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# Lexical classes and constructions: an analysis of the constructional realization of *entity-specific change-of-state* English verbs

**Francisco José Ruiz de Mendoza Ibáñez & Andreea Rosca**
*University of La Rioja, Logroño*

## Abstract

This study analyzes a so far neglected part of the constructional behavior of Levin's (1993) *entity-specific change-of-state* verbs. More specifically, we discuss the integration of verbs from this lexical class into the *intransitive-resultative* construction. We base our analysis on the *Lexical Constructional Model* or LCM (Ruiz de Mendoza and Mairal 2008, 2011; Mairal and Ruiz de Mendoza 2009; Ruiz de Mendoza 2013). It will be shown that the *internal* and *external constraints* postulated by the LCM constitute useful explanatory and analytical tools for the fusion processes between these verbs and the intransitive-resultative construction. We also propose a classification of these verbs on the basis of their conceptual similarity and change schemas they encode.

**Keywords:** entity-specific change-of-state verbs; Lexical Constructional Model; intransitive-resultative construction; internal and external constraints; metaphoric amalgams.

## 1. Introduction

This article examines part of the constructional behavior of what Levin (1993) has called the class of *entity-specific change-of-state* verbs. Our aim in this respect is to show, on the basis of attested examples retrieved from standard corpora, that this verbal class displays a richer constructional behavior than has been attested in the specialized literature (Levin, 1993; Wright, 2002) and to account for the principles that license such behavior. Thus, we have found that the inchoative/causative alternation is not the only pattern with which entity-specific change-of-state verbs can combine: verbs from this class also take part productively in the intransitive-resultative construction.

The analysis in the present study is framed within the field of *Construction Grammar* (CxG), which has been referred to as a 'family of Construction Gram-

mars' (cf. Östman & Fried, 2004: 1). The various accounts within this family converge on several key assumptions:

i. Constructions, which are the basic units of description and explanation, are regarded as pairings of form and meaning, where the form comprises information about morphosyntactic properties, prosodic or phonetic shape, whereas the function is related to semantic, discursive and pragmatic features.

ii. Constructions are independent of the lexical items that fill them in. Thus, the caused-motion meaning of the sentence *He gazed me out of the club*, which involves a transitive use of the intransitive verb *gaze*, cannot be attributed to the verb but to the inherent semantics of the construction (Goldberg, 1995).

iii. Constructions are conceived as psychologically real, free-standing theoretical entities. Experimental evidence has shown that constructions are endowed with real psychological status (see Bencini & Goldberg, 2000; Goldberg et *al.*, 2004; Eddington & Ruiz de Mendoza, 2010). In an L2-learning context, Valenzuela and Rojo (2008) have given evidence that Spanish learners of English rely on constructions rather than on verb meaning when looking for semantic similarities among sentences.

iv. Grammar is viewed as a vast network of interrelated lexical and syntactic constructions with various degrees of specificity and syntactic complexity; generalizations across constructions are a matter of inheritance relations. For example, the ditransitive construction (X CAUSES Y TO HAVE Z) has core exemplars (*John gave Mary the book*) and more peripheral exemplars (*Mary knitted John a sweater*).

v. Constructions are born out of the repeated co-occurrence of linguistic configurations during usage-events of both native and foreign language speakers (Bybee, 2006; Ellis, 2003).

Within the wide array of CxG models, we have selected the Lexical Constructional Model or LCM (see Ruiz de Mendoza and Mairal, 2008, 2011; Mairal and Ruiz de Mendoza, 2009; Ruiz de Mendoza, 2013) because it can account for the intricate constructional behavior of predicates by making use of a limited set of constraints on the integration of lexical-predicate structure into constructional configurations. Unlike other constructionist approaches that focus their attention either on broad-scale generalizations (e.g. Goldberg, 1995, 2006) or on the constructional idiosyncrasy of verbal predicates (e.g. Boas, 2003, 2008ab), the LCM strives to strike a principled balance between the roles of predicates and constructions. Also, the LCM, in contrast to other lexical-constructional approaches (Boas, 2008ab; Iwata, 2005; Nemoto, 2005), relies more on empirically validated cognitive notions, such as experiential conflation, metonymy and metaphor (cf. Lakoff and Johnson, 1999; Gibbs, 2011).

Before presenting the principles that regulate lexical-constructional integration between the aforementioned verb class and the intransitive-resultative construc-

tion, special mention must be made of the two change schemas used to classify the verbs under scrutiny. These schemas, which have been borrowed from Ruiz de Mendoza and Luzondo (2012), represent an elegant way to regularize over the many –apparently arbitrary– ways of expressing end-results. The first schema, symbolized as A>A', involves a situation in which an entity A suffers a minor change which does not alter its essence (the acquisition of a new property, e.g. 'cleanliness' as in *The boy wiped the table clean*). The second schema, A>B, captures situations in which an entity A undergoes a total transformation that leads to a loss of homogeneity or integrity (e.g. *Persephone turned the nymph into a plant*). As will become evident below, these organizational schemas underlie much of the constructional behavior of entity-specific change of state verbs.

The structure of this article is as follows. Section 2 discusses the theoretical framework that we have chosen, whereas section 3 provides our own taxonomy of the verbal class under consideration. Section 4 and its subsections discuss the factors that motivate the lexical-constructional behavior of the verbs in the first group. Section 5 and its subsections focus on the constructional patterns of the verbs in the second and third groups. The last section reviews the findings of the present investigation.

