

CONSUMING RESULTS IN ITALIAN & ENGLISH: FLAVORS OF V¹

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1. INTRODUCTION

The variable behavior of verbs has always been a fundamental issue for theories of the lexicon/syntax interface. The constructionalist approaches to this problem of the past decade or so have been very successful in accounting for a diverse range of alternations, largely because these approaches have formalized the influence of event structure on argument projection. The theoretical apparatus of this framework has made interesting predictions for previously puzzling grammaticality variations (Tenny 1992, Borer 1996, Davis and Demirdache 1995, Travis 2000, Ritter and Rosen 1998 and van Hout 1996, among others). However, the framework in some ways suffers from *overgeneration*: having introduced syntactic flexibility with respect to certain classes of alternating verbs, theorists are now faced with the inverse problem of accounting for gaps in alternation patterns. In short, why don't all verbs exhibit all alternation patterns freely? Such limits on variation are the primary success of Lexicalist approaches to argument projection (Jackendoff 1997, Levin & Rappaport-Hovav 1995, among many others).

We will introduce a notion of restrictions on alternations that depends on lexically specified differences in *v*, rather than on idiosyncratic restrictions on the root *V*. In particular we argue that at least one particular kind of gap in alternation can be attributed to the semantic properties of one flavor of *v*: DO.

We will argue that a new typology of *v* is needed to account for the behavior of consumption verbs, when they take an inanimate subject. These verbs, unlike non-alternating *destroy*-class verbs, do not generally allow inanimate agents. Compare (1a-c) with (1b-d)

- (1) a. The sea destroyed the beach. / The groom destroyed the wedding cake.
 b. *The sea ate the beach. / The groom ate the wedding cake.

¹ This is a draft version only; the final version will be produced pending presentation and discussion at the Workshop.

- c. Il mare ha distrutto la spiaggia. / Lo sposo ha distrutto la torta nuziale
 The sea has destroy.PST the beach/ The groom has destroy.PST the cake nuptial.
- d. *Il mare ha mangiato la spiaggia/ Lo sposo ha mangiato la torta nuziale.
 The sea has eat.PST the beach / The groom has eat.PST the cake nuptial.

Nonetheless, despite the ungrammaticality of inanimate subjects in transitive structures like those illustrated in (1), it is possible in certain circumstances to have an inanimate subject argument for these verbs. Crucially, however, an inanimate subject is only grammatical in combination with a change in the event structure of the predicate. Consider the examples below:

- (2) a. The sea ate away the beach. / *The sea ate the beach.
 b. The wind carved away the beach. / *?The wind carved the beach²
 c. Il mare si é mangiato la spiaggia / *Il mare ha mangiato la spiaggia
 The sea REFL is eat.PST the beach / The sea has eat.PST the beach
 d. Il vento si é ritagliato un pezzo di spiaggia / *Il vento ha ritagliato un pezzo..
 The wind REFL is carve.PST a piece of beach / the wind has carve.PST a piece...

In order to capture this restriction (which is quite general for the class of verbs in question), we propose that there are two different flavors of causative/agentive v : v_{DO} (Hale and Keyser 1993) and v_{CAUSE} . These light verbs place different restrictions on their subjects and complements; in particular, v_{DO} needs an animate, Agent subject, while v_{CAUSE} only requires that the subject be a possible causer. Secondly, v_{DO} can take a straightforward Incremental Theme as its complement —it's a true verb of creation— while v_{CAUSE} must take a state as its complement, creating essentially a resultative structure. This difference in selectional properties explains the required change in clause structure when a verb of creation takes an inanimate subject. In Italian, interestingly, this change in clause structure results in the appearance of the reflexive morpheme *si* and the switch to *be* auxiliary, which we claim bolsters the case that the morpheme *si* is a realization of a light verb, rather than a pronominal clitic (Burzio 1986, Manzini 1986, Cinque 1988, among others), along the lines of similar proposals

² The intended reading here is like that in 'Mary carved the wood', not 'Mary carved the toy', of course — we are not considering the possibility that the wind created the beach.

in Zubizaretta 1987, Zagana 1996, Folli 2002. We take this to be evidence in favor of a modified constructionalist approach to argument structure alternations. In the next section, we review the lexical and constructionalist viewpoints and lay the grounds for the debate.

2 THEORETICAL BACKGROUND

2.1. LEXICALIST VS. SYNTACTIC APPROACHES TO ARGUMENT/ EVENT STRUCTURE

In work on the lexicon-syntax interface, traditionally the study of verb classes and alternations is a fundamental field of investigation, because the identification of common syntactic properties belonging to verbs with common semantic characteristics has brought support to the hypothesis that some kinds of generalisations are indeed possible. Opposed to the idea that generalisations can indeed be made would be a view of the lexicon of a language merely as a list of items associated with a meaning and a set of syntactic structures compatible with it³; but this position seems untenable because it would imply that the syntax of individual verbs could vary arbitrarily, and it is clear from acquisition evidence that this is not so: children learn verbs and their association to pre-existing frames; they don't have to learn a new syntax for each individual verb.

We know that in a language like English verbs can display an incredible flexibility, as is shown by the examples below:

- (3) a. Mary cleaned
- b. Mary cleaned the table
- c. Mary cleaned the crumbs off the table
- d. Mary cleaned the table spotless
- e. Mary cleaned out her savings
- (4) a. John walked
- b. John walked home
- c. John walked Mary home
- d. John walked himself breathless

³ Maybe we can ascribe a weaker version of this atomistic view to Fodor (1970 *inter alia*).

e. John walked the morning away along the beach.

These are just few examples of how the alternating behavior of verbs is a complicated issue whose explanation has been at the center of two decades of work on aspectual classes and argument projections. In this specific case, it would seem that either we believe that in the lexicon of a language we have five different entries for each of the above verbs (i.e., *clean*₁, *clean*₂, *clean*₃, etc.) and that therefore the syntactic computation is working with one of the possible entries each time; or, if we want to maintain that it is ideally important to keep the number of entries in the lexicon of the language as low as possible, we would have to make the derivation of the different forms in (3) and (4) a matter of syntactic computation.

In the literature many have tried to tackle these questions from both sides. Given the agreement on the possibility of making generalisations about verb classes and syntactic structure, different proposals have been placing the burden of the explanation in either one of the two components, the lexicon (Chomsky 1970, Chomsky 1981, Levin and Rappaport-Hovav 1995, Jackendoff 1990, Baker 1988, among others) or the computational system (Borer 1996, 2002, Travis 2000, Kratzer 1996, van Hout 1996, Marantz 1997, Ritter and Rosen 1998, Harley and Noyer 2000, among others), but both lexicalist and constructionalist positions agree in this sense in trying to provide systematic correlation between the meaning of a verb and the structure it appears in, although the way this correlation is conceived varies very deeply.

