

An introduction to the Lexical Constructional Model (LEXICOM)

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Introduction

- The functional and cognitive approaches offer different views on the nature of lexicon, grammar and their relationship. Functional approaches maintain a division between lexicon and grammar, since it is claimed that morphosyntactic structure can be predicted from the information coded in a lexical representation together with a set of linking rules. Cognitive Linguistics (CL) in general, and Construction Grammar (ConX) in particular, claims that lexicon and grammar form a continuum and that there is no need to postulate linking rules or the like (cf. Langacker, 2005).
- In our view, there are weaknesses in both approaches. Thus, an account of syntactic motivation carried out exclusively on the basis of the information supplied by lexical representation systems, like those postulated in some functionalist circles, has a large degree of undesirable redundancy. From a different angle, constructional representation is to be combined with lexical representation and the constraints that determine the way the two representational layers interact should be specified somewhere in grammar, an issue which has not been sufficiently explained in Cognitive Linguistics (cf. Nuyts, 2005).
- Moreover, we argue that there are a number of grammatical phenomena such as some constructional alternations, and some cases of categorial and subcategorial conversion (cf. Ruiz de Mendoza and Pérez, 2001), which are grounded in high-level characterizations of metaphor and metonymy, that place external constraints on grammatical constructions and on the way such constructions interact with lexical representations.

Proposal

- We give the first outline of a framework termed the Lexical Constructional Model for understanding the relationship between lexical and syntactic meaning. In it both the lexical representation of a predicate and the linking construction in which this participates play a vital role, a theoretical stance which makes this proposal fall half way between pure projectionist theories and construction-based approaches.
- An account in pure projectionist terms offers a very incomplete and insufficient description of a theory of sentence semantics, even in those cases where

projectionist theories make sense (e.g. those cases where the morphosyntactic pattern is derivable from the semantics of the predicate).

- Conversely, we show that the accommodation (unification) of the lexical entry of a verb with a linking construction is regulated by a set of both internal and external constraints which go beyond those proposed within Construction Grammar (ConX) circles (e.g. Michaelis's (2003:9) *Override Principle*).

The architecture of the Lexical Constructional Model

(i) Unlike projectionist approaches, constructions play a central role in linking syntax and semantics.

(ii) There should be a catalogue of constraints that explicitly regulate the unification process that holds between the argument structure of a verb and a linking construction. It is important to bear in mind that these constraints also apply in those cases where the morphosyntactic pattern can be predicted from the semantics of the predicate.

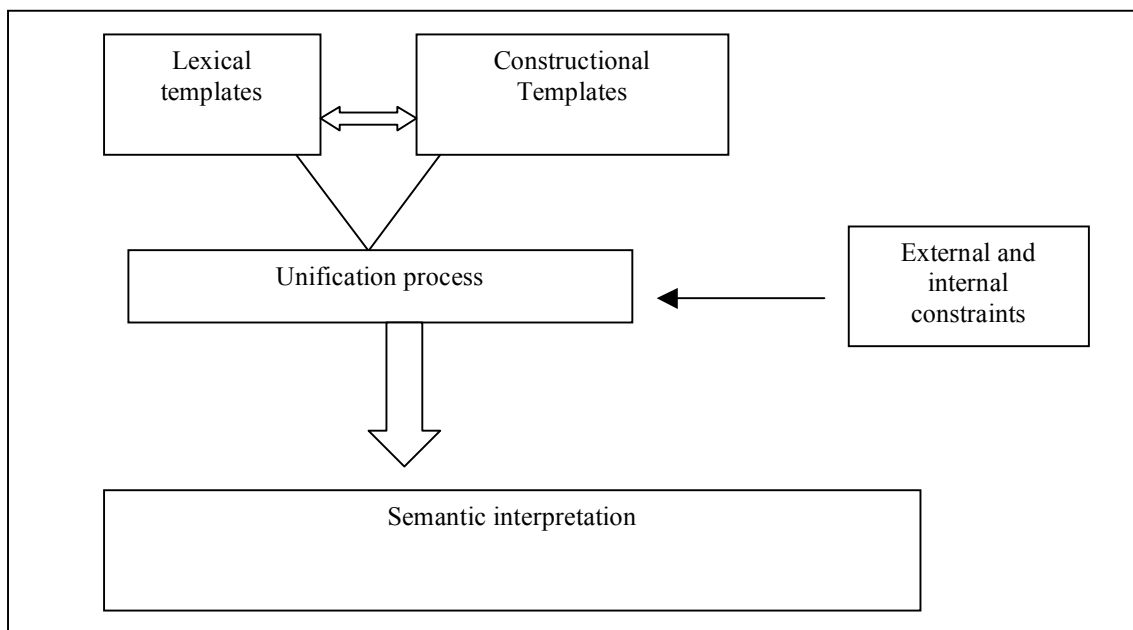


Figure 1. The Lexical Constructional Model

- Meaning construction (or semantic interpretation) is obtained by the unification of a lexical template and a constructional template.
- The double arrow indicates that these two representational constructs are related in terms of two types of processes: *elaboration* and subcategorical *conversion*. These two mechanisms are in turn motivated by two higher-level conceptual constraints, metonymy and metaphor, respectively.
- We also investigate the set of regularities and constraints that motivate the occurrence of conceptual mappings in grammar. This is precisely an area where CL has been a bit silent and it is precisely one of the hallmarks of our approach.
- The notion of *lexical template* is substituted for logical structures as originally envisaged in Role and Reference Grammar (RRG; cf. Van Valin and Lapolla, 1997; Van Valin, 2005). Lexical templates are enriched semantic representations of the logical structures proposed in RRG, and combine low-level and high-level

semantic components: high-level elements are shared by items belonging to a number of lexical classes while low-level elements are specific to (and therefore definitional of) the item in question.

- Lexical templates are the representational scheme for capturing the lexical properties of a predicate from a cross-linguistic perspective. This signifies that we need to use a universal semantic metalanguage and moreover provide a formalism that is able to code a rich semantic component. In connection with this, Mairal and Faber (2005) delineate the basics that define this universal lexical metalanguage and distinguish the following two components:

(i) The semantic component includes an inventory of semantic primes. We have shown elsewhere that each lexical domain is defined by a restricted number of superordinate terms that can function as possible candidates for the inventory of more basic terms or primitives. The inventory of primes we have been working so far coincide with those used within the Natural Semantic Metalanguage program developed by Wierzbicka (cf. Goddard and Wierzbicka, 2002).

(ii) The syntactic component specifies the conceptual syntax of the metalanguage in terms of a set of lexical functions/operators, which are inspired in Melchuk's Text Meaning Theory. However, unlike Mel'cuk's lexical functions, our inventory of lexical functions is used to organize the lexicon vertically instead of horizontally. Each lexical domain thus has a set of functions/operators (which are universal) that act on the superordinate term to generate more specific hyponyms and codify the most relevant lexical domains and subdomains.

fathom: [MAGNOBSTR & CULM_{1,2[all]}] **know'** (x, y)

Remarks: The entry in for *fathom* has two parts: (i) the semantic component in brackets; (ii) the representation of the logical structure. In this case, this predicate is represented by a state logical structure which takes **know'** as a primitive (or high level characterization) and has two arguments. Furthermore, this logical structure is in turn modified by a lexical function (or operator) MAGNOBSTR, which refers to the difficulty involved in carrying out an action.

clarify: [CAUS₁₂₃INSTR(BONCAUS(see))₁₂₃ & CULM_{12[all]}]
do' (x, Ø) CAUSE [BECOME **know'** (y, z)]
 x = 1; y = 2; z = 3

Remarks: In the same way as in the previous example, the lexical entry has two components; a causative accomplishment logical structure with three arguments and a semantic component which provides the distinguishing semantic specifications characteristic of this predicate: CAUS₁₂₃INSTR(BONCAUS(see))₁₂₃ [understand]. In *clarify*, an agent (arg1) causes (CAUS) a mental percept (arg2) to be understood better by a receiver-beneficiary (arg3). The means (INSTR) by which this is achieved is by causing (CAUS) somebody (arg3) to see(VISION) it (arg2) better (BON). As

shall be observed, all the units in the lexical entry are part of the universal inventory of primitives (e.g. *see*) or operators.

