

An Analysis of the Anticausative Alternation

Abstract

This paper offers an analysis of the “anticausative alternation”, where a reflexive appears to make a causative verb inchoative. Drawing on a recently revived element of Generative Semantics, the assumption that causative verbs are formed in the syntax from stative, inchoative, and causative predicates, I argue that an anticausative alternation verb involves a predicate which may be causative or (just) inchoative but which must have an external argument. A semantically invisible DP, the reflexive serves to delay the saturation of the internal argument so that the inchoative formation becomes interpretable.

1 Introduction

As is well known, in many (notably Indo-European) languages, the inchoative/causative alternation regularly involves a reflexive pronoun, clitic, or affix in the inchoative alternant; as it would appear, inchoative verbs can be formed by adding a reflexive to a causative. These forms are known as *de-* or **anticausative**. The formation is problematic, and no adequate analysis has been offered. This paper represents an attempt at solving the problem, combining the resources of syntactic (de)composition, lexical underspecification, and a compositional event semantics.

Noting that languages vary greatly in their ways of expressing the relationship between inchoative and causative verbs with a common sense, Haspelmath (1993) distinguishes three types: Causative, anticausative, and non-directed alternations, subdivided into equipollent, suppletive, and labile alternations, where the same verb is used both in the inchoative and in the causative sense:

- (1) a. Caroline broke the bottles.
b. The bottles broke.

Among the languages with a clear preference for anticausatives are Russian, French, and German (more generally Slavic, Romanic, and Germanic with English as an exception), and here, the anticausative marker is a reflexive (affix, clitic, pronoun).

- (2) a. Caroline a brisé les bouteilles. (French)
Caroline has broken the bottles
b. Les bouteilles se sont brisées.
the bottles se are broken
'The bottles broke.'

Grimshaw (1982), discussing “intrinsic” or “inherent” reflexive clitics in Romance, notes that “the occurrence of these clitics is productive in one set of cases [...]”

the...relationship between causative and inchoative forms” (pp. 101f.). Wunderlich (1997) comments on the “decausative alternation”, where “the intransitive variant is marked by a (pseudo)reflexive morpheme” (pp. 54f.).

But although the phenomenon as such has been well known for a long time, it has remained unclear why and how a reflexive should have the effect of apparently eliminating a causative component. The question addressed below is how a reflexive (pronoun, clitic, affix) causes an otherwise causative verb to be used in an inchoative sense, the **anticausative effect**. I will take the view that the effect of the reflexive is not to eliminate anything but to make it possible to not include something.

In this introductory section, I will first state the problem as accurately as I can in relatively pretheoretic terms, then review some suggested solutions, and finally formulate hypotheses. In Section 2, I sketch the syntactic and semantic framework where a solution can be sought, elaborating on recent developments which revive central elements of Generative Semantics: Causative verbs are (de)composed in the syntax and lexical entries may be underspecified with regard to “function verbs”. In Section 3, I present my analysis: The verbs are formed from a stative root with a DP complement and a function verb which may denote an agentive/causative relation or merely an inchoative relation, but which generally needs a DP specifier. As a pro forma DP complement, the reflexive causes a delay in the saturation of the argument of the stative root so that the case where the function verb is merely inchoative becomes interpretable.

More specifically, an anticausative alternation (AA) verb has a uniform entry where the root, semantically a unary stative predicate, merges with a complement DP and subsequently with a verb v which can basically have two different values: Agentive/causative or just inchoative. Somewhat simplified:

$$(3) \quad [v [\text{Root DP}]] \quad \text{where } v = \text{CAUSE or } v = \text{BECOME.}$$

The agentive/causative v must for semantical reasons in turn merge with a specifier DP (unless it is passive, cf. 2.3). So far, the AA is parallel to the Labile Alternation. But I will assume that in the AA, even the inchoative v must have a specifier DP:

$$(4) \quad [[v [\text{Root DP}]] \text{ DP}] \quad \text{whether } v = \text{CAUSE or BECOME.}$$

In other words, a morphologically active v is indiscriminately syntactically active in the sense that it has an external argument. This entails that semantically, BECOME does not, as standardly, take a saturated set of states and give a saturated set of events; it takes an unsaturated set of states and gives an unsaturated set of events. In turn, this entails that the complement DP is semantically vacuous, and for this DP, we use a reflexive form.

1.1 The Problem

In presenting the problem, I concentrate on German examples, on the understanding that they are representative of the relevant data in German or in other languages. The core problematic fact is the semantic relation between sentences like (5) and (6), as suggested in the English glosses and paraphrases:

- (5) Caroline strafft die Leine.
Caroline tautens the line

- (6) Die Leine strafft sich.
the line tautens sich
 ‘The line tautens.’

In (5), the verb *straffen* is causative, in (6) it is just inchoative. In the words of Hale and Keyser (1998: 97), “these morphologically reflexive verbs are... semantically inchoatives in the generally understood sense, effectively monadic in sentential syntax and utterly devoid of agency or volition on the part of the subject, and utterly lacking in any implied agentive argument”.

(7) shows that the reflexive is necessary to convey the inchoative meaning, or indeed for the sentence to be grammatical if there is only one other DP present. (8) shows that the reflexive excludes one of the two DPs otherwise present.

- (7) * Die Leine strafft.
 (8) * Caroline strafft sich die Leine.

Anticipating the semantic framework introduced in Section 2, (5) and (6) can be assigned these interpretations:

- (5) a. $\lambda e \exists f \text{ Agent}(c)(e) \wedge \text{Cause}(f)(e) \wedge \text{Become}(\text{straff}(l))(f)$
 (6) a. $\lambda e \text{ Become}(\text{straff}(l))(e)$

(The event variable e is assumed to be bound existentially by Tense or Aspect, so the sentences ultimately do not denote sets of events but truth values.) As we see, the representation of (6) is included in that of (5): (5) entails (6) and adds that the event of the line becoming taut is caused by one having c as its agent.

There is only one (individual) semantic argument in (6), yet the reflexive makes it seem as if there were two coreferent ones. The dilemma shows clearly if we try to represent the meaning of the verb *straffen* as a relation between two individuals (and an event) (much in the style of Dowty 1976: 210):

- (5) b. $\lambda x \lambda y \lambda e \exists f \text{ Agent}(y)(e) \wedge \text{Cause}(f)(e) \wedge \text{Become}(\text{straff}(x))(f)$

Clearly, treating the reflexive in (6) as an x argument co-referential with the line as a y argument gives the wrong result, that the line is the agent of an event that causes an event of the line becoming taut. As Grimshaw (1982: 102) says, commenting on cases like (2b), “*se* appears to be in complementary distribution with NP objects and to meet the subcategorization of transitive verbs. But *se* is not an argument of the verb”. We can try to represent the meaning of *sich straffen* as if this were a verb, as a relation between one individual and an event:

- (6) b. $\lambda x \lambda e \text{ Become}(\text{straff}(x))(e)$

But as compared to (5b), the supposed meaning of *straffen*, it is mysterious how a reflexive can cause such a reduction, apparently eliminating Agent and Cause. For one thing, it is problematic how any morpheme can cause a valency reduction (where, unlike the verbal passive, a role is not just not realized but not even implied); moreover, since reflexives tend to be bound arguments, it is particularly problematic how a reflexive can fill this function. So the challenge is to motivate the reflexive as something which causes a causative verb to be used in an inchoative sense.

The obvious sentential-syntactic generalization over (5)-(8) is that there are two DPs construed with the verb. Intuitively, the reflexive fills a syntactic argument slot

without filling a semantic argument slot, and somehow, this causes a reduction in the argument structure in that the agent or causer argument is no longer there. But as long as the verb is considered intrinsically transitive and causative, as on (5b), it has remained unclear how this reduction comes about and the total elimination of a role has remained a problematic notion. However, with the introduction of a separate functional head introducing the agent or causer role, a head i.a. called *v*, the time may have come to reopen this issue.

1.2 Approaches

Below, I review the treatments of the anticausative alternation known to me from the formal linguistics literature, concluding that to the extent that the problem has been acknowledged, it has not been solved.

Everyone agrees that the reflexive pronoun, clitic or affix in the anticausative alternant is semantically empty. It is commonly regarded not as an argument or a referential element but as e.g. a morphological marker (Dobrovie-Sorin 1998: 403), or, in the words of Stechow (1995: 99), an “expletive object”.

Some have assumed that the reflexive is also syntactically empty, a rule trigger. This approach is reviewed in 1.2.1. Others have described it as a semantically empty DP, an expletive or a formal argument, in fact, an external argument (and not, as Stechow suggests, an internal formal argument); this account is reviewed in 1.2.2. Finally, as discussed in 1.2.3, it has been proposed that the reflexive fills a verbal functional head, or that it is a morpheme reflecting a mismatch between aspectual and thematic structure. I conclude that all these treatments are imperfect, either because they are relatively stipulative or because they give the wrong predictions.

1.2.1 Pre-Syntactic Solutions

Among others, Grimshaw (1982) and Reinhart (1997) have formulated lexical rules where the reflexive triggers a role reduction, transforming a causative stem into an inchoative stem. For example, consider the following (Grimshaw 1982: 105):

Inchoative *se* occurs with verbs that are otherwise transitives because it is a reflex of a rule which takes as its input dyadic transitive verbs. [...] Inchoative *se* is in complementary distribution with NP objects because it is introduced by Inchoativization, which has the consequence of intransitivizing a predicate. Either the predicate is inchoative and takes *se*, or it is causative and takes an NP object.

Thus, inchoative *se* in a sense gives the illusion of playing the role of an object, not because it is an object, but because of the properties of the rule which introduces it.

In a sense, a rule like the one described here states the obvious: That the reflexive has an anticausativizing effect on a verb stem. It is not really an analysis, answering why a reflexive is chosen to fill this function. In addition, lexical descriptions face the problem of predicting exceptions. As has often been noted, not every causative verb enters into an inchoative/causative alternation; specifically verbs that imply agency are “necessarily” causative (Levin & Rappaport Hovav 1992, Reinhart 1997).

