

Blocking effects at the lexicon/semantics interface and bi-directional optimization in French

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Abstract

We document two cases of partial blocking at the lexicon/semantics interface concerning the interpretation of inchoative French verbs (*craquer* 'snap', *se briser* 'break', (*se*) *casser* 'break'). One concerns the obligatorily referential interpretation with non-reflexive-marked verbs like *casser* in a sentence whose pronominal subject *il* is potentially ambiguous between a referential and a non-referential interpretation (*Il a cassé plusieurs branches* 'he/there broke several branches'). The other concerns aspectual interpretations arising in contexts traditionally used as telicity diagnostics. In such contexts, one form (reflexive-marked or not, depending on the particular aspectual context), by default, has the target interpretation; if the lexicon does not provide that form then the other form takes on the target interpretation, resulting in the absence of an overall one-to-one mapping between form and interpretation. This general pattern supports an analysis relying on competition among expression/interpretation pairs, which is here formalized in a bidirectional OT architecture.

Keywords: inchoatives, blocking, default, expression/interpretation pairs, bidirectional OT

11.1 Introduction

In classic derivational terms, blocking occurs when, for example, a structure like *childs* that is derived via a general rule is blocked by the alternative *children* which is derived via a lexical rule. Beyond features like PLURAL, lexically encoded syntactic properties may also exhibit blocking, as in Japanese, where derivation of a transitive/causative verb by the general process of *-sase* suffixation is blocked by the existence in the lexicon of an underived synonymous transitive/causative verb (Miyagawa 1994).

In Optimality Theory, blocking is a consequence of competition of structures for optimality, i.e., grammaticality. Blocking arises when a type of structure that would be optimal in typical cases is rendered suboptimal in cases where a preferred (more Harmonic) competitor appears in the candidate set. The focus of the paper will be on blocking of *interpretation*—in particular of French inchoative verb constructions—by alternative, preferred interpretations. While the more standard Optimality-Theoretic competition among expressions will play a role in explaining the patterns of interest, it is *competition among interpretations* that will be particularly important. The architecture we will deploy is thus a form of Bidirectional OT in which optimization plays out over ⟨expression, interpretation⟩ pairs, with expressive and interpretive optimization jointly determining grammaticality. In the competitions we examine here, the lexicon and semantic (in)coherence serve to restrict the set of competitors.

In addition to blocking, we will also deploy the notion of an inverse of blocking which we will call ‘antiblocking’. In this case, a structure that is typically ungrammatical becomes, in special circumstances, grammatical, due to the absence of a preferred alternative.¹ We will analyze a pattern of (im)personal interpretations of inchoative verbs in French as a case of

blocking, and a pattern of aspectual interpretations as a case of antiblocking. We will refer to blocking and antiblocking collectively as ‘blocking effects’.

We examine two sets of empirical facts pertaining to classes of French inchoatives, including one that is restricted to verbs participating in an inchoative-transitive alternation (henceforth *alternating inchoatives*). Among these verbs, a second type of alternation is found, involving the presence/absence of the reflexive morpheme *se*. As (1) shows for near-synonymous verbs, French has three morphologically-defined subclasses, including Class I (with obligatory reflexive (*se*) morphology), Class II (with no reflexive morphology), and Class III (with optional reflexive morphology).

- (1) a. La branche s’est brisée. (I, *a brisé)
 ‘The branch shattered’
- b. La branche a craqué. (II, *s’est craquée)
 ‘The branch snapped’
- c. La branche a cassé/s’est cassée. (III)
 ‘The branch broke’

We focus on the aspectual interpretation of inchoatives in particular aspectual frames on the one hand, and on the other, their behavior in (im)personal constructions. We argue for an analysis relying on competition among expression/interpretation pairs implemented in Weak Bidirectional Optimization (e.g. Blutner 2000; Hendriks et al. 2010; Jäger 2002; de Swart and Zwarts 2009; de Swart this volume). In the process we present evidence against an alternative approach that interprets the presence/absence of reflexive morphology in strictly syntactic terms, including the Unaccusativity Hypothesis (Labelle 1992) and vP/VoiceP structure (Labelle and Doron 2010). Overall, our analysis leads to the claim that the relationship between intransitive

inchoative verbs and the transitive verbs they alternate with is not just a question of (a) which direction the derivation takes—i.e., detransitivization (e.g. Levin and Rappaport Hovav 1995; Chierchia 2004) vs. transitivization (e.g. Pesetsky 1995; Harley 2008; Pylkkänen 2008), b) where (de)transitivization takes place—i.e., in the lexicon (e.g. Grimshaw 1982; Reinhart 1997) vs. in the syntax (e.g. Pesetsky 1995), and (c) how the set of alternating verbs should be defined—i.e., aspectually vs. thematically (e.g. Reinhart 2002). Rather, the relationship also crucially involves interpretational factors and blocking effects. Once the pattern is understood in terms of a competition among expression/interpretation pairs it becomes a remarkably simple and elegant one, providing a new kind of support for an optimality-theoretic approach to syntax and semantics.

The paper is organized as follows. Section 2 considers why certain verbs cannot be interpreted as impersonal without overt reflexive marking, e.g. **il a cassé X* vs. *il s'est cassé X* 'there broke X'. We argue for a novel way of understanding the pattern: as blocking of an expletive interpretation of *il*. Section 3 presents novel data and generalizations pertaining to default effects and antiblocking in inchoatives in aspectual frames. Section 4 formalizes the analysis of both cases in terms of Weak Bidirectional Optimization. Section 5 concludes.

11.2 Blocking in (im)personal constructions

French has three classes of alternating inchoatives, though there is some variation across speakers as to individual class membership (especially across varieties of French). (2) provides a sample of verbs whose class membership is largely shared among speakers of Continental French. Anticipating the discussion of telicity-related aspectual properties below it is worth noting that each class includes both punctual and durative verbs. Thus, the three classes are not

definable in terms of this aspectual dimension. Rather the classes are defined morphologically in terms of whether the ‘reflexive’ morpheme *se* is obligatory (Class I), forbidden (Class II), or optional (Class III).

(2) a. Class I: *se* V (I_{se})

Punctual: *se briser* ‘break’

Durative: *s’améliorer* ‘get better’, *se calcifier* ‘become chalky’, *se détériorer* ‘get worse’, *se gâter* ‘go bad’, *s’alléger* ‘get lighter’, *s’assécher* ‘dry out’, *s’agrandir* ‘enlarge’, *s’amaigrir* ‘get thinner’, *s’alourdir* ‘get heavier’, *se transformer* ‘change into’, *se desceller* ‘unseal’, *se fendre* ‘tear’, etc.

b. Class II: V (II_{*se})

Punctual: *crever* ‘burst’, *craquer* ‘snap’, *claquer* ‘slam’,

Durative: *flétrir* ‘wither’, *grossir* ‘put on weight’, *grandir* ‘grow up’, *maigrir* ‘lose weight’, *vieillir* ‘age’, *sécher* ‘dry’, *percer* ‘burst’, *mûrir* ‘ripen’, *guérir* ‘recover’, etc.

c. Class III: (se) V (III_(se))

Punctual: (se) *casser* ‘break’, (se) *rompre* ‘break up’

Durative: (se) *crystalliser* ‘crystallize’, (se) *muer* ‘moult’, (se) *tarir* ‘dry up’, (se) *rétrécir* ‘shrink’, (s’) *épaissir* ‘thicken’, (se) *refroidir* ‘cool (down)’, (se) *ramollir* ‘soften’, (se) *ternir* ‘tarnish, dull’, (s’) *aigrir* ‘turn sour’, (se) *durcir* ‘harden’, (se) *caraméliser* ‘turn into caramel’, (se) *rouiller* ‘rust’, (se) *raidir* ‘stiffen’, etc.