- The formulation offered here captures relevant features that lexical-template representations share with constructional representations, which makes our description fully at home with the idea of a lexical-constructional continuum. Constructional representations or *constructional templates* are exclusively based on high-level characterizations, which thus become (preliminary) enabling conditions for the incorporation of lexical structures.
- Lexical templates are absorbed by constructions via a unification process that is governed by constructional constraints on lexical items (as would be predicted by such notions as coercion and the *Override Principle*, studied by Michaelis, 2003), but also by high-level metaphorical and metonymic mappings (Ruiz de Mendoza & Mairal, 2006), which license a number of categorial and subcategorial conversion processes and account for a relevant part of their meaning effects. There are also internal constraints on the unification process that originate in the *Aktionsart* idiosyncrasies of the constructional and lexical specifications.

Issues

- a) Why do we need lexical templates? How different are they from frames?
- b) How are lexical and constructional templates unified? Are the lexicon and grammar two separate components and the continuum is not preserved?
- c) Why do we posit constraints to account for the unification between lexical and constructional templates? Why are they different from, say, linking rules as envisaged in connectionist theories or the *Override Principle* and the *Causal Relation Hypothesis* (Goldberg, 1995: 62-65) as propounded in ConX circles?
- d) What is the grammatical impact of conceptual constraints?

Lexical templates and frames

Frames: The notion of lexical template is inspired in the classical notion of “frame” in Fillmore’s *Frame Semantics* (cf. Fillmore and Atkins, 1994). Semantic frames are schematic representations of situation types (e.g. ‘buying and selling’, ‘eating’, ‘spying’, etc.) describable in terms of participants and their roles. For example, the ingestion frame consists of an “ingestor” that consumes food, drink, etc. (“ingestibles”) often with the help of an “instrument”. These are “core” elements. Other non-core elements are the “degree” or extent to which ingestibles are consumed, the “manner” of performing the action, the “place”, the “time”, the “purpose”, and the “source”. Associated with the frame there are a number of lexical units (e.g. *consume*, *devour*, *dine*, *feed*, *gobble*, *shurp*) and inheritance relations with other frames (for ingestion, “intentionally affect”, i.e. performing an intentional act that affects a patient). Frames are constructed inductively on the basis of corpus data by examining the kind of information conveyed by phrases that are constructionally associated with given predicates and assigning labels to them (e.g. “ingester”, “ingestible”, etc. for the ingestion frame).

Lexical templates also make reference to roles and participants, but they are different from frames in several ways:

(i) Unlike Logical Structures and like frames, they include a rich semantic description. However, unlike frames, lexical templates include a more articulated metalanguage that is more explanatory and powerful than that of semantic roles and very much in accord with the metalanguage used for constructional templates.

(ii) Lexical templates are constructed on the basis of the *Aktionsart* distinctions proposed in RRG. This feature of lexical templates allows the analyst to introduce a large degree of regularity in his description of “inheritance” mechanisms, which enhances the explanatory adequacy of the model. Such *Aktionsart* regularities are captured by the external variables of the template (which roughly correspond RRG’s logical structures) and by a set of high-level elements of structure that resemble traditional semantic primitives but differ from them in significant ways.

(iii) Lexical templates contain internal variables, i.e. world-knowledge elements of semantic structure, which capture the way in which internal variables relate in a way specific to the predicate defined by the lexical template. Thus, for the lexical template characterization of a consumption predicate, it is not enough to indicate the existence of an actor, an affected entity, and an instrument. It is necessary to indicate in what way the actor and affected entity interrelate, as can be seen in the following specification:

eat: [INSTR CAUS (LOC_{in} (mouth))₁₂ & CAUS SYMPTLIVE₂[_{INTENT}]]
do' (x, Ø) [BECOME **consumed'** (y)]
x = 1; y = 2

(iv) Lexical templates are in fact lower-level constructions that can be fused into higher-level characterizations such as the caused-motion, the resultative, or the benefactive constructions. Since the formal apparatus of lexical templates shares with higher-level constructions all elements excepting those that are specific to a lower-level class (the internal variables), absorption of a lexical template by a construction becomes a straightforward, redundancy-free process. In sum, lexical templates include a representational metalanguage for lexical and constructional representations, which, as advanced above, consists of both low-level and high-level semantic components.

Lexical templates and constructions

One of the advantages of positing lexical templates is that the metalanguage they encode is very similar and methodologically closer to constructional templates than that provided by both frames and the decompositional representations propounded within what Levin (1993) has called ‘predicate-centred approaches’.

It follows that there is no need to postulate linking rules or the like to project the information in a lexical template onto the constructional template. Instead we argue for the existence of a constrained unification process between the two representational schemes. These constraints are in turn motivated by higher conceptual procedures.

Lexical templates are in fact lexical constructions, which is consistent with the preservation of the lexicon-grammar continuum. As a first approximation, we claim that

the unification of lexical templates and constructions actually amounts to two processes which, following Goldberg (1995, 1997) and Michaelis (2003), we have called *elaboration* and *conversion*:

- a. Elaboration: There is a perfect match between constructional and lexical meaning, that is, this includes those patterns that are derivable from the semantics of the predicate without having to resort to the semantics of the construction since all the constituents are reflected somehow in the argument structure of the predicate, e.g. the middle construction, the causative/ inchoative, the characteristic property of instrument alternation, etc., are some illustrative cases:

A. Middle construction:

- (1) a. This chicken kills easily.
b. *This destroys easily.
- (2) a. *The table hits easily.
b. Tent stakes pounded easily into the sandy soil.
- (3) The Suzuki also has pretty good hardware, but the stock bar crinkled easily.
- (4) The alloy is flexible and bends easily.
- (5) Buns bake easily [...] so it is not really a chore even though it takes a while to wait for the dough to rise.

B. Causative / inchoative construction

- (6) The balloon inflated quite rapidly.
- (7) It defrosted in cold water.
- (8) Grass blackened after the fire; His eyes yellowed with exhaustion and resignation; His hair whitened with the burden of conviction.
- (9) He touched my heart > *My heart touched.
- (10) He killed the elephant with just one shot > *The elephant killed.

C. Characteristic property of instrument alternation

- (11) This knife cuts well; Yellow Cedar cuts pretty well with a drawknife
- (12) Elba C96DF is user friendly and food cooks well in and on it; It's a hammer and it hammers well, but it will not teach you to be a carpenter;

D. Subject instrument

- (13) The saw cut the wooden leg of the table.

(14) * The spoon ate the cereals.

- b. Subcategorial conversion: The semantic features encoded in the argument structure of a predicate do not coincide with those of the linking construction; this includes those morphosyntactic patterns that are not strictly derivable from the semantics of the predicate but are a contribution of the construction. We are referring to cases of subcategorial conversion:

E. The Caused Motion construction

(15) My wife yelled me out of the house.

(16) She loved him back into life.

(17) He listened me into the room.

F. The resultative construction

(18) He hammered the metal flat.

(19) He punched my stomach numb.

(20) She screamed my face red.

