

## Accounting for Causal Constructions within the Framework of the Lexical Constructional Model

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This article sets out to examine causal constructions by focusing on a particular verbal class, namely, *entity-specific change-of-state* verbs. The most important step consisted in finding a theoretical framework capable of accounting for the intricate syntactic behavior of these verbs and of giving equal importance to the contribution of both lower-level and high-level configurations. The present study also shows that the *external constraints* formulated by the *Lexical Constructional Model* constitute useful analytical tools for the integration of this verbal class into the intransitive causal construction. The external constraints involve cognitive mechanisms such as high-level metaphor and metonymy, which produce a change in perspective of a lexical predicate and allow it to be easily subsumed into a given construction.

Keywords: intransitivity; causal constructions; Lexical Constructional Model; metaphor; metonymy; change-of-state verbs

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### Las construcciones de causalidad dentro del marco del Modelo Léxico Construccional

Este artículo se propone examinar las construcciones de causalidad, centrándose en una clase verbal en particular, a saber, los verbos de *cambio de estado específico*. El paso más importante consiste en encontrar un marco teórico capaz de dar cuenta del complejo comportamiento sintáctico de estos verbos y de lograr un equilibrio entre las configuraciones de bajo y alto nivel. El presente estudio también demuestra que los constrictores externos formulados por el Modelo Léxico Construccional constituyen herramientas analíticas útiles para la subsunción de esta clase verbal en la construcción intransitiva de causalidad. Los constrictores externos se refieren a mecanismos cognitivos como la metáfora y la metonimia de alto nivel. Estos producen un cambio en la perspectiva de un predicado que le permite subsumirse fácilmente en una construcción dada.

Palabras claves: intransitividad; construcciones causales; Modelo Léxico Construccional; metáfora; metonimia; verbos de cambio de estado específico

## 1. INTRODUCTION

The main aim of this article is to study the *intransitive causal construction* from the perspective of the *Lexical Constructional Model* (LCM) by focusing on a particular verbal class, namely, *entity-specific change-of-state* verbs.<sup>1</sup> The thorough examination of a large size corpus (i.e., the Sketch engine) demonstrates that these verbs display a much richer variety of configurations than previous scholars have claimed (for further information see Levin 1993 and Wright 2002). These verbs have been generally studied in connection with their (non)-participation in the causative / inchoative alternation (e.g., *\*The sun bloomed the roses / The roses bloomed*). However, the intransitive causal construction, which is also very productive with these verbs, has so far been paid little attention.

In our analysis we draw from previous works by Dirven (1993, 1995), Radden (1998) and Cuyckens (2002), which provide evidence in favor of the causal nature of prepositions. Nonetheless, the scope of their studies is too generic to account for the intricate constructional behavior of this particular verbal class. For this purpose we have made use of some of the explanatory and analytical tools of the LCM, which precisely studies the principles regulating the interaction between lexical predicates and constructions. The LCM combines insights from functionalist approaches to language, like Functional Grammar (FG; Dik 1997), Systemic Functional Grammar (SFG; Halliday and Matthiessen 2004) and Role and Reference Grammar (RRG; Van Valin and La Polla 1997; Van Valin 2005), with compatible developments in the Lakoffian branch of Cognitive Linguistics (Lakoff 1987, 1993), with special emphasis on the constructionist approach to grammar (e.g., Goldberg 1995, 2006). In this study we will employ the external constraints put forward by the LCM (see Ruiz de Mendoza and Mairal 2007), which take the form of high-level metaphor and metonymy, in order to account for the subsumption (or integration) of the verbs under consideration into intransitive causal constructions. In addition, when discussing the cognitive motivations behind non-emotional causality, we discuss different proposals, viz. Dirven's (1993, 1995) metaphorical approach and Cuyckens's (2002) metonymical treatment. However, we opt for a more encompassing approach, namely the postulation of a conflationary continuum in cognitive processing.

This article is structured as follows: In section two, we introduce the reader to the most relevant theoretical postulates held within the LCM. In section three, we present a descriptive and explanatory account of intransitive causal constructions, making the distinction between purely L-Subject forms and other figurative intransitive causal constructions. By figurative we refer here to non-literal language involving a figure of speech, such as metaphor or metonymy. Section four includes the classification of entity-specific change-of-state verbs into three main groups according to their conceptual similarity, as well as an analysis of the factors that motivate the lexical-constructional behavior of these verbs. Section five centers on the conceptualization of emotional and

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non-emotional causality with these verbs. The final section comprises all the findings of our research.

## 2. THE LEXICAL CONSTRUCTIONAL MODEL

The LCM is a meaning construction model which features four levels of description: level 1 contains argument structure lexical and constructional specifications; level 2 deals with conventional and non-conventional implicated meaning; level 3 involves illocutionary constructions, and level 4 centers on discourse configurations. In the present research the focus will be solely on level 1.

The building blocks of the LCM are lexical templates and constructional templates. Lexical templates are low-level constructional representations of the semantic and syntactic properties of a predicate whereas constructional templates are higher-level, non-lexical representations with a grammatical impact. In this study we are concerned with lexical-constructional *subsumption* which is a basic cognitive operation appearing at all levels of meaning construction. It consists in the principled incorporation of lower levels of semantic structure into higher levels of syntactically-oriented structure. This operation is regulated by a set of external and internal constraints. External constraints, such as high-level metaphors and metonymies, help construe lexical predicates from a different perspective so that they may be integrated into a particular construction without changing their internal structure. Internal constraints involve the conditions under which a lexical predicate can modify its internal configuration (i.e., its encyclopedic and event structure makeup) so as to be subsumed into a given construction.

