A lexical constructional approach to light emission and sound emission verbs

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A LEXICAL-CONSTRUCTIONAL APPROACH TO
LIGHT EMISSION AND SOUND EMISSION VERBS

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1. Introduction

The main goal of this dissertation is to study the lexical-constructional integration of light emission and sound emission verbs into three main constructions, namely the causative-inchoative configuration (I flashed the lights/The lights flashed; I rang the bell/The bell rang), the resultative construction (I rumbled the gate shut) and the intransitive motion construction (The lights flashed across the sky, Coins clanked into the box). In addition, this research briefly explores the occurrence of light emission and sound emission verbs with the conative construction (I flashed the lights at her; I splashed water at him).

The causative-inchoative alternation has been widely studied by grammarians but not so much in connection to verbs of light and sound emission. Cortés Rodríguez (2007, 2009) has pointed to the growing interest in the inchoative construction but nothing is said about the constraints that motivate the fusion of verbs of light and sound emission with this construction. His earlier research paper on the topic (Cortés & Gonzálvez Orta, 2006) deals with Old English sound emission verbs and only from a functionalist perspective. Moreover, Levin’s (1993) taxonomic work is far from complete when it comes to the discussion of the distributional range of these verbs. That is why I will argue that verbs of light emission and sound emission display a much richer variety of configurations than it has been claimed. Neither the resultative nor the intransitive motion construction of this verbal class is mentioned in Levin’s (1993) or Faber & Mairal’s (1999) lexicomotives-oriented taxonomies. Also, Levin’s (1993) taxonomic classification provides us with too broad generalizations regarding the constructional realizations of light emission and sound emission verbs. It is true that at an earlier stage of her work (Levin, 1993: 31) she does mention which verbs of emission participate in the causative-inchoative alternation and which do not. So, I will offer a more uniform proposal for these two verbal classes and I will enrich her list of light and sound emission verbs displaying such alternation. In addition, Faber & Mairal (1999) have studied the correlation between light emission verbs and emotions but have not analyzed the same correlation for sound emission verbs. The scarcity of linguistic
literature devoted to these two verbal classes makes them worth investigating. In order to shed light on the kinds of constructional realization for these verb classes, I will rely on the classification put forward by Levin (1993) and Levin & Rappaport (1995), complemented by the lexematics-oriented taxonomies from Faber & Mairal (1999), plus the explanatory tools provided by Goldberg & Jackendoff (2004) and the Lexical Constructional Model (LCM henceforth; Ruiz de Mendoza & Mairal, 2008, 2011).

For the present exploration, I have adopted, in consonance with the usage-based character of the LCM, a corpus-based approach. This study will be based on Levin’s (1993) list of one hundred and forty verbs (one hundred nineteen for sound emission verbs and twenty one for light emission verbs). I have used these verbs for the compilation, analysis and description of a large number of examples extracted from various sources. It is evident that sound emission verbs outnumber verbs of light emission. Levin & Rappaport (1994: 68) and Rothmayr (2009: 167) argue that this striking disproportion is motivated by the fact that there is a greater number of objects that emit sounds under manipulation by an external cause. Since the amount of data is immense, my work will only encompass the most relevant instantiations of the corpus.

Following Faber & Mairal (1999: 261) I have grouped verbs of light emission into two main categories, one which gathers all the verbs denoting a steady (stable) light and another one which comprises the verbs of unsteady (unstable) light. My goal was to see to what extent Faber & Mairal’s (1999) classification of verbs of stable/unstable light and scale of intensity are accurate enough to determine the compatibility of light emission verbs with certain constructions. In spite of the fact that my research relies heavily on large, computerized corpora, a practice that has been increasingly gaining ground within the framework of Cognitive Linguistics since the late 1990s, it is of notable importance to mention that I favor the combination of inductive and deductive analyses since data cannot render the researcher's intuition and competence obsolete.

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1 An inductive analysis favors statistical work. In induction, a hypothesis is elaborated on the basis of a limited number of observations. Then further observations are called upon in order to verify the validity or the initial hypothesis or to modify or even to reject it. Deductive reasoning starts off with a set of premises and tries to develop all possible logical conclusions. The conclusions will be valid if
Moreover, just like Mukherjee (2005: 70) underlines, the corpus may help the linguist to test, “to refine, modify or even replace the initial working hypotheses”.

