have been the topic of countless papers in formal syntax, of which the LFG treatment of Dutch verbal clusters presented in Kaplan and Zaenen (2003) is only one.

In this paper, we will restrict our attention to the *laten*-causatives. In particular, we investigate the combination of *laten* with a class of perception/cognition verbs. As an example of the construction under investigation, consider (2a), in which we have replaced *snijden* ‘cut’ in (1a) with *zien* ‘see’. On the face of it, the result is analogous to (1a). However, there is a contrast between the two verbs when embedded under *laten*: unlike the agent of *snijden*, the experiencer of *zien* can be realized in a PP headed by *aan* ‘to’. This is unexpected, since this option does not appear in the regular argument realizations of *zien* ‘see’.

- (2) a. Ik laat mijn man de uien zien.
 I let my husband the onions see
 ‘I show the onions to my husband.’
 b. Ik laat de uien aan mijn man zien / *snijden.
 I let the onions to my husband see / cut.

In fact, as we will see, combinations like *laten zien* ‘let see’ differ from combinations like *laten snijden* ‘let cut’ in terms of binding, interpretation and argument realization. On the basis of those arguments, we show we can distinguish the *laten*-perception-causative (LPC). We will argue that the LPC should be modelled as a complex predicate in LFG. Complex predicate analyses for Dutch causatives and/or constructions with *laten* have been proposed before with differing levels of formalization (Coopmans and Everaert, 1988; Verhagen, 1997; Booij, 2002). However, to our knowledge, there is no detailed description of the LPC as a construction with a highly internally coherent behaviour.

In this paper, we start by describing the *laten*-causative in section 2. We discuss a standard analysis of *laten* as a raising verb. Then we show why this raising model is unsuitable for capturing the LPC subset of *laten*-causatives. Instead, we follow previously made proposals to treat the LPC as a monoclausal construction. In section 3, we incorporate insights from the functional literature, which lead us to conclude that the LPC seen as a whole is a complex example of a communication verb. This in turn allows us to explain the syntactic behaviour that is anomalous under a raising analysis. Additional binding data for the monoclausal analysis is given in section 4. Section 5 discusses the base verbs that participate in the LPC in more detail. We make no attempt to provide a fully formalized analysis of the monoclausal LPC in this paper, but the picture that we arrive at puts the LPC in the gray area between a regular syntactic entity and an idiosyncratic, lexically specified, idiomatic construction. In section 6, we therefore discuss some interesting consequences of our analysis when put in the standard LFG architecture as it is currently conceived.

2 The Dutch *laten*-Causative

The verb *laten* ‘let’ is, like the perception verbs *zien* ‘see’ and *horen* ‘hear’ (amongst others), an *accusativus cum infinitivo* (AcI) verb: it combines with an object NP and an unmarked infinitival VP.

- (3) Jan laat / hoort [_{NP} hem] [_{VP} een liedje zingen].
Jan lets hears him a song sing
‘Jan lets/hears him sing a song.’

Although an AcI with *laten* ‘let’ is referred to as the ‘*laten*-causative’, there is a range of meanings that the construction can have. Examples of different readings are given in (4): in (a), the embedded event is requested by the matrix subject; in (b), there is coercion by an authority; sentence (c) expresses that the matrix subject will not intervene in the embedded event; and (d) describes a case of mechanical causation.

- (4) a. Ik laat een makelaar het huis taxeren.
I let an estate agent the house appraise
‘I’m having an estate agent appraise the house.’
b. De professor laat zijn medewerkers al het onderwijs geven.
The professor lets his employees all the education give
‘The professor makes his assistants do all the teaching.’
c. Ik laat de baby nog even slapen.
I let the baby a bit longer sleep
‘I will let the baby sleep a bit longer.’ (=‘I will not wake the baby yet.’)
d. Belg laat het regenen in de woestijn.
Belgian lets it rain in the desert
‘A Belgian (citizen) lets it rain in the desert.’⁵

A systematic investigation of the interpretation of Dutch causatives can for instance be found in Verhagen and Kemmer (1997) and Loewenthal (2003). Henceforth, we shall refer to the embedded verb as the ‘base verb’ (*regenen* in 4d).

A well-known observation about the *laten*-causative is that it allows the so called *laten*-passive. In this construction, the base verb subject is suppressed or demoted to a *door*-PP (5a). This is also observed for German *lassen* (Reis, 1976; Gunkel, 1999; Müller, 2002, a.o.). Although more marked, Dutch also allows passive-like AcIs with verbs like *horen* (5b).

- (5) a. Ik laat het huis taxeren (door een makelaar).
I let the house appraise by an estate agent
‘I let someone / an estate agent appraise the house.’
b. Ik hoor een lied zingen.
I hear a song sing
‘I hear someone sing a song.’

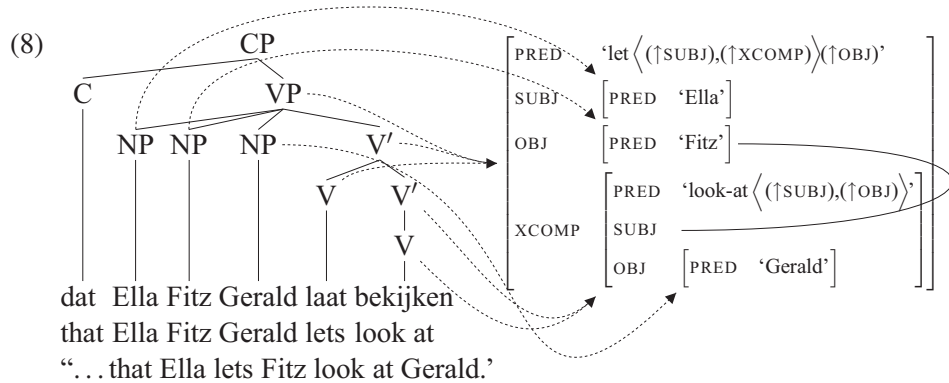
⁵<http://www.nieuwsblad.be/Article/Detail.aspx?ref=hv&ArticleID=GBOMB9JT>

The *laten*-passive is passive-like in several ways. The base verb's agent is suppressed or demoted. Just like in the regular passive, demoted agents are marked with *door*. The *laten*-passive can be used with many verbs that allow regular passivization, including – to some extent – intransitive verbs that allow an impersonal passive. In fact, it appears that the set of possible *laten*-passive base verbs forms a subset of the verbs that allow normal passivization (Müller, 2002, makes this claim for German). To illustrate, the verb *houden* 'keep in possession' does not allow a regular passive. It cannot appear in the *laten*-passive either.