The existence of classes I and II, which generally appear to be of roughly equal size, gives little hint as to which is the default form of inchoatives in French. Even non-alternating inchoatives, with no transitive counterpart, may be reflexive-marked or not (e.g. *s’évanouir* ‘faint’, *fermenter* ‘ferment’). The existence of class III provides conclusive evidence that there is

in fact no default form—and no overall blocking effect of form—since both a reflexive-marked and a non-reflexive marked alternative may co-exist. However, whenever an alternating inchoative is embedded in a construction whose subject (*il*) is ambiguous between expletive ‘there’ and referential ‘he’ an interesting pattern emerges concerning its interpretation.

Impersonal constructions (ICs) have received considerable attention in part because of their apparent diagnostic value for unaccusativity (e.g. Legendre 1989; Labelle 1992; Cummins 1996). Unaccusative change of state verbs freely appear in ICs, regardless of reflexive morphology and other properties such as auxiliary selection. Reflexive-marked verbs select *être* ‘be’ in the periphrastic past tense used in (3)–(4). Most non-reflexive ones select *avoir* ‘have’; a few select *être* (e.g. Legendre 1989, 2007; note (1c)). The only cross-the board restriction is that the post-verbal argument be indefinite.

(3) a. Il a fleuri plusieurs rosiers. (avoir, *se)

‘There bloomed several rose bushes’

b. Il s’est évanoui plusieurs personnes assises au premier rang. (être, se)

‘There fainted several people sitting in the first row’

c. Il est mort plusieurs personnes dans l’avalanche. (être, *se)

‘There died several people in the avalanche’

Alternating inchoatives show a restriction not found with unaccusative change of state verbs: only with reflexive marking are they grammatical in ICs, as shown in (4). Labelle (1992), who assumes that ICs are a diagnostic test for unaccusativity in French, concludes that alternating reflexive-marked inchoatives (e.g. *se casser* ‘break’) are *unaccusative* while non-reflexive-marked inchoatives (e.g. *casser* ‘break’) are *unergative*. Legendre (1989), Bouchard (1995), Cummins (1996) challenge the assumption by providing evidence that unergative verbs

productively appear in ICs, subject to the (in)definiteness restriction on the postverbal argument and the presence of a locative adjunct, as shown in (5). See Legendre and Smolensky (2010) for further discussion.

(4) a. Il s'est cassé plusieurs branches. (Class III)

'There broke several branches'

c.*Il a cassé plusieurs branches. (Class III)

'There broke several branches'

b. Il s'est brisé plusieurs vases. (Class I)

'There broke several vases'

d.*Il a craqué plusieurs allumettes. (Class II)

'There snapped several matches'

(5) a. Il travaille des milliers d'ouvriers dans cette usine.

'There work thousands of workers in this plant'

b. Pendant des siècles il a régné des tyrans sur cette petite île de l'Atlantique.

'For centuries there reigned tyrants on this small Atlantic island'

Labelle and Doron (2010) provide an alternative syntactic analysis of (4) in terms of distinct functional (vP) structures for reflexive-marked and non-reflexive marked inchoatives. Building on Kratzer (1996), they propose that the two alternatives in Class III, e.g. *casser/se casser* 'break', result from the interplay of two heads, Voice and v, which play different roles in the derivation (see Schaefer 2008 for a comprehensive overview of this approach). Voice determines the realization of the external argument while v, if present, introduces a process sub-event (and assigns the Agent theta-role to its specifier in the transitive/causative counterpart). The lower VP expresses a change sub-event. Inchoative *casser* involves three verbal projections

[vP-VoiceP-VP] and is lexically marked for allowing the merge of *v* in the active Voice without requiring an external argument in its specifier (no Agent theta-role is assigned). Inchoative *se casser* instead lacks a vP projection, resulting in a [VoiceP-VP] structure with non-active Voice. The non-active Voice head is spelled out by *se* and blocks the merge of an external argument in the derivation.

The motivation for this syntactic encoding of the $\pm se$ distinction comes from relatively subtle meaning differences associated with the presence/absence of *se* in Class III (optional *se*) inchoatives. Rothemberg (1974) proposes that *se* typically denotes an externally caused change while its absence denotes an internally caused change. While Labelle (1992) endorses the absence of *se* as highlighting the autonomy of the process (internally caused change) she is in agreement with Zribi-Hertz (1987) in characterizing the presence of *se* instead as highlighting the attainment of a result state, hence a telic reading.² This can be seen when embedding an alternating verb like (*se*) *caraméliser* ‘caramelize’ in the aspectual sentence frame *mettre X à V* ‘to get X V-ing’ which favors an atelic reading (Zribi-Hertz 1987; Lagae 1990). Only the non-reflexive-marked inchoative is grammatical, as shown in (6). (The English translations are intended to suggest a contrast that is not naturally well-marked in English; Labelle (1992:391) states that ‘the reflexive is preferably translated by ‘become Adjective’).

(6) a. *Le cuisinier a mis le sucre à se caraméliser.

‘The cook got the sugar to be caramel(ized).’

b. Le cuisinier a mis le sucre à caraméliser.

‘The cook got the sugar caramelizing.’

Labelle (1992) points out that the difference in interpretation (autonomous change vs. attainment of a result state) is sharpened when associated with an animate/inanimate distinction:

(7) a. Il vit le mouchoir se rougir/*rougir soudain. (inanimate/no internally caused change)

‘He saw the handkerchief redden suddenly’

b. Jeanne *se rougit/ rougit. (animate/internally caused change)

‘Jeanne reddens (=blushes)’

As noted in Zribi-Hertz (1987), the association of the reflexive-marked form with attainment of a result state can also be seen when the verb is embedded with a complement describing the cause of change vs. the final state of the entity. Using the verb (*se*) *muer* ‘transform’ as an example, *se* is ungrammatical when cause is specified (8a). When a result state is specified, *se* is obligatory (8b).

(8) a. L’oiseau *s’est mué/ a mué sous l’effet du virus.

‘The bird transformed under the effect of the virus’

b. L’oiseau s’est mué/*a mué en un monstre à cinq têtes.