## 2. The theoretical framework

In this section our aim is to motivate the choice of the theoretical framework on which we base the present investigation. The suitability of the LCM as a theoretical framework for our analysis arises from the fact that it studies the principles that regulate the interaction between predicates and constructions while it gives equal importance to both low-level and high-level constructions. In the next sections it will be shown that some of the constraints on lexical-constructional integration postulated by the LCM play a key role in licensing and blocking out fusion between entity-specific change-of-state verbs and the intransitive resultative construction (see Ruiz de Mendoza 2013 for a detailed account of constraints). The LCM distinguishes between *internal* and *external* constraints on the integration of lexical structure into constructional structure. The former involve the (usually metaphorical or metonymic) re-construal of the event-structure of a predicate so that it can fit into a construction with different event-structure requirements. The latter are based on the compatibility between the conceptual characterizations of lexical predicates and argument-structure constructions. Both external and internal constraints will be discussed in what follows.

When dealing with the integration of lexical predicates into constructions, linguists employ the term *coercion* (Pustejovsky, 1993). A definition of this notion was provided by Talmy (2000: 324) as follows: "when the specifications of two forms in a sentence are in conflict, one kind of reconciliation is for the specification of one of

the forms to change so as to come into accord with the other form". Constructionist approaches (Goldberg, 1995) support a unidirectional view of the coercion process going from the grammatical meaning of a construction to the meaning of a lexical item. However, as shown by Panther and Thornburg (2004), coercion can work in both directions. For example, the imperative construction, which usually combines with action predicates (e.g. *Leave the country before it is too late*), can accept a stative predicate as in *Be wealthy in ten months.* The meaning of this predicate changes to fit the action meaning of the construction, i.e. 'Do something so that you will be wealthy in ten months' (cf. also Panther & Thornburg, 2000). By contrast, a sentence like *Enjoy your summer vacation!* can receive two different interpretations: (i) an action interpretation which complies with the constructionist views, and (ii) an optative interpretation, which is grounded in a folk model that regards enjoyment as a spontaneous experiential state. In this light, the aforementioned sentence can be paraphrased as 'I express my hope/wish that you will enjoy your summer vacation'.

In the LCM, coercion is considered an epiphenomenon that results from the activity of other processes such as metaphorical and metonymic extensions of lexical items from a prototype, as claimed by Ziegeler (2007, 2010). The LCM position, as discussed in Gonzálvez (2012), is closer to the one in Harder (2010), according to which the slot properties of the components of a construction arise from the context-oriented interplay between different functional factors. This means that lexical structure has to be accommodated to (the functions of) constructional structure. What the LCM does is account for the conditions under which this process is possible in terms of constraints, metaphor and metonymy being just two kinds of constraint among a number of others (cf. Ruiz de Mendoza and Mairal, 2008). A case in point is supplied by the verb *deceive,* which undergoes a process of adaptation in order to fit the caused-motion construction (cf. *[…] I deceived* her into thinking *that she had scared me […];* COCA 1989). In this example the verb *deceive* changes its *Aktionsart* structure (from an activity to a causative accomplishment) through the application of the high-level metaphor A MENTAL MANIPULATIVE ACT IS AN EFFECTUAL ACTION. This metaphor, which is a specification of A CAUSED CHANGE OF STATE IS A CAUSED CHANGE OF LOCATION, allows us to construe the verb *deceive* as if it were a caused-motion predicate. Only because of this re-construal can the verb in question be incorporated into the caused-motion construction.

While external constraints act as licensing factors, internal constraints behave as blocking factors for lexical-constructional integration. Internal constraints can be grouped into two types, viz. vertical and horizontal constraints. The former refer to the way in which lexical structure (i.e. encyclopedic or logical) can be built into a constructional configuration. The latter involve lexical constraints on the instantiation of constructional variables. The *Event Identification Condition* is an example of a vertical constraint. According to it, the event structure of a lexical template and a constructional structure must be the same for subsumption to take place. In

the sentence *He burnt them to death* the PP describes the final resulting event whilst the verb encodes a prior causal subevent. The verb in a resultative construction must be the temporal subevent that is closest to the resultant state. That is why the resulting event cannot be rendered by a sentence such as **He kindled them to death* because this verb refers to the first sequence in the chain of events (i.e. causing an entity to start burning). Thus, the *Event Identification Condition* blocks out the integration of the verb *kindle* into the resultative construction since there is a mismatch between the subevents encoded by the verb and those of the construction. As an example of a horizontal constraint we can mention *Internal Variable Conditioning,* which will be widely used in our analysis. According to this constraint, the internal variables of a predicate can also place limitations on the nature of its constructional arguments. For example, the verb *gather* puts emphasis on the homogeneity of the result of the process of bringing things together. Because of this, when combining with the caused-motion construction, *gather* is only compatible with a Z element that depicts a coherent whole, as in *She gathered her straggly hair into a bun* (see Rosca, 2012, for more details).

## 3. A taxonomy of entity-specific change-of-state verbs

Levin's (1993: 246) list of entity-specific change-of-state verbs comprises twenty-one verbal predicates which we have grouped into three main categories on the basis of their conceptual similarity and the change schema they encode:[1]

(1) Verbs that are subsumed under the A>A' schema, which describe an increase in size (e.g. *bloom, blossom, flower, germinate, sprout, swell, blister*).
(2) Verbs that are subsumed under the A>B schema which describe a negative, destructive change affecting the integrity of an entity (e.g. *burn, corrode, decay, deteriorate, erode, molder, molt, rot, rust, stagnate, tarnish, wilt, wither*).[2]
(3) The verb *ferment*, which follows the A>A' schema, but is different from the first two categories since it does not involve an increase in size, a (necessarily) negative change or the disappearance of the entity.