- (6) a. *De lamp wordt (door Jan) gehouden.
 the lamp is by Jan kept
 b. *Hij laat de lamp houden (door Jan).
 he lets the lamp keep by Jan

Thus far, the data could in principle receive an object-control analysis. In their LFG analysis of word order in the Dutch verb cluster, Kaplan and Zaenen (2003) assume that *laten* is a raising-to-object verb, that is, it is lexically specified with an $(\uparrow \text{OBJ}) = (\uparrow \text{XCOMP SUBJ})$ annotation. A grammar fragment based on Kaplan and Zaenen's grammar is given in (7). An analysis of a simple *laten*-causative under this grammar is given in (8).

- (7) a. CP \rightarrow C VP
 VP \rightarrow NP* V' (VP|CP)
 $(\uparrow \text{XCOMP}^* \text{SUBJ}|\text{OBJ}) = \downarrow$ $\uparrow = \downarrow$ $(\uparrow \text{XCOMP}^* \text{COMP}) = \downarrow$
 V' \rightarrow V (V')
 $\uparrow = \downarrow$ $(\uparrow \text{XCOMP}) = \downarrow$
 $(\uparrow \text{XCOMP}^+ \text{SUBJ}|\text{OBJ}) \neg <_f (\uparrow \text{NGF})$
 b. *laat* V PRED = 'let $\langle(\uparrow \text{SUBJ})(\uparrow \text{XCOMP})\rangle(\uparrow \text{OBJ})$ '
 $(\uparrow \text{OBJ}) = (\uparrow \text{XCOMP SUBJ})$
 bekijken V PRED = 'look-at $\langle(\uparrow \text{SUBJ})(\uparrow \text{OBJ})\rangle$ '



The analysis of the *laten*-causative is biclausal. The two verbal c-structure nodes each head different f-structures; the only f-structure to be immediately contained in both clauses is the one corresponding to the raised constituent. Special provision

would still have to be made for the passive-like cases. For German, Reis (1976) assumes a kind of unmarked infinitival passive, whereas Gunkel (1999) offers a HPSG solution based on argument inheritance. For Dutch, Everaert (1991) argues on the basis of binding data for a complex predicate solution in a GB context. In the interest of keeping this paper focused on the perception causatives, we reserve investigating the implementation of the *laten*-passive in LFG for future work.

When the base verb is one out of a small group of perception/cognition verbs the situation changes. As mentioned in the introduction, the combination *laten zien* allows one to optionally drop the experiencer of *zien* or to realize it as a *aan*-PP. Note that this is a bit like the *laten*-passive, but with a different preposition to head the PP of the demoted argument. Used independently, *zien* does not allow this – neither in the active (9b) nor the passive (9c). In addition, in the context of *laten zien*, realization of the subject of *zien* in a *door*-PP is marginal at best (9d).

- (9) a. Ik heb het boek (aan iemand) laten zien.
 I have the book to somebody see
 ‘I let someone see the book.’
 b. *Het boek ziet (aan iemand)
 the book sees to somebody
 c. Het boek wordt (*aan iemand) gezien
 the book is to someone seen
 d. ??Ik laat het boek door iemand zien.
 I let the book by someone see

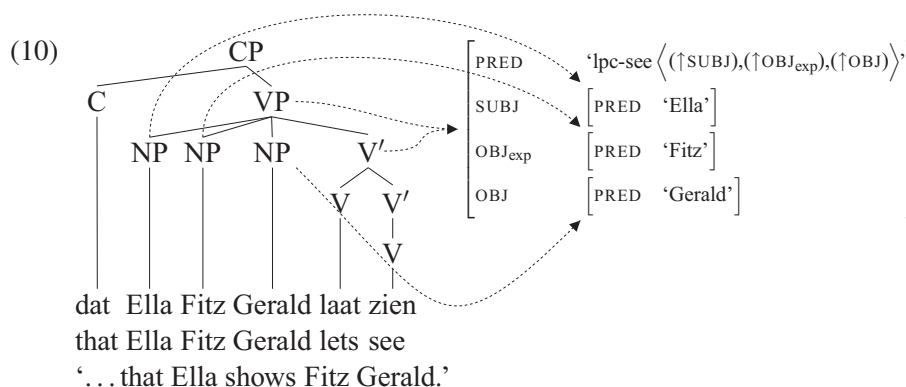
This pattern can be observed for the following nine verbs: *zien* ‘to see’, *horen* ‘hear’, *ruiken* ‘smell’, *proeven* ‘taste’, *voelen* ‘feel’, *lezen* ‘read’, *weten* ‘know’, *merken* ‘notice’, *blijken* ‘become clear’.⁶ Verhagen and Kemmer (1997) speculate that *laten lezen* ‘let read’ is the only combination that readily allows realizing the base verb’s experiencer/agent as either an *aan*-PP or *door*-PP. We add that *laten proeven* ‘let taste’ also offers this possibility. Because of the type of base verbs that allow this alternation, we will refer to these *laten*-causatives as ‘*laten*-perception-causatives’, or ‘LPCs’ for short.