As long as the rule reduces a verb defined as causative to inchoative, it is difficult to formulate that a verb which is necessarily causative cannot be thus reduced.

1.2.2 Syntactic Solutions I: Reflexives as External Arguments

Some scholars have taken Romance reflexive clitics to absorb an external argument. Pesetsky (1995: 103ff.), citing Kayne and Marantz, proposes that reflexive clitics are in fact external arguments; the full DP in e.g. (9a) is an underlying object moving to a subject position and binding the reflexive from there. In these anticausative cases, the external argument may be semantically vacuous or it may express a Causer role, an otherwise unspecified “internal force”.

- (9) a. La porte s’est fermée.
the door se is closed

Wunderlich (1997: 55) offers a similar sketch of an analysis.

The assumption that a reflexive can realize an external argument does not seem very natural in itself; typically (in e.g. French), reflexives realize internal arguments. Besides, the assumption that the full DP binds or controls the reflexive from a subject position seems problematic in view of expletive constructions like (9b):

- (9) b. Il s’est brisé une bouteille.
it se is broken a bottle

Moreover, it is possible to argue that an analysis like this gives the wrong result semantically, predicting a passive and not the inchoative meaning. Whether the reflexive is semantically vacuous or it expresses an “ambient causer”, the agent or causer role as such will be introduced by the verb or a “little *v*” (cf. 2.1), and a totally or partially unspecified external argument cannot eliminate that implication. If the reflexive is semantically vacuous, one would expect (9a) to entail (9c):

- (9) c. La porte a été fermée. (verbal reading)
the door has been closed

If the reflexive expresses an internal force causer, as Pesetsky suggests (pp. 117f.), for instance, some property of the door, this presupposes that what the verb or a *v* introduces is not an agent but just a causer role, and the interpretation will be slightly stronger than that of a nonagentive (eventive) passive.

In fact, the assumption that inchoative alternants convey an indefinite notion of causation is shared by many scholars, notably Levin and Rappaport-Hovav (1995). It can be difficult to discriminate between inchoatives and nonagentive passives (cf. 3.5.2). However, an analysis of the alternation should not entail a commitment to this assumption; it should be possible to describe the inchoative alternant in purely inchoative terms. The hypothesis that a nonreferential reflexive replaces an external argument can only account for an interpretation where causation or even agency is implied, as in the agentive or eventive passive.

1.2.3 Syntactic Solutions II: Reflexives as Verbal Elements

Lidz (1999) has proposed an analysis of anticausatives in the language Kannada where the light verb *v* (cf. 2.1) introducing a causer role can be pronounced as a

reflexive affix and is in fact pronounced as such whenever there is no *v*P specifier. He assumes a unitary interpretation for *v*, whether it is spelt out as the reflexive or not. That is, even the anticausative form expresses causation and implies a causer, but in the absence of a specifier, this causer is indefinite (“monadic causativity”). The prediction is thus again that the anticausative means the same as an eventive (nonagentive) passive. This may be correct for Kannada, but it would constitute a strong claim about many cases in a language like German (but see 3.5.2).

However, the assumption that *v* always has a causative semantics is a detachable part of this analysis: Suppose that *v* is semantically vacuous or has an inchoative semantics when pronounced as a reflexive. Then the anticausative will have a non-causative interpretation, as assumed in 1.1. Descriptively, an analysis like this, in line with theories where the reflexive more or less implicitly counts as an instance of non-active voice morphology (Embick 1998, McGinnis 1999), may be adequate. But the assumption that a reflexive morpheme can occupy a functional head which is normally occupied by a causative morpheme is *prima facie* relatively implausible, at least regarding a language like German, where the reflexive basically seems to be a nominal element; then it is an open question why it comes to fill a verbal head.

Lidz (2001) proposes another analysis: The “verbal reflexive morpheme” (VRM) in Kannada or, say, Romance reflects a mismatch between thematic and aspectual structure, indicating that the leftmost element in the aspectual decomposition, the agent or causer role, is not linked to any element in the thematic representation. Again, causation is implied. And again, the account is (at least as far as European languages are concerned) relatively stipulative insofar as the VRM is unconnected to nominal elements; it has neither semantic content nor a grammatical function.¹

1.2.4 Approaching Another Approach

In general, both those analyses that treat the reflexive as syntactically invisible, entering into a lexical or morphological rule or (Lidz 2001) reflecting a structural property of lexical representations, and those that treat it as syntactically visible, occupying some node, ascribe positions or properties to it that are rather different from the way that reflexive elements otherwise behave. Those that come closest to motivating the use of the reflexive in the anticausative alternation, assuming that it is a vacuous or nearly vacuous external argument, fail to yield the desired “bare” inchoative interpretation. In the following, I shall try to develop what I take to be the simplest assumption about the reflexive, that it is a vacuous internal argument (inspired by von Stechow’s term “object expletive”) into a viable analysis.

One argument against letting the reflexive occupy an internal argument position is that in the inchoative alternant, the full DP, whether it ultimately surfaces as an object or as a subject, is assumed to occupy this position itself. However, Embick (2001), citing Alexiadou and Anagnostopoulou (1999) and Borer (1991), considers an inchoative *v* with an external argument, a *v*P specifier, for the inchoative alternant in a labile alternation, with active morphology. So if the inchoative alternant in the anticausative alternation can be seen as involving active morphology as well, there may be room for the reflexive in an internal argument position.

¹In fact, cases involving “semantic reflexivity”, such as a sentence glossed as ‘Hari hit himself’, are analyzed by linking two elements on the thematic tier to one element on the aspectual tier, the element acted on; it is difficult to see how this analysis can yield the intended interpretation.

1.3 Hypotheses

The problems identified in 1.1 and the proposed solutions reviewed in 1.2 give rise to two general hypotheses:

- In the anticausative alternation, there is exactly one verb; there cannot be a separate entry referring to the reflexive.
- The syntactic and semantic behavior of the reflexive is as far as possible as would be expected from a reflexive.

Recall the pretheoretic intuition stated in 1.1: The reflexive is a “pro forma” DP, occupying a position which would otherwise be an argument position. Semantically it may be vacuous, syntactically it causes an argument to be saturated elsewhere. This gives rise to two more specific hypotheses:

- The verb is semantically monadic or dyadic, but syntactically consistently dyadic: It is underspecified as to whether it includes an agentive/causative element or just an inchoative element, but in either case it requires two DPs, a complement and a specifier.
- The reflexive is syntactically visible, occupying a DP position as a complement to a verb root, but it is semantically vacuous, causing a delay in the saturation of the complement argument of the verb root.

I will try to develop these hypotheses into a coherent analysis, in a framework where causative verbs are composed from a stative root and inchoative, causative, and agentive elements and may be underspecified for causative and agentive elements. The framework is presented in Section 2; Section 3 is devoted to the analysis.

2 A Framework: The Grammar of Causatives

The hypotheses presented above rely on a framework where causative and inchoative verbs are (de)composed in syntax, into or from basic stative predicates and “function verbs” expressing inchoation and causation (and agency), and where a verb may be underspecified as to which function verbs the stative root combines with. Recently, a number of scholars, largely inspired by Baker (1988), have in various ways revived the decomposition of causative verbs from Generative Semantics and resituated the lexical version found in work by Dowty (1976, 1979) in the syntax; as argued e.g. by Stechow (1995, 1996). The idea that a vocabulary item may be underspecified for certain meaning components has been voiced with a particular emphasis in work within or close to the framework of “Distributed Morphology”, largely inspired by work by Alec Marantz.

Because one key assumption has thus been made explicitly in a framework with late insertion of vocabulary items, I will state my suggestions in that perspective; but I do not believe they are incompatible with a framework with early insertion of lexical items, like Minimalism, or something in between, like Modular Morphology; it is, as far as I can tell, largely a question of formulation. On the approach of Rapp and Stechow (1999: 155), parts of the meaning of a verb are located at functional heads whose presence must be guaranteed by an appropriate checking mechanism;

however, “Other methods of lexical insertion are compatible with this approach. For instance, one could bring the heads together by means of head movement. . . and would then replace the complex head by a morphological form (Stechow (1996))”.

Thus I do not commit myself to a particular model of grammar, but for practical reasons choose to adopt a framework with Late Insertion. Essentially, however, the model of verb composition found in Distributed Morphology is supplemented by an explicit semantics, similar to that employed by Kratzer (1994) or von Stechow (1995 or 1996). In this way, the groundwork is laid for describing the role of the reflexive in the inchoative alternant in an anticausative alternation in terms of an interaction between syntax and semantics.

2.1 Verb Construction: Root + *v*

According to recent work inspired by Marantz (1984), Baker (1988) and others (and ultimately owing a debt to Generative Semantics), no verb is intrinsically causative or agentive; causativity enters into a derivation through a functional head with which a predicate combines (by Incorporation or a similar operation). A causer or agent is not an argument of a verb but an argument of such a head.

Along with Kratzer (1994), Chomsky (1995), and others, Harley and Noyer (1998) (and generally work in Distributed Morphology, cf. Harley and Noyer 1999) take a “split V” approach to verb formation where the agent role is severed from the verb proper (or root) and introduced in a functional head (in the active case the agent argument is inserted in its specifier). This head and its phrase have been given various names, like Voice (phrase) or Event (phrase), but the term “little *v*” or just *v* has become prominent, and I shall use this henceforth.

Now while Kratzer (1994) and Chomsky (1995: 315f.) reserve Voice or *v* for the agent or causer role, assuming that ergative constructions are VPs, recent work in Distributed Morphology (Harley and Noyer 1998, Arad 1999) goes one step further, assuming that even BECOME (and indeed any verbalizing feature) is a possible *v*. Thus any (eventive) verb is the product of the combination of a basic item, a **Root**, conventionally $\sqrt{\quad}$, with a functional verbal head, a function verb, as one may say.