Both positions base their argumentations on the two fundamental classifications that studies on verbs have produced, a classification of verbs in terms of the aspectual structure they encode (Kenny 1963, Vendler 1967, Smith 1991, among others) and a classification of verbs in terms of the argument structure(s) they allow (Perlmutter 1978, Burzio 1986). The interesting thing is that theories of the lexicon-syntax interface take advantage of these classifications and try to address a further question, namely how these distinctions are represented in the grammar and what is the division of labour between the lexical and the syntactic module.

The fundamental assumption at the basis of lexicalist positions is that many aspects of the syntactic structure of a sentence (and in particular how many arguments a verbal predicate has and where they are realised) are directly dependent on the lexical properties of the verbal entry or any other predicate contained in the sentence itself. Therefore, the lexical meaning of a verb, which is computed straight from the lexical encoding of the entry, is conceived of as determining its syntactic behaviour.

In the literature we find a number of developments of this basic idea. One example is the Projection Principle (Chomsky 1981) which states:

- (5) Lexical information is syntactically presented.

Other proposals along the same line have been Perlmutter and Postal's (1984: 97) *Universal Alignment Hypothesis* (UAH), stating:

- (6) There exist principles of UG which predict the initial relation borne by each nominal in a given clause from the meaning of the clause;

and Baker's (1988: 46) *Uniformity of Theta Assignment Hypothesis* (UTAH)⁴, stating:

- (7) Identical thematic relationships between items are represented by identical structural relationships between those items at the level of D-Structure⁵.

These hypotheses all stipulate and predict constant mapping of arguments into given syntactic positions, determined by the meaning of the verbs and constant across verbs and languages.

⁴ Borer (2002) notices that UTAH and constructionalist positions do share two fundamental assumptions: first, argument structure variations are derived syntactically, and not lexically because a lexical entry always projects in the same way; second, the interpretation of argument position is fundamentally linked to specific syntactic positions. On the basis of these two points, it could be argued that UTAH could be construed in totally not lexicalist terms, if we would dispense with the idea that argument structure projection is directly dependent on the properties of the lexical entry. See Borer 2002 and 1998 for details.

⁵ See also Baker 1997 for a more precise reformulation of the UTAH in terms of three main proto-roles (agent, theme and goal/path/location) that are mapped into specific syntactic positions.

A very influential approach along the same lines is the one developed by Levin and Rappaport-Hovav (1995, 1998 *inter alia*). For them, the fact that in natural languages we see a tendency for arguments bearing a certain semantic role to be realised in specific syntactic positions is a clear sign of how the ‘syntactic properties of verbs are determined by their meaning’ (1995: 1). Levin and Rappaport-Hovav, building on Jackendoff’s notion of Lexical Conceptual Structure, articulate the internal structure of lexical verb meanings by means of predicate decomposition and following, Carter (1988), they make use of *linking rules* to refer to the principles determining the association of semantic roles with specific syntactic expressions, believing that given the existence of strong similarities in the linking regularities across languages, linking rules must be part of the architecture of language.

Contrary to this position, a number of theories in recent years have proposed the opposite view (Borer 1994, 1996, Travis 2000, Kratzer 1996, van Hout 1996, Marantz 1997, Ramchand 1997, Ritter and Rosen 1998, Harley and Noyer 2000 among others); it is not the lexical semantics of a verb that determines its syntax, but rather it is the functional/aspectual structure in which a verb is inserted, and therefore the syntactic positions in which its arguments are realised, that determine the interpretation.⁶ For these theories, the *construction* of functional event structure on the top of the predicate merging into a derivation is responsible for the assignment of event roles to the participants in the event, and accordingly, because we can hypothesise *construction* of different event structures on the top of the single verbal entry, we have the phenomenon of verb alternation. The idea is that if we take a verb which we see alternate between an atelic/activity reading and an accomplishment reading (see examples (3) a., b. and (4) a., b. versus (3)c, d. e and (4)c, d, e), the different interpretations are due to the insertion of the single verbal entry in syntactic structures containing different functional categories and the consequent merging (or raising) of its arguments in the different specifiers positions generated by the functional categories themselves.

⁶ Hale and Keyser 1993 et seq. make an even more radical proposal, according to which the syntactic position is the *only* factor involved in determining meaning; they ascribe no direct predicative content to the light verb that they propose (although they gloss it usually along the same lines as the work cited above).

In this paper, we pursue a constructionalist-type explanation of the alternation we discuss in section 3 because we agree with the fundamental constructionalist hypothesis on the decomposition of meaning in the syntax. The fundamental motivations for pursuing this kind of approach are both theoretical and empirical. Starting with the theoretical strength of a syntactic-based approach, it has been shown that there are a number of syntactic phenomena that a lexicalist approach has difficulty explaining (see for example Rosen 1984 for a discussion of the phenomenon of unstable valency of unaccusative/unergative verbs, Hoekstra and Mulder (1990) on the alternating behaviour of motion verbs in Italian and Dutch). But even more implausible is to imagine that all the syntactic correlates of the unaccusative/unergative distinction (*ne*-cliticization, auxiliary selection, availability of resulative construction, *er*-nominalisation in English, and possessor datives in Hebrew etc.⁷) are not a reflection of derivational facts. From the empirical point of view, this approach seems strongly supported by the robustness of the syntactic bootstrapping account compared to the semantic bootstrapping account as regards the problem of language acquisition (Gleitman 1991, Borer 2001, van Hout 1998) and from the hypothesis that event structure is accessed before argument structure in the process of sentence comprehension (Bever p.c., and O'Brian, Folli, Harley and Bever 2002).

But the generation of alternations is one side of the problem that theories of the lexicon-syntax interface have to solve, the other being the absence of certain forms that an extreme constructionalist position would not predict to occur. In other words, if it is true that a verb can have different event/argument structure simply because it is inserted in different syntactic structure, and if we want to maintain that no lexical specification is present, we should expect to find maximal flexibility, i.e. we should expect all verbs to behave the same way. But this is not true and we will briefly return to this point in section 2.3.

The way we propose to tackle this issue is by assuming that indeed something is specified in the lexicon, and therefore by trying to answer the question of what are

⁷ See Borer 2002.

the lexical determinants of event structure⁸. In this paper we look at one specific case of alternation and propose that verbs can encode different flavors of *v*.