Even if I advocate the use of corpus data, the examples in this paper have been extracted from both computerized and non-computerized sources. The non-computerized sources that I have consulted are dictionaries and the existing literature on the matter. In particular, Levin’s (1993) semantic verb classes and Faber & Mairal’s (1999) own conceptualization of the domain of LIGHT EMISSION and SOUND EMISSION, plus the hierarchical arrangements of these verbs, have proved extremely useful. By computerized sources of data I make reference to examples obtained from the original edition of The British National Corpus (BNC henceforth), The Corpus of Contemporary American English (COCA henceforth), and Webcorp. Additionally, some of the examples have been constructed for the sake of theoretical debate, but checked for validity by native speakers. Finally, my purpose was to favour a qualitative methodology to the detriment of a quantitative approach since the former is grounded in the explanation and description of linguistic phenomena while the latter requires a statistical processing of data to make generalizations. Thus, I studied the compatibility of light emission and sound emission verbs with the constructions under scrutiny in order to describe their semantic makeup and the cognitive and pragmatic constraints that regulate their constructional integration.

This dissertation is structured as follows. Section 2 introduces the reader to the concept of construction and to how this notion is conceived within the LCM. This chapter also contains information about the general architecture of the model. In the last part of this section, I present the internal and external constraints that regulate the unification process between lexical and constructional templates. Section 3 critically examines previous research on the causative/inchoative pattern and looks briefly at the most relevant features of the resultative, the intransitive motion and the conative constructions. Section 4 provides a bird’s-eye view of the salient semantico-syntactic properties of the causative-inchoative alternation within the LCM. Section 5 centers on
my analysis of light emission verbs in the causative-inchoative alternation by emphasizing the crucial role played by world-knowledge information encapsulated in an internal predicate variable in shaping the causative construction. Section 6 touches on Faber & Mairal’s (1999) correlation between intense and unsteady light emission verbs and negative emotions. The intention is to see to what extent this connection can help us to predict the compatibility of light emission verbs with certain configurations. Section 7 explains why light emission verbs cannot appear in the resultative construction and what makes this verbal class compatible with the intransitive motion construction. In section 8, I will show that sound emission verbs are licensed to participate in the causative construction by the high-level metonymy DIRECT/IMMEDIATE RESULT FOR DIRECT/IMMEDIATE ACTION. Section 9 emerges from the need to expand upon Faber & Mairal’s (1999) correlation but this time with sound emission verbs. In section 10 my main focus is on the factors that either license or block out sound emission verbs with the resultative and the intransitive motion constructions. The final section summarizes all the findings of the present research.

2. Constructions within the LCM

The notion of construction has been a topic of great interest that has generated an impressive amount of literature. Schönefeld (2006) offers a complete outline of the different perspectives and developments of this concept. Goldberg (1995) first defined a construction as a “form-meaning correspondence” where the meaning of the construction cannot be predicted from the sole interpretation of its component parts. Following Langacker (2005: 139-143), who treated as constructions highly frequent configurations which are compositional, Goldberg (2006) expanded the definition of a construction by abandoning the non-predictability requirement. For the LCM constructions are form-meaning pairings of the kind proposed in the various versions of Construction Grammar (CxG; cf. Gonzálvez-García & Butler 2006). The LCM
recognizes several types of constructions, among them argument structure constructions, which are the result of abstracting away elements that are common to lower-level verbal configurations. For example, the ditransitive construction relates to give-type verbs such as give, send, sell, etc. The LCM is a usage-based model of language that provides meaning characterizations at four different levels: the level of argument structure (level 1), the level of implicational constructions (level 2), the level of illocutionary constructions (level 3), and the level of discourse constructions (level 4). The LCM complements and refines the Golbergian account according to which only constructions predict the overall meaning of a sentence by coercing the lexical meaning of a predicate to fit all constructional requirements. In contrast, the LCM regards lexical-constructional integration as a cognitive process that is constrained by either internal or external principles while it strikes a balance between the roles of lexical and constructional constructs. The internal constraints involve those licensing or blocking factors that depend on lexical class ascription, lexical-constructional compatibility, and either predicate or internal variable conditioning of external variables.