In two papers (1995, 1996), Arnim von Stechow has explained ambiguity facts about the presuppositional adverb *wieder* (“again”) and, in particular, positional disambiguation effects by assuming that change of state verbs are (de)composed in syntax, essentially from a stative predicate and BECOME.

Harley and Noyer (1998) argue that argument structure alternations arise when vocabulary items are underspecified for the syntactic structure which licenses them. Following Hale and Keyser (1993), they see different argument structures as determined by different syntactic configurations and not by vocabulary items themselves. “For example, the VI [vocabulary item] *break* is licensed in both an unergative and an unaccusative syntax. We develop an account of licensing which predicts the correct class of observed alternations.” (Harley and Noyer 1998: 120)

Harley and Noyer (1998: 126) give the following entry for the item *open*:

Phonology:	<i>open</i>
Licensing Environment:	$[\pm v]$, $[+DP]$, $[\pm cause]$
Encyclopaedia:	what we mean by <i>open</i>

The item is underspecified for category ($[\pm v]$) and, in the *v* case, the type of *v*.

(The authors assume for simplicity that eventive v types are divided only into BECOME and CAUSE so only a $[\pm\text{cause}]$ feature is necessary.) Choosing BECOME as v will preclude an argument in $\text{Spec},v\text{P}$, while CAUSE will force the appearance of a DP there; “this is the only genuine sense in which argument selection plays a role in this system” (Harley and Noyer 1998: 124). Concentrating on the $+v$ case, the entry can thus be taken to correspond to the following two configurations:

- (10) a. $[_v\text{P DP} [\text{CAUSE}_v [_\sqrt{\text{P}} \sqrt{\text{DP}}]]]$ b. $[_v\text{P BECOME}_v [_\sqrt{\text{P}} \sqrt{\text{DP}}]]$

By and large, this account will be adopted in the following, but it will be adjusted and made more precise in a number of ways. In particular, it will be supplemented by a precise semantics, the emerging picture forming a basis for a description of anticausative constructions. In 2.2 and 2.3, I motivate and formulate the adjustments to the framework proposed by Harley and Noyer (1998) that seem necessary.

2.2 Become, Cause, and Agent

First, the entry should be somewhat more specific about the meaning of the Root, determining its logical type and having a particular predicate represent its content. Mostly, it will be a unary stative predicate, of type $\langle e, \langle s, t \rangle \rangle$ where s is for states.² I will insert the predicate encoding the meaning of the Root in quotation marks, labelled $\sqrt{\text{ (Root)}}$, in the Licensing Environment of an entry. In a first departure from the entry for *open* quoted above, I adopt (for the $+v$ case) the following format:

$$[[\pm\text{Cause}]_v [\text{DP } \text{“open”}_{\langle e, \langle s, t \rangle \rangle \sqrt{\text{ (Root) }}}]]$$

Next, it is necessary to specify the semantics of the different instantiations of v . I will assume that in connection with the relevant verbs, a v instantiation consists in a combination of three elements: AGENT, CAUSE, and BECOME. BECOME can be the only element (“inchoative”), there can be a combination of CAUSE and BECOME (“nonagentive causative”), or there can be a combination of AGENT, CAUSE, and BECOME (“agentive causative”). In connection with other verbs, other elements and combinations can be relevant; in particular, AGENT can be the only element. But here, the three elements and combinations mentioned seem adequate.

Harley and Noyer (1998) and Arad (1999) assume exactly one v which can have various (but few) values, and in particular, that CAUSE and BECOME are alternatives. This is different from the picture in Generative Semantics (Lakoff 1967, McCawley 1968), where CAUSE and BECOME can apply in sequence. But there is scarce evidence that these two predicates are syntactically distinct. In particular, it is difficult to show that an operator can have intermediate scope in relation to them (Stechow 1996). Semantically, however, it is reasonable to assume, with Dowty (1976, 1979) and Stechow (1995), that CAUSE typically applies to the result of the application of BECOME, so there is reason to define the causative v alternative as a predicate which amalgamates CAUSE and BECOME.³ Furthermore, while Harley and Noyer seem to assume that CAUSE and AGENT mean much the same thing, there is reason

²This predicate can be “abstract” in the sense that it does not correspond to a primitive adjective (Stechow 1995: 102, 1996: 125). Often, the closest we can get is a participle.

³Stechow (1995) distinguishes between BECOME on the one hand and CAUSE + BECOME on the other in the decomposition of inchoative/causative verbs. Causation normally involves inchoation (but see Arad (1999) for an argument that CAUSE may, with psychological verbs, apply to a state).

to distinguish semantically, though not syntactically, between AGENT and CAUSE and to define an agentive causative v , introducing an object type argument, alongside a nonagentive causative v , introducing an event type argument (cf. 2.2).⁴

The general picture of a Labile Alternation verb is thus:

$$(11) \quad [v \sqrt{P}]$$

where $v \in \{ \text{BECOME}, \text{CAUSE} + \text{BECOME}, \text{AGENT} + \text{CAUSE} + \text{BECOME} \}$

Depending on voice – active or (verbal) passive – $v = \text{CAUSE} + \text{BECOME}$ or $\text{AGENT} + \text{CAUSE} + \text{BECOME}$ will have a specifier DP, in the latter case type e or $\langle\langle e, t \rangle, t \rangle$ (objects), in the latter case type s or $\langle\langle s, t \rangle, t \rangle$ (events).

Separately, the three elements BECOME, CAUSE, and AGENT are today commonly assumed to denote, respectively, a function from sets of states to sets of events, an operation on sets of events, and a function from objects to sets of events. Here is a standard specification of the compositional semantics for BECOME, CAUSE, and AGENT (in the notation style of Kratzer (1994); AGENT is as defined by her, CAUSE is as defined by Pykkänen (1999), BECOME is as defined by Stechow (1996)):

BECOME*	=	$\lambda g_{\langle s, t \rangle} \lambda e \text{Become}(g)(e)$
CAUSE*	=	$\lambda g_{\langle s, t \rangle} \lambda e \exists f g(f) \wedge \text{Cause}(f)(e)$
AGENT*	=	$\lambda x \lambda e \text{Agent}(x)(e)$

Table 1: Semantics for v elements

Here s is the type of eventualities; the variables e/f , g , and x range over events, sets of events or states, and objects, respectively. The essential meaning of Become and Cause remains to be specified, though I will not do so here; the former in terms of an interval semantics (Dowty 1976; Fabricius-Hansen 1975) and the latter in terms of a possible world semantics (Lewis 1973; Dowty 1976), both adapted to eventualities (Stechow 1996; Parsons 1990). There is a difference in the type of the input g for CAUSE and BECOME, not reflected here: BECOME takes a set of states, CAUSE takes a set of events into a set of events. RootP will (normally) denote a set of states. When AGENT merges with a node denoting a set of events, the composition principle used is not functional application but “event identification” (Kratzer 1994).

The combinations CAUSE + BECOME and AGENT + CAUSE + BECOME can be defined as denoting functions from sets of states to sets of events, in this way:

B*	=	$\lambda g_{\langle s, t \rangle} \lambda e \text{Become}(g)(e)$
C*	=	$\lambda g_{\langle s, t \rangle} \lambda e \exists f \text{Become}(g)(f) \wedge \text{Cause}(f)(e)$
A*	=	$\lambda g_{\langle s, t \rangle} \lambda x \lambda e \exists f \text{Become}(g)(f) \wedge \text{Cause}(f)(e) \wedge \text{Agent}(x)(e)$

Table 2: Semantics for relevant v element combinations

⁴Following Kratzer (1994), Stechow (1996) assumes an AGENT head over and above BECOME, supposedly rendering CAUSE redundant. But there is reason to doubt that AGENT can supplant CAUSE: Not prototypically, but often enough, the subject of a causative verb is an event nominal, in which case the AGENT predicate does not make sense. (That a causative verb is not necessarily agentive has been stated many times, recently e.g. by Levin and Rappaport-Hovav (1995: 103).)

Let us look at an example. The French verb *casser* (‘break’) can participate in a labile alternation (Zribi-Hertz 1987: 30f.).

- (12) a. Caroline a cassé la branche.
Caroline has broken the branch
 b. L’ouragan a cassé la branche.
the storm has broken the branch
 c. La branche a cassé.
the branch has broken

In (12a), there is an object type DP in the specifier of $v = A$, while in (12b), there is an event type DP in the specifier of $v = C$; in (12c), there is no specifier of $v = B$. The interpretation of (12a) is “Caroline is the agent of an event which caused the branch to become broken” while the interpretation of (12b) is “the storm caused the branch to become broken”. In the below trees the semantic representations are written at the nodes where they are composed:

- (13) a.
- $$\begin{array}{c}
 vP^*: \lambda e \exists f \text{ Become}(\text{“cassé”}(b))(f) \wedge \text{Cause}(f)(e) \wedge \text{Agent}(c)(e) \\
 \swarrow \quad \searrow \\
 \text{Caroline} \quad \lambda x \lambda e \exists f \text{ Become}(\text{“cassé”}(b))(f) \wedge \text{Cause}(f)(e) \wedge \text{Agent}(c)(e) \\
 \swarrow \quad \searrow \\
 v^* = A^* \quad \sqrt{P^*}: \lambda s \text{ “cassé”}(b)(s) \\
 \swarrow \quad \searrow \\
 \text{la branche} \quad \sqrt{*}: \lambda x \lambda s \text{ “cassé”}(x)(s)
 \end{array}$$
- b.
- $$\begin{array}{c}
 vP^*: \exists f \text{ Become}(\text{“cassé”}(b))(f) \wedge \text{Cause}(f)(o) \\
 \swarrow \quad \searrow \\
 \text{l’ouragan} \quad \lambda e \exists f \text{ Become}(\text{“cassé”}(b))(f) \wedge \text{Cause}(f)(e) \\
 \swarrow \quad \searrow \\
 v^* = C^* \quad \sqrt{P^*}: \lambda s \text{ “cassé”}(b)(s) \\
 \swarrow \quad \searrow \\
 \text{la branche} \quad \sqrt{*}: \lambda x \lambda s \text{ “cassé”}(x)(s)
 \end{array}$$
- c.
- $$\begin{array}{c}
 vP^*: \lambda e \text{ Become}(\text{“cassé”}(b))(e) \\
 \swarrow \quad \searrow \\
 v^* = B^* \quad \sqrt{P^*}: \lambda s \text{ “cassé”}(b)(s) \\
 \swarrow \quad \searrow \\
 \text{la branche} \quad \sqrt{*}: \lambda x \lambda s \text{ “cassé”}(x)(s)
 \end{array}$$

In the next subsection, I take a closer look at how a verb can be underspecified for these possibilities.