2.2. SUB-EVENTS, SEMANTIC/SYNTACTIC CORRELATION: AT LEAST INITIATE & RESULT, MAYBE MORE

The natural extension of the idea that certain aspects of lexical meaning are represented in the syntax (Hale and Keyser 1993, Borer 1994) is the hypothesis that the complex aspectual event structure of predicates is decomposable syntactically and semantically. In other words, events are not atomic units, but rather can be analyzed in their internal structure and different kinds of sub-evental combinations can be identified. The vast amount of literature on verb classes have shown that the postulation of sub-events is grammatically real because the existence of an internal articulation can be proved by a number of syntactic and semantic considerations.

We mention below two famous arguments in favor of such an hypothesis.

First, Kratzer (1996), drawing from Marantz (1984), notices that external arguments seem to have a special status because they are only rarely able to trigger a special interpretation of the verb, unlike internal arguments which very often do so.

Kratzer's conclusion is that there is a distinction between the internal arguments of verbs, that are part of the lexical entry and appear in the lexical semantic representation as arguments of the main predicate; and external arguments, which are represented in a neo-Davidsonian way as being introduced by an independent predicate. Accordingly, external arguments are added via secondary predication in the Specifier position of a Voice Projection. The effect of these considerations of the internal structure of events is that verbs that have an external and an internal argument can no longer be analysed as atomic events, but as composed of a causing sub-event and change sub-event.

Another argument in favour of a finer grained analysis of events can be found in the analysis of adverbial modification (Hale and Keyser 1993, Higginbotham 1997, etc). Consider the following example:

⁸ See Ramchand 2002.

- (8) John almost melted the chocolate.

The sentence is ambiguous and has two interpretations⁹. It can mean that *John almost performed an action of melting the chocolate*, or that *John melted the chocolate almost completely*. Again, this implies that the macro event *melt* has sub-parts which can be individually modified by the adverb *almost*.

On the same note, Higginbotham (1997) notices that we can find different adverbials able to modify only one of the two sub-events, again confirming the need of a bi-eventive analysis of causative forms:

- (9) John sat his guest on the floor on purpose
(10) John sat his guest on the floor slowly (Higginbotham 1997:3).

where in (9) the adverbial *on purpose* can only modify the causing sub-event, while in (10) the adverbial *slowly* can only modify the sitting event.

In the syntax, the sub-evental structure is represented through an articulation of the VP structure in VP shells, as proposed by Larson (1988). We will use vP to indicate the upper VP shell and SC to indicate the lower predicative shell. As in Hale and Keyser 1993, we use 'vP' in purely abstract terms, in the sense that we're not making any assertions that vP is an instantiation of a particular light verb or particular causative head.

⁹This decompositional approach has been extended with the identification of a further need for decomposing of the change event into two sub-parts, the process event and the result event (Higginbotham 2000, Butt and Ramchand 2001, Ramchand 2002, Folli 2002, among others). Accordingly, a causative accomplishment predicates such as *open the door* in a sentence such as *John opened the door* is analyzed as composed of three sub-events, the causing event <e1> of *John doing something*, the change event <e2> of *the door being progressively in a different spatial configuration*, and the result event <e3> of *the door being open*. In line with Higginbotham (2000), the hypothesis is that the two sub-events composing an accomplishment predicate are in a very special relation that has to be represented as an ordered pair of events <e1, e2>, where <e1> is the development portion of the pair and <e2> the 'telos'. Any kind of predicate having this event structure is called a *telic pair*.

2.3. THE PROBLEM OF RESTRICTING ALTERNATING BEHAVIOR IN SYNTACTIC THEORIES

In section 2.1., we saw that one of the biggest problems for the lexicalist approaches to argument projection is due to the massive number of verb alternations. We argued that it is more efficient to hypothesize that alternations are a matter of syntactic computation.

But we cannot forget that the **flexibility in English is not complete** in a given language, and if we look for example at a language like Italian it seems to be even more constrained.

In English, for example, you can *destroy* all sorts of things, but you can *collapse* only those things that are made to be collapsed:

- (11) John destroyed the tent
- (12) John destroyed Mary
- (13) John collapsed the tent
- (14) *John collapsed Mary¹⁰.

Moreover, while some verbs can be used to describe both caused and uncaused events, others cannot:

- (15) *The tent/Mary destroyed
- (16) the tent/Mary collapsed.

Similarly, if we take two classes of verbs such as ‘change of state verbs’ and ‘consumption verbs’, we see that while the first class alternate between a causative form and an inchoative form, the second class does not. But what would prevent, in theory, the formation of a sentence such as ‘*a cake ate*’ with the meaning ‘*there was an eating of a cake*’, if the insertion of a verb into different kinds of syntactic frames is all we need to posit to account for these kinds of phenomena?

Turning to Italian, we see that while certain verbs of manner of motion can describe just like in English both bounded and unbounded events, others can only

¹⁰ See Higginbotham 1997 for a discussion of these facts.

describe unbounded events:

- (17) a. Gianni ha corso nel bosco per ore
John ran in the woods for hours
b. Gianni è corso nel bosco in un secondo
John ran into the woods in one second
- (18) a. Gianni ha camminato nel bosco
John walked in the woods
b.*Gianni è camminato nel bosco
John walked into the woods
c. Gianni è andato nel bosco camminando
John went into the woods walking.

The examples in (17)-(18) show two things. First, the above examples show that in Italian, contra Talmy (1985), it is possible to form goal of motion interpretations with the verb indicating the manner of motion and the PP providing the end point of motion; in other words, verbs of motion in Italian can be inserted into a functional structure proper to eventive/telic clauses. Second, we see that this possibility does not extend to any verb of motion. In example (18) we can see that *camminare* (*walk*) can only be atelic and the only way to express the telic event to *walk home* is by means of a periphrasis as in (18)c.¹¹. In the case where the formation of the telic interpretation is not available it would seem that the lexical entry is able to prohibit, in some way, the construction of the functional structure we have when an event of motion is given a telic interpretation. Again the search for lexical determinants of argument projection is on.

3 ANALYSIS

3.1 ANIMACY REQUIREMENTS AND ARGUMENT STRUCTURE ALTERNATIONS

In English and most other languages, certain classes of verbs are able to change their argument structure quite freely and, for instance, allow both a transitive

¹¹ See Folli(2002) for details.

and intransitive, or transitive and ditransitive, form. Moreover, in the causative form, any kind of causer or agent is possible. Consider the examples in (19):

- (19) a. The door opened
- b. John/The wind opened the door
- c. The glass broke
- d. Mary/The stick broke the glass
- e. Jim and Tammy Faye Bakker separated
- f. Jimmy Swagert/Adultery separated Jim and Tammy Faye Bakker.