Some of the high-level metaphors postulated by the LCM are “a communicative action is an effectual action” (e.g., *Di Caprio snarls* his way through the film *with an admirable sense of focus*; Sketch engine doc#325884), “an activity is an (effectual) action” (e.g., *He let his voice caress* her into sleep; COCA 1993), and “an emotional state is an effectual action” (e.g., *He [God] will love* us . . . into holiness; Sketch engine doc#715874). High-level metonymies motivate four different types of grammatical processes, such as categorial conversion, subcategorial conversion, enriched composition and parametrization. For example, the sentence *He’s coughing and he has a temperature* (Sketch engine doc#132457) is licensed by the “generic for specific” metonymy, whereby the generic phrase “having a temperature” stands for a more particular situation, viz. “having a higher-than-normal body temperature.”

Regarding internal constraints, these have been divided into two groups: (i) vertical constraints operating on a paradigmatic basis: *Full Matching*, *Event Identification Condition*, *Lexical Class Constraint* and *Lexical Blocking*; and (ii) constraints operating on syntagmatic grounds or horizontal constraints: *Predicate-Argument Conditioning* and *Internal Variable Conditioning*. In this section we will only illustrate the *Internal Variable Conditioning* since this constraint will be used later on in the analysis. It refers to cases in which the world-knowledge information associated to an internal predicate variable places

restrictions on the nature of both the predicate and the constructional arguments. For example, the semantic information conveyed by the verb *swell* and the entity undergoing swelling constrain the nature of the resultant entity Z, which must be bigger in size or have a bigger value than the Y element (e.g., *The work, which was originally meant to consist only of a few sheets, swelled into ten volumes*).

### 3. INTRANSITIVE CAUSAL CONSTRUCTIONS

The intransitive causal pattern is a construction that has been understudied by grammarians. This pattern matches easily with entity-specific change-of-state verbs probably because speakers need to assign causes to processes occurring in nature. The verbs under consideration give rise to the following intransitive causal configuration: NPI V *with / in / from / under* NP2, in which various prepositions can make the connection between the action encoded by a verb and the cause underlying that action.

The preposition *with* is polysemous, since it is employed to express instrumentality, company, causality and even result, as will be shown at a later stage of our discussion. The boundary between these four notions is sometimes fuzzy. For example, the sentence *Napoleon destroyed the city with his army* can puzzle the reader who is indecisive as to what gains more conceptual prominence in this utterance: company, instrumentality or both. We tip the balance in favor of a conflation between company and instrument because Napoleon is accompanied by his army in battle and at the same time he uses his soldiers as an instrument to achieve his goal, in this case the destruction of a city. But what about the role of *with* in the oft-cited sentence *He broke the window with a hammer*? If there were no conflation between instrumentality and causality, how else would we be able to explain the possibility of promoting the hammer to a subject position as in *The hammer broke the window*? Another sentence which undoubtedly stresses the causal role of the preposition *with* is *John died with pneumonia*, where the disease becomes the cause of John's dying. We relate this example to another one which makes use of an entity-specific change-of-state verb, viz. *The garden flowered with roses* (Levin 1993, 251). An alternate construal of this event would be illustrated by an intransitive locative construction as in *Roses flowered in the garden*. The intransitive causal and locative constructions were analyzed together in the linguistic literature and were denominated with the term *swarm* alternation (see Anderson 1971; Salkoff 1983; Dowty 2001). This form is considered to be the intransitive counterpart of the locative alternation shown by *spray / load* verbs in their transitive use (cf. *John sprayed paint on the wall / John sprayed the wall with paint* vs. *John loaded hay onto the truck / John loaded the truck with hay*). Dowty (2001) offers an exhaustive characterization of the *swarm* alternation, by relying heavily on Salkoff's (1983) observations. In his terminology, the intransitive locative construction (e.g., *Bees swarm in the garden*) is called an AGENT-SUBJECT (A-Subject) form whereas the *with* pattern (e.g., *The garden swarmed with bees*) is termed LOCATION-SUBJECT (L-Subject) form. Dowty (2001, 8) is not so much concerned with the A-Subject form (e.g., *Ants are*

*crawling on the bed*) simply because it does not have any peculiar semantic or syntactic features which differentiate it from other sentences like *Ants are dying on the bed* or *Four ants are crawling on the bed*. Contrary to Levin (1993), Dowty (2001) enumerates only five verb classes that appear in the L-Subject form, i.e., light emission verbs (*beam, burn, blaze, twinkle*, etc.), the sound emission verb class, in which he includes animal sounds and Levin's (1993) sound existence verbs (*buzz, chatter, echo, resonate*, etc.), degree of occupancy / abundance verbs (*teem, rife, abound, throng*, etc.), verbs denoting small local movements which occur repetitively (*flutter, pulsate, gush, ooze*; in this class he merges two of Levin's (1993) classes, namely, substance emission verbs and verbs of modes of being involving motion), and verbs describing smells and tastes (*reek, smell, taste, be fragrant*, etc.). Nonetheless, he leaves out Levin's (1993) verbs of entity-specific modes of being (*bloom, blossom, sprout, bristle*). Among the most salient properties of the L-Subject construction, Dowty (2001) mentions:

- (I) The *holistic / partitive* dichotomy. According to this, the L-Subject form entails the activity denoted by the verb filling the whole location, whilst this is not the case with the A-Subject form. For the sake of clarity, compare the entailments of the A-Subject and L-Subject constructions: *Bees are swarming in the garden, but most of the garden has no bees in it* vs. #*The garden is swarming with bees, but most of the garden has no bees in it*. The A-Subject construction implies that the cluster of bees occupies only a small area of the garden, whereas the L-Subject construction suggests that the swarm of bees is distributed over the whole garden.
- (II) The *with* pattern is an indefinite plural or mass term, but never a singular NP (cf. *The wall crawled with roaches* / \**The wall crawled with a roach*, Salkoff 1983, 292; *The garden buzzed with flies* / \**The garden buzzed with the big fly*). However, the final NP position can be filled with a noun specifying an estimated amount, but not a precise enumeration (cf. *The garden swarmed with a hundred bees* vs. ?*The garden swarmed with fifty-three bees*). An exception to this rule is the sentence *The whole school buzzed with the rumor about the librarian dating the principal*, where the sound emission verb alludes to many re-tellings of the rumor by different people in the school.
- (III) When the verb of an L-Subject construction is a sound verb, the *with* pattern is more natural with a sound expression than the agent or instrument that produces that sound (Salkoff 1983, 307; *The barnyard cackled with the calls of geese* vs. *The barnyard cackled with geese*).
- (IV) Salkoff (1983) himself remarked that the L-Subject form is highly productive in metaphorical instantiations such as *Fireflies danced in the garden* / *The garden danced with fireflies* or *Visions of success danced in his head* / *His head danced with visions of success* (Dowty 2001, 4). The same verb is disallowed in an L-Subject form when used with a literal meaning (cf. *Lovely couples danced on the stage* vs. \**The stage danced with lovely couples*).
- (V) *The Dynamic Texture hypothesis*. The events described by the verb of an L-Subject form happen simultaneously and repetitively throughout all parts of a place or space.

The cluster of activities is so encompassing that it creates a “texture of movement” in the surface as a whole. The perception of the movement-texture in the surface becomes more salient than the individual events or agents (cf. *\*The table crawled with the ant on the right side*). So, the focal requirements of the L-Subject construction are the following: 1) a location must be entirely filled with individual entities or the sound produced by those individual entities (e.g., *The forest resonates with buzzing insects*); or 2) there must be a visual illusion that the space is completely filled up through repeated movements scattered all over the surface (e.g., *The garden danced with fireflies*).

In connection to the restrictions mentioned in (ii), we contend that the reason why the *with* pattern can never combine with a singular NP is given by the *Internal Variable Conditioning* constraint. According to this, the predicate of an L-Subject form, which already implies a large number of small entities, constrains the nature of the following constructional argument, which cannot be lexicalized by a single entity. The second use restriction of the *with* pattern (the combination with an estimated amount) has a perceptual motivation grounded in the logic of the “substance” and “collection” image-schemas. In discussing the multiplex-mass image-schema transformation, Lakoff (1987, 442) points out that “as one moves further away, a group of individuals at a certain point begins to be seen as mass. Similarly, a sequence of points is seen as a continuous line when viewed from a distance,” i.e., we visually perceive collections of bounded individuals as unbounded entities (i.e., substances) and in an approximate way. Lakoff (1987) supports the existence of a metaphorical operation that lies at the heart of this kind of transformation, namely “collection is mass.” For example, the sentence *The fans poured through the gates* relies on this metaphor, and as such we conceptualize aspects of the perceived behavior of a mass of people in terms of corresponding aspects of the observed behavior of flowing liquids.

Moreover, Dowty (2001) is not able to provide an explanation for the unacceptability of a literal sentence like *\*The stage danced with lovely couples*. We contend that, in the non-figurative use of *dance*, there is a conceptual clash between the verb and the L-Subject constructional pattern, which requires a verb that denotes a manner of filling up a location. World-knowledge information about dancing as an activity tells us that choreography implies a visually balanced spatial distribution in choreography there is a visually balanced spatial distribution where the motion of the couples has to be perfectly coordinated. The dancing couples, therefore, have to be visually separated in order to give a harmonious impression, thus leaving large portions of the stage uncovered. On the other hand, in the figurative use, it is possible for the “dancing” entities (i.e., fireflies, thoughts) to involve no coordinated motion, but rather a chaotic movement provided that such motion takes up the whole of a given space.

Coming back to the examples in our corpus (*The garden flowered with roses / Roses flowered in the garden*), it is worth noting that they are also subject to the holistic