‘The bird transformed into a five-headed monster’

These interpretational differences are reinterpreted in syntactic terms in the Labelle and Doron (2010) analysis mentioned previously. For example, the absence of an external Agent in the specifier of vP is interpreted as the Theme argument undergoing the process autonomously in the non-reflexive marked verb. Conversely, the presence of a non-active VoiceP without a vP layer is interpreted as denoting the attainment of a result state by the Theme argument in the reflexive-marked verb.

Importantly, however, the pattern which motivates the vP/VoiceP analysis is limited to optionally reflexive-marked alternating inchoatives (Class III). In particular, the pattern exemplified in (6)–(8) is not found with either Class I or II or with non-alternating inchoatives.

- (9) a. Il vit les prix augmenter à vue d’œil.
 ‘He saw prices rise before his very eyes’
 b. Il vit la mer monter rapidement.
 ‘He saw the sea rise rapidly’
- (10) a. Jeanne s’est alourdie.
 ‘Jeanne became heavier’
 b. Jeanne s’est évanouie.
 ‘Jeanne fainted’
- (11) a. Il a mis la viande à s’attendrir dans une marinade.
 ‘He put the meat to tenderize in a marinade’
 b. Le vase a éclaté en mille morceaux.
 ‘The vase burst into thousand pieces’

A non-reflexive-marked alternating inchoative (Class II) is exemplified in (9a) and a non-alternating counterpart in (9b); both are grammatical, contrary to Class III in (7a). A reflexive-marked alternating inchoative (Class I) is exemplified in (10a) and a non-alternating counterpart in (10b); both are grammatical, contrary to Class III in (7b). (11a) exemplifies a grammatical reflexive-marked (Class I) inchoative embedded in the *mettre à* frame, in contrast to ungrammatical Class III in (6b). Finally (11b) exemplifies a grammatical non-reflexive-marked (Class II) inchoative in contrast with ungrammatical Class III in (8b).

The overall empirical picture which emerges from these first observations is that the morphology does *not* determine a particular interpretation in (6)–(11). Giving up the search for a generalization is however quite premature. As we will see below there is in fact an empirical pattern in ICs which lines up with the morphology, and there are blocking effects behind the

seemingly unsystematic distribution in both ICs and aspectual sentential frames, in particular those denoting partial completion (*pendant X hours* ‘for X hours’) and result state (e.g. *en mille morceaux* ‘into a thousand pieces’). We discuss the IC pattern first.

We remarked earlier that only reflexive-marked alternating inchoatives (of any class) are grammatical in ICs, i.e. with an expletive reading of *il*—see (4). However, the non-reflexive-marked ones are in fact grammatical under a *distinct* interpretation of the superficially identical structure. In (12)–(13) all examples (Classes I, II) are grammatical if *il* is interpreted referentially as ‘he’.

(12) a. Il a cassé plusieurs branches.

‘*There broke several branches/√He broke several branches’

b. Il en a cassé plusieurs.

‘*There broke several of them/√He broke several of them’

(13) a. Il a craqué plusieurs allumettes.

‘*There snapped several matches/√He snapped several matches’

b. Il en a craqué plusieurs.

‘*There snapped several of them/√He snapped several of them’

This pattern leads us to a first hypothesis that blocking is involved, as follows. We reason that the ungrammaticality of non-reflexive-marked inchoatives in ICs is tied to the existence of a morphologically identical transitive counterpart, hence to *alternating* inchoatives. We thus predict that non-alternating³ non-reflexive-marked change-of-state verbs of the same lexico-aspectual classes (e.g. punctual, durative) should be grammatical in ICs. And they are, as shown in (14).

(14) a. Il a explosé plusieurs bombes à Bagdad.

‘There burst several bombs in Bagdad’

b. Il a sombré plusieurs navires dans la tempête.

‘There sunk several ships in the storm’

A simple generalization in terms of blocking can be stated as follows: The existence of a morphologically identical transitive/causative verb blocks the impersonal interpretation of a non-reflexive-marked inchoative counterpart.

French reflexive-marked verbs are intransitive, as discussed in Kayne (1975): in causative constructions, it is (in)transitivity of the verb embedded under causative *faire* ‘to make’ that dictates the form (accusative or dative) of the causee. The causee of a transitive verb surfaces as dative *lui* (15b) while the causee of an intransitive verb surfaces as accusative *le* (16b). The causee of a reflexive-marked verb surfaces as accusative *le/l’*, whether it denotes true reflexivity (17b) or not (18b). This is evidence that reflexive-marked verbs are syntactically intransitive.

(15) a. Je ferai laver la voiture à Josh.

‘I will make Josh wash the car’

b. Je *lui* ferai laver la voiture.

‘I will make him wash the car’

(16) a. Je ferai travailler Josh.

‘I will make Josh work’

b. Je *le* ferai travailler.

‘I will make him work’

- (17) a. Je ferai se laver Josh.
 ‘I will make Josh wash himself’
- b. Je *le* /*lui ferai se laver.
 ‘I will make him wash himself’

- (18) a. Ça a fait s’évanouir Josh.
 ‘That made Josh faint’
- b. Ça *l’*/*lui a fait s’évanouir.
 ‘That made him faint’

Reflexive-marked inchoatives thus necessarily have no *morphologically identical* transitive counterpart that would block the impersonal interpretation of the sentence. In the absence of blocking they should allow the relevant expletive reading—and they do, as shown in (19a–b). As expected, the expletive reading of *il* is also available for ‘true’ reflexives (e.g. *se laver* ‘wash oneself’), as shown in (19c).

- (19) a. Il s’est évanoui plusieurs personnes assises au premier rang. (non-alt inchoative)
 ‘There fainted several people sitting in the first row’
- b. Il s’est cassé plusieurs branches la nuit dernière. (alternating inchoative)
 ‘There broke several branches last night’
- c. Il s’est lavé plusieurs personnes au robinet. (‘true’ reflexive)
 ‘There washed themselves several people at the faucet.’

In sum, the IC pattern in (4) has nothing to do with syntactic structure—it is a remarkably simple one, but only a comparison amongst inchoative classes can reveal it. The IC pattern is a *blocking* effect, which naturally follows from an optimality-theoretic perspective: *Il* has two interpretations [+REF] ‘he’ and [–REF] ‘expletive’. ICs (intransitive; *il* = –REF) are marked

because the expletive violates FULLINTERPRETATION (Grimshaw 1997; Legendre et al. 1998; see (46)). Transitive counterparts (*il* = +REF), where they exist, are unmarked and block the expletive interpretation.

From the IC blocking effect discussed in this section we now move to a set of antiblocking patterns involving aspectual interpretations of inchoatives in particular frames. To the best of our knowledge these patterns have not been noted before. We conclude again that these effects point to an analysis in terms of *competition*. A unified account of all patterns is then provided in terms of Bidirectional Optimization over expression/interpretation pairs (SuperOptimality or Weak Bidirectional Optimization; Blutner 2000). See the introductory chapter of this volume for a presentation of bidirectional architectures, including the ‘weak’ version relevant to the blocking effects analyzed in this chapter.