On the other hand, there are many verbs which do not alternate, and also verbs which require a particular kind of causer argument, some of which are illustrated in (20):

- (20) a. The army/The tornado destroyed the city
- b. *The city destroyed
- c. John arrived
- d. *The train arrived John
- e. Sue/The tornado killed someone
- f. Sue/*The tornado murdered someone
- g. The warden/Sickness imprisoned Andrew
- h. The warden/*Sickness jailed Andrew.

3.2 VERBS OF CONSUMPTION: ANIMACY REQUIREMENTS AND RESULTS

Verbs of consumption, like *eat*, *drink*, *consume*, etc., show the same pattern as in (20)a-b above, like *destroy*; the agent argument may not be freely omitted (see ex. (21) a-b below). They differ from the *destroy* verbs, however, in that they do not allow inanimate causer subjects (see examples (21)c below), like the *murder/jail* verbs illustrated above:

- (21) a. John ate the apple.
- b. *The apple ate.
- c. *Rot ate the apple.

The same facts obtain for Italian verbs of consumption:

- (22) a. Gianni ha mangiato la mela
Gianni has eat.PERF the apple
- b. *La mela ha/é mangiato/a
the apple has/is eat.PERF
- c. *La malattia ha mangiato la mela
The disease has eaten the apple.

The restriction to animate agents illustrated in (21)-(22)c above, however, is eliminated if the verb occurs in a resultative construction.

- (23) a. *The sea ate the beach. (like (21)c above)
- b. The sea ate away the beach
- c. The carpenter carved the toy
- d. The wind carved the beach
- e. *The wind carved the beach away
- f. The child nibbled the cookie
- g. *Erosion nibbled the cliff
- h. Erosion nibbled away the cliff
- i. The cowboy chewed the tough beef
- j. *The washing machine chewed the laundry
- k. The washing machine chewed up the laundry.

Again, the same carries over to Italian:

- (24) a. *Il mare ha mangiato la spiaggia (like (22)c above)
The sea has eat.PST the beach
- b. Il mare si é mangiato la spiaggia
The sea REFL is eat.PST the beach

- c. Gianni ha bevuto un caffè
John drank a coffee
- d. *Il sole ha bevuto il lago
The sun has drink PST the lake
- e. Il sole si é bevuto il lago
The sun REFL is drink.PST the lake
- f. Gianni ha succhiato una caramella durante la lezione
Gianni has suck PST a candy during the class
- g. *L'inflazione ha (ri)succhiato i risparmi ¹²
The inflation has suck PST the savings
- h. L'inflazione si é risucchiata i risparmi
The inflation REFL is suck PST the savings
- i. Gianni ha ritagliato un pezzo di legno
Gianni has carve PST a piece of wood
- j. *Il mare ha ritagliato un pezzo di spiaggia
The sea has carve PST a piece of beach
- k. Il mare si é ritagliato un pezzo di spiaggia
The sea REFL is carve a piece of beach.

This alternation shows a surprising property: the animacy restriction on the subject of the verb goes away when the structure of the verb phrase is altered. In English, the structural change is accomplished by adding a particle such as *away* or *up*; in Italian the inchoative reflexive *si* is inserted and the required auxiliary changes from *avere* to *essere*.

¹² We wish to point out that although in Italian the formation of particle constructions is highly restricted, there are few cases in which this kind of construction can be formed and an unbounded verb can be turned into a bounded one. Example (24)g.-j. are an example of this. In both cases the transformation of the sentence into a resultative structure can be done via the adjunction of the particle *via* (*away*):

- (i) l'Inflazione ha succhiato *via* i risparmi
The inflation has suck away PST the savings
- (ii) Gianni ha tagliato *via* un pezzo di legno
John has carve PST away a piece of wood.

The auxiliary alternation in Italian is also seen, of course, when a verb like *fondere* 'melt' is used transitively and intransitively, as shown in (25):

- (25) a. Gianni ha fuso il cioccolato
Gianni has melt PST the chocolate
b. Il cioccolato é fuso
The chocolate is melt PST.

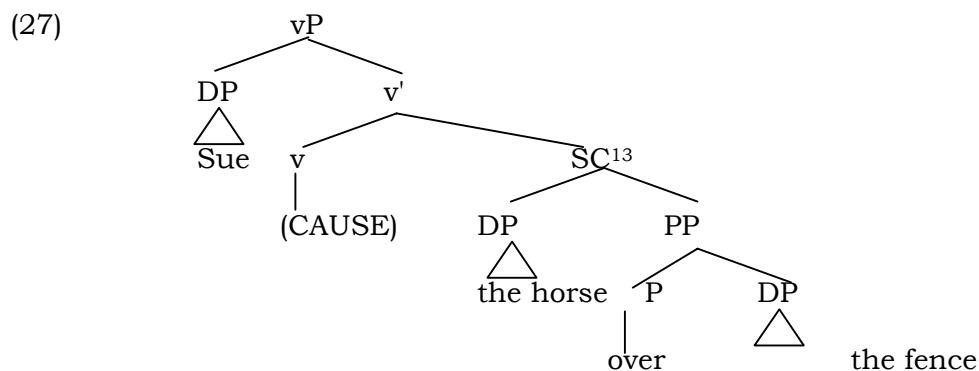
In addition, there is evidence in English that adding a particle or a prepositional phrase to certain verbs changes the argument structure of the VP. For instance, when an unergative verb like *waltz* or *jump* is used with a directional PP, it may take a direct object, which is impossible without the PP:

- (26) a. The couple waltzed (across the floor)
b. *John waltzed Mary.
c. John waltzed Mary across the floor.
d. Sue jumped.
e. *Sue jumped the horse.
f. Sue jumped the horse over the fence.

We argue, therefore, that the changes we see above with verbs of consumption are not just expressing optional adverbial modification, then, but crucially involve an alteration of the argument structure of the vP. This alteration effectively turns the argument syntax of the verb of consumption into a resultative structure.

3.3 STRUCTURE AND TELICITY IN RESULTATIVES AND VERBS OF CONSUMPTION

A resultative construction involves a transition to a result state, whether caused or uncaused. In the sentences in (26) above, for instance, addition of the goal PP provides a secondary predicate characterizing the state that results at the end of the event, which in (26)f, for example, we could gloss as ‘the horse over the fence’. In cases where the event is caused, we, along with many others, assume that it takes at least two verbal ‘shells’ to encode the whole resultative construction. The representation of (26)f, for example, includes at least the amount of structure illustrated below:



You will notice that there is no node in the present structure projected by the verb *jump*. It is either inserted by a ‘Manner Incorporation’ process like that proposed in Harley (2001), or it heads a Process VP that intervenes between the upper and lower shells in the above structure, à la Folli & Ramchand (2001). We will discuss both options below, although for present purposes the choice is irrelevant.