G. The reaction-object construction (examples from Levin, 1993)

(21) She mumbled her adoration.

(22) Sandra beamed a cheerful welcome.

(23) Paula smiled her thanks.

Cases with an added low-level non-propositional (i.e. metaphorical and image-schematic) interpretation:

(24) Finally I felt I was being listened into existence.

(25) She scorned me into a depression.

(26) All his remarks will be ignored into oblivion.

Unification

- The process of unification of the lexical entry of a verb and a linking construction should not be understood in terms of an association between thematic roles (as has been common practice in ConX) or linking rules (as is the case in projectionist theories). Unification is regulated by a number of constraints, both internal and external to the process. Both internal and external constraints are licensing factors for unification processes from lexical templates to higher-level constructional characterizations to take place.
- Such constraints are related to what some ConX theorists (e.g. Michaelis, 2003) have treated as coercion, i.e. the idea that lexical meaning (in our terminology, lower-level specifications such as lexical templates) is adapted to constructional requirements (higher-level specifications or constructional templates). The notion of coercion and its associated *Override Principle*, according to which the meaning of a lexical item conforms to the meaning of the structure in which it is

embedded, is useful to understand why, for example, the verb “laugh” in the caused-motion construction (e.g. *The audience laughed the speaker out of the lecture hall*) takes an object of motion just as an inherently effectual (but non-resultative) predicate (e.g. *kick, hit, blow*) would do. But the Override Principle by itself is unable to explain why some verbs can undergo the adaptation process while others cannot:

(27)

- a. *They killed the speaker out of the lecture hall.
- b. *They painted the speaker out of the lecture hall.

- External and internal principles conspire to block out examples like these, while allowing others to become part of the construction. Thus, “kill” and “paint” cannot be adapted to the caused-motion construction because both predicates, each in its own way, contain a resultative element that is the exact counterpart of the end-of-motion element in the caused-motion construction. This is an internal constraint. But there are external constraints too, which in the case of “laugh someone out of a place” are grounded in a high-level metaphoric process whereby one kind of action (one where the goal of the action is an experiencer) is understood in terms of another kind of action (one where the goal of the action directly undergoes the effects of the action). The activity of this metaphor is syntactically evidenced in the conversion of “laugh at” into “laugh”.
- We will refer to lexical unification constraints as *internal constraints* and to other external principles that have a bearing on the adaptation of lexical meaning to constructional meaning, as *external constraints*. While internal constraints make reference to the semantic nature or status of some of the elements that are present in both the lexical template and the constructional template, external constraints explain some grammatical processes on the basis of high-level metaphorical and metonymic operations, which have two clear advantages: (i) they allow us to capture relevant inferences or meaning implications whose actual communicative impact may otherwise be lost from our description; (ii) they allow us to introduce a greater degree of regularity in our descriptive and explanatory apparatus, thus enhancing the predictive power of the model. This is accomplished by postulating principles that constraint metaphoric and metonymic activity.

External constraints

- **Invariance:** Lakoff (1993) has proposed the existence of the Invariance Principle as a crucial constraining factor for metaphor. According to this principle, the image-schematic structure of the target domain of a metaphoric mapping has to be preserved in a way that is consistent with the image-schematic structure of the source. If we map a tree onto a person, the arms are the branches, the head is the top, the legs and feet are the roots, and so on. We cannot map the roots onto the head or onto the arms. Ruiz de Mendoza (1998) observed that it is not only topological or image-schematic structure that is preserved in a metaphorical mapping, but in fact all kinds of generic (or high-level) structure. Thus, in many metaphors we map animal behavior onto human behavior. We do not map physical features onto behavior. For example, we may

use the term “shark” to refer to a good player that always wins amateur players (the more experienced player is seen as a predator that preys on inexperienced fish). This version of the Invariance Principle was termed by Ruiz de Mendoza (1998) the Extended Invariance Principle or EIP.

Ruiz de Mendoza and Mairal (2006) argue that the EIP also applies to metonymy by preserving the high-level configuration of domain-internal relationships. For example, the container-contents relationship is preserved in *He drank bottle after bottle*, but not in **He drank cork after cork*, and the controlled-controller relationship in *The taxi wouldn't stop when I waved him down*, but not in **The steering wheel wouldn't stop when I waved him down*.

- **Correlation:** The CP ensures that source and target elements in a metaphor share their implicational structure in a relevant way. For example, in ARGUMENT IS WAR, an extremely intense debate between opposing political candidates may be described as an “all-out war”, i.e. a full-scale war where the enemies use all available resources. In the same context, it would be pointless to describe the opponents as if engaged in a skirmish. In the case of metonymy, the CP is active in its selection of the most relevant source domain on the basis of its ability to afford access to the intended target domain. Thus, in terms of the CP, it would be odd to use the name of a company to refer to the spouse of one of the employees, but not an employee or a chief officer. The CP also explains why nurses in hospital wards refer to patients by their diseases (cf. *Go see the gallbladder in room 203* but **Go see the newly changed sheets in room 2003*) or waitresses in fast-food restaurants refer to customers by their orders (e.g. *The ham sandwich is waiting for his check*).
- **Mapping Enforcement:** Ruiz de Mendoza and Mairal (2006) have proposed the Mapping Enforcement Principle or MEP as a way to guarantee that no item will be discarded from a mapping system if there is a way to find a corresponding source or target element. Metaphor-metonymy interaction and metonymic chains as previously discussed in Ruiz de Mendoza and Díez (2002) are consequences of the MEP.

Metaphor-metonymy interaction: For example, expressions like *give a kiss*, and *give a kick* are analyzed by Lakoff (1993) as cases of target-domain overrides in the metaphor AN ACTION IS A TRANSFER OF POSSESSION, i.e. cases where one of the elements of the source domain (here the possession element) has to be eliminated from the mapping system because there is no corresponding element in the target. However, Ruiz de Mendoza and Mairal (2006) note that the target of this metaphor has a built-in metonymy from the action of kicking to the effects of kicking, whose target corresponds to the possession element of the source. We thus map a giver onto a kicker, a receiver onto a kickee (the goal of the effectual action), giving onto kicking, the object given onto the kick, and the possession of the object onto the effects of kicking. This account adequately captures the idea that what the receiver of the kick “has” is the consequences of the kick rather than the kick itself.

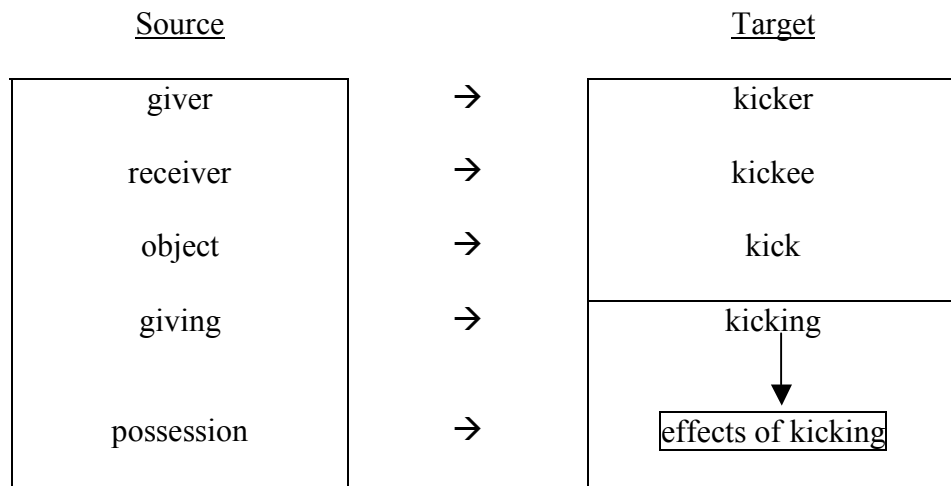


Figure 2. AN ACTION IS A TRANSFER OF POSSESSION

Metonymic chaining: e.g. *Shakespeare is on the top shelf*, where we first map the author onto his work, then onto the medium of presentation of his work. Postulating this double metonymy allows us to make a clear difference between the expression above and others based only on the first mapping, such as *I love Shakespeare* or *Shakespeare is not easy to read*.