11.3 Antiblocking of aspectual interpretations in inchoatives

We now turn to the interaction between the class of an inchoative verb (I_{se} , II_{*se} , $III_{(se)}$) and its interpretation in aspectual frames. We illustrate the pattern with two distinct aspectual interpretations, one which by default is paired with a non-reflexive-marked form (partial completion interpretation), and one which by default is paired with a reflexive-marked form (result state interpretation).

11.3.1. Partial completion interpretation

Durative change of state verbs like *fondre* ‘melt’ naturally combine with the temporal expression *en X heures* ‘in X hours’ in (20a), which results in a telic reading (Dowty 1979). Whether they alternate with a transitive or not, these verbs may also appear with the temporal expression

pendant X heures ‘for X hours’ which results in an atelic reading. (20b) denotes a process lasting for the specified interval with the inference that the process stopped at the end of the interval before the end of the process is reached.

(20) a. La neige a fondu en trois heures.

‘The snow melted in three hours’

b. La neige a fondu pendant trois heures.

‘The snow melted for three hours (but it didn’t totally melt)’

Transitive counterparts of all durative members of alternating inchoative classes denote a partial completion of the process when combined with a temporal *pendant* expression.

(21) a. La chaleur a gâté la viande pendant plusieurs jours. (I_{se})

‘The heat spoiled the meat for several days (but it didn’t completely spoil)’

b. Le vent a séché le linge pendant des heures. (II_{*se})

‘The wind dried the laundry for hours (but it didn’t completely dry)’

c. Le froid a durci les joints pendant trois jours. (III_(se))

‘The cold hardened the joints for three days (but they didn’t completely harden)’

(Morphologically defined) inchoative classes exhibit an intriguing pattern. With Class III_(se) inchoatives *only the non-reflexive-marked* form has the partial completion interpretation; the reflexive-marked structure is ungrammatical.

(22) a. Le ciment a durci/*s’est durci pendant 3 heures

‘The cement hardened for three hours (but it didn’t completely harden)’

b. La soupe a refroidi/*s’est refroidie pendant 3 heures

‘The soup cooled down for three hours (but it didn’t completely cool down)’

With Class II_{*se} inchoatives *the (obligatorily) non-reflexive-marked* form also is interpreted as partial completion of the process.

(23) a. Les fleurs ont flétri pendant plusieurs jours.

‘The flowers withered for several days (and they didn’t completely wither)’

b. Le linge a séché pendant plusieurs heures.

‘The laundry dried for several hours (and it didn’t completely dry)’

Of interest here is that an anti-blocking effect might potentially appear with Class I_{se} inchoatives since they do not provide the (non-reflexive marked) form which generally carries the partial-completion reading: the absence of that alternative form potentially antiblocks the partial completion interpretation for the reflexive form. And indeed, all forms in (24) are *reflexive-marked* but they nevertheless have a partial-completion interpretation, in contrast with reflexive-marked members of Class III_(se).

(24) a. La viande s’est gâtée pendant plusieurs jours.

‘The meat spoiled for several days (but it didn’t completely spoil)’

b. Sa santé s’est améliorée pendant quinze jours.

‘Her health improved for two weeks (and then it stopped improving)’

c. La fente s’est agrandie pendant plusieurs mois.

‘The slit widened for several months (and then widening stopped)’

The generalization (for alternating classes) can be stated simply as follows. For each durative transitive, only one of inchoative ‘*se V*’ or ‘*V*’ is compatible with a partial completion interpretation. The default one is the *non-reflexive-marked* form (e.g. *flétrir* ‘wither’). If the lexicon does not provide a non-reflexive option then a reflexive-marked inchoative (e.g. *se gâter*

‘spoil’) supports the partial completion interpretation in the appropriate aspectual frame (‘for X hours’).

If the pattern is truly general then the reverse case—where the default form for a given aspectual interpretation is the reflexive-marked one, should also be found. We discuss such a case in the next section.

11.3.2 Result state interpretation

Punctual as well as durative verbs may combine with a phrase denoting a result state. As Labelle (1992) points out, non-reflexive-marked Class III_(se) inchoatives highlight the transition from one state to another while reflexive-marked ones highlight the result state. In general, specifying the result state is possible with *reflexive-marked* inchoatives but impossible with non-reflexive-marked ones, regardless of whether a transitive counterpart exists (25–26) or not (27).

(25) a. La branche s’est cassée/*a cassé en mille morceaux. (III_(se))

‘The branch broke into a thousand pieces’

b. L’oiseau s’est mué/*a mué en un monstre à trois têtes. (III_(se))

‘The bird transformed into a three-headed monster’

(26) a. Le vase s’est brisé en mille morceaux. (I_{se})

‘The vase broke into a thousand pieces’

b. Les os desséchés se sont transformés en poussière. (I_{se})

‘The dried bones turned into dust’

(27) Le mur s’est écroulé en mille morceaux.

‘The wall crumbled into a thousand pieces’

However, certain *non-reflexive-marked* change-of-state verbs are compatible with a phrase modifying the result state. These include non-alternating verbs (28) as well as alternating ones with no reflexive-marked counterparts (class II_{*se}; (29)).

(28) a. La vase a éclaté en mille morceaux.

‘The vase broke into a thousand pieces’

b. La neige sale a fondu en une boue grisâtre.

‘The dirty snow melted into a greyish mud’

(29) La branche a craqué en trois morceaux.

(II_{*se})

‘The branch snapped into three pieces’

The pattern (for alternating classes) can be summarized as follows. For each transitive, only one of inchoative ‘se V’ or ‘V’ is compatible with a result state interpretation. The default one is the *reflexive-marked* inchoative (e.g. *se briser*). If the lexicon does not provide a reflexive option then a *non-reflexive-marked* inchoative carries a result state (e.g. *craquer*). This is another case of antiblocking: generally, non-reflexive-marked inchoatives *do not* carry a result-state interpretation, but in the special case when the reflexive form is not a candidate, the non-reflexive *does* permit a result-state interpretation.

Generalizing over the two aspectual cases discussed (Sections 3.1–3.2) we can restate these patterns as two instances of the same antiblocking effect. Overall, aspectual interpretation of the frame is systematically preserved under inchoativization independently of its morphological realization. The default form associated with a result-state interpretation of inchoatives is the reflexive-marked form while the default form associated with a partial-completion interpretation of durative inchoatives is the non-reflexive form; in either case there is no optionality per se. *Lexical gaps* affect the interpretation of a given form (reflexive-marked or

not). If the lexicon does not provide the default form then the other form accommodates the lexical aspect of the frame. If the lexicon provides two forms, then it is only the default one which conforms to the lexical aspect of the frame.