2.3 Underspecification, Voice, and the Labile Alternation

Consider the following uniform vocabulary entry for a labile alternation verb like *break* based on Harley and Noyer (1998):⁵

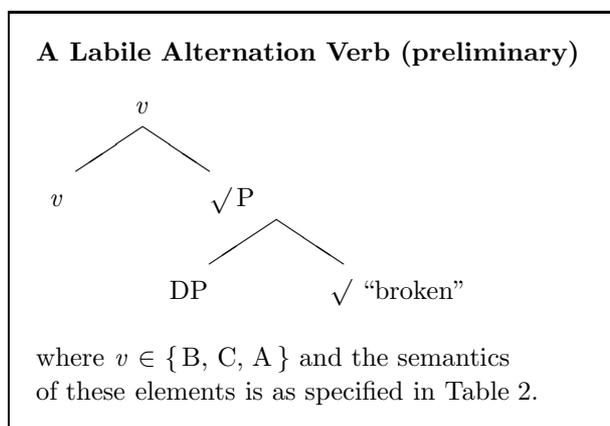


Figure 1: A Labile Alternation (LA) Verb 1

Note that here, it is not assumed that one variant is derived from the other, so the question which is basic, discussed and tentatively answered differently by e.g. Levin and Rappaport-Hovav (1995: 82ff.) and Hale and Keyser (1998), is irrelevant. Elaborating on one of the hypotheses stated in 1.3, in Section 3 I will argue that even in anticausative alternations, where a reflexive may seem a derivational element, there is no derivation but a regular variation on the basis of an underspecified vocabulary entry, in fact, slightly less underspecified than in the labile alternation.

Harley and Noyer assume that the presence or absence of a v specifier is totally determined by the v semantics: CAUSE is supposed to necessitate a DP specifier whereas BECOME is supposed to render it impossible. This is not entirely accurate. For one thing, the causative v , whether it is agentive or not, does not necessarily have a DP specifier in the passive. It depends on the analysis of the passive whether there is a specifier; on one (Sternefeld 1995), the passive licenses a *pro* specifier, on another (Embick 1998, McGinnis 1999), passive v is correlated with no external argument. But the semantics of the causative v is the same in the active and the passive: If it is agentive, its mother node denotes a function from objects, if it is nonagentive, its mother node denotes a function from events. Second, if the causative v is nonagentive, even in the active there is no compelling reason to expect a specifier (eventive) DP. There is no obvious semantic reason why active CAUSE should require a DP specifier unless it is supplemented by AGENT; its mother has the type $\langle s, t \rangle$, like a complete active vP , and the λ bound event variable is elsewhere assumed to be bound by Aspect or Tense (through existential closure). (In fact, Pylkkänen (1999) argues that in languages like Finnish or Japanese, CAUSE can occur without an external argument, representing “unaccusative causatives”.)

⁵To be sure, the $v = C$ option is not appropriate for all labile verbs; many, like *open*, show a preference for agency once causation is given, while others, notably verbs of destruction or harm, e.g. *break*, are neutral; indeed, in the passive they tend to only imply a causing event, no agent.

In fact, the Figure 1 entry must be supplemented by the following generalizations:

- In the active voice, $v \in \{B, C, A\}$; in the passive voice, $v \in \{C, A\}$
- In the active voice, $v \in \{C, A\}$ has a DP specifier, but $v = B$ has none; in the passive voice, v has no DP specifier (or a DP = *pro* specifier)

One way to encode this information in a more complete, voice neutral entry is to distinguish between an active and a passive v , as argued by Embick (1998) and McGinnis (1999), and to say that the $v = B$ option is in a sense neither: It is active as far as the morphology is concerned but it is passive in that it does not involve an external argument. Reserving a “nonactive” voice v for B, we can elaborate on the verb entry in Figure 1 above:

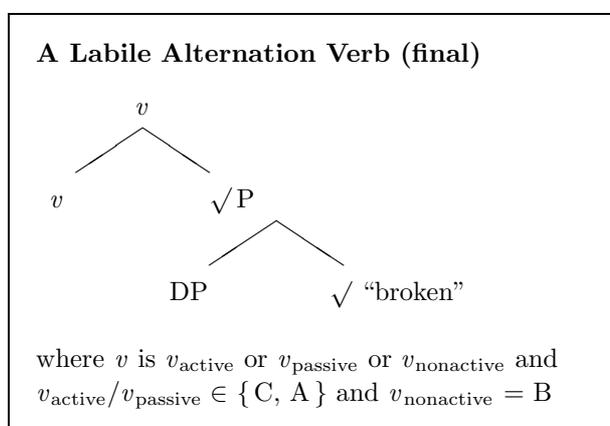


Figure 2: A Labile Alternation (LA) Verb 2

(Again, the semantics of each of the elements B, C, A is as specified in Table 2.)
 On general principles,

- Active v and nonactive v correspond to “active morphology”, passive v corresponds to “passive morphology”
- Active v has a specifier DP, passive or nonactive v has no specifier DP (alternatively, passive v licenses *pro* in its specifier)

In the above entry, the inchoative alternant is in a sense syntactically passive, though morphologically active: There is active morphology, but no v specifier. Now Embick (2001: 21ff.), building on Alexiadou and Anagnostopoulou (1999) and citing Borer (1991), gives an analysis of the inchoative alternant in a labile alternation where it is syntactically active in the sense that it has an external argument (“in a purely structural sense”); the inchoative v merges not with a RootP consisting of a complement DP and the Root but directly with the Root, and the single argument is merged as the specifier of v . (Semantically, this presupposes that the inchoative v is defined as a predicate operator or that Function Composition is used; cf. 3.2.)

Alexiadou and Anagnostopoulou (1999) assume another, causative v layer over and above the inchoative vP for the causative alternant, but if we remain in the picture of a single v with a variable content, an LA verb entry based on Embick (2001) and Alexiadou and Anagnostopoulou (1999) can be formulated thus:

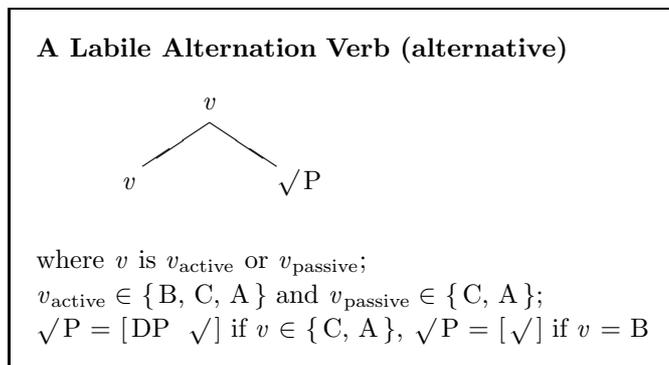


Figure 3: A Labile Alternation (LA) Verb 3

(Again, the semantics of each of the elements B, C, A is as specified in Table 2.)
 On general principles,

- Active v corresponds to “active morphology”,
 passive v corresponds to “passive morphology”
- Active v has a specifier DP, passive v has none
 (alternatively, passive v licenses *pro* in its specifier)

This alternative analysis sets an important precedent for the analysis of the anti-causative alternation presented below; in fact, that analysis will be seen to represent a combination of the two LA entry types above (in Figure 2 and Figure 3).

3 A Solution

In this section I develop a solution to the problem presented in 1.1, based on the hypotheses stated in 1.3: The verb is semantically unary or binary but structurally consistently binary, and the reflexive is semantically visible but syntactically invisible. The account is based on the following assumptions:

1. The verb is invariably transitive; whether v is causative or inchoative, its complement, RootP, includes a complement DP, and it has a specifier DP
2. If v is inchoative, the saturation of the Root predicate argument is delayed, through Function Composition or an alternative type for the inchoative v
3. The argument of the Root predicate remains unsaturated in RootP just in case the complement DP is a semantically empty reflexive.

I devote successive subsections to arguing for these assumptions.

3.1 The Transitivity Property

Recall from 2.3 that the two analyses of the labile alternation presented in Figure 2 and Figure 3 are in a sense mirror images of each other: In one (Figure 2), the verb uniformly has a Root complement DP but the inchoative alternant has a v without a specifier DP; in the other (Figure 3), the verb uniformly has a v with a specifier DP but the inchoative alternant lacks a Root complement DP. Either way, the inchoative alternant differs from the agentive/causative alternant in having one DP less, in vP or in \sqrt{P} ; in the former case, the inchoative v is structurally “passive”, in the latter, it is structurally “active”. My proposal for the anticausative alternation will be that the verb uniformly has a Root complement DP **and** a v with a specifier DP. Thus even the inchoative v is structurally “active” – but since it is semantically unary, the lower DP must be semantically empty, and a reflexive element is used as a semantically but not syntactically empty Root complement DP.