/ partitive effects in the sense that the whole garden seems to be affected by the blooming process in the L-Subject construction. The lack of agentivity in the L-Subject construction, as postulated by Levin (1993, 54), is highly debatable for two main reasons. First, we should clearly differentiate between the syntactic function of subject and the semantic function of agent. In this respect, Dik (1997, 37) has posited the existence of three possible functions for any construction: (i) syntactic functions, such as subject, object or other terms without a subject / object function; (ii) semantic functions, such as agent, goal, recipient, beneficiary, instrument, location or time; and (iii) pragmatic functions, such as topic and focus. In a sentence like *John broke your china* the NP *John* simultaneously fulfills three different functions, that of subject, agent, and topic (i.e., a piece of information that is known to the speakers), whereas the NP *china* is, at the same time, an object, a patient, and a focal element (i.e., a piece of information that is new to the speaker). The coincidence of these three functions is, however, not always the case. Consider for contrastive purposes the utterance *JÓHN broke your china (not Jim)* in which *John* is the subject and agent, but also constitutes the focal element of the sentence. The marked stress suggests that the speaker did not know the identity of the person who broke the china. Dik (1997) also claims that the assignment of subject and object can be understood in terms of the notion of perspective, that is, the point of view from which a state of affairs is presented in a linguistic expression. A similar view is supported in Langacker's (1991a, 1991b, 2005) Cognitive Grammar which equates the subject with the notion of *trajectory* (TR) and the object with the *landmark* (LM), respectively. The former is the most salient element or the primary figure in a profiled relationship, whereas the latter stands out as the second focal element or the secondary figure. Thus, according to Langacker (2005, 111) the participant that receives primary focus becomes the subject, and the participant that receives secondary focus is the object or the oblique NP. I agree with these positions and furthermore would claim that a prototypical subject is also expressed by a prototypical agent. Syntactic functions derive from semantic functions that have undergone a process of desemantization. This process gave rise to more marginal transitive or intransitive constructions, such as the instrument subject construction (e.g., *The hammer broke the window*) or the middle construction (e.g., *This book sells easily*).

Second, I consider that there is a cline of agentivity ranging from the more prototypical to the more marginal cases. Thus, Taylor (1995, 207) characterizes a prototypical agent by enumerating the following features: (i) consciousness and volition: the agent is typically a human being who has control over the event and the action is carried out purposefully; (ii) the agent acts upon an inanimate patient through direct physical contact, and the effect on the patient is immediate and leads to a change of state. Radden and Dirven (2007, 288-91) discuss non-prototypical agents and classify them into two main groups: agent-like causes and enabling causes. The first category comprises natural forces (e.g., *Hurricane Katrina devastated New Orleans*), instruments (e.g., *Guns don't kill people, people kill people*), or other generic causes (e.g., *The strike closed down the railway system*).

In the instrument subject construction an agent that acts on the instrument is implied. Nevertheless, it is agreed that the instrument has a certain degree of independence from the agent, as if it were somehow acting on its own. Nevertheless, instruments cannot be coordinated with agents (*\*Guns and gangsters kill innocent people*) or carry out deliberate actions (*\*Guns kill people for fun*).

The middle construction is another case of non-prototypical agentivity, where the agent takes the subject position. Consider the sentence *This books sells easily*. Radden and Dirven (2007, 290) argue that an internal quality of the book acts as an enabling condition that influences its sale. That is why external agents cannot be added to the middle construction (cf. *\*The book sold easily by the bookseller*). Taylor's work (1995, 217) offers a similar perspective on the middle construction which "seems to highlight the contribution of the merchandise itself (e.g., the fact that the book appeals to a wide audience) to the high sales figures." Ruiz de Mendoza and Mairal (2007, 385) show that the middle and instrument-subject evaluative constructions contribute an evaluative ingredient that can affect either the process or the result components of the "process for action for result" high-level metonymy. Figure 1 below constitutes a graphical representation of the "process for action for result" metonymy, where either the process or the result component is highlighted depending on the adverbial phrase following the verb:

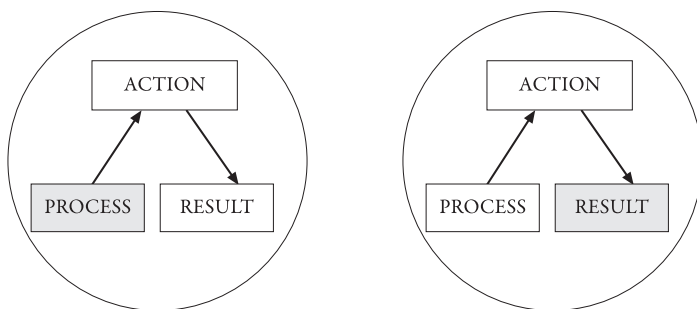


Figure 1. Highlighting in "process for action for result"

For instance, in the sentence *This book sells easily*, it is the process that is evaluated, as revealed by the paraphrase *It is easy to sell this book*. By contrast, the adverbial phrase *well* in *This book sells well* assesses the result of the book sale (cf. *\*This book sells / \*It is well to sell this book*). Therefore, the choice of the adverbial phrase determines what part of the high-level metonymic chain is being exploited, i.e., *easily* focuses on the initial source domain (the process), while *well* highlights the final target domain (the result). In this connection, our L-Subject construction (*The garden flowered with roses*) makes use of a non-prototypical agent, i.e., the location, whose intrinsic quality (the good state of the soil, for example) acts as an enabling condition influencing the flowering process of the roses. This L-Subject construction is a clear instantiation of what Halliday and Matthiessen (2004) have labeled *non-congruent grammatical*



*realization* and can be contrasted with its intransitive locative congruent version, i.e., *Roses flowered in the garden*. We contend that the L-Subject construction is licensed by the high-level metonymy “a process (in a location) for an (instrumentally) caused event” (Ruiz de Mendoza and Pérez 2001; Ruiz de Mendoza and Peña 2008). The metonymy is illustrated in the diagram below:

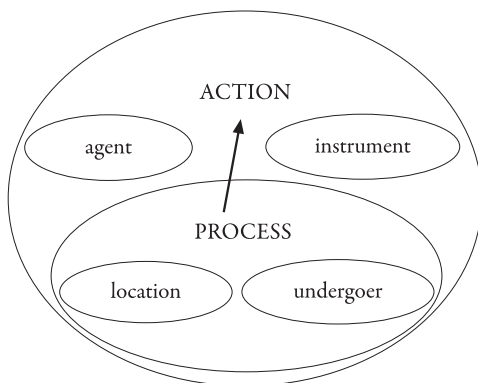


Figure 2. “A process (in a location) for an (instrumentally) caused event” metonymy

Figuratively, in a high-level of meaning construction, we treat the garden as if it were able to “bloom” by making use of its flowers. Thus, the process of blooming, which typically has only one participant role, viz. an undergoer (the flowers), occurs in a given place / location. In an L-Subject construction this process metonymically stands for a caused event in which a volitional agent uses an instrument of action.