11.4 A formal account in terms of Bidirectional Optimization

Having identified the key ingredients of the inchoative patterns as defaults, blocking, and anti-blocking, the central role of competition is clear. We therefore proceed with a formal analysis of these patterns in terms of a particular architecture for Bidirectional Optimization known as Superoptimality or Weak Bidirectional Optimization (Blutner 2000). Specifically, we propose that (i) the IC pattern reflects an *interpretive optimization* (expletive interpretations are dispreferred), and (ii) the loss of *se* optionality with inchoative class III_(se) in aspectual frames reflects an *expressive optimization* (result-state frames prefer the presence of *se*; partial-completion frames prefer the absence of *se*). This indicates that both types of optimization are needed. As we shall see, once the pattern in aspectual cases is properly understood in terms of optimization over expression/interpretation pairs, many of the resulting optimizations are relatively trivial due to lexical gaps and aspectual incoherence. This should not be interpreted as a negative result; it simply points to the simplicity of the account once it is properly framed. The pattern of blocking in ICs is more complex and it serves to specifically motivate the particular Bidirectional Optimization procedure we adopt.

11.4.1 Superoptimality (aka Weak Bidirectional Optimization)

Superoptimality is adopted here because, unlike certain other bidirectional architectures, it yields *two winners*—(e.g., with/without *se*), with different interpretations—unless candidates are

missing. Candidates can be missing because of a lexical gap—an expression cannot be *Generated*, or an interpretation would be incoherent if *Generated*; therefore it's not *Generated*.

Blutner (2000) defines Superoptimality over form-meaning pairs as in (30). *Gen* generates candidate expression-interpretation pairings $\langle e, i \rangle$, which by assumption meet lexical requirements including the reflexivity demands of particular verbs.

(30) Superoptimality (Blutner 2000):

A form-meaning pair $\langle f, m \rangle$ is superoptimal iff $\langle f, m \rangle \in Gen$ and

- i. There is no other superoptimal pair $\langle f', m \rangle$ such that $\langle f', m \rangle$ is more harmonic than $\langle f, m \rangle$
- ii. There is no other superoptimal pair $\langle f, m' \rangle$ such that $\langle f, m' \rangle$ is more harmonic than $\langle f, m \rangle$

As stated in Jäger (2002), the definition in (30) is best understood as the recursive procedure in (31), which is crucial to the outcome of key optimizations below.

(31) Recursive procedure under SuperOptimality (Jäger 2002)

- a. The globally most harmonic pair $\langle e_0, i_0 \rangle$ (the most harmonic of all candidates) is grammatical.
- b. Since e_0 is the (only) grammatical expression of the interpretation i_0 , *expressive competition* entails that any pair with a different expression $e \neq e_0$ for the same interpretation — i.e., $\langle e, i_0 \rangle$ — is ungrammatical. Remove all such pairs from the candidate set and discard them.
- c. Since i_0 is the (only) grammatical interpretation of expression e_0 , *interpretive competition* entails that any pair with a different interpretation $i \neq i_0$ for the same

expression — i.e., $\langle e_0, i \rangle$ — is ungrammatical. Remove all such pairs from the candidate set and discard them too.

- d. Finally, remove $\langle e_0, i_0 \rangle$ from the candidate set and put it in the set of grammatical forms.
- e. Repeat the whole process with the remaining candidates.

The temporal expression *in X hours/for X hours* is a standard diagnostic test for telicity (Dowty 1979; Vendler 1957; Verkuyl 1972), to which we propose to associate the feature $[\pm R]$ (result-oriented). Candidates in bidirectional optimization are delimited by two other modules. For *interpretation*, incoherent feature combinations like $*[+R, \textit{for hours}]$ are not *Generated*. Because Classes I–III are defined morphologically, certain *expressions* will also not be *Generated* due to lexical gaps. These are listed in (32). In the Harmony diagrams used to represent the competitions, non-*Generated* candidates of either sort are typographically ~~struck out~~. The candidates missing because of interpretive incoherence and lexical gaps are eliminated *prior* to optimization, and not simply filtered out in a post-syntactic morphological or conceptual component. Crucially, their absence can alter the outcome of competition, i.e., the output of the grammar.

(32) Expressions that are not *Generated*:

- NP *se* V_{II} Class II: **se*
- NP V_I intransitive clause (Class I: *se*)
- NP *se* V NP where no NP is expletive (all inchoative classes)

We adopt three notational conventions of the bidirectional OT architecture, spelled out in (33):

(33) a. Harmonic relations derived from constraints are displayed in a *Harmony diagram*

(adapted from Dekker and von Stechow 2000)

b. ‘>’ = ‘more harmonic than’ (less marked)

e.g. $\langle (se) V, +R \rangle > \langle (se) V, -R \rangle$; $\langle se V, \pm R \rangle > \langle V, \pm R \rangle$ where R = result-oriented

c. The superoptimal pairs are marked by ‘ \mathbb{N} ’.

11.4.2 Antiblocking in aspectual interpretation

The formal analysis of antiblocking effects in aspectual frames (*pendant X hours* ‘for X hours’, *en mille morceaux* ‘into a thousand pieces’) relies on two general markedness constraints on expression-interpretation pairs. (34a) states that the unmarked interpretation of an inchoative is result-oriented ($INCH \Rightarrow +R$). (34b) states that the unmarked interpretation of a reflexive-marked form is result-oriented while the unmarked interpretation of a non-reflexive-marked form is non-result-oriented ($REFL \Leftrightarrow +R$).

(34) Markedness constraints

a. Inchoative constraint

$INCH \Rightarrow +R$: Inchoative clauses have +R interpretations.

b. Reflexive constraint

$REFL \Leftrightarrow +R$: Reflexive clauses have +R interpretations; non-reflexive clauses, -R.

Underlying all optimizations discussed in this section is the violation table of the four possible candidate expression-interpretation pairs given in Tableaux 11.1. Candidate *a*, $\langle se V, +R \rangle$, does not incur any violation so it is the optimal pair with the +R interpretation (its competitor, candidate *b*, violates $REFL \Leftrightarrow +R$). The ranking which yields the non-reflexive-marked expression

with $-R$ interpretation, $\langle V, -R \rangle$, as more harmonic than with $+R$ interpretation ($d < b$) is $\text{INCH} \Rightarrow +R$
 $\gg \text{REFL} \Leftrightarrow +R$.

[INSERT TABLEAU 11.1 HERE]

We proceed with the analysis of three cases: a) a result state interpretation (*NP (se) V en mille morceaux*), b) a partial completion interpretation (*NP (se) V pendant des heures*), and c) a neutral context (*NP (se) V*). Context c) serves as a crucial verification that the analysis extends beyond the particular aspectual contexts that are targeted for evidence of antiblocking.

The Harmony diagrams 11.1–11.3 represent the optimizations for the result-state pattern with examples of each morphologically defined class. Recall that the interpretation of *en mille morceaux* ‘in a thousand pieces’ asserts completion of the process and is thus semantically incoherent with $-R$: the $-R$ candidates are ~~struck out~~ in Harmony diagrams 11.1–11.3: they are not *Generated*.

Class III (optional *se*) is displayed in Harmony diagram 11.1: $a > b$ by the $+R \Rightarrow \text{REFL}$ half of $\text{REFL} \Leftrightarrow +R$. The prediction is that *se* is required when a result state is specified, which is the case for Class III.