In the remainder of this section I present some of the most representative instantiations of internal and external constraints. The first internal constraint is that of Full Matching, which states that “there must be full identification of variables, subevents, and operators between the lexical template and the constructional template” (Ruiz de Mendoza & Mairal, 2008: 385). I contend that give-verbs naturally observe Full Matching when they are found in the ditransitive construction. Thus, in a sentence like She gave him the wallet, there is no constructional coercion over the lexical structure since the verb give has an inherent ‘transfer’ meaning, which does not need to be attributed to the ditransitive construction. A second constraint is the Event Identification Condition, which stipulates that the subevents specified by the lexical template and by the constructional template must match. I have chosen to discuss this internal constraint because it will be employed later in my analysis. Compare the conative construction John hit at the fence with *John petted at the dog. In the first one the incorporation of the verb hit into the conative construction is licensed by the existence of both a motion and a contact subevent, whereas in the second example the
verb *pet* is an activity predicate involving only a contact subevent. Moreover, the *Lexical class ascription* internal constraint can determine which verbs can appear in the causative/inchoative pattern and which cannot do so. The verbs *break* and *destroy* have a similar lexical representation (i.e. *do’* (x, Ø) CAUSE [BECOME *broken* (y)]) for the verb *break*, and *do’* (x, Ø) CAUSE [BECOME *destroyed* (y)] for the verb *destroy*), but only the first one can take part in the inchoative construction (cf. *The window broke* vs. *The window destroyed*). The explanation resides in the fact that the verb *destroy*, unlike *break*, is not a change-of-state predicate but a cessation of existence predicate, which can be further decomposed into [BECOME NOT *exist’* (y)]. A fourth constraint operating within the lexical-constructional subsumption process is that of *Lexical Blocking* according to which one component of a lexical template can prevent the unification with a given construction on the grounds that this element is a suppletive form. One clarifying example is provided by the verb *kill* whose suppletive form (i.e. *die*) constitutes an impediment for the causative/inchoative alternation to take place. *Predicate-Argument Conditioning* is understood as the internal constraint that is at work when the lexical template determines the type of element that we can select for a constructional argument. I shall take the case of the caused-motion construction which can be symbolized as the *X- predicate- Y (NP)- Z (PP)* pattern in which the Y element is constrained by the choice of the predicate and PP slot (i.e. in *She sent me into despair*, the Y element is obligatorily a human verb role). It is important to show how *Internal Variable Conditioning* works since this internal constraint is widely attested in my analysis. The world-knowledge information associated with an internal predicate variable places restrictions on the nature of both the predicate and constructional arguments. A clear example is supplied by the use of the verb *drive* to instantiate the resultative construction. The meaning of this verb tends to denote a loss of control for the object, thus predicting the nature of the Z element, which can only express a negative mental state as in *drive someone mad/crazy/insane/nuts, etc.*

On the other hand, the external constraints refer to high-level metaphoric and metonymic operations. For the LCM, there are three different levels of description for
idealized cognitive models (or ICMs)\(^2\): primary, low and high. The primary level of description is directly grounded in bodily experience (e.g. MORE IS UP/LESS IS DOWN metaphor in *Prices are going up/down*). The low level of description is a non-generic level of conceptual representation which specifies elements and their properties and relations (e.g. the metonymy INSTRUMENT FOR PLAYER in *The sax has the flu*). The high level of description makes use of generic ICMs which derive their structure from a number of low-level models. The high-level metaphor A COMMUNICATIVE ACTION IS AN EFFECTUAL ACTION licenses the incorporation of the verb *snarl* into the caused-motion construction (cf. *The gangster snarled me into the poker room*). Lastly, the analytical apparatus of the LCM also comprises high-level metonymies originally formulated by Ruiz de Mendoza & Pérez (2001) such as INSTRUMENT FOR ACTION (e.g. *John shipped Thomas a package*) or OBJECT FOR ACTION (e.g. *He began [drinking/canning/selling] the beer*). In this paper I am more concerned with high-level metaphoric and metonymic operations than with primary or low-level metaphors and metonymies since the former play a crucial role in grammatical processes by placing constraints on morphological and/or syntactic structures.