Consumption verbs fall into the class of transitive verbs with Incremental Themes, in the sense of Tenny 1987 or Dowty 1991. These are telic verbs, falling into Vendler’s aspectual class of Accomplishments. The Incremental Theme object ‘measures-out’ the entire event denoted by the verb; when it is completely consumed, the event is over and hence telic. Resultatives, of course, are telic as well. Nevertheless, we argue, following (Hay et al. 1999, Harley 2001, Ramchand 2002 etc.), that the telicity of verbs of consumption is not produced by encoding the endstate of the event explicitly in the syntax. This difference in structure is reflected in the different semantic properties of the two constructions. In resultatives, the direct object is not a true Incremental Theme, in that it is not fundamentally involved in measuring

¹³ "Small Clause"

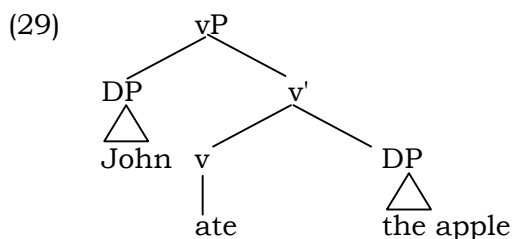
the subparts of the event, as noted by Jackendoff 1996 and others. In (26)f above, for example, it's the horse's change in position that measures out the event, not the physical properties of the horse itself; it doesn't take any longer for a big horse to jump over the fence than it does for a small horse to. On the other hand, it *does* take longer to eat a large apple than a small one.

The similarity of event type between the two constructions is a property of the semantics of the events that they express; however we know that telicity can be the effect of different kinds of phenomena. For example, as discussed in Hay et al. (1999), there is a class of verbs that they call 'degree achievements', exemplified by *lengthen*, *widen*, etc., which may be coerced into telicity by means of a number of syntactic and semantic processes (Moens and Steedman 1998). For example, consider the difference between (28)a-b below.

- (28) a. John lengthened the rope (*in 2 minutes/for 2 minutes)
 b. The tailor lengthened the trousers (in 2 minutes/for 2 minutes).

The difference in event type here is not the result of any syntactic change in the structures involved. Rather, it results from world knowledge; there is no conventional length for ropes, but there is a very salient conventional length for trousers (as long as the leg of the owner). When that length is achieved, the event is over.

We assume that the representation of verbs of consumption involves at least the structure below:



3.4 WHAT HAPPENS WHEN A VERB OF CONSUMPTION BECOMES RESULTATIVE?

In the dataset under consideration, we can identify four distinct reflexes of the alternation from verb of consumption to resultative construction, enumerated in (23) and (24):

- (i) In English, a particle is inserted after the object, realizing the secondary predicate
- (ii) In Italian, *si* is inserted before the main verb

and in consequence,

- (iii) In Italian, the auxiliary becomes *essere* and the main verb is a participle
- (iv) In both languages, the animacy restriction on the subject is removed

We wish to propose that the alteration in structure between the consumption verb illustrated in (29) and the resultative structure illustrated in (27) arises as a result of the morphosyntactic changes listed in (i)-(iv). Let us consider the Italian case first.

3.5 ITALIAN

The most salient distinction between the consumption and result sentences with *mangiare* 'eat' is the presence of *si* in the resultative variant. We propose that *si* is a realization of a light verb (as also proposed by Zubizarreta 1987, Lidz 1999, Folli 2002). The key property of the light verb realized by *si* is that it selects a state complement, which crucially encodes the final state of the event. Consider, for example, a verb like *fondere*, 'melt', which has two inchoative form, one with and one without *si*:

- (30) a. Il cioccolato é fuso (per un' ora)
The chocolate is melt PST (for an hour)
- b. Il cioccolato *si* é fuso (*per /in un'ora)
The chocolate REFL is melt PST (*for/in an hour).

We can see that the variant with *si* necessarily encodes a final state, and is hence necessarily telic, while the variant without may be unbounded. To confirm this point, consider the following examples:

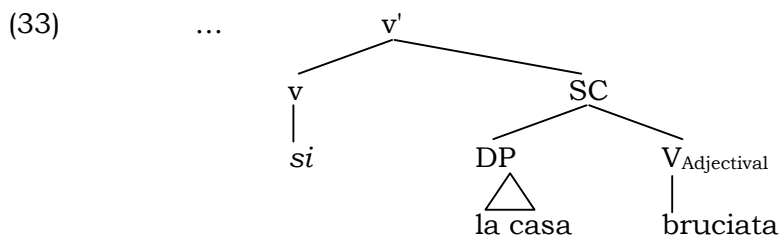
(31) Il cioccolato é fuso per un ora, ma non si é fuso completamente
 the chocolate is melt PST for an hour, but not REFL is melt PST completely

(32) a. la casa é bruciata (per un'ora), ma non é bruciata
 the house is burn PST (for an hour), but not is burn PST
 the house burned (for an hour), but it didn't burn down

b. *La casa si é bruciata, ma non é bruciata
 (contradiction)
 the house REFL is burn PST, but not is burn PST
 *the house burned down, but it didn't burn.

In each case, the verb in its inchoative form without *si* does not entail that a final state has been reached, as can be seen in (31) and (32) by the fact that if one variant is conjoined with the negation of the other, we have a contradiction if the *si* variant occurs first (as in (32)b.), but not if it occurs second (as in (31) and (32)a). (See other arguments for the verbal nature of *si* and other reflexive forms in Folli 2002.)

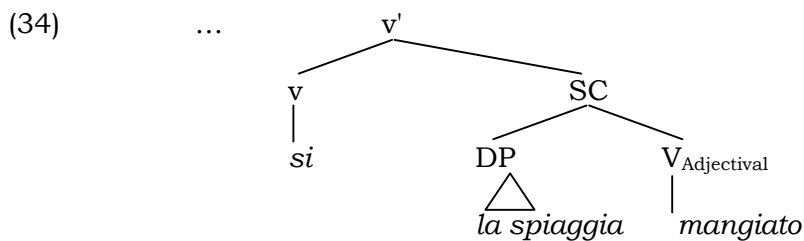
The fact that the verbal *si* encodes for a final result state means that a structure in which it occurs must include at least the following:



We wish to emphasize two properties of this structure. First, *v* is occupied by *si*. Contrast this with the proposed structure for verbs of consumption in (29) above, where *v* is occupied by the main verb. Insertion of *si* forces the merge of the main verb

into the lower position. Second, the main verb is crucially an adjectival participle, indicating the end state. (Its adjectival status is clear from the fact that it agrees with its subject). Remember that we have asserted above that *si* always requires a final state: in this structure, that final state is realized by the small clause formed from the DP and the adjectival participle.