[INSERT HARMONY DIAGRAM 11.1 HERE]

Class I is displayed in Harmony diagram 11.2, where obligatory reflexive morphology results in lexical gaps. In this case, candidates *b* and *d* are not *Generated*, nor is candidate *c* as it is semantically incoherent.

[INSERT HARMONY DIAGRAM 11.2 HERE]

Class II is displayed in Harmony diagram 11.3, where again, three candidates fail to be generated. Lexical gaps entail that no *se* candidates (*a, c*) are generated. The incoherence of a result state

with –R also means that candidate *d* is not *Generated*. This leaves candidate *b* as the only optimal expression-interpretation pair.

[INSERT HARMONY DIAGRAM 11.3 HERE]

The Harmony diagrams 11.4-11.6 represent the optimizations for the partial completion pattern. *Pendant X hours* ‘for X hours’ asserts duration of a process that does not go to completion. It is semantically incoherent with +R as well as with punctual verbs; +R candidates are therefore not *Generated*. Only durative verbs are discussed below.

Consider first a Class III verb like (*se*) *durcir* ‘harden’. Non-reflexive-marked candidate *d* is more harmonic than candidate *c*, given the ranking specified in Harmony diagram 11.4: $c < d$ from REFL \rightarrow +R half of REFL \leftrightarrow +R.

[INSERT HARMONY DIAGRAM 11.4 HERE]

For Class II_{**sc*} (*flétrir*, durative) the optimal candidate is the same—candidate *d*—but that’s because its three competitors are eliminated by lexical gaps (candidates *a* and *c*) and semantic incoherence with +R (candidate *b*). For Class I_{*sc*} (*se gâter*, durative) three candidates also fail to be *Generated* (*a*, *b*, *d*) but the optimal candidate is different (candidate *b*) because the lexical gaps are different; candidate *c* is optimal.

[INSERT HARMONY DIAGRAM 11.5 HERE]

[INSERT HARMONY DIAGRAM 11.6 HERE]

Turning to neutral sentences, *NP (se) V* lacks an aspectual specification and is therefore compatible with +R/–R interpretations. Along with the optionality of *se* this results in a ‘richer’ optimization. As shown in Harmony diagram 11.7 all candidates are *Generated*. Candidate *a* is globally most harmonic—it incurs no violation as shown in Tableau 11.1. In terms of the recursive procedure defined in (31), the (super)optimality of candidate *a* results in eliminating

any pair with the same interpretation (candidate *b*) and any pair with the same expression (candidate *c*). This leaves the only remaining candidate *d* as optimal on round 2 of the recursive procedure. For every comparison the Harmony diagram 11.7 is annotated with the violations incurred by the suboptimal candidate.

[INSERT HARMONY DIAGRAM 11.7 HERE]

For verbs belonging to other classes, lexical gaps result in reduced optimization options.

Harmony diagram 11.8 provides an optimization example of Class II_{*se} where reflexive-marked candidates (*a*, *c*) fail to be *Generated*. Note that the ranking specified in Tableau 11.1 is crucial to eliminating candidate *d* and leaving candidate *b* as optimal (Υ from INCH \Rightarrow +R \gg REFL \Leftrightarrow +R).

[INSERT HARMONY DIAGRAM 11.8 HERE]

Finally, Harmony diagram 11.9 provides an optimization example of obligatorily reflexive-marked Class I where non-reflexive-marked candidates fail to be *Generated*. Candidate *a* is globally most harmonic (by Tableau 11.1), hence it is optimal and eliminates candidate *c* which shares its reflexive-marked expression.

[INSERT HARMONY DIAGRAM 11.9 HERE]

Summing up, an analysis which relies on two markedness constraints and (Weak) Bidirectional Optimization straightforwardly handles the general pattern of default and antiblocking in inchoatives in aspectual frames uncovered in the earlier part of this paper. The import of the analysis lies in its generality and its simplicity. While the existence of lexical gaps has the effect of reducing the scope of the optimizations — and so does the possible semantic incoherence of particular aspectual interpretations — the account makes use of very general tools to derive different optimal candidates in different classes of inchoatives, both in neutral as well as aspectually specified contexts. In one case (Harmony diagram 11.7) the recursive procedure

which defines Weak Bidirectional Optimization ensures the right result—two optimal candidates. Importantly, Weak Bidirectional Optimization is further validated in cases of blocking in ICs, which interacts with lexical gaps to a lesser extent.

11.4.3. Blocking in Impersonal Constructions

As discussed in Section 2 alternating inchoatives show a restriction not found with non-alternating change of state verbs: only with reflexive marking are they grammatical in ICs, where the clitic pronoun *il* is interpreted as an expletive subject. Non-reflexive-marked counterparts (where available) are grammatical, but under a different interpretation—*il* is interpreted as referential, and the verb is construed as transitive. A core set of examples involving optionally reflexive (*se*) *casser* ‘break’ is repeated in (45).

(45) a. *Il s’est cassé plusieurs branches.*

‘√There broke several branches/*He broke several branches’

b. *Il a cassé plusieurs branches.*

‘*There broke several branches/√He broke several branches’

c. *Il en a cassé plusieurs.*

‘*There broke several/ √He broke several’

Below we propose a bidirectional OT analysis where expressive competitions involve \pm reflexive (= with or without *se*) and interpretive competitions involve \pm REF (+REF: *il* is referential, argumental; –REF: *il* is expletive, non-argumental). The single markedness constraint at work is familiar from other empirical domains in the OT literature.

(46) FULLINTERPRETATION : No expletives. (Grimshaw 1997; Legendre et al. 1998).

$\langle\langle se \rangle V, -REF \rangle \prec \langle\langle se \rangle V, +REF \rangle$

One of the candidates, $\langle se\ V, -REF \rangle$, is structurally defective. Assuming that inchoative reflexivization with *se* absorbs the external argument of a transitive verb (e.g. Marantz 1984; Grimshaw 1990; Reinhart and Siloni 2005), this leaves only one argument position, and the sentence already has a full DP internal argument independently of *il*. Unless *il* is given an expletive interpretation, it would constitute a second argument, which the reflexive predicate cannot accommodate.

Clearly this constraint is present in every syntactic theory under some name. OT offers two alternative formal treatments. One is to exploit the power of *Gen* and generate only candidates containing arguments which accommodate the argument structure of individual verbs. The alternative is to add a markedness constraint with the same content, ARGUMENTSTRUCTURE, and rank it above FULLINT in French. For example $\langle se\ V, +REF \rangle$ violates high-ranked ARGSTRUC and is eliminated in *Eval*. Either approach achieves the same results for French. If it is enlightening to analyze some phenomenon in some language as including grammatical structures in which ARGSTRUC is violated, then ARGSTRUC should be treated as a violable, re-rankable constraint. In such a language a referential interpretation of *il* in *il s'est brisé plusieurs branches* 'there broke several branches' would be grammatical, with the referent of *il* interpreted causatively, even though *se briser* has no corresponding argument position. In the absence of such evidence we proceed with assuming that ARGSTRUC is a constraint on *Gen* while remaining cognizant of the fact that evidence from cross-linguistic variation is ultimately needed to decide. The candidates *Gen* fails to generate are listed in (47).