The LPC thus presents us with a puzzle: where does the possibility to demote to an *aan*-PP come from and why do we not have the possibility to demote to a *door*-PP? From the syntax of raising in Dutch, we do not expect such a thing to happen. Nor does the existence of the *laten*-passive predict the LPC. The LPC (although not thus-named) has received some attention in the literature on Dutch. Coopmans and Everaert (1988) consider a great number of idiomatic constructions with *laten*, including LPC instances. They propose *laten* be analyzed in the GB framework as a causative bound morpheme that ‘internalizes the external argument’ of its base. The combination *laten zien* is thus a complex V^0 and its newly acquired internal argument (*zien*’s experiencer) may be left unrealized (experiencer suppression) or

⁶Some of these are listed in Dik (1980). Another incomplete list can be found in the grammar of the Alpino parser for Dutch (van Noord, 2006).

realized as an *aan*-PP (experiencer demotion). The argument alternations seen with the LPC could then be lexically stipulated for the complex lexical entries with *laten*. Like other bound morphemes, *laten* acts as the syntactic head: Of the two verbs in the V^0 , it is *laten* that inflects for tense and agreement and moves to the second position in a declarative main clause.

LFG neither forces nor allows us to assume that *laten zien* is one complex lexical node in c-structure. Complex predicate analyses in LFG have put the monoclausality at f-structure (Butt, 1995; Alsina, 1996; Frank, 1996). Thus, an LPC could receive the analysis as in (10).



The two verbal nodes *laten zien* now project to one f-structure, with a PRED = 'lpc-see$\langle (\uparrow \text{SUBJ})(\uparrow \text{OBJ}_{\text{exp}})(\uparrow \text{OBJ}) \rangle$'. Cases in which the base verb subject has been demoted to an *aan*-PP would be captured by specifying PRED = 'lpc-see$\langle (\uparrow \text{SUBJ})(\uparrow \text{OBL}_{\text{exp}})(\uparrow \text{OBJ}) \rangle$' as one of the alternative LPC annotations. The c-structure in (10) is identical to the analysis of the non-LPC *laten*-causative in (8). The precise details of the c-structure tree are likely to depend on where one decides to place the complex predicate formation – in the lexicon or in syntax. In particular the subtree below the highest V' -node will depend on this. In this paper, we remain relatively agnostic about the technical question of complex predicate formation, but see section 6 for a bit more discussion.

Coopmans and Everaert (1988) deal with idioms. Their aim is to show that complex idioms/idiom-like constructions formed with *laten* behave as if they were idioms headed by a single verb and to show that one can give combinations with *laten* an analysis as lexical entries. This, however, means that they do not pay much attention to the systematic argument realization possibilities that exist for both the base verb's experiencer and its theme in the LPC. In our sketch of an LFG analysis, we have not made any provisions for this either, treating the LPC alternations as lexical idiosyncrasies. Before we turn to why these the argument realization possibilities in an LPC are *not idiosyncratic* in Dutch syntax, let us conclude this section with a more precise overview of these possibilities in the LPC.

Suppression/demotion of the experiencer Our introduction of the LPC started with the observation that a group of base verbs allow demotion of their subject to a

aan-PP. There is more to be said about this, however. First, note that *laten* on its own does not offer this possibility in general: the *laten*-passive is formed with *door*, only the LPC base verbs allow *aan*.

Secondly, as mentioned before, it appears that the verbs that cannot be used in a regular passive cannot appear in a *laten*-passive either. There is some evidence that there is no such link between passivizability and suppression/demotion in an LPC. Intuitively, the verbs *horen* and *zien* in their readings as non-volitional perception verbs are marked in a passive, but they are fine in an LPC with a demoted experiencer. More concretely, the verb *weten* ‘know’ is clearly not passivizable (11a). Again, suppressing or demoting its experiencer in an LPC is unproblematic (11b).

- (11) a. *[Dat de lamp van Jan is] wordt geweten.
 that it is Jan’s lamp is known
 b. Hij laat (aan iedereen) weten [dat de lamp van Jan is].
 he lets to everybody know that it is Jan’s lamp
 ‘He says / tells everybody that the lamp belongs to Jan.’

Thirdly and finally, the base verb *blijken* ‘become clear’ is special, in that its normal subject is not the experiencer but the theme. Because argument realization with *blijken* is not like it is with the other base verbs, we shall return to *blijken* in section 5.2. Here, we just note that in the LPC, it *is* the experiencer that can be suppressed or demoted to an *aan*-PP and not the theme (see also Verhagen, 1997).

- (12) a. Ik laat mijn ongenoegen (aan Jan) blijken.
 I let my discontent to Jan become clear
 ‘I show Jan my discontent.’
 b. *Ik laat Jan (aan mijn ongenoegen) blijken.

The proper generalization is then at the level of the thematic role of experiencer, not the grammatical role of subject: With all of its base verbs, the LPC allows realizing the experiencer a) as an NP; b) as an *aan*-PP; or c) dropping it altogether. These possibilities cannot be explained from the syntactic properties of raising-*laten* or of the base verbs alone.

Realization of the theme The LPC base verbs can all realize a propositional theme as a CP complement. The LPC inherits this ability. Examples with *horen* ‘hear’ are given in (13ab). A little noted fact about the LPC, however, is that the propositional theme can be realized as a *te*-marked infinitival VP, too.⁷ The understood subject of this VP may be interpreted as either one of the other LPC participants. A constructed example with the base verb *horen* ‘hear’ is in (13d). Used independently, *horen* cannot realize a propositional theme as a *te*-VP (13c).

- (13) a. Ik hoor dat ik boos ben.
 I hear that I angry am
 ‘I can hear that I am angry.’

⁷We are not aware of any published reference for this, although the grammar of the Alpino parser for Dutch lists this as a possible argument frame for some of the combinations with *laten*.

- b. Ik laat horen dat ik boos ben.
I let hear that I angry am
- c. *Ik hoor [_{te-VP} boos te zijn].
I hear angry to be
- d. Ik laat horen [_{te-VP} boos te zijn].
I let hear angry to be

The construction is intuitively more common with the cognition verbs, for instance with *weten* ‘know’ in example (14a). The verb *weten* as used in the LPC does not allow a *te-VP* theme when used independently.⁸ Examples with a perception verb like *horen* ‘hear’ are also attested (14b).