3. **Types of constructions and their properties**

Before examining the constraints that regulate the unification process between predicates and constructions, I will first give an outline of previous research on the causative-inchoative alternation, and the resultative and the intransitive motion constructions. Thus, the causative-inchoative alternation is made up of a transitive variant [S/NP1 V OBJ/NP2] (e.g. *The wind opened the window*) and an intransitive variant [S/NP2 V] (e.g. *The window opened*). The former is regarded as a causative configuration that describes the bringing-about of a change of state whereas the latter is

\(^2\) Lakoff (1987) has defined an idealized cognitive model (ICM) as an organized conceptual structure, i.e. as a package of knowledge which results from the activity of a structuring principle.
an inchoative characterization that depicts a change of state and that lacks the agent/causer. It is well known that in this alternation the direct object of the transitive variant becomes the subject of the intransitive variant. It is also necessary to mention that in this paper Levin’s (1993) syntactic alternations will not be simply treated as the outcome of different syntactic projections of one verbal predicate, but as the result of the principled interaction between a verbal predicate and at least two self-standing constructions (cf. Ruiz de Mendoza & Mairal, 2011). When dealing with the difference between the causative and the inchoative constructions, Langacker (1991a, 1991b) states that they are to be interpreted in terms of distinct construal paths. Langacker introduces the notion of the billiard-ball model that lies at the basis of any prototypical finite clause (i.e. objects moving in space make contact with one another and engage in energetic interactions). This cognitive model is tightly connected to the action chain, which is portrayed as a domino series of energetic interactions between objects. The action chain depicts a flow of energy moving from an energy source to the final energy sink (theme). The aforementioned notions and the stage model, which is related to perceptual experience (viz. the observer who perceives external events is like a spectator watching a play on a stage), are of vital importance for grammatical organization. As far as semantic roles are concerned, Langacker invokes the terms of conceptual archetypes (role archetypes), which are grounded in human experience and interaction. Thus, the semantic roles that appear in the causative-inchoative alternation are the agent (i.e. an individual who engages volitionally in a transfer of energy to an external object) and the patient (i.e. an inanimate object that undergoes an inner change of state). Both notions of profiling and action chain enable Langacker to explain the subject-choice hierarchy in the causative-inchoative and instrument subject alternations. Consider the following examples:

a. Sally cleaned the table with a cloth.
   \[\text{(AG} \rightarrow \text{INSTR} \rightarrow \text{PAT)}\]

b. The cloth cleaned the table.
c. The table cleaned.

Sentence (a) implies that an external observer perceives Sally energetically acting upon the piece of cloth that in turn acts upon the table. The first example profiles the whole action chain moving from the energy source (agent) to the energy sink (the instrument). The second example profiles the interaction between the instrument and the patient whereas the last utterance profiles only the change of state undergone by the patient. What Fillmore (1968) considers a matter of promotion to the subject role in the absence of an agent and, consequently, of an instrument, is viewed by Langacker as a mere issue of profiling action chains in which the agent and the instrument are not absent but only unprofiled. In a similar fashion, Talmy (1985: 79) claims that an inchoative construction, as in The vase broke, encodes an “autonomous event” and “[it] presents an event as occurring in and of itself, without implying that there is a cause (such causes as there may be fall outside of attention)”.

Since the present study also deals with different instantiations of the resultative construction, it is essential to provide the reader with a brief theoretical overview on this type of construction too. It is commonly accepted that the resultative construction is a type of transitivity pattern which specifies the outcome of a change of state, property or location undergone by a person or an entity. The resultative configuration has received the attention of scholars working within various theoretical frameworks: formalism (e.g. Hockstra, 1988; Levin, 1993), functionalism (e.g. Halliday, 1967) and a number of constructionist approaches to language (cf. Boas, 2002, 2003, 2005; Broccias, 2003, 2004; Goldberg & Jackendoff, 2004; Iwata, 2006). According to Goldberg (1995), the resultative construction displays the semantics X CAUSES Y TO BECOME Z, where Z denotes the result argument, which may be realized either by an adjective phrase (AP) or by a preposition phrase (PP). Goldberg (1995) also claims that this construction is characterized by the following properties:
i. The subject argument has to be an animate agent.
ii. The object argument has to be patient (undergoes change of state).
iii. The verb has to encode direct causation.
iv. The resultative adjective has to designate the endpoint of a scale (binary adjectives).
v. The resultative adjective cannot be deverbal.

Ruiz de Mendoza & Luzondo (2011) propose two basic schemas underlying any resultative construction, namely A>B, where the object undergoes a transcendent change (e.g. *The witch turned the prince into a frog*), and A>A’ or the “canonical resultative construction”, in which the object gains a new property but does not experience a major change of state (e.g. *She clanged the door shut behind her*). In this dissertation I will discuss only the examples that fall into the second category since light emission and sound emission verbs cannot codify a transcendent change.