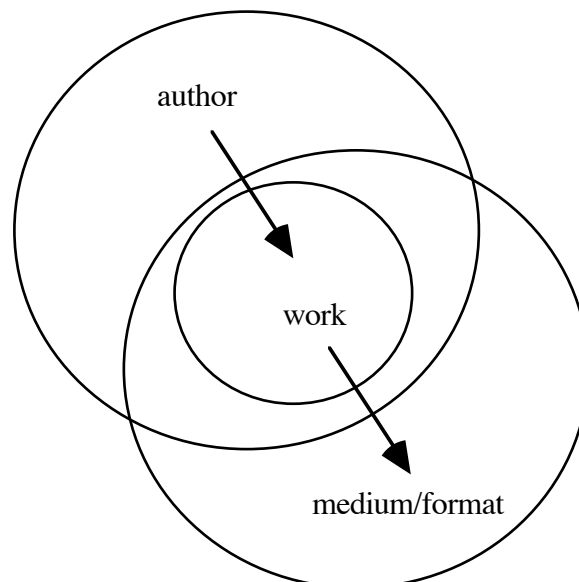


Figure 3. AUTHOR FOR WORK FOR MEDIUM

Constraining high-level mappings

- The constraints that we have identified are also operational in cases of high-level metaphor and high-level metonymy. Let us consider again the metaphor AN ACTION IS A TRANSFER OF POSSESSION. The EIP guarantees that we map one kind of doer of the action (a giver) onto another kind of doer (an effector),

and one kind of affected entity (the receiver) onto another kind of affected entity (the goal of the effectual action), and so on. This observation is not trivial. Expressions like the following would be impossible exploitations of the high-level metaphor:

(28)

- a. *She gave me a kicker [wrongly mapping the agent onto the object]
- b. *She gave me a kickee [wrongly mapping the object onto the goal of the action].
- c. *She gave me a kick but I lost it [wrongly mapping the possession of the object onto the kick].

- Other expressions would convey incompatibilities between source and target that would have to be resolved pragmatically:

(29)

*She gave me a kick that bruised her badly [where the mapping from the receiver to the goal of the action, which is the affected entity, is incompatible with the adjoined relative clause unless we interpret that the doer did harm to herself while kicking the speaker].

- The CP is also operational in the case of the action-transfer of possession mapping in a significant way. In fact, it antedates the application of the MEP and makes it possible or even necessary. Thus, the ‘effects of kicking’ experienced by the goal of the action in the target have the best possible source correlate in the ‘possession’ element since ‘possession (by the receiver)’ is the consequence of an object being transferred from a giver to a receiver. Both in the source and in the target we have similar implicational structure in terms of actions types and their respective consequences for the correspondence in question.

Conceptual constraints and grammar

- In our analysis of the various processes involved in meaning construction, we have found out certain systematic patterns that show a clear connection of high-level conceptual procedures such as those of metaphor and metonymy as grammatical coding.
- This search for the analysis of regularities that generate and constrain grammatical structures constitutes one of the methodological and heuristic pillars of our proposal.
- We don’t want to formulate metaphors or metonymies for any new structure that arises without considering the regularities and especially the set of constraints that motivate the occurrence of those conceptual mappings as explanatory mechanisms of a given grammatical phenomenon.
- Metonymies motivate constructional elaboration processes while metaphors provide the explanatory basis to account for subcategorical conversion processes. This extremely interesting finding is in accord with the nature of both metonymy and metaphor: metonymies are domain-internal mappings where one of the

domains involved provides a point of access to the other, which makes them compatible with the fact that elaboration processes highlight different aspects of one kind of transitive schema. Figure 4 illustrates the reduction of a causative accomplishment lexical template as a process of adapting this structure to the causative/inchoative alternation. Figure 5 illustrates the motivation for the reduction process as constrained by the high-level metonymy PROCESS FOR ACTION.

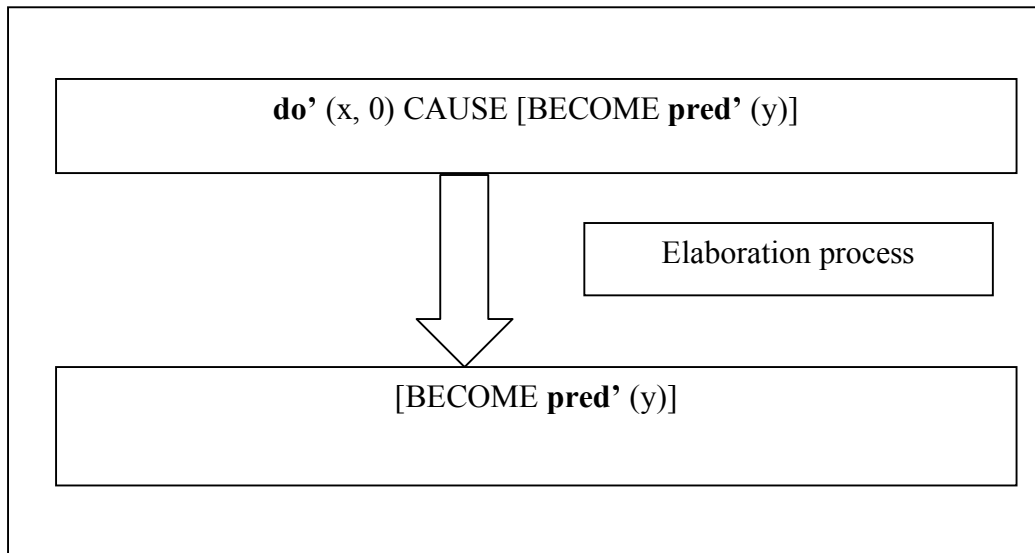


Figure 4: The lexical template of a potential causative/inchoative alternation

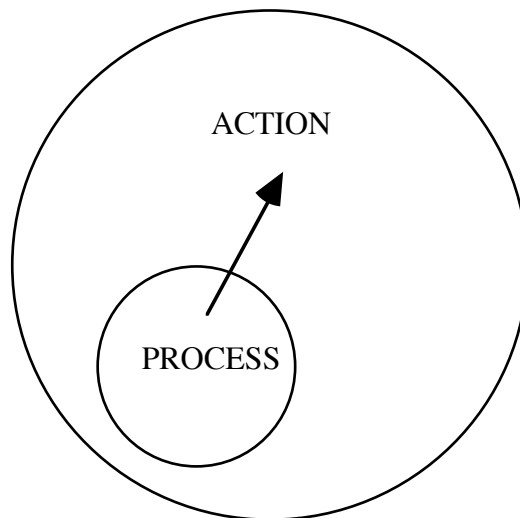


Figure 5: PROCESS FOR ACTION

- This domain-internal conceptual and grammatical perspective contrasts with a domain external one, where different conceptual mechanisms and grammatical patterns are invoked. We claim that metaphors are domain-external operations that motivate subcategorical conversion processes.

(30) Peter laughed John out of the room.