In our corpus we have come across many figurative intransitive causal constructions. Consider the example . . . *this movement blossomed* with the opening of more than 20 schools *offering programs in Naturopathic Medicine* (Sketch engine doc#216733), in which the opening of schools is the cause of the flourishing of the movement. Nevertheless, we should note that our example has deviated somewhat from an L-Subject form since the subject *movement* is no longer a location. The development of an ideological movement is metaphorically seen as the blossoming process undergone by flowers and schools do not have the ability to literally blossom the movement, but they can propel it. This sentence can be compared with *The leaves blew with the wind*, where the wind caused the leaves to move in the air. There is a low-level metonymy from “intentionally caused motion by expelling a current of air through the mouth” to “non-intentionally caused motion through the creation of a current of air (wind).” In the previous example, the low-level metonymy shifts from a non-intentional enabling action (cf. *The flowers blossomed with the sun* / \**The sun blossomed the flowers*, the sun is only a co-causal factor of the blossoming process) to an intentionally caused action which makes an ideological movement thrive (cf. *Schools were opened by the government*, but it is odd to say ?*The opening of schools blossomed the movement* because this action only enables the flourishing process).

#### 4. INTRANSITIVE CAUSAL CONSTRUCTIONS WITH ENTITY-SPECIFIC CHANGE-OF-STATE VERBS

We have classified Levin's (1993) twenty-one entity-specific change-of-state verbs into three main groups on the basis of their conceptual similarity: (i) verbs describing an increase in size (e.g., *bloom, blossom, flower, germinate, sprout, swell, blister*); (ii) verbs describing 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*), and (iii) the verb *ferment* which does not involve any increase or decrease in size of an entity and the change is neither positive nor negative.

As mentioned earlier, the intransitive causal construction can accept a wide range of prepositions, such as *with, in, from, or under*. The sentence *The camera blossomed in the hands of indigenous photographers as colonialism waned and the Ghanaians adopted photography for themselves* (Sketch engine doc#684231) makes use of a causal *in* preposition. The idea of causation in this utterance could not have been expressed by means of the preposition *with* because the NP *hands* collocates in a natural way with the preposition *in*, which activates the "container" schema (the camera was held in the hands of the indigenous people). Again, the verb *blossom* is exploited metaphorically to suggest that the indigenous people developed skills in photographic techniques. Also, holding an object in your hand is conceptually associated with possession or exertion of control over that entity. The use of the entity as an instrument to perform an action can be finally linked to the idea of causation (e.g., a gun that you hold in your hand can become a tool to kill a person). Ruiz de Mendoza (personal communication, 2012) contends that there is a continuum in cognitive processing which leads from the position of an object in a given location to the abstract domain of causation: IN-location in a container [*hands*] > possession of object > instrumentality > causation. Note that the most basic scenario is that of an object located in a container, and as we move forward along the continuum the relations between entities become more complex.

The existence of a continuum in cognitive processing is further supported by Grady and Johnson's (2002) developmental model of primary scenes and primary metaphors. In their work they provide compelling evidence from the process of children's acquisition of grammatical constructions in order to demonstrate the existence of subscenes which are built into more complex scenes for the creation of primary metaphors. According to these authors, subscenes are situated "at the lowest level of cognitive processing to which we can consciously attend—that is, they are self-contained dimensions of subjective experience" (2002, 552). They predict that the possessive meaning, which corresponds to a subscene, is learned first whereas the instrumental meaning is learned relatively late, since it requires the acquisition of a complex scene which involves the relation between an object, a person, and an activity (Jackendoff 1990). Johnson (1997) shows that children treat an example like *What are you doing with the knife?* as a normal *Wh*-question, i.e., as a literal question about an activity, and not as an instance of the *WXDY* construction, which refers to the incongruity of the addressee's holding that object. Grady and Johnson

(2002) explain that this is possible because such sentences can receive two interpretations depending on the meaning assigned to the preposition *with*. Children obviously interpret it as a possessive preposition (cf. *John stood in the doorway with a knife*) because this is the simplest explanation and it corresponds to a subscene. The second interpretation, which is based on the instrumentality of the preposition *with*, requires the activation of a relatively complex scene in which a person uses an object to perform an action. Therefore, the complex scene of a person using an instrument of action includes the simple subscene of a person possessing or holding that instrument. To conclude, the possessive meaning is subsidiary to the causation meaning.