Another type of resultative construction that will be brought into consideration is the intransitive motion construction (e.g. *The bottle floated into the cave*), also called *intransitive path resultative* (cf. Goldberg & Jackendoff, 2004). This construction displays the semantics X MOVES Y, where Y denotes the path of motion followed by X. Goldberg (1995) does not discuss this construction in detail but she points out that it relates to the caused-motion construction via a subpart inheritance link, according to which the intransitive motion construction draws partial structure from the caused-motion construction. In this construction there is no external cause for the motion of the X element.

In this section one last mention should be made of the conative alternation, which is briefly dealt with in this study. The very name of this transitivity alternation, which comes from the Latin word *conor/conari* ‘to try’, gives a hint about its scope. Levin (1993: 6) claims that in the conative alternation there is “no entailment that the action denoted by the verb was completed”. A sentence like *Sue cut at the bread* only means “Sue tried to cut the bread”. So, the conative alternation is felicitous with verbs that are
ambiguous as to whether a particular goal is attained. A verb like *pull*, which does not entail that the entity the force is directed at moves, is perfectly compatible with the conative alternation as can be seen in *The baby pulled at the hanging flex of the iron left on the ironing board, *and the iron fell on his head.* The same happens with the verb *wave*, which describes the action of raising one’s arm and moving one’s hand from side to side in order to draw someone’s attention. This verb does not presuppose that the person the action is directed at has noticed our gesture (cf. *She waved at him, but he didn’t even notice*). Perek & Lemmens (2010) show that both Levin (1993) and Goldberg (1995) display a similar treatment for this kind of alternation. Levin (1993) equates conative alternation with ‘attempted action’ whereas Goldberg (1995) analyzes it in terms of ‘intended result’. However, none of these two perspectives provide a fully-fledged account of all alternating verbs. Broccias (2001) offers a refinement of the semantics of this alternation by incorporating the **allative schema** and the **ablative schema**. The allative schema is similar to Levin’s (1993) interpretation of the conative as an ‘attempted action’. In the allative construction the emission of a force (which can also be metaphorical) does not necessarily affect the prepositional object referent. The ablative schema is evoked by verbs that denote a continuous action directed at an entity and which is intended to bring about a given result: 1) removal of a substance or an entity (e.g. *Tom pulled at the wheelbarrow*), 2) release or the entailment of a perceptual state (e.g. *Susan pulled at her father’s jacket because she wanted him to buy her a candy*), 3) creation/destruction (e.g. *John ate at his cheeseburger*). The examples included in this dissertation relate to the allative schema or perspective since they concern the emission of a force (either a source of light or sound) towards a goal with no implication of a forceful contact (e.g. *He flashed the torch at her, He squeaked the toy at her*).
4. The view of the LCM on the causative-inchoative alternation

The Lexical Constructional Model (LCM) bridges the gap between functionalist approaches to language like Role and Reference Grammar (RRG- Van Valin & La Polla, 1997; Van Valin, 2005) and cognitively-oriented constructionist theories of verb meaning (Goldberg, 1995, 2006; see also Michaelis, 2003; Lakoff, 1987, 1993; Lakoff & Johnson, 1999) with the intention of providing a proper explanation of the relationship between semantics and syntax. The notions of lexical template (LT) and constructional template (CT) lie at the heart of the model and enable us to test and explain the compatibility of a verbal predicate with a given construction. Lexical templates are low-level constructional representations of the semantic and syntactic properties of a predicate, which are made up of a semantic module, expressing the semantic and pragmatic parameters of predicate meaning and the Aktionsart module, which is based on the RRG logical structures and an inventory of semantic primes. In turn, constructional templates are considered to be high-level representations of the semantic properties of constructions and since they operate at all four levels of the LCM (e.g. argument structure, implicature, illocutionary force and discourse), which have been mentioned in section 2, it can be said that constructional templates “coerce” lexical templates which operate only at the argument-structure level. The fusion process between a lexical template and a constructional representation is called subsumption. Lexical constructional subsumption is a basic cognitive operation which appears at all levels of meaning construction and is regulated by a set of internal and external constraints, which have been dealt with in section 2.