- (14) a. het CDA had eerder al laten weten [_{te-VP} onthutst te zijn]
the CDA had earlier PART let know upset to be
‘The CDA had already said that they were very upset.’⁹
- b. Piepend liet het ons horen [_{te-VP} klaar te zijn voor de grote wereld.]
squeaking let it us hear ready to be for the big world
‘Squeaking, [the chick] let us know it was ready for the big world.’¹⁰

To summarize, we see that the LPC offers argument realization possibilities for both the base verb’s experiencer and theme that are not offered by the base verb itself. This would be very hard to explain if we were to give the LPC a biclausal raising-to-object analysis. If *laten* were analyzed as a raising verb in the LPC, we would have to allow it to: a) raise to object or raise to oblique, b) target the embedded subject or the embedded complement, and, most radically, c) be able to target both embedded arguments at the same time (as in (14b), where both the embedded subject and the complement appear in forms not normally allowed by the base verb). This would be at odds with what we know about the rest of Dutch syntax and we suspect it to be highly unexpected from a cross-linguistic perspective, too.

3 The LPC as a verb of transfer of a message

So far we have seen that an analysis of the LPC along the lines of Kaplan and Zaenen’s (2003) treatment of AcI verbs would fail. It may thus seem attractive to analyze LPCs as built around an idiomatic complex verb (cf. Coopmans and Everaert, 1988; and essentially also in the computational grammar of the Alpino parser, Van Noord, 2006). However, as we shall see in this section and the next, the conclusion that the construction is strictly an idiom, meaning that the various argument realization options have to be explicitly listed as lexical idiosyncrasies, is not warranted. In fact, it would miss important generalizations.

⁸There is however a reading of *weten* ‘manage’ that takes a *te-VP*. There is also a very restricted AcI-like *weten* which can be analyzed as taking an object and a predicate in the form of a *te-VP*. These readings are not relevant to the LPC in (14a), however.

⁹Spoken Dutch Corpus CGN, broadcast news subcorpus, sentence fn0001946:5.

¹⁰http://innameoffame.web-log.nl/innameoffame/2007/03/de_eerste_kuik.html, 7/10/2009.

Functionalist descriptions of Dutch *doen*- ‘do’ and *laten*- ‘let’ causatives (Dik, 1980; Kemmer and Verhagen, 1994; Verhagen and Kemmer, 1997; Verhagen, 1997; Loewenthal, 2003) have taken the perspective that such causatives should not be treated as complex clausal structures with independent syntactic domains. Instead they have treated them as a whole, as ditransitive constructions. With regards to the LPC, it has been additionally pointed out in this literature that the verb combinations in LPCd do not seem to have one of the ‘regular’ causal interpretations in the range given in (4). With the cognition verbs this is particularly clear: the combinations *laten weten*, *laten blijken*, *laten merken* do not involve any kind of exerted authority over someone else. Instead, they are statements of something being communicated. Appropriate English translations would for instance be ‘tell’, ‘signal’ or ‘communicate’. LPCs with a perception base verb and a propositional theme, such as the one in (14b), can also be understood as such. The perception base verb then indicates the means by which the communicated information is perceived. We therefore propose to see the LPC as belonging to the Dutch counterpart of Levin’s (1993) class of *verbs of transfer of a message* (VTM).

This holistic view of the LPC as a VTM sheds immediate light on the argument alternations we see with the construction. Let us take the Dutch VTM *vertellen* ‘tell’. This ditransitive verb takes an agent, a goal and a theme. It allows one to realize the goal as an NP or *aan*-PP, or to drop the goal completely. The propositional theme can be realized as a pronominal NP, a CP or as a *te*-VP. All combinations are possible.

- | | | |
|---------|---|---------------------|
| (15) a. | Jan vertelt het Piet.
Jan tells it Piet
‘Jan tells it to Piet.’ | (NP-goal, NP-theme) |
| b. | Jan vertelt Piet dat hij ontslagen is.
Jan tells Piet that he fired is
‘Jan tells Piet that he is fired.’ | (NP-goal, CP-theme) |
| c. | Jan vertelt Piet ontslagen te zijn.
Jan tells Piet fired to be
‘Jan tells Piet that he is fired.’ | (NP-goal, VP-theme) |
| d. | Jan vertelt het aan Piet. | (PP-goal, NP-theme) |
| e. | Jan vertelt aan Piet dat hij ontslagen is. | (PP-goal, CP-theme) |
| f. | Jan vertelt aan Piet ontslagen te zijn. | (PP-goal, VP-theme) |
| g. | Jan vertelt het. | (∅-goal, NP-theme) |
| h. | Jan vertelt dat hij ontslagen is. | (∅-goal, CP-theme) |
| i. | Jan vertelt ontslagen te zijn. | (∅-goal, VP-theme) |

These are the same alternations we see with the LPC. The parallel between a causative construction such as the LPC and VTMs in general is not surprising if we consider decompositions of VTMs into their conceptual components. For instance, *tell* can (pre-theoretically) be seen as a speaking event that *causes* a knowing event. The LPC appears to do not much more than spell these two parts out. What is remarkable about the LPC, however, is that by virtue of having a VTM-like meaning,

it inherits VTM argument realization syntax. We can contrast this with the otherwise highly similar German *lassen*-causative. The German verb *zeigen* ‘show’ and the causative combination *sehen lassen* ‘let see’ can both describe a situation in which a seeing event is caused. But unlike the Dutch LPC, this conceptual similarity is not enough for the German *lassen*-causative to behave like *zeigen*. The ditransitive *zeigen* takes a dative and an accusative argument (16a) whereas *sehen lassen* has two accusative arguments – arguably one matrix object and one embedded object (16b):

- (16) a. Er zeigt ihr den Riesenmammutbaum.
 he shows her.DAT the.ACC giant sequoia
 ‘He shows her the giant sequoia.’
 b. Er lässt sie den Riesenmammutbaum sehen.
 He lets her.ACC the.ACC giant sequoia see

To conclude the discussion thus far, we have seen that the argument alternations observed in the LPC are hard to explain if we were to assume that the LPC has a biclausal structure in which *laten* functions as a raising verb. We propose, however, that one can go beyond a monoclausal analysis in which the LPC is treated as an idiom: The LPC is a monoclausal construction formed around a complex instance of a verb of transfer of a message. We emphasize that our argumentation should be taken to apply the LPC alone. For the regular *laten*-causative, we continue to assume a default biclausal raising analysis.