Following Marantz (1999), Arad (1999: 12) argues for dissociating the syntactic transitivity property from semantic properties of v . Suppose that the v licensing an anticausative alternation verb is consistently transitive, even when it consists in just B(ECOME). The verb is then underspecified semantically but not syntactically: No matter what v consists in, it has an external argument. If we assume such a vocabulary entry, the infelicity of (7) or (2c) is at once accounted for: Here there is just one DP whereas the entry specifies that there be two.

- (2) c. * Les bouteilles ont brisé.
 the bottles have broken

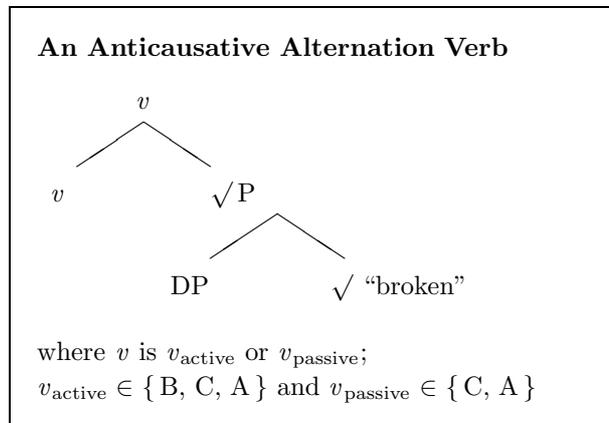


Figure 4: An Anticausative Alternation (AA) Verb

(Again, the semantics of each of the elements B, C, A is as specified in Table 2.)
 Again, on general principles,

- Active v corresponds to “active morphology”,
 passive v corresponds to “passive morphology”
- Active v has a specifier DP, passive v has none
 (alternatively, passive v licenses *pro* in its specifier)

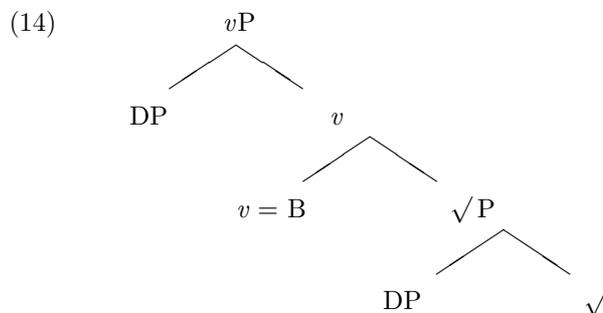
As compared with the entry for an LA verb in Figure 2, we see that here there is no mismatch between morphology and syntax: The $v = B$ option for English *break* is morphologically active yet syntactically passive, whereas the $v = B$ option for French *brisé* is both morphologically and syntactically active. As compared with the entry in Figure 3, we see that this is more uniform in that any v option has a RootP complement including a complement DP.

In a sense, this analysis violates a constraint stated by Harley and Noyer (1998): The insertion of a verb should not be conditioned by a node not in the immediate environment (p. 121). An item occurring only in the context of CAUSE will necessarily have an external argument, but “this selection is only indirect; the item may not specify directly that it requires a Spec of v , only that it requires a particular type of v to raise to” (p. 125). The above entry appears to violate this constraint insofar as it does seem to specify that there be a v specifier.

However, this locality constraint is based on the premise that the presence or absence of a v specifier is totally determined by the v semantics. As we saw above (in 2.3), this is not completely correct; one has to say something about voice, and, the requirement of an eventive external argument when $v = C$ must be stipulated. To be sure, this can be stated at a relatively general level. But note that the AA verb entry in Figure 4 does not specify directly that it requires a Spec of v ; what is stated is that B_v counts as an active v , syntactically as well as morphologically⁶; and what this means can be (and is above) stated as general principles.

3.2 The internal argument: Delayed saturation

The AA entry proposed above assigns the inchoative alternant this structure:



There must be a way for vP to be interpretable. Note that a sentence like (2a) cannot have the structure in (14), as this will not be interpretable:

- (2) a. Caroline a brisé les bouteilles.
Caroline has broken the bottles

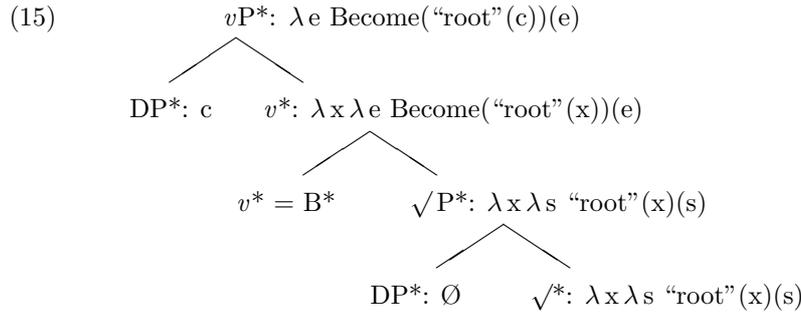
Because the DP “les bouteilles” is a full object type DP, RootP has the logical type $\langle s,t \rangle$, denoting a set of states, and the mother has the logical type $\langle s,t \rangle$, denoting a set of events; this cannot be meaningfully merged with the other object type DP. Thus (2a) can only have an interpretation on a derivation like (14) if $v = A$.

⁶this presupposes, of course, that the reflexive is not counted as voice morphology (cf. 1.2.3) but as a – semantically vacuous – complement DP (cf. 3.3)

In fact, (14) as it stands is interpretable just in case the lower, Root complement DP is semantically empty, so that the saturation of the Root argument is delayed through B to only be effected in the merge of the mother of B and its specifier.

- $v = B$ can have a meaningful specifier iff its sister, \sqrt{P} , has the type $\langle e, \langle s, t \rangle \rangle$, and if its sister includes a type $\langle e, \langle s, t \rangle \rangle$ root and a complement DP, then this DP must be semantically empty.

To see this, note that B normally has no specifier because the output normally does not denote a function from objects; it denotes a set of events.⁷ Normally, B applies to a type $\langle s, t \rangle$ node, resulting in a type $\langle s, t \rangle$ node, and then, a (type e) specifier will not make sense. But it will make sense if B applies to a type $\langle e, \langle s, t \rangle \rangle$ node and this yields a type $\langle e, \langle s, t \rangle \rangle$ node denoting a function from objects to sets of events. For a specifier to be interpretable, the output must have the type $\langle e, \langle s, t \rangle \rangle$, and this requires the same type for the input: It must effectively be a predicate whose argument has not been saturated. In fact, the only thing that can make sense in the specifier of v is the internal, theme argument. If structurally, B applies to a RootP with a DP and a type $\langle e, \langle s, t \rangle \rangle$ Root, this DP must be semantically empty. Cf. (15):



The ability of B to take an input of type $\langle e, \langle s, t \rangle \rangle$ as well as an input of type $\langle s, t \rangle$ can be modelled in two slightly different ways: Through Function Composition or through an alternative type for B. The relevant form of Function Composition is:

Function Composition

$$f_{\langle a, b \rangle} + g_{\langle e, a \rangle} = \lambda x f(g(x))$$

Alternatively, BECOME has a flexibility with respect to types: Beside its function as a predicate over, effectively, APs, it can also function as a predicate operator modifying, effectively, adjectives:

Flexible type for B(BECOME)

$$\text{BECOME}^* = \lambda g_{\langle s, t \rangle} \lambda e \text{ Become}(g)(e) \text{ or}$$

$$\text{BECOME}^* = \lambda g_{\langle e, \langle s, t \rangle \rangle} \lambda x \lambda e \text{ Become}(g(x))(e)$$

⁷Note that although the mother of B denotes a set of events, an event DP is not a possible specifier, as is the case with C.

The possibility that BECOME can take an input of type $\langle e, \langle s, t \rangle \rangle$ instead of one of type $\langle s, t \rangle$ is sometimes presupposed in the relevant literature. Thus Stechow and Rapp (1999: 156) say that the structure for causative verbs assumed by Hale and Keyser (1993) can be given a sound semantics by applying BECOME to a stative predicate and merging the result with a DP.⁸ Embick (2001), similarly, considers unaccusative structures where an inchoative v merges with, effectively, an adjective. – Assuming a semantically empty Root sister DP has a parallel in work by Kratzer (1994: 72). Here a “control copula” is interpreted as the identity function on stative predicates and merged with adjective phrases with a semantically invisible PRO argument.

Still, there are a few natural objections to the analysis in (15). First, it is at odds with the assumption sometimes made in DM (cf. e.g. Harley and Noyer 1999: 7) that thematic roles are configurationally determined, defined as the interpretation given to certain positions; thematic roles are reduced to structural configurations. “‘Theme’ corresponds to the interpretation given to any argument projected as a sister of Root.”⁹ Here, we have the theme argument as an aunt of v , a v P specifier. But the correlation between positions and roles is based on the fact that a role is determined by the predicate wrt. a given argument (position). And here, if the sister of Root is semantically empty and the saturation of the theme argument (position) is delayed, the argument actually saturating this argument position is predictably and necessarily projected not as a sister of Root but a sister of a higher node.

Second, one may want to see evidence that the theme argument is in a higher position in the inchoative than in the causative alternant. Technically, it is, in a sense; but this difference does not seem to come to the surface as far as case or word order is concerned. Specifically, in a language like French or Mainland Scandinavian, the theme argument can be postverbal even in the inchoative, reflexive alternant (cf. (9b)). I conclude that the position in which this argument is saturated, the Root complement or the B_v specifier, is (semantically and) syntactically irrelevant insofar as it does not influence the ultimate case or relative position of the argument or other syntactic manifestations of themehood. Due to its theme role, the full DP can count as an object (say, by subsequently raising to the specifier of AgrO), whether it originates in the Root complement or in the B_v specifier.¹⁰

3.3 Syntactic Visibility, Semantic Invisibility

In 3.2 I argued that a specifier for B(ECOME) can be interpretable because B can take and give a type $\langle e, \langle s, t \rangle \rangle$ node denoting a function from objects to sets of events. If syntactically, B consistently takes a RootP with a DP and a type $\langle e, \langle s, t \rangle \rangle$ Root, as in the pattern entry in Figure 4, this DP must be semantically empty. What remains to be shown is that this can come about through a reflexive which is interpreted as semantically empty, i.e. not interpreted at all. The result is then the same as if B were to apply directly to the Root, but the point of the reflexive is to preserve the structure otherwise present, with a Root sister DP and another DP as a v specifier.