Ruiz de Mendoza & Mairal, the co-founders of the LCM, have studied the cognitive mechanism that lies at the basis of the causative-inchoative alternation (cf. Ruiz de Mendoza & Mairal 2007, 2011). Inchoativization from a causative configuration is possible thanks to the combination of the high-level metaphor ACTIONS ARE PROCESSES and the high-level metonymy PROCESS FOR ACTION (Fig. 1). Following Dik’s (1989) typology of states of affairs, events are dynamic states of affairs; actions are dynamic and controlled states of affairs (e.g. John flashed the
lights) whereas processes are dynamic and uncontrolled states of affairs (e.g. *The lights flashed*). In the causative-inchoative alternation the verb of the inchoative construction is intransitivized and the direct object of the causative pattern becomes the subject in the inchoative counterpart. The subject of the inchoative construction acquires the function of an agent even though the real agent can only be retrieved through inferential activity. A causative construction describes a causal action that involves an agent (or causer), an object (which is an experiencer or undergoer), and an instrument. In the inchoative construction the same causal action is presented as if it were a non-causal process, which has only one role, namely an undergoer. So, an action is treated as a process that in turn stands for the action. Ruiz de Mendoza & Diez (2003: 126-127) provide an exhaustive analysis of the high-level metonymy PROCESS FOR ACTION by focusing on its grammatical consequences: 1) the omission of the agent entails the promotion of the patient to a subject position; 2) there is less degree of control over a situation (e.g. *The lights flashed*; in this inchoative construction the flashing of lights may not be a volitional act); 3) change of perspective (i.e. the patient acquires a higher degree of prominence); 4) the valency reduction to one argument leads to an economy of linguistic resources.

![Fig.1. ACTION ARE PROCESSES metaphor and PROCESS FOR ACTION metonymy](image-url)
According to Cortés Rodríguez (2007, 2009), the inchoative construction is characterized by the following properties:

i. It involves one entity that undergoes a change of state or position.

ii. This unique argument has to be interpreted as “an in-built causer involved in the realization of the change of state depicted” (Cortés Rodríguez, 2009: 258).

iii. It is a telic construction (i.e. one with a terminal point) which only combines with Achievements and Accomplishments. An accomplishment expresses a change of state that is inherently telic and has duration (e.g. learn, recover). An achievement is also telic and non-stative, but in contrast with an accomplishment, it does not take place over an extended period of time. In other words, an achievement depicts a momentaneous change of state (e.g. burst, pop, in their intransitive uses).

The LCM proposes two different constructional templates for the inchoative construction:

a. [Caus1Fact1] [BECOME/INGR pred’ (x)], 1=x;

b. [Caus1Fact1] [PROC move’ (x)] <& INGR be-LOC’ (y, x)], 1=x

There are three types of elements in these logical structures:

1. The elements in boldface followed by a prime are semantic primitives (e.g. the result stative pred’ and the locative prime be-LOC’).  
2. The elements in normal typeface (e.g. x, y) are variables and express semantic roles (agent, patient, etc.).
3. The elements in capitals are operators and modify the semantic primitives. In the first template (a) the event can take a telic modifier, either BECOME or ING, depending on whether the event is an achievement (INGR) or an
accomplishment (BECOME). The second template (b) is a representation of positional inchoatives (e.g. The tree fell), in which the operator BECOME is decomposed into PROC & INGR (cf. Van Valin 2005: 42). Template (b) captures the idea that non-punctual telic events comprise both a process that takes place over time and an inherent endpoint that leads to a resultant state.

Caus1 and Fact1 capture an idea mentioned earlier, viz. the first argument (x) is understood as an in-built causer involved in the realization (Fact ‘factum’) of the change of state depicted.

Following Cortés (2007), we notice that causative verbs are subsumed into the inchoative template by means of the subevent selection operation, whereby “the constructional template may select a subevent of the lexical template if it satisfies the semantic constraints of the construction” (Cortés, 2009: 261). This operation is illustrated by the example His voice coarsened a bit and dropped an octave, closer to his conversational level (2005-NEWS-WashingtonPost-COCA). The lexical template of the verb coarsen is represented below together with the constructional template of the inchoative construction:

\[
\text{coarsen}: \text{do'} (x, \emptyset) \text{ CAUSE } [\text{BECOME rough'} (y)]
\]

\[
\text{inchoative: } [\text{Caus1Fact1}] \quad [\text{BECOME/INGR pred'} (x)], 1=x
\]

The constructional template of the inchoative configuration selects the second subevent of the lexical template of the verb coarsen (BECOME rough' (y)) since the cause semantic restriction is satisfied by the first subevent of the lexical template, namely the logical structure do’ (x, \emptyset) CAUSE. However, a state verb like hate cannot be subsumed into the inchoative construction (cf. I hate my car/*My car hates). Let us
compare again the lexical template of the verb with the constructional template of the inchoative pattern:

\[
\text{hate: } \quad *** \quad *** \quad \text{hate}'(x, y)
\]

\[
\text{inchoative: } [\text{Caus1Fact1}] \quad [\text{BECOME/INGR pred}'(x)] 1=x
\]

The inchoative construction *My car hates* is ungrammatical because the implicit causative parameter, together with the dynamic telic event structure as encoded in the constructional template, does not have a corresponding analogue in the lexical template for hate.