4 Evidence from binding

We take the argument alternation evidence from the previous section as conclusive for a monoclausal analysis. However, it is reasonable to expect that a contrast in clausality between the LPC and the regular *laten*-causative has effects on binding. The binding data is presented here separately, since its force as evidence for monoclausality co-depends on one’s theory of binding, which we will mostly leave implicit here. Preliminary GB-couched discussion of binding data in *laten*-causatives, including the LPC and the *laten*-passive, can be found in Everaert (1991).

In (17), we give minimal pairs of *laten*-causatives with a reflexive pronoun as the complement of the base verb. The contrast is between the LPC base verb *zien* ‘see’ and the semantically related but volitional *bekijken* ‘look at’, which does not participate in the LPC. When the base verb is *bekijken*, its reflexive marked theme can only refer to the subject of the base verb. Co-reference with the matrix subject is not possible. In the LPC (17b), however, the reflexive theme of *zien* can be understood as referring to its experiencer or to the matrix subject.

- (17) a. Jan_j laat Piet_p zichzelf_{p/*j} bekijken
 Jan lets Piet himself look at
 ‘Jan lets Piet_p look at himself_p’
 b. Jan_j laat Piet_p zichzelf_{j/p} zien
 Jan lets Piet himself see
 ‘Jan_j shows Piet_p himself_{j/p}.’

- c. Jan_j toont Piet_p zichzelf_{j/p}
 Jan shows Piet himself

The binding facts of (17b) parallel those of (17c), which is a sentence headed by the simplex ditransitive verb *tonen* ‘show’.¹¹ To assume that (17a) is biclausal and that (17bc) are monoclausal would put us in a position to explain these data by taking the immediately containing f-structure clause as the domain within which the reflexive has to be bound. Even though these data should be taken as merely suggestive – one could, for instance, formulate a binding theory where the volitionality of the base verb subject is important – they are in line with a monoclausal analysis of the LPC.

5 Remarks about the LPC base verbs

In this section we discuss the LPC base verbs in a bit more detail. We will talk about the similarities between the base verbs and their contributions to the LPC. The base verbs all take an experiencer and a theme, but the base verb *blijken* ‘become clear’ is a bit different because it assigns the subject function to the theme and by itself already shows some of the argument alternations that we claimed distinguish the LPC from other *laten*-causatives. We therefore review the evidence for assuming that we have an LPC with the base verb *blijken* in subsection 5.2.

5.1 The role of the base verbs in the LPC

The base verbs that participate in the LPC share that they have readings as non-volitional verbs of perception or cognition. In terms of thematic roles, they take an experiencer and a theme. The verbs can be divided into two groups as follows:

- (18) Perception: *zien* ‘see’; *horen* ‘hear’; *ruiken* ‘smell’; *proeven* ‘taste’;
voelen ‘feel’; *lezen* ‘read’
 Cognition: *weten* ‘know’; *merken* ‘notice’; *blijken* ‘become clear’

Each of these verbs can take a propositional theme, either in the form of an (pronominal) NP or as a subordinate clause (19a). They may also take NPs that denote what is being perceived or cognized. For perception verbs, these may be abstract objects, but also concrete or even animate objects (19b).¹² Cognition verb themes can in general only be abstract (19c). Exceptions to the latter generalization require a context that is rich enough to allow coercion from reference to an object to reference to the proposition that the object is present, available, etc.

¹¹As a side remark, although Dutch has the simplex verb *tonen* for the English *to show*, its use is marked. It is much more common to use *laten zien*.

¹²With a concrete object, the label ‘verb of transmission of a message’ may sound as a bit of a misnomer. However, note that the same holds for the English VTM *to show*, which may take a concrete theme as in *He showed her the giant sequoia*. A study of the precise lexical decomposition of the propositional/abstract vs concrete theme taking versions of VTM verbs is beyond the scope of this paper.

- (19) a. Ik hoor / weet het / dat je verdrietig bent.
 I hear know it that you sad are
 ‘I can hear / know it / that you are sad.’
- b. Ik hoor Jan.
 I hear Jan.
 ‘I can hear Jan.’
- c. *Ik weet Jan.
 I know Jan.

These selection restrictions and semantic properties of the base verbs are transferred to the LPC. For instance, sentence (20a) is perfectly natural with the base verb *zien*. However, if we use the base verb *hear*, it is only interpretable if we allow more far fetched readings in which we make noise with the paper the drawings are on. For another instance, the selection restrictions of *weten* explain why sentence (20b) is out.

- (20) a. Ik laat de bouwtekening aan Jan zien / #horen.
 I let the construction drawings to Jan see / hear
 ‘I let John see/#hear the construction drawings.’
- b. *Ik laat Jan aan Piet weten.
 I let Jan to Piet know

Although the LPC can be said to be syntactically anomalous – as it shows the alternations of a group of simplex verbs even though it is complex – in terms of its semantics, it appears to behave compositionally. Note that treatment as an idiom would not only trivialize the VTM-like behaviour of the LPC, it would ignore this aspect completely, too.

The non-volitionality of the base verb is a rather strong constraint. For instance, *ruiken* ‘smell’ and *proeven* ‘taste’ have PP-selecting variants that are volitional (~‘sniff’ and ‘sample’, respectively). See (21).