The verbs in the first group designate the coming into existence of an entity out of a pre-existent one. For instance, in the blossoming process of a flower, the plant develops a protuberance (bud/blossom) outside its stem which marks the transition from the vegetative to the reproductive stage. Usually this process is seen as positive but not always so, as evidenced by the following figurative uses: *[…] corruption bloomed in the worst possible way* (Sketch engine doc#1796738), *Cysts germi-*

[1] Mention should be made of the fact that prepositional phrase resultatives can be encoded by the A>B as well as the A>A' change schemas (see section 4.1). Likewise, adjectival phrase resultatives can exploit both the A>B and the A>A' change schemas (see section 5.1).

[2] Levin (1993) mistakenly includes the verb *stagnate* among entity-specific change-of-state verbs. However, this verb does not evoke any change schema since its meaning encodes cessation of motion or progress.

*nate in the gastrointestinal tract […]* (Sketch engine doc#254041), or *[…] the tumor blossomed in a small cavity above the sinus […]* (Sketch engine doc#758951). Furthermore, the verb *blister* is similar to *swell* in that both depict an increase in size or volume either of a body part (e.g. *My feet and legs swell […]*; Sketch engine doc#8227) or of other kinds of surface (a blister can also be a raised bubble on a painted or laminated surface). Lastly, the verbs *germinate* and *sprout* are conceptually similar since both refer to the initial state of growth of a seed.

The verbs in the second group are all a subclass of change-of-state verbs, which can be used inchoatively (e.g. *He broke the window/The window broke, He burned the house/The house burned, Time corroded the metal/The metal corroded*). That is, they inherit this syntactic property from the change-of-state class. However, they may differ from other change-of-state verbs in other forms of constructional behavior. Contrast the sentence *The vase broke into pieces* with *The acid burned into the metal*. The verbs *break* and *burn* share the same constructional form (S+V+*into* PP) but they yield different semantic interpretations: the first sentence is an intransitive-resultative construction (the fragmentation of the vase into pieces is the result of the vase breaking) while the second example is an intransitive-motion construction (non-resultative: the metal is an affected entity rather than the result of the action described by the verb). While the process described by the verbs in the first group does not threaten the 'essence' of the experience, the one expressed by the verbs in the second group involves a total transformation of an entity that undergoes either a gradual or a sudden disintegration. Thus, when a plant withers, its size decreases and it begins to die. The conceptual similarity of the verbs *corrode, tarnish,* and *rust* resides in the fact that all of them indicate changes undergone by metals. Also, the verb *erode* refers to the gradual disappearance of the surface of soil or a rock. So the first group of verbs (*bloom, sprout,* etc.) and the second occupy diametrically opposed positions: while the former highlights a spatial/abstract expansion of an entity, the latter depicts a spatial/abstract reduction or disintegration of that entity. Lastly, the verb *ferment* involves an A>A' type of change in which a substance acquires new properties (e.g. when wine ferments into vinegar it undergoes different changes: color/taste/smell, but it retains its essence, i.e. it is still a liquid). However, the process described by the verb *ferment* is not necessarily a negative, destructive change as is the case with *decay* or *corrode.*

## 4. An overview of the intransitive-resultative construction with 'size increase' verbs

The intransitive resultative construction is fairly productive with the verbal class we are analyzing in this paper. The difference between the resultative (X CAUSES Y TO BECOME Z) and the intransitive-resultative (Y BECOMES Z) lies in the absence of the X causal element in the second type of constructional configuration. The result in the intransitive-resultative construction seems to be produced by the undergoer itself. This configuration is realized at the syntactic level by: (i) an adjectival phrase (AP); (ii) a prepositional phrase (PP) headed by *into* or *to*; (iii) a combination either of an adverb and an adjectival phrase (Adv+AP) or of an adverb and a prepositional phrase (Adv+PP). In the table below we exemplify all these combinatorial possibilities:

Table 1. The intransitive resultative construction with 'size increase' verbs.

| AP INTRANSITIVE-RESULTATIVE CONSTRUCTION WITH 'SIZE INCREASE' VERBS | |
|---|---|
| *But worst of all, the yellow flowers in the kitchen vase bloomed* blue | Sketch engine doc#88417 |
| *Luffa and sola plants still flowered* a saffron yellow | Sketch engine doc#1011853 |
| *[…] a series of concentric burns blistered* black *on a surface that stays white even in summer* | Sketch engine doc#2368880 |
| PP INTRANSITIVE-RESULTATIVE CONSTRUCTION WITH 'SIZE INCREASE' VERBS | |
| *In his youth, the qualities of foresight and planning bloomed* to perfection *[…]* | Sketch engine doc#101179 |
| *Instantly attracted to each other, this encounter blossomed* into the most intense relationship *of Goldman's life* | Sketch engine doc#255172 |
| *This idea of Canadian nationality later germinated* into the *1947* Citizenship Act | Sketch engine doc#969117 |
| *And as the spring came closer and closer, the tip nearest the ground swelled* into a grotesque head *[…]* | BNC ACV 1184 |
| ADV+AP INTRANSITIVE-RESULTATIVE CONSTRUCTION WITH 'SIZE INCREASE' VERBS | |
| *Their throats [of roosters] would swell* out big *and then would come forth their booming challenge […]* | Sketch engine doc#668491 |
| ADV+PP INTRANSITIVE-RESULTATIVE CONSTRUCTION WITH WITH 'SIZE INCREASE' VERBS | |
| *When, however, under her husband's wing she had blossomed* out into *a lovely womanhood […]* | Sketch engine doc#645600 |