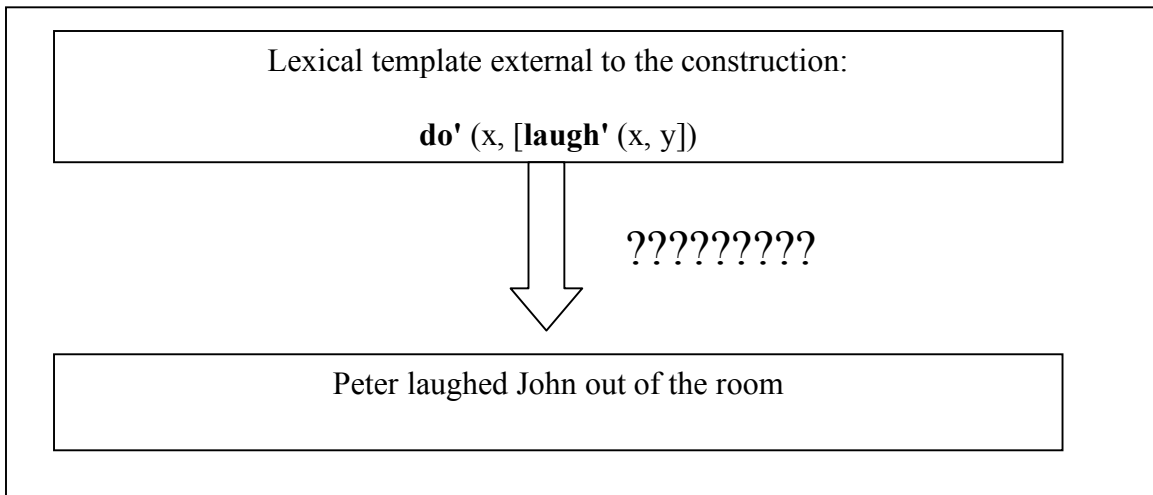


Fig. 6. Representation of the lexical template for *laugh*

- There is no way we can explain from the elements present in the lexical template (i) the subcategorical conversion of *laugh at* into *laugh someone* and (ii) the presence of a prepositional phrase indicating location. So, we need to look somewhere beyond the proper structure encoded in the template, which means postulating domain-external mappings.

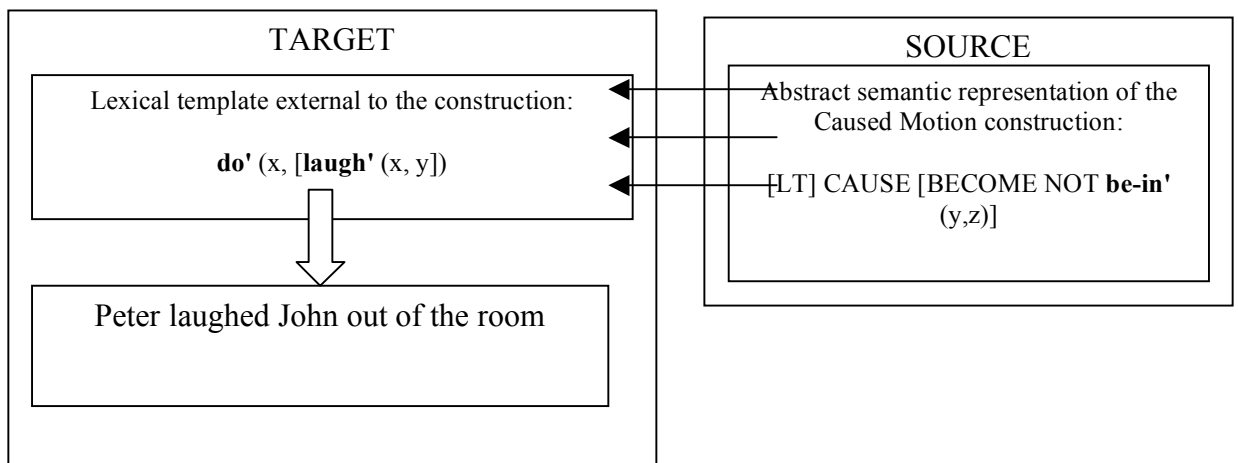


Figure 7: Unification of a lexical template with the caused motion construction

- Given the incapacity to explain the occurrence of this verb in the caused motion construction, we have to look outside and see if we can recover the information which is absent in the lexical template. The internal constraints stipulate that the construction itself has the capacity to add the missing arguments iff the unification between the semantic requirements of the template and those of the construction are feasible. This unification process is regulated by a high level metaphor EXPERIENTIAL ACTION IS EFFECTUAL ACTION, whereby an experiential action is understood as an effectual one since all the external

principles (e.g. the invariance principle, the extended invariance principle, the correlation principle) work properly. This type of argumentation can be extended to other cases of subcategorial conversion, e.g. the resultative construction, the way construction, etc.

- The set of internal and external constraints determine the way in which unification takes place. They may also block out unification. For example, in the case of the conversion of “laugh at + object” into “laugh + object”, it is not enough to say that we have a mapping from one form of transitivity to another. We need to know why it is possible to map the prototypical instrument role (that belongs to the source) onto the manner role (in the target).

SOURCE		TARGET
Effector	↔	actor [both are doers]
Effectee	↔	goal/experiencer [both are objects]
Effecting	↔	acting [both are kinds of doing]
Instrument	↔	∅
Purpose	↔	purpose

(31)

- John hit the wall with a huge hammer in a violent rage
- John laughed at Peter *with his mouth
- John laughed at Peter with perfect heartiness [note that the apparently instrumental PP indicates manner, as the PP in *She hit him with fury* ‘in a furious manner’].

- The Extended Invariance Principle does not allow us to have an instrumental slot in the mapping, in such a way that it rules out the following instantiations of the caused-motion construction:

(32)

- *Peter laughed John out of the room with big laughter
- *Peter laughed John out of the room with his mouth and lips.

[in the same way as experiential actions do not have instruments: **Peter laughed at John with his mouth and lips*; also note that the PP in some examples is simply an expression of manner (not of instrument): *Peter laughed at John with scorn*]

- The Correlation Principle tells us that the implicational structure of the target has to be kept intact in a way consistent with the source; or put differently, that we need to find the best source domain correlates for each target element in terms of the full range of meaning implications of the latter. In the case of our proposed mapping above, both effectors and effectees are appropriate correlates for experiential actors and goals for two reasons: (i) effectors and experiential actors are both doers, and effectees and goals are both objects of the action; (ii) if we want to preserve the “coerced” meaning implications of the target domain when the lexical template is built into the caused-motion construction, effectors and effectees are the best possible source elements since the caused-motion

construction requires literal force applied to an object. In the metaphor we understand the actor and goal of an experiential action as if they were the material doer and object of an effectual action (i.e. an action that has a direct physical effect on the object). Note that the Mapping Enforcement Principle plays no role here since we do not have combinations of metaphors or metonymic chains of any kind.

- The Correlation Principle licenses the correspondence between the instrumental element in the source and the manner element in the target only to the extent that this correspondence is subservient to the effectee-experiencer correlation. It is within this context that the instrumental element in the source becomes an acceptable match for the manner element in the target.
- The metonymic representation of the inchoative construction only captures the possibility of using a process to stand for an action. But not all processes can stand for actions. A process may only stand for an action if the process is the result of perspectivizing the action in such a way that the agent/controller becomes implicit. Thus, in *The river flows* we have a natural process that cannot stand for a controlled action. But in *The door opened* there is an implicit controlling entity (a agent or a natural force) that can be retrieved through the high-level PROCESS FOR ACTION metonymy. What this means is that the PROCESS FOR ACTION metonymy only has a “licensing” role. It allows us to capture the potential for the alternation to take place and it accounts for part of the meaning implications of the inchoative expression in terms of its relationship with the causative construction for which it stands: the fact that there is some agentive entity that does something with an instrument to another entity and potentially for somebody’s benefit. That the meaning implications are retrievable can be tested by making a simple discourse extension of the inchoative expression.