- (21) a. Jan ruikt aan de bloemen.
 Jan smells at the flowers
 ‘Jan sniffs the flowers.’
- b. Jan proeft van de soep.
 Jan tastes of the soup
 ‘Jan samples the soup.’

These variants cannot appear in the LPC. This is illustrated in (22), where marking the theme with a P renders the sentences ungrammatical. Note that in the ungrammatical versions, there are two PPs: an *aan*-PP realizing the experiencer (only possible in an LPC) and another PP realizing the theme.

- (22) a. ...laat (*van) de soep aan Jan proeven
 let of the soup to Jan taste
 ‘... let Jan taste/*sample the soup.’
- b. ...laat (*aan) de bloemen aan Jan ruiken
 let at the flowers to Jan smell
 ‘... let Jan smell/*sniff the flowers.’

We get the same effects with volitional counterparts to see (*bekijken* ‘watch’), hear (*beluisteren* ‘listen to’), and feel (*voelen aan* ‘feel at/touch’). The verb *lezen* ‘read’ may be the exception to this non-volitionality constraint. Although seeing *lezen* as a perception verb is plausible, it is harder to understand it as a non-volitional verb.

5.2 *blijken* is an LPC base verb

The verb *blijken* ‘become clear’ has a propositional theme subject (23a) and can optionally take an experiencer in the form of an NP (23b) or an *aan*-PP (23c). In addition, *blijken* can function as a raising-to-subject verb, in which case it selects for a non-thematic subject and a *te*-VP (23d).

- (23) a. [_{NP} Dat] blijkt.
 that becomes clear
 ‘That’s clear.’
- b. Op Sicilië blijkt [_{NP} hem] [_{CP} dat hij van koninklijke geboorte is].
 on Sicily b. clear him that he of royal birth is
 ‘On Sicily, he finds out he is of royal descent.’¹³
- c. Blijkt [_{aan-PP} aan de ambtenaar] [_{CP} dat de leerplichtige
 becomes clear to the civil servant that the ADJ
 jongere [...] het onderwijs [...] niet volgt], ...
 youth the education not follows
 ‘Should it become clear to the civil servant that the child subject to
 compulsory education is not attending school, ...’¹⁴
- d. [_{NP} Hij] blijkt [_{te-VP} daar toch wel een neus voor te hebben].
 he becomes clear there PART a nose for to have
 ‘It turns out he does have quite a talent for recognizing that.’¹⁵

We see that *blijken* on its own offers the realization options for the experiencer and the theme that we have argued distinguish the LPC from raising. If *blijken* gives us these alternations, what reason do we have to think that *laten blijken* is an LPC and not a case of raising? The answer lies in the observation that *blijken* alone does not readily allow the combination of raising-to-subject and realizing the experiencer (24a). That is, *blijken* does not select for a *te*-VP theme and another thematic argument. In the LPC, however, realizing the theme as a *te*-VP and realizing the experiencer is fine (24bc).

- (24) a. ??[_{NP} Hij] bleek [_{NP} me] [_{te-VP} aardig te zijn].
 he became clear me nice to be
 Intended: ‘I learnt he was a nice person.’

¹³<http://www.collegenet.nl/content/literatuur/tot1920lit/index005.htm>, 8/10/2009

¹⁴http://bis.almere.nl/regelgeving/06095_00/45377965.HTML, 8/10/2009. The sentence is from a local government policy text. Realizing *blijken*’s experiencer in a *aan*-PP feels highly marked and may be acceptable only in legalese.

¹⁵Spoken Dutch Corpus CGN, spontaneous telephone dialogue subcorpus, sentence fn006935.186

- b. Chirac liet [_{aan-PP} aan Kok] blijken [_{te-VP} open te staan voor onze
Chirac let to Kok b. clear open to stand for our
voorstellen].
proposals
'Chirac made it clear to Kok that he was open to our proposals.'¹⁶
- c. Daarvóór liet ze [_{NP} me] nooit blijken [_{te-VP} zulke fantasieënte hebben].
before let she me never b. clear such fantasies to have
'She had never made clear to me she had such fantasies before.'¹⁷

The combination of arguments in (24bc) cannot be easily explained from a raising analysis and the syntax of *blijken*, but it is unremarkable for an LPC.

The corroborating binding evidence for monoclausality presented in section 4 cannot be applied to *laten blijken* since it cannot take an animate theme. Still, binding in *laten blijken* suggests that a raising analysis is wrong, too. As said, the experiencer of *blijken* is not the subject. In a raising analysis, this would mean that the experiencer does not become a clause-mate of the matrix subject. Still, the matrix subject can bind a reciprocal experiencer in *laten blijken*.

- (25) a. We boften, lieten we_i elkaar_i woordeloos blijken [.]
we were lucky let we each other word-less become clear
'We were lucky, we conveyed to each other without words.'¹⁸
- b. We lieten aan elkaar blijken dat we steeds meer gevoelens kregen.
we let to each other b. clear that we ever more feelings got
'We made clear to each other that we were developing affections.'¹⁹

An important consequence of the fact that *blijken* is an LPC base verb is that the proper generalization of LPC behaviour cannot be stated in terms of grammatical functions alone (Verhagen, 1997, for points to the same effect), it needs to refer to argument structure/semantics/thematic roles of the base verbs. This means either that such information needs to be made available in syntax (if we place LPC formation in syntax) or that LPC formation is lexical.

5.3 Summary

In the previous three sections, we have argued that we should distinguish a special subgroup of *laten*-causatives, the *laten*-perception-causative or LPC. Although the LPC on the surface contains an embedded verbal constituent, we cannot explain LPC behaviour with the standard Dutch syntax for such embeddings (in this case: through raising), which assumes two clausal domains. A monoclausal analysis is to be preferred, in which the fact that the combination of *laten* and a specific group of

¹⁶http://www.volkskrant.nl/archief_gratis/article820739.ece/Ach,_je_geeft_elkaar_even_een_knipoog, 8/10/2009

¹⁷http://www.primeurjagers.nl/d1896_minnares_gordon_ramsay_ee_ware_sex_tijger_in_bed_hier_alle_details_.html, 8/10/2009. Orth. corrected.