### 4.1. *Subsumption processes with the prepositional intransitive resultative construction*

At this point we would like to focus on the factors that license fusion between the verbs in the first group and the intransitive resultative construction. As pointed out in section 2, the *Internal Variable Conditioning* constraint plays a major role in lexical-constructional integration. Thus, the verb *swell* in the prepositional intransitive-resultative construction observes this constraint in the sense that the choice of the Z element greatly depends on the semantic information encoded by this verb (viz. an entity becomes bigger in size or the value of an entity goes up on a scale), and by the Y element (i.e. the undergoer must be smaller in size or of a smaller value than Z). Let us take into consideration the examples below:

(1) a. *[…] small settlements such as San Francisco swelled* into cities (Sketch engine doc#194954)
b. *This was the signal for a general clamour, which beginning in a low murmur gradually swelled* into a great noise *in which everybody spoke at once* (Sketch engine doc#458499)

Example (1a) exploits the expansion schema whereby the Y element (small settlements) increases in size until becoming Z (cities). Example (1b) evokes the intensity scale whereby the Y element (a low murmur) increases in intensity until turning into Z (a great noise). Both examples illustrate the A>A' change schema since the city and the noise incorporate into their structure the small settlements and correspondingly, the low murmur.

In some cases the prepositional intransitive resultative construction can be explained by means of what Ruiz de Mendoza and Mairal (2011) have labeled, developing preliminary work in Ruiz de Mendoza (2008), *metaphoric amalgams*. A metaphoric amalgam has been defined as a type of metaphoric interaction integrating selected aspects from two or more metaphors that combine. Ruiz de Mendoza and Mairal (2011) distinguish between two types of metaphorical combinations, namely *single-source* and *double-source* metaphoric amalgams. An example of the former is found in the sentence *She got the idea across to me*, which integrates UNDERSTANDING AN IDEA IS PERCEPTUALLY EXPLORING AN OBJECT into the conceptual structure of IDEAS ARE MOVING OBJECTS (i.e. causing an idea to "move" into someone's perceptual sphere affords intellectual access to it). The latter type of amalgam, which is attested in our corpus of 'size increase' verbs, is different: it maps structure from two sources onto one single target. The sentence *The concept bloomed* into a debut cassette release *[…]* (Sketch engine doc#446648) exemplifies this kind of metaphoric amalgam, which is schematically represented in table below:

Table 2. Double-source metaphoric amalgam in *bloom into*.

| **Source ⇨ (natural process of blooming)** | **Target (change of state)** | **⇦ Source (change of location)** |
|---|---|---|
| Flower | Concept | Source |
| Bloom | Process (development) | Motion |
| Blossom | Result (cassette) | Destination |

The amalgam here involves two interacting metaphors A CHANGE OF STATE (OF AN ABSTRACT ENTITY) IS BLOOMING and A CHANGE OF STATE IS A CHANGE OF LOCATION. In the example, the change from a "concept" (an initial idea or plan) to the materialization of such a concept in the form of "a debut cassette release" is metaphorically seen as self-instigated motion from a source to a destination, where the source overlaps with the subject referent and the resultant state is mapped onto the destination of motion. At the same time, the materialization of an idea into a concrete entity is metaphorically interpreted in terms of a natural process whereby a flower shifts from a vegetative to a reproductive stage by blossoming.

## 5. Overview of the intransitive resultative construction with 'destructive change' verbs

As was the case with 'size increase' verbs, the end-result in the intransitive-resultative construction can be realized by an adjectival phrase (AP), a prepositional phrase (PP) headed by *into, to,* or *out of* and a combination between an adverb and a prepositional phrase (Adv+PP). However, we found no combination between an adverb and an adjectival phrase (Adv+AP). Instead, we came across examples that combine an adjectival phrase with a prepositional phrase (AP+PP). All these constructional patterns are exemplified in the table below:

Table 3. The intransitive resultative construction with 'destructive change' verbs.

| AP INTRANSITIVE RESULTATIVE CONSTRUCTION WITH 'DESTRUCTIVE CHANGE' VERBS | |
|---|---|
| *The new mixture burns* very hot, *pushing the efficiency of the plant's gas turbines* | Sketch engine doc#138125 |
| *The mulberry-trees were neglected, the tobaccoplants were last years, rotting* yellow | Sketch engine doc#638670 |
| *[…]Until our toolbox rusted* shut *and we couldn't get to our duct tape* | Sketch engine doc#738037 |
| *We are sunflowers Though our colors may fade, Our stalks wither* | Sketch engine |