⁸Note that if BECOME can take an input and give an output of type $\langle e, \langle s, t \rangle \rangle$, the same is needed for a presuppositional adverb like *again*, in order to derive so-called restitutive readings from narrow scope for the adverb with respect to BECOME (cf. Stechow 1995: 95ff. and 1996: 94ff.).

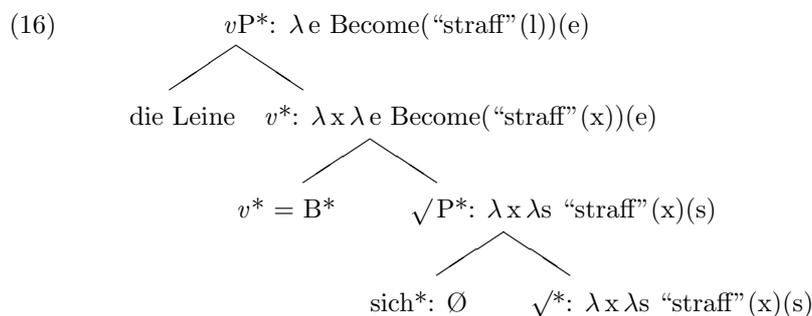
⁹Harley and Noyer concede that such an approach is not necessarily entailed by the DM model.

¹⁰As far as I can see, this is in accordance with the position argued by e.g. Embick (2001) that not all intransitive versions of alternating verbs are unaccusative in the structural sense; some (labelled inchoative) have a non-agentive v with the argument in its specifier.

(6) can have an interpretation in accordance with (15), if only we assume that the reflexive counts as a complement DP syntactically but does not count semantically.

- (6) Die Leine strafft sich.
the line tautens sich
 ‘The line tautens.’

The syntactic visibility has the consequence that the Root has a DP complement and the verb is structurally two-place (transitive in a superficial sense); the semantic invisibility has the consequence that the saturation of the Root argument is delayed so the mother of B(ECOME) can be ascribed the type $\langle e, \langle s, t \rangle \rangle$ and the occurrence of a specifier DP as in (14) can be interpreted; cf. (16).



We have seen that the inchoative interpretation is possible if and only if the argument of Root remains unsaturated in RootP and that this depends on a semantically empty complement DP; now if this DP is syntactically nonempty, it is a reflexive:

- A RootP including a type $\langle e, \langle s, t \rangle \rangle$ Root and a visible DP has itself the type $\langle e, \langle s, t \rangle \rangle$ iff the DP is semantically empty, which means that it is a reflexive.

In other words, as a syntactically visible but semantically invisible Root complement DP, the relevant languages use a reflexive element. This element can be ascribed a licensing environment like the following (where the identity between the logical type of Root and that of RootP expresses the semantic invisibility of the DP):

The Formal Object

$$[\sqrt{P} \langle e, a \rangle \quad \sqrt{\langle e, a \rangle} \text{ — DP}]$$

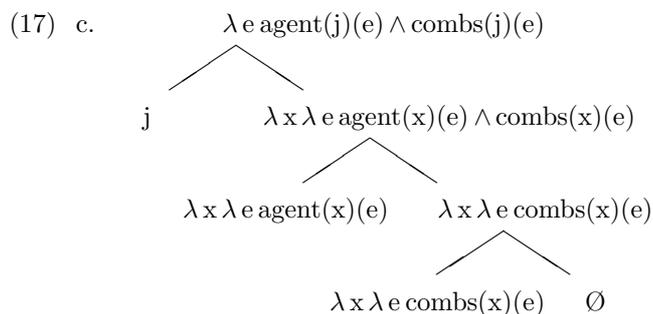
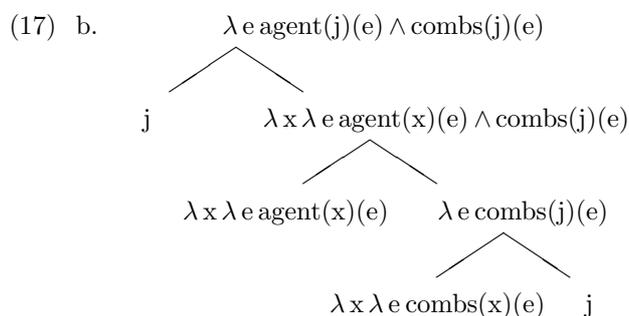
This frame will not occur freely but just in case the type $\langle e, a \rangle \sqrt{P}$ is interpretable; that is, in case there is in the larger environment an argument without a predicate.

According to a hypothesis in 1.3, the analysis of the reflexive in anticausatives should assimilate it to the way reflexives otherwise behave. Stechow (1995) calls it an expletive object, locating it in the specifier of AgrO but without elaborating on the analysis; I call it a formal object to emphasize the view of it as a semantically passive but syntactically active nominal element. Is it reasonable to assume that a reflexive is used for this end? Note, first, that the environment is the right one for thematic reflexives (anaphors) (in the relevant languages); the element is deeply embedded and the structure includes a full DP which might bind it. Prima facie, it does not seem unreasonable that if we need a formal object, we choose a reflexive.

Besides, and importantly, it will typically make no difference whether a reflexive is interpreted as semantically empty or as a bound argument. Consider (17a):

(17) a. John combs himself.

If *himself* is a bound argument, denoting John (j), *combs himself* has the meaning $\lambda e \text{ combs}(j)(e)$. By “event identification”, this combines with $\lambda x \lambda e \text{ agent}(x)(e)$ to form $\lambda x \lambda e \text{ agent}(x)(e) \wedge \text{combs}(j)(e)$; this is saturated by j, forming $\lambda e \text{ agent}(j)(e) \wedge \text{combs}(j)(e)$; cf. (17b). — Alternatively, if *himself* is semantically empty, *combs himself* has the meaning of *combs*, $\lambda x \lambda e \text{ combs}(x)(e)$, which will combine with $\lambda x \lambda e \text{ agent}(x)(e)$ to form $\lambda x \lambda e \text{ agent}(x)(e) \wedge \text{combs}(x)(e)$; finally, this is saturated by j forming $\lambda e \text{ agent}(j)(e) \wedge \text{combs}(j)(e)$, as above; cf. (17c).



In the former case, the argument of *combs* is saturated at once by a coreferent with the agent argument; in the latter case, the saturation of the argument of *combs* is delayed so that this and the agent argument are saturated at once. Thus in what may be termed the standard case of reflexivity, it makes no difference whether the reflexive is treated as a thematic anaphor or as a nonthematic “formal object”.

The reflexive in anticausative constructions can only be treated as nonthematic, because here there is only one thematic argument, the theme undergoing the change of state, and this argument is given by the full DP. Still, the similarity to a thematic reflexive is close enough to motivate the use of a reflexive in this function.

To be sure, “this” reflexive is not the same as the “normal”, referential reflexive; it is a bleached item retaining its DP status. Lidz (2001) represents a more radical reanalysis, treating the reflexive as a morpheme without a grammatical function (cf. 1.2.3). On my approach, the item is taken more at face value, assuming an earlier stage of grammaticalization and making its shape and behavior less of a coincidence.

3.4 A Summary of the Analysis

The verbs that enter into the anticausative alternation require a v with, in the terms of Arad (1999) or Marantz (1999), the transitivity property of having an argument in its “second Merge”; B(ECOME) can be such a v if the complement of the root is semantically invisible – a reflexive – so the saturation of this argument is delayed and transferred to the B specifier; in the absence of a reflexive, B_v must be supplanted by C_v or A_v for v to have the transitivity property – to be exact, for the transitive structure to be interpretable. Below, the key elements of the account are rendered, starting with an example and a vocabulary entry for an anticausative alternation verb.

- (2) b. Der Nagel hat sich gekrümmt.
the nail has sich bent
 ‘The nail bent.’

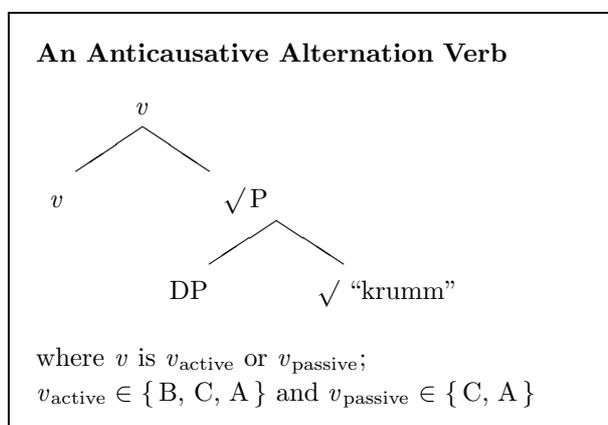


Figure 5: The AA Verb *krümm-*

The semantics of each of the elements B, C, A is as specified in Table 3:

B*	=	$\lambda g_{\langle s,t \rangle} \lambda e \text{ Become}(g)(e)$
C*	=	$\lambda g_{\langle s,t \rangle} \lambda e \exists f \text{ Become}(g)(f) \wedge \text{ Cause}(f)(e)$
A*	=	$\lambda g_{\langle s,t \rangle} \lambda x \lambda e \exists f \text{ Become}(g)(f) \wedge \text{ Cause}(f)(e) \wedge \text{ Agent}(x)(e)$