Another preposition which can evoke causality is *from*, e.g., *Frescoes generally became dark or decayed from moisture* (Sketch engine doc#137647). Through an elaborate cognitive process, we are able to understand what it is that allows *from* to become causal. This preposition cues the activation of the “path” schema, and more specifically a particular portion of it, viz. the starting point. The starting point of a path is thus related to the state or quality of being damp (*moisture*) by means of an underlying primary metaphor “states are locations” (cf. Lakoff 1993, for a preliminary discussion of this metaphor). It is very interesting to notice how the human mind brings together three apparently different domains: states, locations, and change. The verb *decay* highlights the final state of the frescoes, indicating that the affected entity has now reached the final point of a path (cf. “a change of state is a change of location”). In a naive interpretation of the world the source of motion is mixed up with its cause because at the motion’s source are also found the conditions that trigger the motion. Therefore, in the human mind the initial state conflates with both the source and the cause of the motion. Correspondingly, a final state would correlate with the destination of motion and the resultant state (cf. *The rotten brick decayed to dust*; Sketch engine doc#1046209).

Conflation involves the human mind imposing its own patterns onto reality, which is far from objective. But this idea is not new and we can trace its roots back to the phenomenologist revolution in philosophy initiated by Merleau-Ponty (1962) who highlights the role of human consciousness and intentionality in the joint interaction of the body and the mind with the surrounding environment. Moreover, embodiment does not concern only the body, but is rather a matter of the mind acting through the body. The philosophical postulates of Merleau-Ponty (i.e., the notions of experientialism, realism, and the assumption of an embodied mind) are also stressed by Violi (2008), who blends Merleau-Ponty’s ideas with Peircean semiotics:

Through perception the subject meets the world in the first place and begins to give meaning to it. Phenomenological and perceptive meaning is transformed into linguistic meaning through the *corp propre* [lived body] which founds, at one and the same time, the subjectivity of consciousness and the exteriority of the world. Here we can see another possible compatibility with Pierce’s philosophy: in Merleau-Ponty’s phenomenology, too, external and internal world are not separate and in opposition with one another, but related to each other via the mediation

of the *corp propre* that operates, in a way, as translator of perceptually constructed meaning into linguistic and conceptual meaning. (2008, 57)

Thus, it is made clear that the human perceiver imposes his / her subjective structure on the things perceived. Meaning is created in the body through perception which is “not merely the simple and passive record of an external world,” but rather “the active construction of a world already endowed with meaning and intentionality” (Violi 2008, 57).

Finally, the preposition *under* can also appear in a causally construed semantic environment, as in *But the plant soon wilted under the hot sun* (Sketch engine doc#2335524). *Under* is a spatial concept designating a lower position of an entity in contrast with another one that is situated on top of it. Although no motion is entailed, the three conceptual domains of location, state, and change are still inextricably interwoven. The reader is left to infer the state of the plant whereas the verb *wilt* pinpoints the final event which was obviously generated by the weak condition that the plant was in. The preposition *under* can also take part in figurative intransitive causal expressions, e.g., *Friends of White said his health wilted under the strain of both confronting priests and comforting victims* (Sketch engine doc#970). In this sentence the aggravation of a person’s state of health is metaphorically mapped onto the wilting process of a flower probably because people’s health is considered to be as fragile as a flower whose growth depends greatly on favorable environmental conditions. The noun *strain* is also employed figuratively; it maps a concrete situation in which a heavy entity exerts real physical pressure on another one (e.g., *Extra fat puts a strain on the heart, kidneys, liver*; Sketch engine doc#340711) onto a situation in which life problems exert mental pressure on a person’s mind. Mention should be made of the fact that the causal expression *under the strain* can only be associated with a negative final condition of an affected entity (cf. *?Mary blossomed under the strain of managing both a family and a career*).

In section two a distinction has been made between purely L-Subject constructions and deviated intransitive causal constructions. The subject position of the former coincides with the semantic function of location, whereas the subject of the latter is no longer a place but an abstract entity. It has been argued that a sentence like *The orchard now blooms with apples* (Sketch engine doc#200425) is motivated by the high-level metonymy “a process (in a location) for an (instrumentally) caused event,” whereby the orchard is regarded as being able to “bloom” by making use of the apple trees as an instrument of action. This sentence could be paraphrased as *The apple trees bloomed in the orchard*. There is a metonymy “container for content,” whereby the orchard stands for the plants located within it which undergo the natural process of blooming. The result of the blooming process is expressed by means of a company complement introduced by the polysemous preposition *with*. The noun *apples* cues the metonymic target, which is the apple trees (see Ruiz de Mendoza 2011 for further discussion of the cueing operation).

By contrast, consider the example *Western civilization bloomed* with the Christian religion (Sketch engine doc#2360092). In this utterance Western civilization is not a location but rather an abstract entity that undergoes a process of development directly

caused by the advent of Christianity. The term civilization metonymically stands for the significant landmarks of a culture, i.e., architecture, poetry, etc. Nevertheless, the relationship between the subject and the *with* element is somewhat similar to the one established between an orchard and the apples located within its boundaries. Any civilization is a set of cultural elements and religion can be understood as one of them. There is a symbiotic relationship of co-evolution and mutual benefitting between the Western civilization and Christianity. At the beginning there were two distinct separate entities, i.e., the Roman culture and the ideological Christian movement. The Christian religion was engulfed within the Roman culture, becoming a part of the latter. Thus, the preposition *with* can be said to conflate three different domains: causality (Christianity makes Western civilization thrive), company (Christianity co-exists with other Western cultural elements) and instrumentality (Western civilization makes use of one of its cultural components to reach maximal development). The conflation of these three domains is visually represented in Figure 3 below:

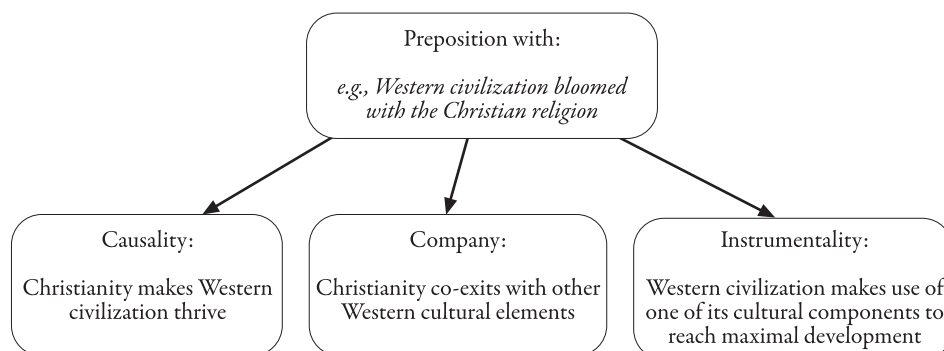


Figure 3. Conflation of causality, company and instrumentality.

Causality can be expressed either by means of the preposition *with* or *in*. Consider the example *His face was blistering in the heat* (Sketch engine doc#715101), where the preposition *in* conflates location, state and causality (i.e., the skin is exposed to the sun, feels hot and the heat causes the emergence of blisters on a person's face). In some cases the cause can be concrete (e.g., *they [ticks] bury their head into the flesh and the body swells up with engorged blood*; Sketch engine doc#163143, where the physical cause combines with a result lexicalized by the adverb *up*) or abstract (e.g., *Fox viewers swell up with pride*; Sketch engine doc#41852, where the cause of the physical expansion is an emotion). Also, the intransitive causal blends with an intransitive resultative construction which can be encoded either by a prepositional phrase or an adjectival phrase as in *The veins swelled dark on his forehead with surcharge of passion* (Sketch engine doc#667737).

Just like the verbs of the first group, verbs of the second group, which describe a negative destructive change, can appear in the intransitive causal construction although

causality in such cases is realized by a richer prepositional gamut. Verbs of the first group were shown to occur with causal prepositions like *in* and *with*. Unsurprisingly, verbs of the second group follow a similar pattern, e.g., *he cruelly left me behind when he set off to seek a life of adventure, leaving me behind to stagnate in misery* (Sketch engine doc#253878); *“Shout at the Devil” and “Home Sweet Home” have not tarnished with age, perhaps because the appeal of these songs is so primal* (Sketch engine doc#290735). In the first sentence the preposition *in* conflates the cause of cessation of progress with a state that is seen as a container on the basis of the primary metaphor “states are locations.” The second sentence implies that time can destroy the appeal of songs. Sometimes the intransitive causal configuration can mix with a resultative construction (e.g., *The enclosure had been so full of kerosene vapor, that it burned black with noxious fumes*; Sketch engine doc#171747, where the poisonous smoke produced by burning causes the enclosure to acquire a black color) or a causative pattern (e.g., *Do not tarnish your badge with a stain of corruption*; Sketch engine doc#244525, in which the noun *badge* metonymically stands for the reputation of a person wearing the badge; the implicature is that corruption or corrupt actions can destroy a person’s reputation). Causality can also be activated by the preposition *from* as seen in *the entire structure [the military] is deteriorating from neglect - morale at all levels appears dismal* (Sketch engine doc#638341) and *But bells now rust from inactivity* (Sketch engine doc#1045093). The low-level metaphor “states are locations” enables us to perceive a state of neglect and inactivity, respectively in the examples, as the starting point of a path. The gradual degradation of the military system, in the first example, and the bells, in the second example, are conceived as motion along a path which is cued by its point of departure. The preposition *under* can be associated with causality as in *Less-sturdy pans might wilt under excessive heat* (Sketch engine doc#1292335). This preposition, which highlights a lower spatial position of an entity with respect to another one, hints at the fact that the heat oppresses and acts upon the pan in a damaging way.

Lastly, the verb *ferment* also occurs in the intransitive causal construction headed by a *with* preposition that conflates causality and instrumentality (e.g., *She was still fermenting with anger*; Sketch engine doc#2321751, where a negative emotion causes a state of agitation in a human agent).

##### 5. EMOTIONAL AND NON-EMOTIONAL CAUSALITY WITH ENTITY-SPECIFIC CHANGE-OF-STATE VERBS

Radden (1998) analyzes emotional causality in terms of four different image-schemas, namely containment (e.g., *She trembled in fear*), companionship (e.g., *She was stiff with anger*), front-back (e.g., *She cried for joy*),<sup>2</sup> and emergence (e.g., *She cried out of pride*). In this section only the first two schemas will be reviewed. Some entity-specific change-of-state

<sup>2</sup> An emotion and its response are aligned along a front-back axis, where the response occupies the front-region and the emotion is located in the back-region.