| | |
|---|---|
| brown, *We never ever ever frown* | doc#497205 |
| PP INTRANSITIVE RESULTATIVE CONSTRUCTION WITH 'DESTRUCTIVE CHANGE' VERBS | |
| *[…] they [the pyrite fossils] will eventually corrode* into a pile of rust, *[…]* | Sketch engine doc#811594 |
| *[…] thorium-230 […] decays into radium, which later decays* into radon | Sketch engine doc#306081 |
| *The fighting in Lebanon is deteriorating* into a full scale war | Sketch engine doc#179552 |
| *[…] the rock had been exposed in several places, and eroded* into a line of towers and pinnacles | COCA 1991 |
| *[…] his bones remained there in the cupola for many years […] until they moldered* into dust | Sketch engine doc#850879 |
| *The larva molts* into the protonymph *in about two weeks* | Sketch engine doc#215063 |
| *Underfoot, last year's leaves had rotted* into a soft mould *which gave off a pleasant nutty scent* | COCA 1985 |
| *The war machines and equipment will rust* into worthless junk *[…]* | Sketch engine doc#1575615 |
| *Teaching can easily stagnate* into a set of half-understood routines *[…]* | COCA 1990 |
| *[…] the darkness was wilting* into daylight | Sketch engine doc#2327813 |
| *[…] five prostitutes burned* to death *when a fire broke out in a brothel* | Sketch engine doc#6013 |
| *When uranium decays* to lead, *a by-product of this process is the formation of helium […];* | Sketch engine doc#1648821 |
| *[…] the bottom sheet of the stack deteriorated* to dust | Sketch engine doc#371846 |
| *The goodwill around land reform […] may have eroded* to a situation *that is now currently labeled as a crisis or impasse* | Sketch engine doc#388643 |
| *The nymphs molt* to adults *in the fall* | Sketch engine doc#123786 |
| *They are dead names, all the life withered* out of them | Sketch engine doc#2273575 |
| AP+PP INTRANSITIVE RESULTATIVE CONSTRUCTION WITH 'DESTRUCTIVE CHANGE' VERBS | |
| *I shut my eyes and that torrid sunbeam burned* red through my lids | Sketch engine doc#42765 |
| ADV+PP INTRANSITIVE RESULTATIVE CONSTRUCTION WITH 'DESTRUCTIVE CHANGE' VERBS | |
| *Dead in the prime of his years/And laid in the lap of the dust/Only a* | Sketch engine |

| | |
|---|---|
| *handful of ashes/Mouldering* down into dust | doc#1421996 |
| *[…] the upper parts of alder piles have been eroded* down to a flat plain, *[…]* | Sketch engine doc#851248 |
| *In this manner their fundamental teachings have been preserved in their style up to the present, instead of withering* away into the empty formulas of scholasticism | Sketch engine doc#1658416 |

## 5.1. *Subsumption processes with the adjectival and prepositional intransitive-resultative constructions*

The intransitive adjectival resultatives, also called property resultatives, are represented by the A>A' schema, since the patient undergoes a light transformation of one of its properties (e.g. the mixture rises in temperature; the color of the tobacco plants and stalks becomes yellow and brown respectively; the toolbox becomes hermetically shut and inaccessible).[3] A copular relationship can be established between the subject and the adjectival phrase (e.g. *The mixture is very hot/The tobacco plants are yellow/The toolbox is shut/The stalks are brown*). The change experienced by the subject patient is not a transcendent one, i.e. the mixture remains a mixture even if its temperature increases, the toolbox is still a toolbox even if it rusts, etc.

When the patient is affected to the extent of reaching a completely different state (A>B), the prepositional phrases *into* or *to* are preferred over the adjectival phrase. The intransitive prepositional resultatives are motivated by the high-level metaphor A TELIC PROCESS IS MOTION TO A DESTINATION. These two prepositions activate different cases of image-schematic construal. The process of negative transformation (e.g. corrosion, deterioration, erosion, stagnation, wilting, rotting, decaying, rusting, moldering and molting) is conceptualized as figurative motion into a CONTAINER, that is to say, a three-dimensional location enclosing the subject referent as a whole. When the preposition *to* is employed, the subject patient is depicted as a traveler through the activation of the PATH image-schema. The two image-schemas profile a different portion of the motion of an entity from a source to a destination. Thus, the preposition *into* gives prominence to the final point on the path traveled whereas the preposition *to* highlights the entire route followed by the entity from a source to a destination.

At this point, it is necessary to mention Evans and Tyler's (2004) claim that the motional reading of an utterance is not contributed by prepositions but it is derived from the sentential context, generally from verbs or from general pragmatics and our world knowledge. In their view, the motional meaning is distributed across the sentence, i.e. motion follows from the nature of the activity, i.e. the na-

[3] These examples were not reproduced here but they are included in table 2 above.

ture of the relationship between what Langacker (1987) calls the TR (trajector) (or the figure within a relational profile) and LM (landmark) (or a salient participant other than the trajector). To illustrate their point Evans and Tyler analyze the case of the preposition *to,* which is believed to code solely *orientation* and *goal*. As a case of its orientational meaning, consider the use of this preposition in *He stood with his back to me*, where no motion is involved and there is no path along which the TR can move, i.e. the TR (he) is simply oriented toward the LM (me). As an example of the *goal* meaning of *to*, think of its use in the following sentence: *As Jim was being verbally attacked in the meeting, he looked to his line-manager (for support)*. Here the orientation of the gaze is motivated by a particular goal: Jim wants his line-manager to support him verbally. Then, to further support their contention that *to* does not code motion, Tyler and Evans contrast the sentence *He ran to the shop* with *He ran toward the shop.* In the first one the TR (he) is directed to the LM (the shop), which is at the same time his goal (e.g. the TR wants to buy something from the shop). Thus, the orientation and the goal meaning –both of which are provided by the preposition *to*– are blended. The second sentence does not entail that the shop is reached despite the use of the same motion verb. It is assumed that in the first example a path is evoked by the conjunction between a motion verb and the preposition *to* whose combination results in a reading in which the subject referent does reach the shop.