Table 3: Semantics for relevant v element combinations

On general principles,

- Active v corresponds to “active morphology”, passive v corresponds to “passive morphology”
- Active v has a specifier DP, passive v has none (alternatively, passive v licenses *pro* in its specifier)

Now because B_v counts as an active v , it has a specifier DP, and in order for the merge of this specifier DP and the mother of B_v to be interpretable, the argument of the Root must not be saturated by the Root complement DP; this DP must be semantically empty and the saturation of the argument of the Root must be delayed through B_v to occur in the B_v specifier DP. This delay is made possible by two factors: A transparency in B_v and a reflexive element as a syntactically visible but semantically invisible complement DP. The semantic transparency of B_v can be modelled through Function Composition or through an alternative type for B_v :

Function Composition

$$f_{\langle a,b \rangle} + g_{\langle e,a \rangle} = \lambda x f(g(x))$$

Flexible type for $B(\text{ECOME})$

$$\text{BECOME}^* = \lambda g_{\langle s,t \rangle} \lambda e \text{Become}(g)(e) \text{ or}$$

$$\text{BECOME}^* = \lambda g_{\langle e, \langle s,t \rangle \rangle} \lambda x \lambda e \text{Become}(g(x))(e)$$

The syntactically visible, semantically invisible reflexive element can be defined as:

The Formal Object

$$[\sqrt{P}_{\langle e,a \rangle} \sqrt{_{\langle e,a \rangle}} \text{ — DP}]$$

This will occur just in case there is a use for a $\langle e, a \rangle \sqrt{P}$ in the larger environment.

3.5 Surrounding Issues

Below, I briefly address some remaining questions with a bearing on this analysis; first, concerning limits to the anticausative alternation; and second, regarding variations on the anticausative alternation, i.a., the question whether the anticausative alternant may imply an element of causation.

3.5.1 Verbs that do not have an “Anticausative Alternant”

Even in a language where the anticausative alternation (AA) is productive, there will be a number of causative verbs which, for various reasons, are not paired with an anticausative alternant. First, note that in a language like German, the AA coexists with “non-directed” alternations, i.a. labile alternations:

- (18) a. Ede zerbricht den Krug.
Ede breaks the jar
 b. Der Krug zerbricht.
the jar breaks

The item will be specified for an agentive/causative or a nonactive inchoative v , as in the entry in Figure 2 above. Normally, there will in these cases be no reflexive anticausative variant. But there are exceptions. Note, for instance, the coexistence of the anticausative and labile alternation in French verbs like *casser* or *rouiller* (Zribi-Hertz 1987: 30f.); cf. (12c) and (12d):

- (12) d. La branche s'est cassée.
the branch se is broken
 'The branch broke.'

This suggests that these verbs should have an entry which is flexible regarding the active vs. nonactive status of $v = B(\text{ECOME})$.

As an overall rule, a verb does not show the anticausative alternation if it shows another inchoative/causative alternation. Why a verb has this or that alternation is another question. According to Haspelmath (1993: 103ff.), citing Nedjalkov (1990), events that are – as we conceive of them – more likely to occur through causation than spontaneously tend to show a preference for the anticausative expression type; I return to this issue in Section 4.

It is an open question what, cross-linguistically, distinguishes a language like German from a language like English, where the anticausative alternation is absent. One can speculate that this absence is due to the lack of an expletive reflexive, tying this to a more general lack of “light” reflexives, as in agentive “inherently reflexive” verbs like *hide*. But in the present context, this must be left a speculation.

Second, note the existence of causative verbs without an inchoative counterpart. Among these are verbs with “a particular activity predicate” (Dowty 1979: 204). According to Levin and Rappaport Hovav (1995: 102ff.), verbs where the means or manner involved in causing the action is specified and this specification implies a volitional agent do not have intransitive alternants. According to Reinhart (1997), decausativization presupposes that the external role to be reduced does not require a “mental state” property. Rapp and Stechow (1999: 182ff.) speak of verbs with a manner component, representing this in a separate V node above BECOME.

- (19) a. Arnim mäht die Wiese / mahlt das Korn / schneidet das Brot.
Arnim mows the meadow / grinds the corn / cuts the bread
 b. ?? Die Wiese mäht / das Korn mahlt / das Brot schneidet sich.
the meadow mows / the corn grinds / the bread cuts sich

These verbs cannot be exhaustively described through a result state Root predicate combining with a v consisting in a predicate like BECOME(+ CAUSE (+ AGENT)). They have a non-logical meaning component over and above the state predicate, an activity predicate. The meaning of *Arnim grinds the corn* can be represented as:

- (19) c. $\lambda e \exists f \text{ Become}(\text{ground}(c))(f) \wedge \text{Cause}(f)(e) \wedge \text{Agent}(a)(e) \wedge \text{grind}(c)(e)$

Syntactically, the activity predicate in the last clause is a Root which requires an AGENT v (where AGENT* = $\lambda x \lambda e \text{ Agent}(x)(e)$, as in Table 1):

$$[v \text{ AGENT}_v [\sqrt{P} \text{ XP } \sqrt{ }]].$$

It may be an open question whether the result state predicate and the inchoative (and causative) element should be separated from the Root in the syntax, in the style of Rapp and Stechow (1999), in which case XP is another vP , or whether these meaning elements are only spelt out in the semantic representation, in the style of Kratzer (1994), in which case XP is simply DP. But anyway, the only way to interpret the b. sentences above will be to read the corn etc. as an agent and as a theme (cf. 3.5.2). (We will see in 3.5.2, however, that it may be wrong to assume generally that a manner component entails AGENT.)

3.5.2 Causation in the Anticausative Alternant?

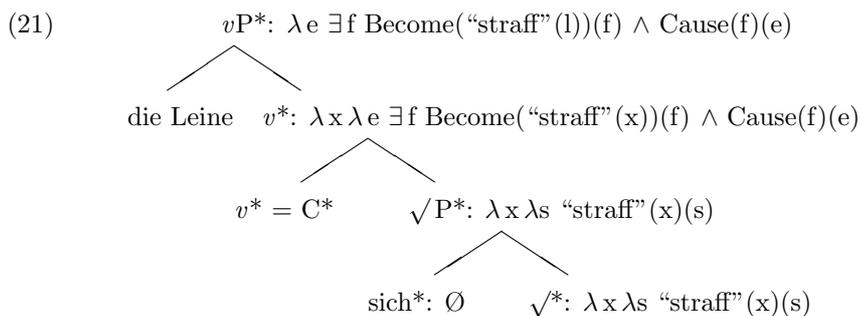
The analysis of anticausative alternations developed in 3.1–3.3 predicts that the reflexive is necessary for the inchoative interpretation. It does not follow that it is sufficient, that is, that the reflexive rules out a causative interpretation. And in fact, in some cases it does not seem unnatural to assume that causation (or even agency) is implied in the anticausative alternant. At least, there is occasional evidence of a manner component in anticausatives over and above the resultative root.

Chierchia (1989) has proposed an analysis of verb alternations on which an inchoative verb inherits CAUSE from a causative verb. He proposed that any inchoative is derived from a causative verb by means of a process of reflexivization, which may be implicit, as with Italian *affondare* ('sink'), where the alternation is labile. On this analysis, a case like (20a) would (abstracting away from Property Theory notation) receive a representation like (20b):

- (20) a. La porta si è aperta.
 the door si is opened
 ‘The door opened.’
 b. $\exists P$ CAUSE(P(p), BECOME(open(p)))

This says that some property P of the door (p) causes it to become open.

The analysis of anticausatives proposed above does not rule out that a verb with a semantically empty reflexive combines with C (as defined in Table 2 in 2.2). The function composition scheme that delays the saturation of the Root argument through B can be assumed to apply to C as well, or we can define a predicate operator C variant. The question is whether it is useful to in this way express a content which is slightly stronger than inchoativity. If we choose to include Cause in the anticausative formation, we get an added content which is so weak as to be almost trivial: Simply that there is some event which causes the change of state. Consider (6) and the two alternative derivations (16) and (21).



After existential closure through e.g. Aspect, (16), the structure hitherto assumed, says that the line became taut, while (21), the option we are currently considering, says that the line was – by some unspecified event – caused to become taut. This is the semantics of a nonagentive passive. Because what it adds is so vacuous it is not easy to determine which is more adequate. It can be difficult to discriminate between inchoatives and nonagentive passives: Both (22a) and (22b) can describe what happened when the bottle fell to the floor.

- (22) a. It broke.
b. It was broken.

In Norwegian, where the anticausative alternation is productive, the verb *knuse* ‘break’ does not have an anticausative alternant but a (nonagentive) passive is used (*knuses* or *bli knust*). And for a passive, it is reasonable to posit a causing event.

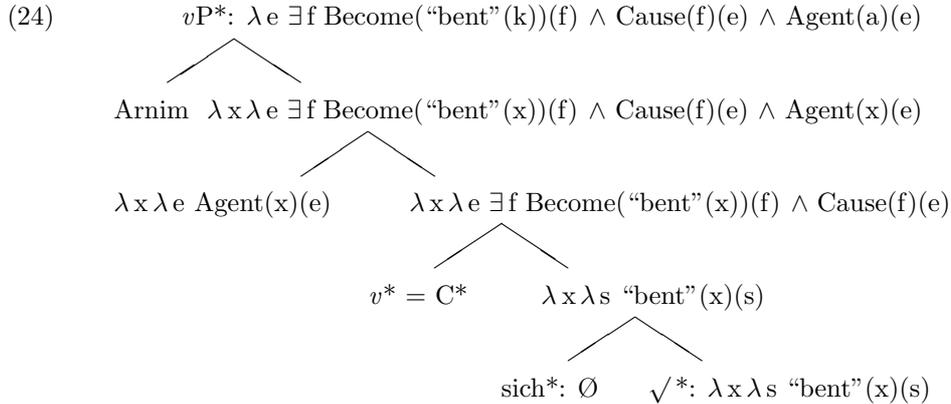
As a temporary conclusion, it does not seem wrong to leave the choice to include causation in the anticausative formation; while (16) may be the standard case, the option (21) can be taken to reflect a flexibility in interpreting a change as spontaneous or as brought about by some event which may be contextually anchored.