Since light and sound emission verbs do not involve changes of location, I will deal exclusively with inchoatives expressing changes of state.

5. The causative-inchoative alternation with light emission verbs

As pointed out in the introduction, Levin’s (1993) list of light emission verbs contains twenty-one verbs that I have grouped into two main categories following Faber & Mairal (1999):

1) Verbs that denote a steady (stable) light (e.g. beam, burn, blaze, glare, gleam, glow, incandesce, shine) and
2) Verbs that describe an unsteady (unstable) light (e.g. blink, flare, flash, flame, flicker, glimmer, glint, glisten, glitter, scintillate, shimmer, sparkle, twinkle).

All verbs of light emission are allowed to take part in the inchoative construction since most of these verbs can be classified as internally caused verbs. According to Levin &
Rappaport (1995), intransitive verbs describing an internally caused eventuality do not display a causative construction for it is believed that “some property inherent to the argument of the verb is responsible for bringing about the eventuality” (Levin & Rappaport, 1995: 91). Contrary to internally caused verbs, externally caused verbs “imply the existence of an external cause with immediate control over bringing about the eventuality described by the verb: an agent, an instrument, a natural force, or a circumstance” (Levin & Rappaport, 1995: 92). Consider the contrasting pair The jewel sparkled/ *The jeweller sparkled the jewel. The inchoative pattern is possible because it depicts a process with only one role, an undergoer (the jewel). Before examining the causative pattern, I shall mention two of Levin & Rappaport’s (1995: 135, 146, 153) linking rules, which seem relevant for the discussion:

1) The argument of a verb that denotes the immediate cause of the eventuality described by that verb is its external argument (i.e. subject).
2) The argument of a verb that corresponds to the entity undergoing the directed change described by that verb is its direct internal argument (i.e. direct object).

In this light, the causative pattern (*The jeweler sparkled the jewel) is deemed ungrammatical because the verb sparkle has an immediate causer (namely the jewel), which is a more immediate cause of the sparkling event than the jeweler. Also, it is not possible to have two immediate causes for a single event. However, the sentences The jeweler made the jewel sparkle or The jeweler caused the jewel to sparkle are correct since we have two verbs, both of which have their respective immediate causes realized as their subjects. The felicitous use of the verb sparkle in the made/cause to construction may also be accounted for by a temporal separation between the cause event and the effect event (cf. Fodor, 1970)³. One may think that the verb sparkle cannot act as a lexical causative (*The jeweler sparkled the jewel) because there is a

³ Fodor (1970) distinguishes between lexical causatives (e.g. kill) and analytical causatives (e.g. cause to die). In his view, the former depict ‘atomic’ causal events whereas the latter describe ‘compound’ causal events. He also argues that in the case of the analytical cause to construction “one can cause an event by doing something at a time which is distinct from the time of the event” (1970: 433).
time lapse between the removal of dirt or residues from the surface of the gemstone and
the sparkling effect of the jewel. In line with Fodor’s (1970) proposal, Katz makes a
distinction between direct and indirect causation. As an example of indirect causation
he makes use of a Wild West anecdote in which a gunsmith selling guns to an outlaw
may be connected to someone’s death (e.g. the sheriff is shot later on by that outlaw).
As can be seen, the two events (the sale of the crime weapon and the sheriff’s death) are
too remote in time to be linked by means of a lexical causative (?The gunsmith killed
the sheriff). Lakoff (1987: 55) also argues that “the more direct the causation, the closer
the morphemes expressing the cause and the result” (cf. also Lakoff & Johnson, 1980:
Ch. 20; Haiman, 1983). Another explanation could be offered by a sentence like The
jewel sparkled in the sunlight. From this sentence it can be inferred that the sparkle is in
fact produced by the gemstone in contact with natural light. The jewel has the capacity
to reflect the sunlight on its surface.