¹⁸www.cubra.nl/eddalderop/misdienaars1943.htm, 9/10/2009

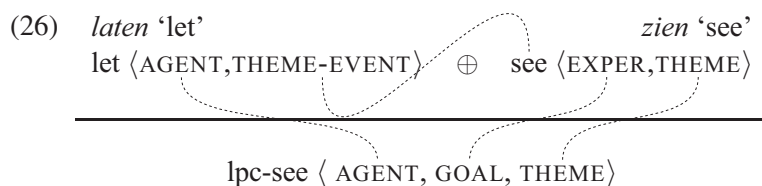
¹⁹<http://www.moslina.nl/nwmoslimas/linda.htm>, 9/10/2009

base verbs receives special treatment has to be stipulated. However, the conclusion that the LPC is a pure idiom with an idiosyncratic syntax and a non-compositional semantics would be incorrect. Rather, the LPC is special because it takes on the syntactic behaviour – in terms of argument alternations and in terms of binding – of the group of simplex *verbs of transfer of a message* that it overlaps in meaning with. At construction level, LPC syntax is determined by its (largely) compositional semantics, not by the syntax of its parts. This presents us with a special kind of construction that sits between the extreme points of following regular syntactic patterns and needing full lexical specification.

6 Consequences for Formalization and LFG Architecture

6.1 Complex predicate formation in LFG

The formalization of complex predicate constructions has received considerable attention in the LFG literature, especially in the 1990's (amongst others Butt, 1995; Alsina, 1996; Frank, 1996; Ackermann and Webelhuth, 1998; Andrews and Manning, 1999; Butt et al., 2003; Wedekind and Ørsnes, 2003; a recent overview is provided in Butt and Seiss, 2009). The intuitive modelling goal of monoclausality can be stated very clearly in the LFG framework: a single f- and a-structure corresponds to both lexical parts of the complex predicate, both of which contribute to the resulting interpretation. The technical ways of achieving this goal are more controversial, as some default assumptions of LFG have to be modified for an effective and satisfactory implementation. Normally, lexical items that do not have a vacuous semantics introduce their own semantic form under PRED. Hence, unification of the two lexical parts of a complex predicate is formally not an option, since it will lead to a clash of the semantic forms. Most authors agree that a special formal operation is required to model the merger of the subparts of a complex predicate into a new semantic predicate. In (26), the effect of this operation is sketched for an LPC example (following Alsina, 1996; Frank, 1996).



Opinions differ on where to locate this merger operation. Butt (1995) and Alsina (1996) assume it to be part of the c-structure rule annotations for verb complex formation. Frank (1996) ultimately argues for a lexicon-based approach, proposing a lexical rule that affects two word forms at the same time, resulting in two 'modified' versions of their lexicon entries which are constrained such that they can only enter an analysis in tandem (Frank, 1996, sec. 4.3). A massively simplified sketch of an application of such a rule to form an LPC is given in (27).

- (27) *laten*₁ V (↑ PRED) = ‘let⟨(↑ SUBJ), (↑ COMP)⟩’
*zien*₁ V (↑ PRED) = ‘see⟨(↑ SUBJ), (↑ OBJ)⟩’
 = [LPC formation] ⇒
*laten*₂ V (↑ PRED) = ‘lpc-see⟨(↑ SUBJ), (↑ OBJ_θ), (↑ OBJ)⟩’
 (↑ COPRED) =_c see
*zien*₂ V (↑ COPRED) = see

Both formalization options require some amount of technical effort to make them work. In a syntax-based approach, standard assumptions about the c-structure-to-f-structure mapping have to be modified. Traditionally, the identity relation holds between the f-structures of an X-bar-projected node (by $\uparrow = \downarrow$). With the *restriction operator* (Kaplan and Wedekind, 1993; Butt et al., 2003), more differentiated constraints about the two f-structures can be expressed in a general way. In particular, it can be stated that all but the PRED information (and additional information subject to the predicate merger) is systematically ‘projected’ in f-structure, but the two f-structures are no longer identical (see also Ackermann and Webelhuth, 1998; Andrews and Manning, 1999). Conceptually, the question arises what the limitations on such an operation in syntax are, given the principle of Lexical Integrity. In fact, on the whole, the syntax-based approach seems to require that many mapping phenomena that have traditionally been assumed to be lexical, like passivization or dative alternation, be technically treated in syntax.

The lexicon-based approach requires the standard LFG apparatus to be augmented with lexical rules that operate on two items simultaneously. To our knowledge, this has not been implemented. However, there do not seem to be any principled problems: In the XLE system, for instance, lexicon entries are not read into the system at the time of grammar compilation, but ‘on demand’ at parsing time, as particular forms are found in the input string. It is conceivable that dyadic lexical rules, which are triggered by two forms in the string, can be implemented in this step without much additional complexity. Similarly, at a more cognitive level, it seems reasonable to assume a model in which a word triggers activation of particular lexical entries of associated material.

Independent of the formalization of complex predicate formation chosen, it would be straightforward to implement an analysis of the LPC with the monoclausal analysis shown in (10) above. The fact that the alternation patterns for the LPC correspond to the alternations found for VTMs (section 3) would follow from the fact that the complex predicate resulting from the merger includes the same list of thematic roles as a simplex VTM. Any Lexical Mapping Theory account predicting the VTM alternations will generalize to the LPC.

Rather than spell out a particular formal account in full detail, we will use the remainder of this paper to discuss how the intermediate status of LPC between idiosyncratic phrasal combinations and fully general, compositional syntactic patterns might be captured in the LFG framework.