(33) The door closed because Jimmy hit it with the ball just to please his little sister.

The inchoative and middle constructions

- The causative/inchoative alternation and the middle construction are grounded in high-level metonymy, since they exploit different aspects of the ‘action’ high-level propositional model (or ‘action’ frame). Ruiz de Mendoza and Pérez (2001) have argued that part of the semantic makeup of the causative/inchoative alternation can be accounted for on the basis of the high-level metonymy PROCESS FOR ACTION. This alternation is illustrated by such pairs as the following:

(34) The wind closed the door > The door closed.

(35) The child broke the vase > The vase broke.

- For Ruiz de Mendoza and Pérez (2001) the implicit agent of the inchoative construction is retrieved through the PROCESS FOR ACTION metonymy, a situation which is impossible in the case of non-inchoative processes:

(36) The sheriff died (of a heart attack)

- In (3) the sheriff’s dying does not stand for someone willfully causing his death. Note that in order to have this situation we need to make use of a metaphor, as in (4), where the cause of a natural process is seen as if it were an intentional agent:

(37) A heart attack killed the sheriff.

- Further evidence in favor of postulating the PROCESS FOR ACTION metonymy is found in the necessity to account for the semantic plausibility of some discourse extensions, as in *There was a sudden gust of wind and the door slammed*, where we commonly understand that the wind was the force that closed the door.
- In Ruiz de Mendoza and Mairal (2006), it is further argued that the PROCESS FOR ACTION metonymy sets constraints on the causative/inchoative alternation in the sense that not all processes can stand for actions and that not all actions can be seen in terms of processes. Here we want to suggest that for the high-level metonymy PROCESS FOR ACTION to be applicable to a verbal predicate, the predicate needs to fulfill a number of conditions: there must be implicit agentive, instrumental, purposive, and beneficiary roles that are retrievable only through the metonymic operation:

(38) *The door closed by John (cf. John closed the door)

(39) *The door closed with his left hand (cf. John closed the door with his left hand)

(40) *The door closed to start the experiment (cf. The experimenter closed the door to start the experiment).

(41) *The door closed for me (cf. John closed the door for me)

The impossibility of these examples is to be found in the violation of the EIP. Evidently, the EIP does not allow us to include in the ‘process’ subdomain elements that belong exclusively to the ‘action’ matrix domain. However, postulating these conditions is not enough to account for the full complexity of

the causative/inchoative alternation. Here come the external constraints as shown below.

- Another interesting case is posed by the so-called ‘middle construction’, which resembles the inchoative construction in that it makes use of a subcategorical conversion process whereby a naturally transitive predicate becomes intransitivized. However, the middle construction contains an obligatory evaluative element that is not necessary in the inchoative:

(42) The door closed (easily).

(43) The bread cut easily.

(44) *The bread cut.

Because of the resemblance between the inchoative and the middle constructions, one might be tempted to postulate a common underlying metonymy, i.e. PROCESS FOR ACTION, especially since in both cases there is an implicit agent:

(45) Someone closed the door (easily)

(46) Someone cut the bread easily.

However, the metonymy PROCESS FOR ACTION would not account for the special role that the middle construction gives to the evaluative element:

(47) The bread cut easily/well/better than the onion > *The bread cut

Nor would it account for other related constructions like the one termed by Levin (1993) the *characteristic property of instrument* construction, which we prefer to label, following Ruiz de Mendoza and Peña (2006), *instrument-subject evaluative*, as in the following examples:

(48) This kind of knife cuts easily/well.

(49) This soap powder washes whiter.

(50) The new machine is fairly quiet and sews nicely.

- Ruiz de Mendoza and Mairal (2006) have postulated the double metonymy PROCESS FOR ACTION FOR RESULT as underlying all the different cases of the middle, and instrument-subject evaluative constructions. In fact there are two basic exploitations of this high-level metonymic chain. In one of them, special focus falls on the initial source domain (the process); in the other, it is the final target domain (the result) that is particularly highlighted. That this difference in focus is necessary for the description is evident from the impossibility of paraphrasing each use of the construction in the same way:

(51)

(a) This bread cuts easily = It is easy to cut this bread

(b) This bread cuts well = *It is well to cut this bread

(52)

(a) This kind of knife cuts easily = It is easy to cut with this kind of knife

(b) This kind of knife cuts well = *It is well to cut with this kind of knife

- The similarities and differences between both ways of exploiting the middle and the instrument-subject evaluative constructions are captured in figure 8 below. The relationship between these two constructions and the inchoative construction is captured by comparing figures 8 and 9.

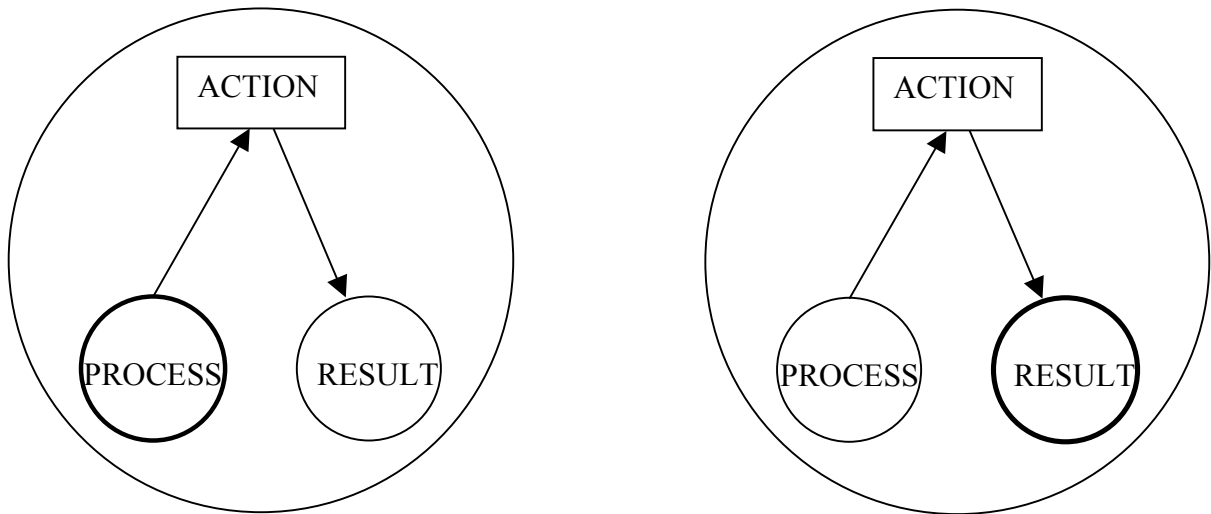


Fig. 8. Highlighting in PROCESS FOR RESULT FOR ACTION

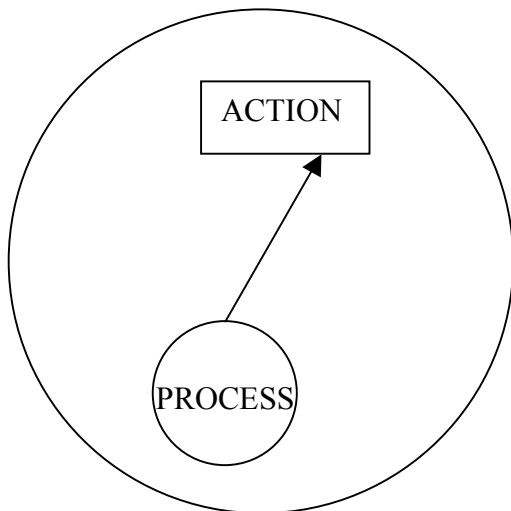


Fig. 9. PROCESS FOR ACTION

- However, metonymy cannot explain why we cannot have the causative/inchoative alternation with predicates like *destroy* and *hit*, which contain agentive, instrumental, purposive, and beneficiary roles, or why we cannot use the middle construction with, say, certain verbs of feeling. The answer to this problem lies in recognizing the existence of a number of *internal constraints* on lexical templates, which, together with the set of external constraints, explain why it is possible to unify a given lexical template with these two constructions. The following aspects are relevant:

The lexical class of the predicate is usually coded by means of either a primitive or a lexical function. For example, it has been shown that the causative constructions occur with change of state or position verbs, whereby the object of the transitive structure is now the subject of an intransitive structure. Then, this means that those verbs that explicitly encode a feature that is incompatible with this description will be unable to occur in this construction. An interesting case is that of *destroy* verbs and *break* verbs, within the causative/inchoative alternation. If we look at the lexical representations, as shown in (53), there is nothing that should prevent them from participating in this alternation. But this is not really the case with *break* verbs, which do take part in the alternation.