3.5.3 Agency in the Anticausative Alternant?

There are reasons for assuming that the anticausative formation can include agency as well: There are cases where the meaning seems to be or is arguably what ensues if the argument of the Root is projected to eventually coincide with the Agent argument. Consider the German verb *biegen* (‘bend’). With a reflexive pronoun, it is used partly nonagentively, partly agentively, cf. (23):

- (23) a. Die stählerne Stange biegt sich.
the steelen rod bends **sich**
b. Arnim biegt sich über den Lenker.
Arnim bends **sich** over the handle

Intuitively, the difference between (23a) and (23b) is that while the former says that the rod becomes bent (or some event causes it to become bent) the latter says that Arnim is the agent of an event causing Arnim to become bent. This difference can be brought out by letting the argument of the stative root “bent” be saturated only in the specifier for AGENT (where AGENT* = $\lambda x \lambda e \text{ Agent}(x)(e)$) over and above B or C (or alternatively by defining a predicate operator A variant):



The same reading can be derived by treating the reflexive as a referential anaphor. But it seems counterintuitive to ascribe so different analyses to (23a) and (23b). Note that in English, verbs like *bend* which oscillate between a nonagentive and an agentive reading are indiscriminately used without a reflexive. And, in Norwegian, where there is a distinction between a simple and a complex reflexive, the simple one is used in these and in the typical anticausative cases alike (Lødrup 1999).

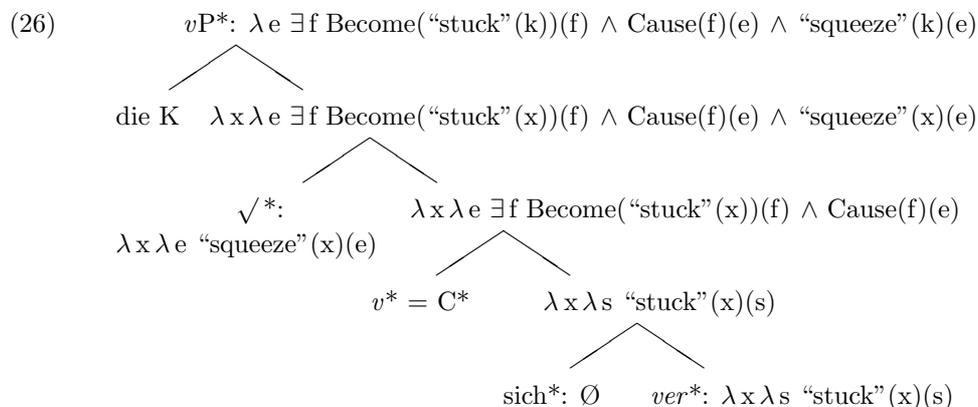
3.5.4 A “manner component” in the anticausative alternant

Some change of state verbs with a semantically empty reflexive convey relatively specific information about the change or a causing event, not only the new state. This means that the Root should include an eventive predicate. Let us see how the analysis of the anticausative alternation can accommodate such verbs.

Take the three German verbs *verklemmen*, *verkeilen*, *verhaken*, which with a reflexive pronoun describe different ways of getting stuck (as opposed to the “manner neutral” verb *festsetzen*). Arguably, the result state is the same in the three cases, so that the differences must lie at the level of the “manner”; whether the change is or is caused by a squeezing, a wedging, or a hooking.

- (25) a. Die Krawatte hat sich in ihrem Reissverschluss verklemmt.
*the necktie has sich in her zip **versqueezed***
 b. Der Radreifen hat sich im Drehrahmen verkeilt.
*the wheelyre has sich in turnframe **verwedged***
 c. Die Sense verhakt sich im Gras, bohrt sich in die Erde.
*the scythe **verhooks sich** in grass*

There are various ways to describe these verbs in the present framework, but one which seems promising is this: The root – *keil*, *hak*, *klemm* – is an activity predicate, say, $\lambda x \lambda e$ “wedge”(x)(e), licensed i.a. in a context [v [___ vP]] where v is active but semantically vacuous; the “perfectivizing” prefix *ver-* is a stative predicate (whose specific semantics depends on the root it eventually combines with), in this case, say, “stuck”, licensed i.a. in a context [v [DP ___]] where v is (nonactive) B or C. (25a) could have a structure as in (26) (where the PP and the higher v are disregarded):



It is difficult to decide whether the lower v should be B or C. But in any case, these cases indicate that an implied manner component does not generally in turn imply agentivity. In fact, these verbs hardly ever occur with an Agent DP. And if there are reasons to assume that the manner component specifies a causing event, this is evidence that the option of including Cause in the anticausative formation is sometimes used.¹¹ Which means that the anticausative is not always anticausative.

¹¹Cf. Haspelmath’s (1993: 94) discussion of the Russian anticausative *mojut-sja*, which seems to imply over and above the result state predicate (‘clean’ or ‘smooth’) a causing event predicate (‘stream’ or ‘wash’) and can only be translated by an English passive.

4 Conclusions

I have presented a syntactically and semantically explicit account of the reflexive anticausative alternation, based on some minimal assumptions about reflexives and the grammar of inchoative and causative verbs. The account has these ingredients:

- This reflexive is a semantically invisible but syntactically visible Root complement DP
- The verb entry specifies that in the active case, the Root combines with a *v* which may be causative or inchoative, as long as it has a specifier DP
- The structure where *v* is inchoative and has a specifier DP is interpretable because the saturation of the internal argument is delayed

The second item is the keystone of the analysis. The verbs that enter into the AA do not require CAUSE or AGENT but they do require two DPs, a Root complement and a *v* specifier. The verbs are not inherently causative, but they are transitive. As compared to the labile alternation characteristic of English, this emerges as more homogeneous; the verb is syntactically uniform in that *v* must have a specifier as long as the morphology is active. The inchoative alternant is not, as in the labile case, morphologically active but syntactically passive; it is in both senses active.

The analysis predicts the necessity of a reflexive for the inchoative interpretation. It does not follow that a reflexive is sufficient; the analysis predicts the continuum that can be observed from a purely inchoative via a passive causative to an agentive semantics for what seems one and the same construction (3.5.2–3.5.4).

The analysis is a syntactic analysis in the sense that it ascribes to the reflexive syntactic visibility, an internal argument place. This explicates von Stechow’s term “object expletive” (1995: 99). Though not a proper argument, the reflexive is not, as is often assumed, a mere morphological marker.¹² When Hale and Keyser (1998: 98) characterize the reflexive as a morphological reflex of formal detransitivization and, at the same time, the reflexive morphology in the derived intransitive as a sentential syntactic reflex of the “detransitivization” of the verb, this seems to reflect an ambivalence; the present analysis substantiates the second, “sentential syntactic” hypothesis. At the same time, the analysis is semantic in nature insofar as the use of a semantically empty reflexive is driven by the need for interpretability.

It is natural to compare the present analysis with that proposed by Lidz (2001) (developed for Kannada but intended to carry over to Romance); here the reflexive is a rather abstract morpheme, representing an argument structure configuration, a mismatch between thematic and aspectual structure. My analysis is also a mismatch analysis, but this time the mismatch is between semantic and syntactic structure. There are two advantages to this: First, it is not necessary to assume a distinction between thematic and aspectual structure and thus a relatively unrestrictive framework. Second, the reflexive can be taken more at face value: Instead of saying, with Lidz (2001), that it has neither semantic content nor a grammatical function, one can say that it has the latter but not the former.

¹²Such an assumption may be appropriate for the reflexive based passive in some of the relevant languages, e.g. Mainland Scandinavian, where a suffix originally having an anticausative function has developed into a passive suffix. A syntactically transparent analysis of anticausative reflexives can be assumed to provide a good starting point for accounting for such a development.

A semantically invisible but syntactically visible reflexive can be expected to play a seemingly morphological role when there are more syntactic than semantic arguments, as is the case on the inchoative interpretation of a verb in the anticausative alternation. In this sense, the anticausative is the opposite of the verbal passive: Here, there is one more semantic argument than there are syntactic arguments. We may say that the passive is syntactically passive but semantically active while the anticausative is semantically passive but syntactically active.

The analysis has been formulated largely in terms of Distributed Morphology, mainly because here, underspecification with respect to the *v* head is a key element. It should not be seen as committed to this framework, though. Any model which decomposes causative verbs in the syntax, such as the abstract syntax used by Stechow (1995), will be able to integrate it, as long as it allows lexical underspecification. If one wants to, one may also, with Stechow (1996) or Rapp and von Stechow (1999), dispense with CAUSE, working only with AGENT and BECOME. However, to borrow the words of Stechow (1996: 90), “it will not be possible... to get rid of the BECOME functor”. More exactly, to formulate the need for an external argument even in the inchoative case, it is necessary to treat BECOME as an item essentially of the same kind as CAUSE or AGENT, such as a *v*.

Why should there be an anticausative alternation, where the inchoative shares the transitivity of the causative alternant? According to Haspelmath (1993), the anticausative alternation is more likely if the change of state is more likely to occur through causation than spontaneously. The causative variant is conceptually basic. Here, the transitivity is essential; in the inchoative case it is extraneous insofar as it requires a vacuous internal argument and a flexibility in the semantic composition. In this sense – but only in this sense – the inchoative interpretation is derived from the causative interpretation.

The analysis may seem simplistic. This is in a sense as it should be. Essentially, what I have tried to show is how a naïve intuition – in the words of Grimshaw (1982), that “the reflexive gives the illusion of playing the role of an object” – can attain a theoretical significance.

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