6.2 What can the evidence from the LPC tell us?

Before discussing implications of the LPC for the formal LFG architecture, let us point out that we do not intend to necessarily make a point about complex predicates in general. As the data discussion showed, the lexical entries participating in the LPC are fairly restricted. In prototypical complex predicate constructions, such as light verb constructions, one of the participating items is much less restricted. Nevertheless, LPC is a systematic construction that applies to *laten* and a semantically coherent class of base verbs, and displays monoclausal properties. Hence, we are in need of a systematic monoclausal analysis for this set of semantically non-vacuous items, that is, a complex predicate analysis.²⁰ Quite clearly, there is a range of more and less restricted complex predicate constructions – cross-linguistically (as for instance Frank, 1996 points out in her discussion of complex predicates in French vs Italian), but presumably also within the same language.

The question we would like to raise here is how the systematic semantic grouping of LPC base verbs could be formally captured, while at the same time allowing for idiosyncratic exceptions, like the exclusion of near-synonymous verbs. Note that neither syntax-based nor lexicon-based complex predicate formation provides an uncontroversial handle for this. While the observed restrictions may intuitively have a more natural place in a lexicon-based account, there is nothing in a plain classical LFG lexicon that would make this systematicity explicit. The use of template hierarchies to these ends has been discussed in some more recent LFG work (Dalrymple et al., 2004; King et al., 2005; Asudeh et al., 2008), inspired by inheritance hierarchies in the HPSG tradition (Flickinger, 1987) and from Construction Grammar. As the work by Wechsler (1995) and Davis (2001) shows, the combination of systematic and idiosyncratic effects can indeed be captured in such a hierarchy.

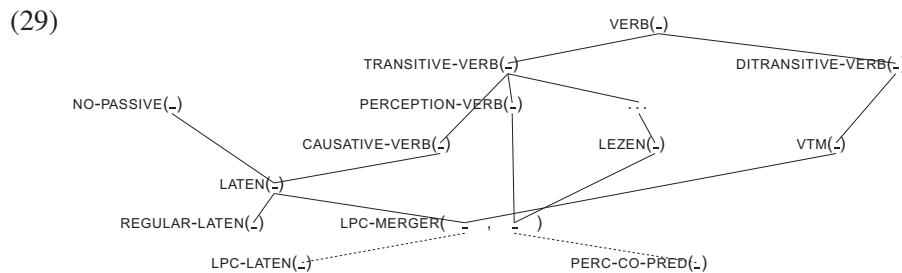
With an eye on the complex predicate formation debate, it is worth noting that the discussions of template hierarchies by Dalrymple et al. (2004) and Asudeh et al. (2008) address their application in f-annotations in both the lexicon and syntactic rules. Complex predicate formation in syntax could in principle be augmented with an template inheritance model just like the lexical approach. We take this as an indication that the question of complex predicate formation in syntax vs the lexicon may simply not be the most pressing one. What may be more interesting is the degree of restriction and systematicity of the items that undergo complex predicate formation. A continuum of possibilities could in principle be captured by a template inheritance account. This continuum could apply at any level of the lexicality-phrasality dimension, that is, to individual lexical items, to multi-word units, and to constructions. What we see is that two independent dimensions are separated out which tended to be interleaved in classical considerations, where syntax is the place for systematic effects and the lexicon the place for idiosyncratic

²⁰It is a terminological question whether one wants to distinguish prototypical complex predicate constructions from the type of monoclausal phenomenon we have identified for the LPC. We use the term complex predicate to refer to the technical aspects, literally requiring the formation of a single PRED value from two items.

listings (even though LFG has been more differentiated with regard to the lexicon from the beginning). This separation of dimensions is sketched in (28), where the wide ranges for constructions, etc., indicate that there is a whole spectrum of variants in each case, ranging rather systematic to highly idiosyncratic.²¹

(28)	Systematicity		
	fully systematic	↔	idiosyncratic
Location	fully systematic	↔	idiosyncratic
grammar	syntactic rules		
↕			constructions
			multi-word expressions
lexicon			lexical entries
	general (default) descriptions / templates		item-specific descriptions / templates

In order to capture the effect that the LPC ends up with the properties of a VTM because the complex predicate meaning matches it, an inheritance mechanism would be required. This may go beyond the original intention of templates for organizing descriptions in the lexicon and the grammar. To effectively generate two PRED values for the two parts of the LPC, the template mechanism has to be able to apply to two items simultaneously, very much like Frank's (1996) lexical rule. If such a mechanism is in place, it would again seem to be applicable both to a syntax-based and to a lexicon-based account. Such a dyadic template mechanism yet needs to be defined, but following the separation of dimensions sketched in (28), it may be exactly what is required to provide a compact formal way of talking about the systematicity dimension not just for individual lexical items and opaque multi-word combinations, but also for syntactically complex, semi-transparent units. A tentative sketch of the use of a dyadic template for capturing the place of LPCs in an inheritance hierarchy is given in (29).



²¹Note that this sketch assumes that the theory of grammar reserves a place for fully systematic, syntactic rules – they are not assumed to be just an extreme case of a construction, in that it is completely unrestricted. We believe that this is a desirable theoretical property (for which LFG has a very natural place in its rules), since otherwise, the formal place for formulating *syntactic* generalizations seems to be lost.

7 Conclusion

We argued that a subgroup of *laten*-causatives in Dutch, the *laten*-perception-causative or LPC should receive a monoclausal analysis while other *laten*-causatives are appropriately modelled with a biclausal raising analysis. In an LPC, *laten* and the embedded perception/cognition verb form a complex predicate that is not only semantically similar to the verbs of transfer of a message, but also has assimilated to them syntactically. This explains the otherwise unexpected argument alternation behaviour of the LPC. The construction is an interesting case of a phrasal combination situated halfway between a fully idiosyncratic construction and a transparent phrasal combination of words.

The technical implementation of complex predicate formation in LFG has been debated for a fairly long time. We addressed the option of a formation account in the syntax and one in the lexicon. The intermediate status of LPC seems to justify a re-evaluation of certain aspects of this debate, in particular when viewed from the perspective of relatively recent LFG work on a theoretically motivated use of template inheritance hierarchies for capturing the organization of systematic versus idiosyncratic knowledge.

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