It is important to notice that all the examples that Tyler and Evans give to justify the motional meaning employ motion verbs like *run*, *walk, go, drive,* or *cycle*. So it is easy to say in this context that the motional meaning is supplied uniquely by the verb and that the preposition *to* has no such role. However, that this is not exactly the case is evidenced by the fact that we can use non-motion verbs with the preposition *to* in order to indicate figurative motion on a scale. This is the case of *swell* in the following sentence: *Busloads of spectators swelled the crowd to about 20,000*. The verb *swell* involves an increase in size up to a certain extent, here seen as figurative motion to a destination that is actually reached. Since *swell* is not a motion verb, it follows that the motion element that is used figuratively is to be supplied by the preposition as part of a motion construction. Another example of the motion meaning coded by the preposition is found in the construction *to be to*, as used in the sentence *I have been to Boston several times*, which implies that the speaker has gone to Boston and has returned (several times). Interestingly, the stative verb *be* is used. Then, consider how the metaphor TIME IS SPACE works on the basis of the preposition *to*: *She was here from 9 am to 5 pm*. We understand a stretch of time in terms of motion from a source (the beginning of the time period) to a destination (the end). As we shall see, Evans and Tyler's analysis is only part of a more complex picture where the motion interpretation does not exclusively come from the sentential context, world knowledge or general pragmatics, contrary to what they claim, but from constructional meaning.

Pursuing our analysis further, it has been observed that the verb *burn* collocates with a destructive end-result that can be lexicalized either by an adjectival phrase such as *dead* (e.g. *The flame burnt dead*) or a prepositional phrase such as *to death* (e.g. *They burnt to death*). According to Goldberg and Jackendoff (2004: 561) the adjectival phrase *dead* suggests that "the endstate is an instantaneous result of the action denoted by the verb." They contrast the sentence *Riddling him with 16 bullets, Billy Bob shot him to death/??dead* with *Firing a single bullet to the heart, Billy Bob shot him dead/?to death.* In the first example the use of several shots indicates that the death process is longer than in the second example in which only one shot causes a person to die instantly. Boas (2000) and Goldberg and Jackendoff (2004: 561) claim that the verb *burn* prefers to combine with the prepositional phrase *to death* because this verb cannot normally encode an instantaneous result. Nevertheless, our example *The flame burnt dead* designates a state of affairs in which the flame went out instantly. What is more, the syntactic position of the end-result in the resultative adjectival phrase iconically signals 'lack of distance' and 'immediacy' (in the temporal sense). In harmony with this iconic motivation, the resultative adjectival phrase *dead* gives more prominence to the resultant state whereas the resultative prepositional phrase focalizes the process that leads to a result. The same reasoning could be applied to the following two sentences: *[…] Our stalks wither brown* (Sketch engine doc#497205) and *The grass had withered* to an unappealing brown *[…]* (COCA 1989). Both examples are based on the A>A' schema, since they illustrate a color change of the affected entity. The prepositional resultative hints at a longer process of withering than its adjectival counterpart, while the syntactic distance between the verb and its result can be iconically captured by an interposing adjectival modifier, as is the case of *unappealing* in the second sentence, which is a subjective remark made by the speaker. These examples show that the A>B schema is not necessarily linked to a prepositional resultative (cf. *The flame burnt dead*) and that the A>A' schema can also be represented by a prepositional resultative (cf. *The grass had withered* to an unappealing brown).

A close inspection of the syntactic distribution of the verbs of the second group reveals that non-existence is perceived as a bounded region into which the affected entity enters through figurative motion:

(2) a. *Today, when the sovereignty of nation-states around the world is being corroded* into virtual nothingness *by the acids of "free trade," "globalization," and so-called "world rule of law," why should any government which accepts such trends, ask us to believe the sincerity […]* (Sketch engine doc#2373935)

b. *[…] the society, once consisting of many hundred members, was moldered* into nothing (Sketch engine doc#1789406)

c. *So instead of heating the fritters and the bacon, they whacked the entire plate in the microwave and the spinach wilted* into nothing (Sketch engine doc#983353)

d. *The naval pachyderms […] withered* out of existence *in a few years by the appearance of the fragile but lethal carrier-borne aeroplane* (Sketch engine doc#661375)

e. *So how interesting that the Karaites, the reason we don´t hear of them is that they withered* out of history, *they are utterly obscure* (Sketch enginedoc#979411)

Literal (in 2c) or figurative decomposition (in 2a, b) of an entity is metaphorically described as motion into a container (i.e. a bounded region in space) that maps onto the state of being 'completely destroyed' (A>B schema). This takes place in application of the metaphor ABSTRACT ENTITIES ARE CONTAINERS in conjunction with A CHANGE OF STATE IS A CHANGE OF LOCATION. Examples (2 a-e) clearly illustrate that not only extinction but also life/existence is viewed as a container and absence of life is depicted as motion out of a container. In (2e) the gradual disappearance of the Jewish sect, i.e. the Karaites, from collective memory (*history*) is seen as figurative motion out of a container.