verbs were shown to participate in both emotional and non-emotional causal constructions. Consider the example *The president's face wilted* in confusion and bewilderment (Sketch engine doc#1300889). Following Radden's (1998) line of argumentation, it could be argued that in this sentence the emotion of confusion is conceptualized as a container which triggers the undergoer's physiological reaction of drooping. The emotions that collocate with *in*-phrases are intense and predominantly negative (e.g., *in fear*, *in anger*, *in fury*, *in terror*). Nevertheless, we have come across a corpus example which makes use of a positive causal emotion, namely *it will certainly give cause to our Christian readers to swell* their chests out in pride (Sketch engine doc#1783987). According to Radden (1998, 276), all these properties stem from the logic of the container schema. Thus, the experiencer of an intense overpowering emotion feels as if s / he were held in a container which prevents her / him from moving around freely. *In*-phrases can be narrowed down to two conceptual metaphors, i.e., "intensive emotions are container" (e.g., *I trembled in terror*) and "external circumstances are containers" (e.g., *the petunias wilt* in the heat; Sketch engine doc#157642). However, we wonder how Radden (1998) would account for an example that was mentioned in section three, i.e., *The camera blossomed* in the hands of indigenous photographers: probably by postulating another conceptual metaphor, "causes are containers." Instead of formulating another metaphor, we contend that the human mind moves along a conflational continuum:

**location in a container > possession of object > instrumentality > causation**

Emotions can also be involved in causal chains as in *The little cats have six toes and no tails to swell* out in fury *at the sight of a dog* (Sketch engine doc#49242). In this example *the sight of a dog* can be seen as the stimulus that triggers the fury of the cat, which in turn causes the physiological reaction of swelling.

Regarding the preposition *with*, Dirven (1993, 81; 1995, 101) claims that it has a basic spatial "accompaniment" meaning (e.g., *he was walking* with two Jewish policemen; Sketch engine doc#23425) and four other metaphorical extensions, namely "instrument" (e.g., *We cut grass* with a ride-on mower; COCA 1991), "manner" (e.g., *I listened* with great care; COCA 1991-1992), "circumstance" (e.g., *I canna hear it* with this water runnin'; COCA 1989), and "cause" (e.g., *She was shaking* with fear; COCA 1990). Radden (1998, 279) lists two other usages for this preposition, viz. "possession" (e.g., *It was the man with a moustache*), and "attendant emotion," which overlaps with Dirven's (1993, 1995) "cause" meaning. In a similar vein, Radden (1998) interprets these other usages as metaphorical extensions of the overall metaphor "associated entities are companions."

Cuyckens (2002, 259) strongly disagrees with Dirven's (1993, 1995) metaphorical treatment of the preposition *with*. Take for instance the sentence *With the development of computer-based resources, many schools are now able to offer a full computer-across-the-curri approach to teaching* (COCA 1993). According to Cuyckens's reasoning, this example cannot be licensed by the metaphor "cause is circumstance" because the notion "circumstance"

and “cause” are not two separate discrete domains, but rather they are part of the same event idealized cognitive model. For him these two domains hold a conceptual contiguity relationship encapsulated by the metonymy “circumstance for cause.” Furthermore, Radden (1998, 282) argues that the metonymy “an emotional state for the cause originating from that state” uses the companion schema because of a strong connection between a given emotion and its physiological reaction. We distance ourselves from these views since we account for the usages of this preposition by a conflational continuum, as was the case with the analysis given above for the metaphorical use of the preposition *in*:

**company > possession of object > instrumentality > causation < effect**

Thus, being in the company of an entity facilitates using that entity. Having an instrument enables people to perform actions, i.e., to cause events to happen. It is true that the relations between these domains are metonymic, but not in the contiguous sense evoked by Cuyckens. Just like the preposition *in*, *with* can be found in a double causal chain as in *Amman is burning* with anger at the United States and its threats *against Iraq* (Sketch engine doc#1235974), where the threats of the USA trigger the experiencer’s anger, which in turn causes the physiological reaction metaphorically described as burning. The expression of cause can be linked to a resultant state as in *He has those cartoonish dark eyes that burn* bright with obsession and self-absorption (Sketch engine doc#25160). As has been demonstrated earlier, the preposition *with* can collocate not only with emotional causes but also with non-emotional causes (e.g., *utensils tarnished* with frequent domestic service; Sketch engine doc#904287).

## 6. CONCLUSIONS

The intransitive causal construction is realized at the syntactic level by the configuration NP1 *v with / in / from / under* NP2, where NP2 indicates the cause of the event described by the verb. The second NP can be an event (e.g., *their citizens’ privacy rights are eroded* with the initiation of the Decode deal; Sketch engine doc#18108), a location (e.g., *The camera blossomed* in the hands of indigenous photographers), an emotion (e.g., *And the mother’s heart swelled big* with anguish) or a state (e.g., *Frescoes generally became dark or decayed* from moisture). The first group of verbs is more productive with causal prepositions such as *in* and *with* (e.g., *The camera blossomed* in the hands of indigenous photographers; *The garden flowered with the roses*) whereas the prepositional gamut for the second group is richer (e.g., *Do not tarnish your badge* with a stain of corruption; *The petunias wilt* in the heat; *But bells now rust* from inactivity; *Less-sturdy pans might wilt* under excessive heat). In order to motivate the use of spatial prepositions to express causality, we posit the existence of conflational continuums: location in a container > possession of object > instrumentality > causation for *in* and, respectively, company > possession of object > instrumentality > causation < effect for the preposition *with*. Although L-Subject constructions share the



syntax of the NP1 V *with* NP2 intransitive causal constructions, their semantics differ. The subject position of an L-Subject construction is always occupied by an NP indicating a location as in *The orchard now blooms with apples*. We have argued that such sentences are licensed by the high-level metonymy “a process (in a location) for an (instrumentally) caused event,” whereby a place is conceived as being capable of blooming by making use of the real blooming entity as an instrument of action.

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