In the case of verbs of consumption, introduction of *si* will also induce formation of a small clause, for the same reason. Consequently, the structure of *si mangiato la spiaggia* is the following:



Notice that the agreement on the participle in these cases is *not* with the object; see our discussion in section 4 for our analysis.

To sum up our proposal thus far, we have claimed that it is the fact that *si* selects for a final state that causes the structural change we observed in verbs of creation above.

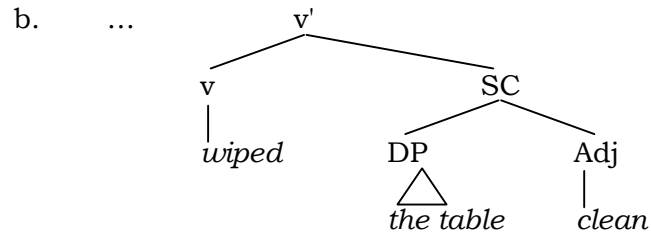
3.6 ENGLISH

Let us remind ourselves of the alternation as it appears in English:

- (35) a. John ate the apple.
 b. The storm ate away the beach / ate the beach away

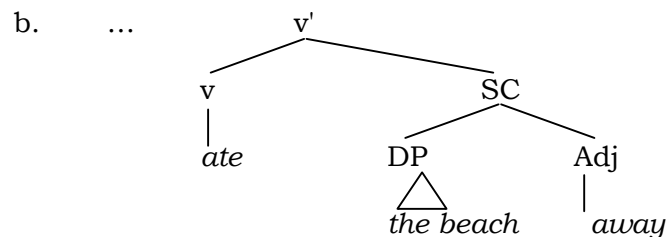
In this case, the trigger for small clause formation is not obviously a different light verb, but rather the presence of the particle *away*. This is identical to the structure of more familiar resultative constructions, as analysed for instance by (Chomsky 1981, Stowell 1983, Kayne 1985, Hoekstra 1984, Levin & Rappaport-Hovav 1995, Mateu 2000, among many others.). Consider the structure of the resultative VP illustrated in (36):

(36) a. Sue wiped the table clean



In a completely analogous way, addition of the particle to verbs of consumption results in the formation of a final state small clause; the phrase *eat the beach away*, then, has the same structure, illustrated below:

(37) a. The sea ate the beach away



4 ANALYSIS

In theta-theoretic terms, external arguments in SpecvP can bear either an Agent or a Causer role. These roles have very similar qualities, but one crucially different property: Agents must be intentional — they can *do* things — while Causes do not. This distinction can be lexically encoded, as we illustrated above for verbs like *murder* vs. *kill*.

What do Causes do? We claim that they initiate a change of state. Changes of state must be represented in a particular way in the syntax, that is, by the projection of a small clause.

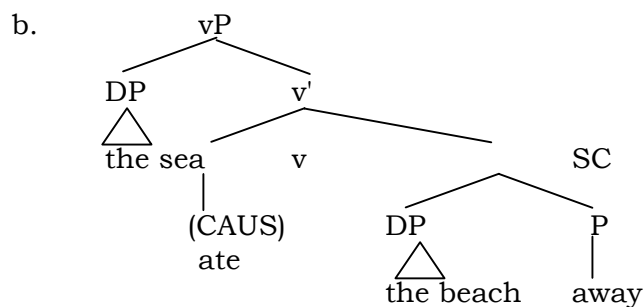
Certain kinds of inanimate things cannot be Agents. For instance, in ex. (20)h. above, *sickness* could not 'jail' *Andrew*; this is because *sickness* can only be a Cause, not an Agent. It is precisely this distinction that is at work in our examples with verbs of consumption. *The sea* or *inflation* can easily be interpreted as Causers, but are very poor Agents, because not intentional.

If such a Cause is used as the subject of a verb of consumption, a conflict arises, shown by the ungrammaticality of the examples in (23), one of which is repeated below:

- (38) a. John ate the apple.
 b. *The sea ate the beach.

In (38)b, the subject is Cause, and the verb selects a DP complement, not a final result state SC. However, with these verbs, another option is available. In English, formation of resultatives is freely available in the grammar, so a small clause can be easily constructed by the addition of a final particle, as illustrated above. When that occurs, the DP in subject position may be a Cause, rather than an Agent, because the change-of-state that Causes produce is now represented in the structure, and hence (39)a. is grammatical, with the structure in (39)b.

- (39) a. The sea ate the beach away.

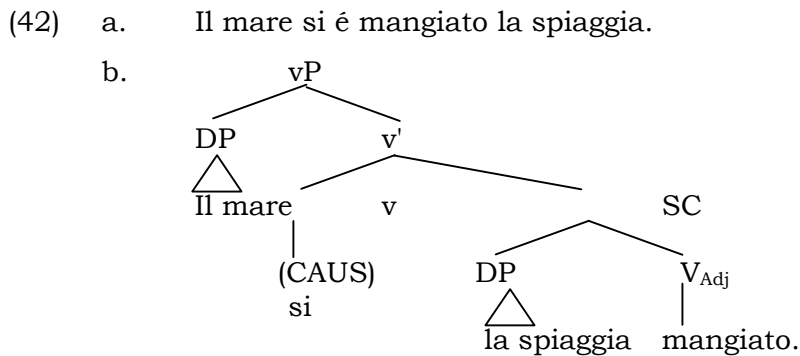


In Italian, the process is complicated by the fact that the formation of resultative structures with secondary predicates is not freely available (Napoli 1992, Folli 2002). Moreover, as noted by Giorgi and Pianesi (1998), among others, the past tense forms of Italian verbs of creation and consumption does not entail the telicity of the event. In other words, a sentence like *John ate an apple* in Italian does not necessarily imply that 'John ate the apple all the way up' (cf. Zagana 1996).

- (40) cosa ha mangiato Gianni per pranzo?
 What has eat-PST Gianni for lunch
 What did Gianni eat for lunch?

- (41) a. Gianni ha mangiato una mela, ma non l'ha finita.
 John has eat-PST an apple but NEG it has finish.PST
 John ate an apple, but he didn't finish it
- b. #Gianni si é mangiato una mela ma non l'ha finita.
 John REFL is eat-PST an apple, but NEG it has finish.PST
 John ate an apple up, but he didn't finish it.