The fusion of verbs of the second group and the intransitive-resultative construction is regulated by the Internal Variable Conditioning constraint, which states that the internal semantic make-up of a predicate restricts the nature of its constructional arguments. All verbs of the second group describe negative changes of state affecting the integrity of an undergoer. Because of this, there is a tendency for the Z element to be axiologically negative, as evidenced in the examples below:

(3) a. *Of course our ethnic, national, religious traditions are a source of rootedness, identity, and community. But not when it ceases to be a matter of honest pride and corrodes* into divisiveness and bitterness (Sketch engine doc#827042)

b. *These discussions, decaying* into dissension, *strangely arouse Tilly […]* (Sketch engine doc#62924)

c. *The Taliban saw as their mission the purification of the Islamic holy war which had decayed* into anarchy *in Afghanistan* (Sketch engine doc#639513)

d. *[…] it does not take long for the marvel to deteriorate* to disenchantment (Sketch engine doc#919860)

e. *Over time, once fit emotional and physical states may deteriorate* to illness and disease (Sketch engine doc#813417)

The verb *deteriorate,* which indicates a state of regression, can be contrasted with *blossom,* which describes a state of development of an entity. Compare the sentence *Their relationship blossomed into marriage* with *Their relationship deteriorated into divorce.* In both sentences the relationship is conceptualized as figuratively entering into a container (e.g. the state of being married or single) but the manner of achieving motion is different in each case, i.e. in the first sentence motion is positively loaded whereas in the second one it has negative connotations. An utterance like **Their relationship deteriorated into marriage* is blocked out by the Internal Variable

Conditioning constraint according to which the nature of the Z element must be consistent with the negative semantic make-up of the verb.[4]

## 5.2. *Other constructional patterns for 'destructive change' verbs and the case of the verb* ferment

In this section we discuss two other types of intransitive-resultative construction with 'destructive change' verbs. These are the combination between an adjectival and a prepositional phrase, and the combination between an adverb and a prepositional phrase. We also treat the constructional patterns that arise from the use of the verb *ferment* with the intransitive-resultative. The analysis will evidence that the boundaries between result and motion can become fuzzy in the intransitive-resultative construction.

It has been stated earlier that the intransitive-resultative can take the form of a combined adjectival and prepositional phrase, as in *I shut my eyes and that torrid sunbeam burned* red through my lids (Sketch engine doc#42765). This sentence conveys the idea that the speaker has his/her eyes closed and that the strong sunlight passes through his/her eyelids making him/her see red. It is very surprising to notice that the event structure configuration of the sentence does not match the actual temporal arrangement of events in the real world since the result of the process (the visual effect of redness) is expressed prior to the motion event that causes such a result (the sunbeam going "through" the speaker's "eyelids"). Evidently, this is so because in the intransitive-resultative, as is the case with other members of the resultative family, the result is subjectively felt to be more central to the process than other meaning elements. The same is the case in causative resultatives: *They knocked him unconscious into the river*. In this sentence, becoming unconscious can precede, be simultaneous with, or follow falling into the river. Only the first possibility is iconic with the syntactic organization of the clausal elements. The other two disrupt temporal iconicity in favor of denoting the close relation between the action of knocking someone and its end-result.

The last syntactic realization of an intransitive-resultative construction that arises from our corpus of examples is a combination between an adverb and a prepositional phrase, as in the following sentence: *In this manner their fundamental teachings have been preserved in their style up to the present, instead of withering* away into the empty formulas of scholasticism (Sketch engine doc#1658416). This sentence is another case of double-source metaphoric amalgam that inherits conceptual information from two distinct metaphors. The first one enables us to perceive

[4] This utterance could be possible if interpreted as a case of irony based on the fact that marriage preserves a default positive axiology. However, this does not affect our observation, which is focused on the way lexical structure can be integrated into a construction. Irony is a pragmatic effect.

the decline in conceptual depth of a philosophical theory in terms of the withering of a plant. The second one equates the negative change undergone by the teachings (from more to less conceptual depth) with motion from a source to a destination point that corresponds with the resultant state designated by the expression *empty formulas of scholasticism.* In the real world, result is inextricably linked to a change of position: the verb *wither* encodes information about the state of dryness of a plant and its change of position, i.e. the plant bends downward. This combined adverb and prepositional phrase complies with Goldberg's (1991) *Unique Change of State* constraint. According to this constraint, two distinct changes of state cannot be simultaneously predicated of an entity in a single clause . In the example above the prepositional phrase adds telicity to an unbounded process (withering) by specifying the final destination of the path suggested by *away.* This adverb, and its related prepositional complex *away from*, indicates spatial separation between two entities (e.g. *He ran away from the wolf*). In the example, such spatial separation maps onto a change of state as part of the metaphor A CHANGE OF STATE IS A CHANGE OF LOCATION.

We would also like to underscore the versatility of the English language that easily conflates result and motion; that is why it is sometimes difficult to distinguish a purely intransitive-resultative construction from an intransitive-motion construction. To illustrate this idea consider the sentence *In June, their ballpark caught fire during a game and burned* to the ground (Sketch engine doc#3106). This utterance can be regarded as an intransitive-resultative construction that exploits non-caused motion on the basis of the primary metaphor STATES ARE LOCATIONS. Here a decrease in size of the stadium correlates with downward motion on a vertical scale (on the basis of the LESS IS DOWN metaphor). The decrease in size and downward motion occur simultaneously but speakers are free to decide as to which element to give more conceptual prominence to: the resultant state (e.g. *The ballpark burned to ashes*), or the change of position on the scale (e.g. *The ballpark burned to the ground*).