(47) Not generated by *Gen*:

- a. $\langle il\ se\ V\ NP, +REF \rangle$ (all classes)
- b. $\langle il\ V\ NP, -REF \rangle$ (Class I_{se})

- c. ⟨il se V NP, -REF⟩ (Class II_{se})
 d. ⟨il V NP, +REF⟩ (non-alternating)

(47a) is not *Generated* for any inchoative class. *Se* V is syntactically intransitive as shown in (17)-(18), which is incompatible with construing ⟨il, +REF⟩ as a second argument. (47b) is not *Generated* for any inchoative which lexically requires *se* in intransitive clauses (Classes I_{se}). (47c) is not *Generated* for any inchoative which lexically prohibits *se* (Class II_{se}). Finally (47d) is not *Generated* for any non-alternating inchoative. These candidates are included but struck-out in Tableaux 11.2-11.6 and corresponding Harmony diagrams 11.10-11.14 below.

Consider optionally reflexive-marked alternating inchoatives (Class III) first. The violation table in Tableaux 11.2 shows that there is one globally harmonic candidate, *d*. In terms of the procedure defined in (31), the (super)optimality of *d* results in eliminating any pair with the same expression (candidate *b*). Eliminating any pair with the same interpretation (candidate *c*) fails to apply because *c* is not *Generated*. This leaves only candidate *a* for round 2 of the recursive procedure. It has no competitor and therefore is also (super)optimal. Thus, the Weak Bidirectional Optimization architecture—two rounds of optimization—is crucial to yielding the right outcome: two grammatical pairs, i.e. referential *il a cassé NP* (transitive) and impersonal *il s'est cassé NP* (intransitive). Candidate *a* could not be evaluated as optimal under any alternative OT architecture. The same result is obtained for alternating Class I_{se} (e.g. *se briser*) as shown in Tableaux 11.3 and Harmony diagram 11.11. The only difference here is that two candidates fail to be *Generated*, hence only one candidate is available on each of two rounds of optimization. This yields two grammatical pairs, i.e. referential *il a brisé NP* (transitive) and impersonal *il s'est brisé NP* (intransitive).

The optimization for alternating, non-reflexive-marked Class II proceeds differently because a lexical gap changes the nature of the optimization. *Se* candidates (*a*, *c*) in Tableau 11.4 are all eliminated. This leaves two candidates that are evaluated on a first, and single round of optimization. Candidate *d* is globally optimal and its competitor *b* is eliminated because it violates FULLINT.

[INSERT TABLEAU 11.2 HERE]

[INSERT HARMONY DIAGRAM 11.10 HERE]

[INSERT TABLEAU 11.3 HERE]

[INSERT HARMONY DIAGRAM 11.11 HERE]

[INSERT TABLEAU 11.4 HERE]

[INSERT HARMONY DIAGRAM 11.12 HERE]

The formal analysis has so far focused on *alternating* inchoatives. But it makes a prediction which serves to verify the overall appeal of the analysis. With an intransitive verb lacking a transitive counterpart (denoted as Classes I' _{se}, II' _{*se} below), only the expletive interpretation satisfies argument structure requirements. The analysis thus predicts that the expletive interpretation should be grammatical, despite the fact that it violates the constraint, FULLINT, that is fatal to that interpretation for *craquer* (which does have a transitive form).

Non-alternating, non-reflexive-marked inchoative verbs like *exploser* 'explode' are analyzed in Tableau 11.5 and Harmony diagram 11.13. Lexical gaps prevent reflexive-marked candidates *a* and *c* from being *Generated*. Candidate *d* also fails to be *Generated*, but for a different reason: it violates the constraint on *Gen* ARGSTRUC. This leaves only candidate *b*, which despite its violation is declared optimal. This is indeed the correct outcome as shown in (53a), repeated from (14a).

[INSERT TABLEAU 11.5 HERE]

[INSERT HARMONY DIAGRAM 11.13 HERE]

Non-alternating, reflexive-marked inchoative verbs like *s'évanouir* 'to faint' are analyzed in Tableau 11.6 and Harmony diagram 11.14. Here lexical gaps prevent non-reflexive-marked candidates *b* and *d* from being *Generated*. This time around it is candidate *c* which also fails to be *Generated* because it violates ARGSTRUC. This leaves one candidate, *a*, as (globally) optimal. This is also the correct outcome as shown in (53b), repeated from (19a). Both outcomes (53a,b) are correctly predicted to have an expletive interpretation.

[INSERT TABLEAU 11.6 HERE]

[INSERT HARMONY DIAGRAM 11.14 HERE]

- (53) a. Il a explosé plusieurs bombes à Bagdad.
 'There burst several bombs in Bagdad'
- b. Il s'est évanoui plusieurs personnes assises au premier rang.
 'There fainted several people sitting in the first row'

11.5 Conclusion

Here we have argued that two seemingly complex patterns of reflexive marking of inchoative verbs in French—behavior in (im)personal constructions (ICs) and aspectual interpretation—are respectively best analyzed in terms of blocking and antiblocking at the lexicon/semantics interface.

We have shown that the pattern of ICs cannot be accounted for by postulating a syntactic configuration for *se* that is necessary and sufficient for the well-formedness of ICs. Empirically, the problem is that ICs are sometimes grammatical without *se*. Seeking the explanation not in

syntactic structure but in semantic interpretation, we have shown that ICs are grammatical except when the expletive interpretation is blocked by the availability of a referential interpretation, which is preferred. This proposal simultaneously explains those exceptional situations in which ICs are grammatical without *se*, and the generalization that ICs are always grammatical with *se*.

With respect to aspectual interpretations, we have presented new data showing that only one form of an inchoative verb—with or without reflexive marking—is compatible with the interpretation of an aspectual frame. By default, this form is reflexive-marked if the interpretation is result-oriented, non-reflexive if the interpretation is not result-oriented (e.g., a partial completion interpretation). If the lexicon fails to provide the relevant default form then the other form supports the frame's aspectual interpretation. If the lexicon provides two forms, then the default one has the relevant interpretation, blocking a similar interpretation for the other form.

A Weak Bidirectional Optimization approach, which simultaneously exploits interpretive and expressive optimizations, yields two optimal/grammatical forms with two different interpretations unless an expression fails to be generated because of a lexical gap or an interpretation fails to be generated because of its incoherence. Despite the complexity of the overall surface pattern the account is remarkable for its simplicity.