As discussed above, the reflexive morpheme may be introduced to force the projection of a result state SC. As a consequence, the effects noted above follow: (i) the external argument may be a Cause, not an Agent, and (ii) the telicity of the whole phrase is now enforced. We propose that these clauses have the structure in (42) below:



Two questions immediately arise: the word order illustrated above does not match that of our clause, where the object follows the verb rather than precedes it; moreover there is the question of agreement: here the participle must agree with the subject, not the object, as might be expected. We argue that both facts are accounted for in the same way: the V_{Adj} , which is projected with an +AGR feature, raises to adjoin to v , giving the correct word order. (Later in the derivation the clitic will raise and adjoin to the finite auxiliary in T , and the subject will raise to Spec-TP). The adjectival verb will check agreement against the subject in spec-vP, in the standard spec-head configuration.

It is still clear that the participle is adjectival, not perfective, however, because the gender and number of the subject change the shape of the participle in the *si* construction, but do not trigger a change in the participle agreement in the perfective. Consider the examples in (43):

- (43) a. Gianni ha mangiato una mela
Gianni HAS eat PST an apple
- b. Maria ha mangiato/*mangiata una mela
Maria HAS eat.PST/*eat.FEM PST an apple
- c. Gianni e Maria hanno mangiato/*mangiati una mela
Gianni and Maria HAVE eat.PST/ *eat.PLU.PST an apple
- d. Gianni si é mangiato una mela
Gianni IS eat PST.MASC an apple
- e. Maria si é *mangiato/mangiata una mela
Maria IS *eat.PST.MASC/eat.FEM PST an apple
- f. Gianni e Maria si sono *mangiato/mangiati una mela
Gianni and Maria ARE *eat.SG.PST/ eat.PLU.PST an apple.

In (43)a, b and c, the number and gender of the subject do not affect the form of the participle, but in the *si* constructions in (43)d,e, and f, both number and gender are marked on the participle.

4.2 REFLEXIVE *SI*

The syntactic nature of *si* has been object of constant debate. The same morphological unit is used in a number of different constructions (middles, inchoatives, reflexives, impersonals), in each case affording different kinds of semantic effects. The analysis of all these kinds of constructions is beyond the scope of this paper, but what we wish to emphasize here is that the verbal analysis of *si* in the examples analysed above would allow a unitary analysis at least of inchoative and reflexive *si*. The idea that *si* is a verbal head and that as such occupies one the verbal head available.

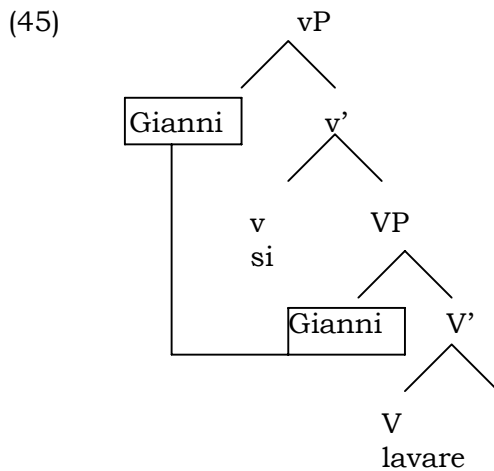
Intuitively, a reflexive form seems to be derived from the transitive one via a syntactic mechanism that affords the identification of the external and the internal

arguments of the event. The argument structure of a reflexive sentence is just like that of a transitive sentence, except that the internal argument and the external argument of the verb necessarily coincide. In English, this is achieved through the use of an anaphoric pronoun and in Italian through the use of *si*:

- (44) John washed himself
Gianni si è lavato.

But how does *si* make this possible?

The meaning of the sentence is that *Gianni is the agent of an event of washing having Gianni himself as its object*. We have a transitive causative event where the only argument is both the subject and object of CAUS. The hypothesis is that in the derivation of a reflexive structure, the verb merges lower, while *si* merges as *v*, making the two specifier positions identical¹⁴:



Thus, reflexive *si* has two fundamental properties: first, it carries a little *v* feature that forces it to merge in *v*. This is further confirmed by considering the behaviour of our reflexive sentence *Gianni si è lavato* when it is embedded under the explicit causative form with *fare* (*make*):

- (46) Maria ha fatto lavare Gianni

¹⁴ It should be noticed that in (45) we see one extra verbal shell. See Folli 2002 for details.

*Maria ha fatto lavarsi Gianni

As we can see, if *fare* is inserted *si* cannot surface, although (46) is ambiguous between a transitive interpretation (*Mary had someone washing John*) and a reflexive interpretation (*Mary had John washing himself*). In the reflexive interpretation, *si* cannot surface precisely because there is now no empty verbal head in which *si* could merge, the *v* head being filled with *fare* and the *V* head with *lavare* (*wash*).

Second, *si* has the syntactic properties of making the specifier positions of the adjacent verbal projections identical. In this sense it is like a reflexive operator.

5 EXTENSIONS

In treating the differences between causers and agents above, we have proposed that *v* comes in three different variants: CAUS, DO and BECOME. The latter is not a concern for us in this paper, but the difference between CAUS and DO is the fundamental basis of our account. In essence, we have proposed that when *v*=DO, an animacy restriction is imposed on its subject. In contrast, when *v*=CAUS, the subject may be animate or inanimate. In this section, we consider animacy restrictions and their connection to argument structure more closely, examining possession, nominalizations, aspectual effects and causation chains. With respect to the latter, we will show that Italian makes a distinction between inanimate CAUSES of events and inanimate instruments.

Recall that we initiated our discussion by noting the problems faced by constructionalist approaches to argument projection in terms of lack of complete productivity of alternations. In other words we have argued that lexical restriction must play a role in certain cases because any verb cannot be inserted in any frame. Here, we wish to underline this point by presenting a similar and related problem posed by animacy restrictions: verbs with ‘Agent’ or ‘Causer’ external arguments may not always combine with both animate and inanimate initiators. However, the effects of inserting an initiator of a different type are usually regular, rather than completely idiosyncratic, suggesting that a constructional-style explanation must face such effects head-on. Here again, we assume that some type of lexical restriction on ‘light’ semantic primitives must be invoked.

Animacy is well known to have predictable effects in many domains. Consider, for example, the difference between the English sentences in (47)a-b and (47)c-d below:

- (47) a. John has a broken arm
b. The oak tree has a large branch
c. John has a car
d. *The oak tree has a nest.

As shown by Belvin (1993) and discussed in Harley (1998), animate, intentional beings may enter into the *alienable* possession relation, as in (47)c: John has no necessary connection to the car other than his possession relation with it. On the other hand, inanimate things may only 'possess' subparts of themselves—they can only enter into an *inalienable* possession relation. This is why 1b, where the oak inalienably possesses a branch, is grammatical, while 1d, where the oak tree is said to possess something which is not a subpart of itself, *a nest*, is ungrammatical. This contrast carries over to other languages, including Italian.