The sentence *[…] the laser burns* through the black layer of a two-part foil*, […]* (Sketch engine doc#104685) is another piece of evidence supporting the existence of a fuzzy boundary between an intransitive-resultative and an intransitive-motion construction. In this example the motion of the laser beam, which pierces the foil, becomes more salient than the resultative component, namely the creation of a hole in a material (cf. *The laser burned a hole through the foil*). At this stage it is important to point out Evans and Tyler's (2004) position on the preposition *through.* As with *to*, examined above, these authors deny the motional meaning supplied by this preposition, which in their view uniquely codes path. Their example *The tunnel through Vale Mountain was finished in the 1980s* seems to fit perfectly their argumentative line because it conveys the notion of facilitation of passage independent of motion or trajectory. However, in this sentence there is fictive motion (cf. Talmy, 2000), which is based on our experience of scanning with our eyes (or with our

minds in a mental simulation of what we do in our experience) the path of motion within a three-dimensional entity. The same holds true for examples like *the road from Madrid to Barcelona* (which is a verb-less version of *The road that runs from Madrid to Barcelona*). Their hypothesis is contradictory when it comes to the discussion of an utterance like *The sunlight shone through the glass door*, which is believed to lack perceptible motion. The notion of path, which is cued by the preposition *through*, strongly correlates with the idea of the TR physically passing or having passed from one side of the LM to the other. We thus believe that it is erroneous to state that the preposition *through* solely codifies a path with no motion attached to it. Other verbs that blend the resultative and the motional components are *erode, molder, rot, rust,* and *wilt,* as demonstrated by the occurrences displayed in (4 a-e):

(4) a. *All continents would erode* out to sea *in a geologically short time, if continuous upwelling of new rock from below did not keep replenishing them* (Sketch engine doc#2114585)

b. *A man's body, once life had left it, was no more than any other carcass, moldering* back into the soil *which once produced it* (Sketch engine doc#2321751)

c. *All the enamel rotted* off his teeth *[…]* (Sketch engine doc#41900)

d. *We won't talk about how many books were ruined when my hot water heater rusted* out *and flooded the house* (Sketch engine doc#1249281)

e. *Stir in the basil leaves at this stage - they'll wilt* into the sauce *but not lose their flavor* (Sketch engine doc#2123629)

In the examples above we can clearly see how the prepositional phrase or the motion/location adverb conflate the path of motion and the result of an action whereas the verb conflates manner of motion and manner of action. In (4a) the gradual disappearance of land is what brings the continents physically closer to the sea, which is the final destination of motion and the result. The adverb *out* in (4d) indicates motion of the hot water out of a container (the heater), which is facilitated by the rusting process. The remains of the human body in (4b) or the "basil leaves" in (4e) are incorporated into the soil and the sauce once the final stage of the respective moldering and wilting processes (i.e. the result) is reached. Therefore, the attainment of a result coincides with the final destination of motion.

Finally, we observe that the verb *ferment* belongs to a third group due to its distinct semantic features, i.e. it does not involve any increase or decrease in the size of an entity and the change is neither positive nor negative. As far as its syntactic behavior is concerned, this verb patterns with the other change-of-state verbs: it is quite productive in the intransitive-resultative construction. The end-result of the fermentation process can be literal as in *[…] grapes can ferment* into wine (Sketch engine doc#798799) or figurative as in *The minds of men […] will never ferment* into any knowledge valuable or durable (Sketch engine doc#1218768). The verb *ferment* thus follows the A>A' schema in the sense that the entity undergoing fermentation still preserves its integrity. For example, wine that ferments into vin-

egar changes into a different substance although it still preserves many of its original properties, including the fact that vinegar, like wine, is a liquid.

## 6. Conclusions

In this article we have argued that the LCM is an appropriate theoretical framework for our analysis since it provides accurate explanations for the mixed nature of the interaction between predicates and constructions. This model shows that the interaction between high-level constructions and low-level configurations is more than a matter of constructional coercion over lexical items according to which the meaning of a predicate has to adjust to the overall meaning of a construction. The constructional behavior of lexical items is a constrained process based on the reconstrual of the event structure of predicates, when possible, and on conceptual compatibility.

We have also grouped Levin's (1993) entity-specific change-of-state verbs on the basis of their conceptual similarity and the kind of change schema that they activate: (i) the first group refers to an increase in size (e.g. *bloom, germinate, swell, blister,* etc.) and selects an A>A' resultative schema indicating the acquisition of a new property (e.g. *Gorse blossomed* gold *on magnesium limestone embankments;* COCA 1994); (ii) the second group –which describes a decrease in size or a negative, destructive change usually altering the integrity of an entity (e.g. *burn, rot, rust, wither,* etc.)– can combine either with an A>A' resultative schema (e.g. *If it can't be unscrewed (it may well have rusted* solid*), cut through the bolt with a junior hacksaw flush;* COCA 1992) or an A>B schema (e.g. *The spinach wilted into nothing*); and (iii) the verb *ferment* does not belong to any of the two groups mentioned above since it does not depict an increase in size or a necessarily negative change of state. The change schema used by this verb is A>A' (e.g. *The wine fermented into vinegar,* where wine and vinegar are both liquids).

We have also illustrated on the basis of examples drawn from corpora the expression patterns of the intransitive-resultative construction; these can express either a simple or a compound result. The former can be rendered by an AP (e.g. *[…] the crops rotted* black *in the ground;* Sketch engine doc#699247) or a PP (e.g. *Linen and lace had rotted* into cobwebs *on the beds […];* BNC FAT 1808). The latter can be expressed by means of a combination between an adverb and an AP (*Their throats would swell* out big *[…],* in which the AP *big* further specifies the result encoded by the adverb *out*) or a combination between an adverb and a PP (*[…] the upper parts of alder piles have been eroded* down to a flat plain*, […]*). Finally, the integration processes between entity-specific change-of-state verbs and the prepositional intransitive-resultative construction obeys the Internal Variable Conditioning constraint in that the nature of the Z element is determined by the semantic information encoded by the verb and the Y element.

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Authors' address:

University of La Rioja
Department of Modern Philologies
c/ San José de Calasanz s/n
26004, Logroño, La Rioja
Spain
francisco.ruizdemendoza@gmail.com