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References

- Blutner, Reinhard. 2000. Some aspects of optimality in natural language interpretation. *Journal of Semantics* 17(3): 189–216.
- Bouchard, Denis. 1995. *The Semantics of Syntax*. Chicago: University of Chicago Press.
- Chierchia, Gennaro. 2004. A semantics for unaccusatives and its syntactic consequences. In Artemis Alexiadou, Elena Anagnostopoulou, and Martin Everaert (eds), *The Unaccusativity Puzzle: Studies on the Syntax-Lexicon Interface*. Oxford: Oxford University Press, 288–331.
- Cummins, Sarah. 1996. *Meaning and Mapping*. Ph.D. dissertation. University of Toronto.
- Dowty, David R. 1979. *Word meaning and Montague Grammar*. Dordrecht: Kluwer.
- Dekker, Paul, and Robert von Stechow. 2000. Bi-directional Optimality Theory: An application of game theory. *Journal of Semantics* 17(3): 217–242.
- Grévisse, Maurice. 1969. *Le bon usage*. 9^e edition. Gembloux: Duculot.
- Gougenheim, Georges. 1939. *Système grammatical de la langue française*. Paris: Bibliothèque du Français Moderne.
- Grimshaw, Jane. 1982. On the lexical representation of Romance reflexive clitics. In Joan Bresnan (ed), *The Mental Representation of Grammatical Relations*. Cambridge, MA: MIT Press, 87–148.
- Grimshaw, Jane. 1997. Projection, heads, and optimality. *Linguistic Inquiry* 28(3): 373–422.
- Harley, Heidi. 2008. On the causative construction. In Shigeru Miyagawa and Mamoru Saito

- (eds), *Oxford Handbook of Japanese Linguistics*. Oxford: Oxford University Press, 20–53.
- Hendriks, Petra, Helen de Hoop, Irene Krämer, Henriëtte de Swart and Joost Zwarts. 2010. *Conflicts in Interpretation*. Sheffield: Equinox.
- Jäger, Gerhard. 2002. Some notes on the formal properties of bidirectional optimality theory. *Journal of Logic, Language and Information* 11(4): 27–451.
- Kayne, Richard. 1975. *French Syntax : The Transformational Cycle*. Cambridge: MIT Press.
- Kratzer, Angelika. 1996. Severing the external argument from its verb. In Johan Rooryck and Laurie Zaring (eds), *Phrase Structure and the Lexicon*. Dordrecht: Kluwer, 109–137.
- Lagae, Véronique. 1990. Les caractéristiques aspectuelles de la construction reflexive ergative. *Travaux de Linguistique* 20: 23–42.
- Labelle, Marie. 1992. Change of state and valency. *Journal of Linguistics* 28(2): 375–414.
- Labelle, Marie, and Edit Doron. 2010. Anticausative derivations (and other valency alternations) in French. *Probus* 22(2): 303–316.
- Legendre, Géraldine. 1989. Unaccusativity in French. *Lingua* 79(2): 95–164.
- Legendre, Géraldine. 2007. Optimizing Auxiliary Selection in Romance. In Raul Aranovich (ed), *Split Auxiliary Systems: A Cross-linguistic Perspective*. John Benjamins. 145–180.
- Legendre, Géraldine, Paul Smolensky, and Colin Wilson. 1998. When is Less More? Faithfulness and Minimal Links in Wh-Chains. In Pilar Barbosa, Danny Fox, Paul Hagstrom, Martha McGinnis, and David Pesetsky (eds), *Is the Best Good Enough? Optimality and Competition in Syntax*. Cambridge, MA: MIT Press, 249–289.
- Legendre, Géraldine, and Paul Smolensky. 2010. French inchoatives and the Unaccusativity Hypothesis. In Donna B. Gerds, John Moore, and Maria Polinsky (eds), *Hypothesis*

- A/Hypothesis B: Linguistic Explorations in Honor of David M. Perlmutter*. Cambridge, MA: MIT Press, 229–246.
- Levin, Beth, and Malka Rappaport-Hovav. 1995. *Unaccusativity*. Cambridge, MA: MIT Press.
- Marantz, Alec. 1984. *On the Nature of Grammatical Relations*. Cambridge, MA: MIT Press.
- Miyagawa, Shigeru. 1984. Blocking and Japanese causatives. *Lingua* 64(2): 177–207.
- Pesetsky, David. 1995. *Zero Syntax*. Cambridge, MA: MIT Press.
- Pylkkänen, Liina. 2008. *Introducing Arguments*. Cambridge, MA.: MIT Press.
- Reinhart, Tanya. 1997. Syntactic effects of lexical operations: Reflexives and unaccusatives. *UiL OTS Working Papers of Theoretical Linguistics*. Universiteit Utrecht.
- Reinhart, Tanya. 2002. The theta system – an overview. *Theoretical Linguistics* 28(3): 229–290.
- Reinhart, Tanya, and Tal Siloni. 2005. The Lexicon-Syntax Parameter: Reflexivization and other arity Operations. *Linguistic Inquiry* 36(3): 389–436.
- Rothemberg, Mira. 1974. *Les verbes à la fois transitifs et intransitifs en français contemporain*. La Haye: Mouton.
- Schäfer, Florian. 2008. *The syntax of (anti-) causatives: External arguments in change-of-state contexts*. Philadelphia: John Benjamins.
- de Swart, Henriëtte. This volume. Telicity features of bare nominal.
- de Swart, Henriëtte, and Joost Zwarts. 2009. Less form – more meaning: why bare singular nouns are special. *Lingua* 119(2): 280–295.
- Vendler, Zeno. 1957. Verbs and times. *The Philosophical Review* 66(2): 143–160.
- Verkuyl, Henk J. 1972. *On the compositional nature of the aspects*. Vol. 15. Dordrecht: Reidel.
- Zribi-Hertz, Anne. 1987. La réflexivité ergative en français moderne. *Le Français Moderne* 55(1–2): 23–54.

¹ A reviewer asks about the relation between antiblocking and ineffability. To address this concretely, we adopt here the unidirectional OT analysis of *wh*-questions in Legendre et al. (1998) and Legendre (2009). Absolute ungrammaticality, e.g., of Irish multiple-*wh*-questions, arises because the optimal output faithfully expresses only one of the multiple +*wh* features in the input (target interpretation) for a multiple-*wh*-question. Thus any input targeting a multiple-*wh*-question yields only a single-*wh* question. Multiple-*wh*-questions are inexpressible, i.e., ineffable, in Irish. For the discussion of antiblocking in the text, unfaithful candidates are irrelevant. The relevant (unstated) Faithfulness constraints are presumed to be sufficiently highly ranked to never be violated in optimal candidates: there are no ineffable interpretations, and it is only conflicts among Markedness constraints [(34)–(35)] that are at issue. In antiblocking, the optimal expression of an interpretation violates Markedness constraints which are satisfied by the corresponding optimal expression in typical contexts. All inchoative interpretations are expressible using an aspectual context like ‘break into a thousand pieces’; the question is simply whether the optimal form is reflexive-marked or not.

² The interpretations discussed in the text contrast with those found in traditional grammars of French, which often characterize the function of *se* as denoting the subject-oriented nature of the process, i.e. the direct involvement of the subject in the process (e.g. Gougenheim 1939; Grévisse 1969).

³ Note that as with class-membership, there is variation among speakers as to which of the inchoative verbs have transitive counterparts.