Another case where similar changes have been observed is in unergative verbs of manner of motion and sound emission. Here, the distinction that has been proposed is not exactly between animate vs. inanimate subjects, but rather between internal vs. external causers of events (Levin & Rappaport XX). Consider the examples in(48) below:

- (48) a. John whistled.
b. The train whistled.
c. *The bullet whistled.
d. The bullet whistled through the window.

The crucial differences here are between (48)b and (48)c, and between (48)c and (48)d. The train is a possible internal cause of whistling—it is, after all, equipped with a whistle. The bullet, on the other hand, can only make a whistling noise by virtue of its movement; the whistling noise must be 'externally' caused in this case. The resulting effect on argument structure is strikingly similar to the effects we have

discussed above. We can see that a significant change has occurred by considering what happens when we try to extract the various arguments in (49):

- (49) a. John ran into the woods.
 b. The bullet whistled into the room.
 c. How far into the woods did John run?
 d. *?How far into the room did the bullet whistle?

A third case of a distinction created by an animate vs. an inanimate causer argument was noted by Harley and Noyer (2000), in a discussion of the difference between causers in the verbal and nominal frames. While both an animate and an inanimate causer are acceptable in the verbal frame (50)a-b, only the animate causer is appropriate in the nominal frame (50)c-d. Again, the same facts hold in other languages as well, in particular, they hold in Italian.

- (50) a. The judge separated Jim and Tammy Faye Bakker.
 b. Adultery separated Jim and Tammy Faye Bakker.
 c. The judge's separation of Jim and Tammy Faye Bakker
 d. *Adultery's separation of Jim and Tammy Faye Bakker.

A fourth case, noted by Iatridou (2002), is a subtle distinction between animate and inanimate subjects of verbs of permission in Greek. When the subject is animate (e.g. *the owner* in (51) a-b, both the past perfect and imperfect tenses are grammatical. When the permitter is inanimate, however, (e.g. *the licence* in (51)c-d), only the past imperfect is felicitous; the past perfect is marked:

- (51) a. O idioktitis mas epetrepse na exume skili, ala den ixame skili
 DET owner us permitPAST.PF NA have dog but NEG have.PSTPL dog
 The owner permitter (PF) us to have a dog, but we didn't have a dog
 b. O idioktitis mas epetrepe na exume skili, ala den ixame skili
 DET owner us permitPST.IMPF NA have dog but NEG have.PSTPL dog
 The owner permitter (IMPF) us to have a dog, but we didn't have a dog
 c. *Ekini i adia mas epetrepse na exume skili, ala den ixame skili

That DET license us permit.PAST.PF NA have dog but NEG have.PSTPL dog

The license permitter (PF) us to have a dog, but we didn't have a dog

d. Ekini i adia mas epetrepe na exume skili, ala den ixame skili

That DET license us permit.IMPF NA have dog but NEG have.PSTPL dog

The license permitter (IMPF) us to have a dog, but we didn't have a dog

Again, these facts are also seen in Italian.

(52) a. Il padrone ci ha promesso di avere un cane, ma...

The owner us has permit PST to have a dog but...

The owner permit (PF) us to have a dog, but

b. Il padrone ci permetteva di avere un cane, ma...

The owner us permit IMPF to have a dog but...

The owner permit (IMPF) us to have a dog, but

c. *#La licenza ci ha promesso di avere un cane, ma...

The license us has permit PST to have a dog but...

The license permit (PF) us to have a dog, but

b. La licenza ci permetteva di avere un cane, ma...

The license us permit IMPF to have a dog but...

The license permit (IMPF) us to have a dog, but

A fifth case, observed by Folli 2002, is the presence again of some kind of selectional restrictions on the initiator with certain change of state verbs in Italian.

Consider the following examples:

(53) a. *Il temporale ha chiuso le finestre

The storm closed the windows

b. *Il vento ha rotto la sedia

The wind broke the chair

c. *Il sole ha aperto la busta

The sun opened the envelope.

From these examples we could draw a preliminary conclusion and say that in Italian only intentional agents qualify as possible initiators for these kinds of verbs. But this cannot be quite right, because of the following data:

- (54) a. Il temporale ha svegliato Gianni
The storm woke Gianni up
b. Il vento ha rotto la finestra
The wind broke the window
c. Il sole ha alterato i colori
The sun altered the colors.

As we can see, in (53) and (54) we have the same DP subjects but in the second set of data no restriction occurs,

If we consider more closely (53)a. and (54) a. we can see that an explanation could be found in the causation chain linking *the storm* on the one hand to *the waking up of John* and, on the other to *the breaking of the window*. The noise is a necessary and obvious property of *the storm* and as such *the storm* qualify as a proper internal causer. On the other hand, when we say that *the storm closed the window* it is undeniable that we have to ascribe an intermediate link to the causation chain, for example *a branch* or *the wind generated by the storm*. Again then, we are in the position of saying that in this case the DP can only be an external causer.

To sum up this section, we have illustrated that the properties of lexical items, such as agentivity or ability to be an ‘internal’ causer, have repercussions for argument structure. Again, the effects are both strikingly systematic and yet not clearly attributable to changes in the syntax of these constructions. We suggest that an approach like the one we have proposed above for verbs of consumption will also be appropriate in most, if not all, of these cases.

6 CONCLUSION AND SPECULATION

The natural prediction of the constructionalist viewpoint with respect to argument projection is strict compositionality and complete productivity. In the ideal world, this would be the whole story. We have shown, however, that there are

limitations on argument projection that cannot be explained by a strictly syntactic approach. We have proposed that there are distinct flavors of light verbs, with distinct selectional properties, and that this accounts for the observed dependence of the alternation on factors like animacy and intentionality of the causer argument.

Ultimately, we speculate that these effects illustrate the interaction between world knowledge and the syntactic component. It is undeniable that the ability to tell whether a particular entity is a legitimate internal causer is clearly part of our Encyclopedic knowledge of the word. It is an inherent property (an *inalienable* property) of storms, for instance, that they make noise; on the other hand, moving branches is not an inherent property of storms. We do not wish to say that such knowledge about storms is part of our language faculty. Our language faculty does, however, directly encode causation. We propose that different flavors of *v* are a natural way to link the computational mechanism of argument projection with the fuzzy effects of world knowledge on language use; it is the interaction of the two that produces the predictable yet knowledge-dependent set of alternations that we have presented.

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