- (53) a. **do'** (x, 0) CAUSE [BECOME **broken** (y)]
 b. **do'** (x, 0) CAUSE [BECOME **destroyed** (y)]

Then, why is it possible to generate this construction from (53.a) and not from (53.b)? The reason lies in the fact that the lexical template for destroy verbs is further modified by the primitive BECOME NOT **exist'** and the lexical function **RealLiqu**_{1,2} which expresses the idea that someone carries out an action such that an entity does not longer exist. This means that destroy verbs are not verbs of change of state but verbs of existence and therefore are incompatible with the semantics imposed by the construction itself.

- (54) [**RealLiqu**_{1,2}] **do'** (x, 0) CAUSE [BECOME NOT **exist'** (y)]

-Locational predicates (hit, touch, etc.) cannot occur with the middle construction. The semantics of the middle construction adds a predicate codifying an attribute of the subject (e.g. 'cutting the meat is easy'). However, this syntactic configuration is not possible with *hit* verbs. In the case of *hit* verbs, there are two ways to rule out the middle construction. The first is via the INGR **be.in.contact.with'** component, which is the defining feature of the verb. Also the middle involves verbs that have some kind of result state designating a truly affected entity, and if that were defined as the argument of a single argument state predicate, then locational predicates like this would be ruled out.

-The affectedness of the object is one of the distinguishing features of the middle construction and this is coded in the lexical template by means of the lexical function [**MagnInvolv**_{1,2}], which means that someone or something acts intensely on the second argument such that this is seriously affected. For example, this explains why the middle construction is possible with predicates like *scare* and *terrorize* (which focalize the affectedness of the object), while it is blocked out with, say, *hearten*, which emphasizes the manner in which the action was performed.

-Lexical blocking can act as an internal constraint. One of the components of the lexical template can block the unification with a certain construction given that this component is a suppletive form. An interesting case is *kill*: this predicate does not take part in the causative/inchoative alternation since its inchoative form is suppletive, i.e. *die*, and blocks out a potential inchoative form of *kill*.

The caused-motion construction

(55) Peter kicked John out of the office.

(56) Peter laughed John out of the office.

- The construction conflates the roles of ‘affected object’ and ‘actor’ into one element of structure (“John” in the examples). It also conflates into one single predicate (‘kick’, ‘laugh’) two predicate values: causing motion and manner of causing motion. However, (55) differs from (56) in that ‘laugh’ has undergone subcategorical conversion from a verb with a prepositional complement (“laugh at someone”) to a purely transitive verb (“laugh someone”). The conversion process is licensed by the high-level metaphor EXPERIENTIAL ACTION IS EFFECTUAL ACTION.
- There are other high-level metaphors that map an effectual action onto various target domains thus licensing lexical subsumption into the caused-motion or some cases of the related resultative construction:

(57) He talked me into it (COMMUNICATIVE ACTION IS EFFECTUAL ACTION)

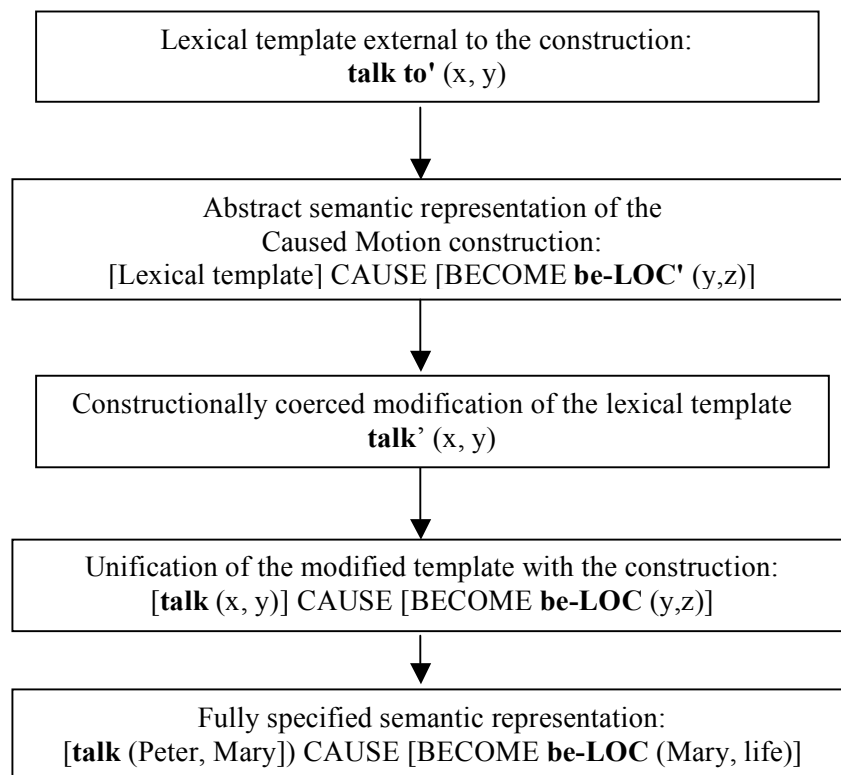


Fig. 10. Simplified representation of lexical-constructional subsumption in (57)

Remarks:

-‘Talk someone (into)’ results from a subcategorical conversion process, grounded in metaphor, whereby a goal-directed intransitive expression (‘talk to someone’) is transitivity. In the metaphor, the receiver of the message is seen as if directly affected by the action of talking rather than as the goal of the message.

- All relevant target elements, through the application of the Extended Invariance Principle, find corresponding elements in the source: *He talked me into it with persuasive words* (instrument) *just for John's sake* (beneficiary).
- The effectee-receiver mapping is licensed by the Correlation Principle since both elements are goals of an actor's action.
- Caused motion is metaphorical and maps onto the notion of persuasion (being persuaded is being introduced into a container). This metaphorical process is unrelated to the underlying high-level mapping that correlates the receiver and effectee.

(58) John drank himself into a stupor daily (cf. John brought himself into a stupor)
 (A NON-EFFECTUAL ACTIVITY IS AN EFFECTUAL ACTION)

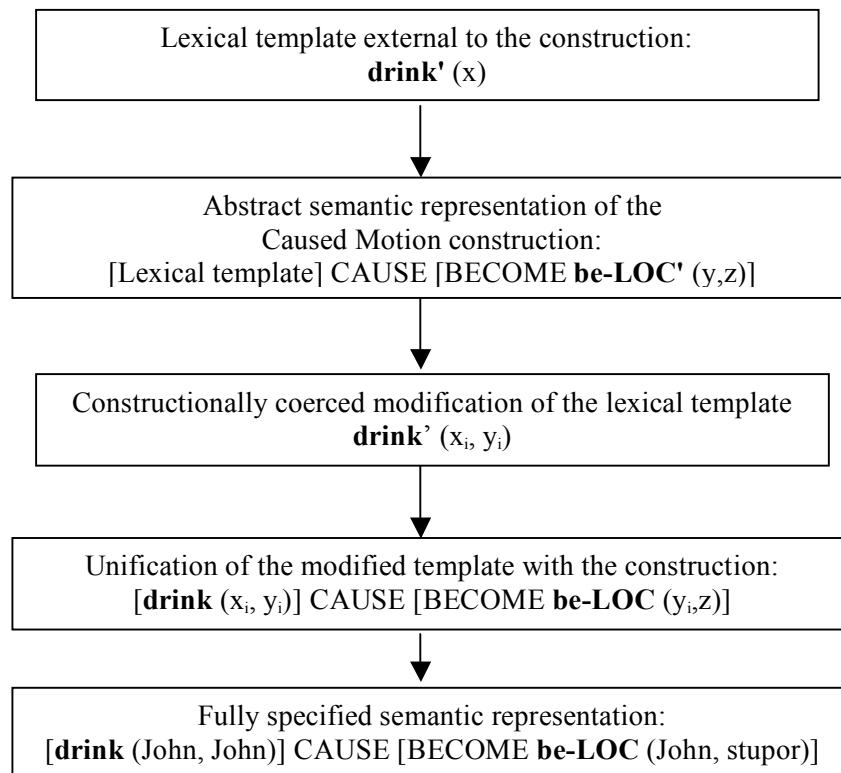


Fig. 11. Simplified representation of coerced lexical-constructional subsumption in (58)

Remarks:

- This sentence is an example of the resultative construction. The resultative element of this kind of construction may be based on adjectives (e.g. *Ron hammered the metal flat*), but very often it is expressed by means of prepositional phrases drawn from the caused-motion construction. However, in resultative constructions caused motion is never literal but a figurative form of expressing the origin and the resultant form of a state (cf. *John hammered the piece of metal from the shape of a duck into the shape of a fish*).
- As is the case with the caused-motion construction the resultative construction often forces subcategorical conversion of intransitive and pseudo-transitive verbs into transitive predicates. The originally intransitive “drink” is understood in terms of a transitive structure of the actor-(reflexive)object kind, in order to make it compatible with the caused-motion structure underlying the resultative construction.

-In resultatives the caused element is the result of a process, whether seen in figurative terms or not. In caused-motion constructions, the caused element is always a process (of going to a different place). Note that ‘talk someone into’ is not a resultative expression, since it focuses on the process of being persuaded rather than on the result of the process. However, in ‘drank himself into a stupor’ the expression focuses on the resultant state (being in a stupor), which is explicitly invoked by the linguistic expression and cues the constructional choice.

(59) Peter loved Mary back into life (AN EMOTIONAL STATE IS AN EFFECTUAL ACTION)

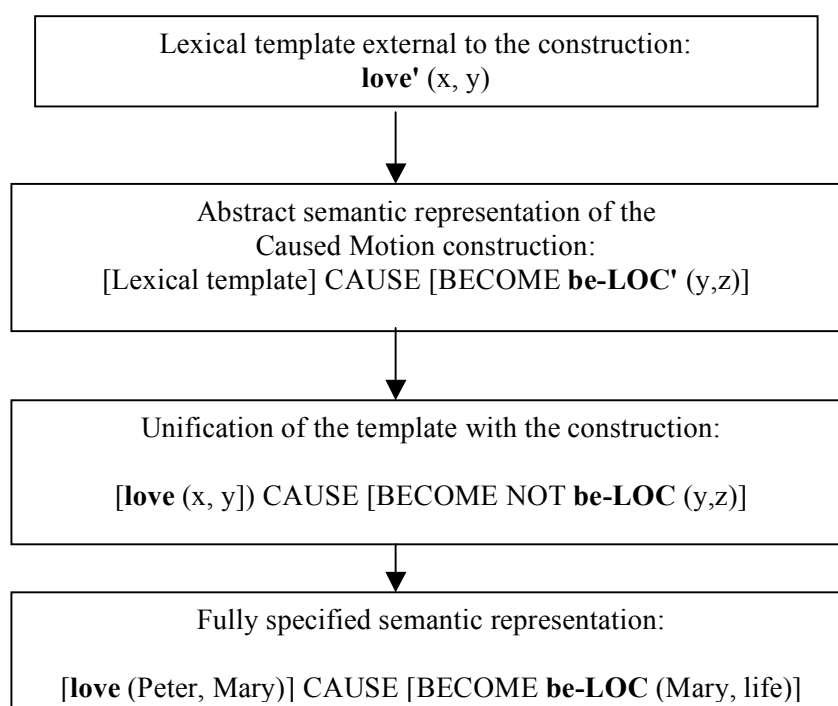


Fig. 12. Simplified representation of lexical-constructional subsumption in (59)

Remarks:

-The predicate ‘love’ is what Halliday (1994) has called a mental process predicate, which, in his terminology, has two associated roles, a sensor and an object of sensing (i.e. a phenomenon). In (57) the sensor is treated as an effector and the phenomenon as an effectee. The mapping is licensed by the CP to the extent that the object of ‘sensing’ is a goal of the sensor’s activity of ‘sensing’.

-As with (57), caused motion is metaphorical. Here it maps onto the idea of ‘vitality, liveliness’ or ‘the desire to live’. It is a low-level mapping and as such it is not directly related to the high-level mapping.

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Appendix I

VERB CLASS	LOGICAL STRUCTURE	EXAMPLE	INSTANTIATION OF LS
State	predicate' (x) or (x,y)	see	see' (x,y)
Activity	do' (x, [predicate' (x) or (x,y)])	run	do' (x,[run' (x)])
Achievement	INGR predicate' (x) or (x,y), <i>or</i> INGR do' (x, [predicate' (x) or (x,y)])	pop (burst into tears)	INGR popped' (x)
Accomplishment	BECOME predicate' (x) or (x,y), <i>or</i> BECOME do' (x, [predicate' (x) or (x,y)])	receive	BECOME have' (x,y)
Active accomplishment	do' (x, [predicate₁' (x, (y))] & BECOME predicate₂' (z,x) or (y))	drink	do' (x,[drink' (x,y)]) & BECOME consumed' (y)
Causative accomplishment	α CAUSES β where α, β are LS of any type	kill	[do' (x, \emptyset)] CAUSE [BECOME [dead' (y)]]

Table 1. Inventory of RRG logical structures

Lexical Function (adapted to paradigmatic structure)	Definition
ANTI	Antonym. Negation of other LFs
BON	Good (expression of praise)
CAUS	Cause
CONT	Continuity/duration
CULM	The highest point of []
DEGRAD	To get worse
FACT	Be realized
INCEP	The beginning of []
INSTR	Instrument
INVOLV	Subactivities implied by the predicate
LOC _{ad}	Spatial location with directionality "to"
LOC _{in}	Spatial location with directionality "in"
LOC ^{temp}	Temporal location marking past (\leftarrow), present (\leftrightarrow) or future (\rightarrow).
MAGN	intense(ly), very [intensifier], to a very high degree
MINUS	less of []
OBSTR	to function with difficulty
PERM	permit
PLUS	more of
SYMPT	physical symptoms
Additional lexical functions	
INTENT	intentionality
POSS	possibility
PROB	probability
PURP	purpose

Table 2. Inventory of lexical functions (adapted and expanded from Mel'cuk, 1989)