At first sight, it is possible to think that verbs denoting an unsteady light (i.e. that cannot
be controlled) must be ruled out from the causative pattern since only verbs that allow
for controlled light emission are acceptable in the transitive pattern. But this is not the
case since verbs like flash or flicker, which denote an unsteady type of light, can display
a causative pattern (cf. He flashed the lights). In contrast, verbs describing a steady
light, such as glare or glow are infelicitous in the causative construction (cf. *I glared
the headlights). Rothmayr (2009) claims that most verbs of light emission do not take
part in the causative (agentive) construction because the subjects of these verbs do not
allow for their light emission to be brought about by people. The analysis in this paper
clearly supports this claim since the eventuality described by verbs of light emission is
mainly caused by a natural force rather than a human agent as can be seen in the
utterances provided below:

(1) Then the heavy cloud began to break up and the pearly rays of the morning
sun beamed down on a spume-streaked sea that glistened in shades of emerald
and jade.(H7W 4255 BNC)
(2) David and Alice collected their chairs, blankets, and booze, and when the lightning flashed, David imagined his wife lit up, her skeleton distinctly visible as in a children's cartoon, Alice then collapsing into a smoking pile of ash. (2010-FIC-Bk:MrPeanut COCA)

(3) Stars glittered with the brilliance of jewels against a velvet backcloth. (HA6 1545 BNC)

(4) The flame flared red then yellow and sulphurous smoke rose. (2010-FIC-Bk:LucyNovel COCA)

In these examples the light emission event is caused by natural forces: the sun in (1); lightning, in (2); the stars, in (3); the fire, in (4). In example (1), the sea does not represent a source of natural light since the glistening event is caused by the contact of the surface of the water with the sunlight. Therefore, intransitive light emission verbs can express, on the one hand, a light produced by a natural source (e.g. the sun, lightning, fire, the stars) which cannot be controlled by human beings and, on the other hand, a light produced by an entity whose surface is in contact with a source of light: a jewel (e.g. sparkle, glint); a lake (e.g. shimmer); a stream (e.g. glint); shoes (e.g. shine).

Levin & Rappaport (1995) have drawn their internal cause generalization from examples similar to those enumerated in (1)-(4), but they have overlooked this second case, which needs further discussion. Compare (5a), (5b), and (5c):

(5) a. The sea shimmered in the sunlight.

b. The sun shimmered onto the sea.

c. *The sun shimmered the sea.
The verb *shimmer* requires a situation in which the concepts of agency and causation are shared by two elements, namely the sun and the sea. The sun is an external causer, which cannot function in the absence of an enabling factor or internal causer (the sea in (5a)), as illustrated in (5b) and (5c). Thus, the sea and the sun are co-causal factors of the shimmering event, which disallows the expression of the sea as a mere patient in (5c). The linguistic coding of both causal factors is reflected in the formal distance that separates the verb from the object (cf. (5a) and (5b)).

Levin (1993) states that verbs such as *incandesce* and *scintillate*, which are not so frequent in English, display a more restricted syntactic behavior than the rest of the light emission verbs. Thus, they can only participate in the inchoative construction: We watched contentedly as our campfire scintillated in the darkness (Merriam Webster Online Dictionary); And then the stars, grand lighthouses of the Heavens, in their turn incandesce (Wordnik Online Dictionary). These two verbs can be subsumed into the category of internally caused verbs since the light emitter is in both cases a natural source (the campfire and the stars) which escapes human control.  Levin’s (1993) list of light emission verbs could be further expanded to include seven other verbs: *coruscate* (e.g. The high ceiling of clouds coruscate with lightning; Wordnik Online Dictionary), *fluoresce* (e.g. I just do my research to understand why jellyfish luminesce, and why that protein fluoresce; Wordnik Online Dictionary), *glisten* (e.g. The dew glistened in the soft light of the early morning; Merriam Webster Online Dictionary), *luminesce*, *luster* (e.g. Her pearl necklace lustered sofly in the candlight of the restaurant; Merriam Webster Online Dictionary), *spangle* (e.g. In typical Las Vegas fashion, the showgirls’ sequined costumes spangled gloriously; Merriam Webster Online Dictionary), and *wink* (e.g. The airplane’s landing lights winked on and off; Merriam Webster Online Dictionary). All these verbs can appear in the inchoative construction and their light can have an internal cause (e.g. *coruscate*, *luminesce*, and *fluoresce*) or can be produced by an entity whose surface makes contact with a source of light (e.g. *glisten*, *luster*, and *spangle*). The intransitive use of the verbs *luminesce* and *fluoresce* can be justified by the bioluminescence phenomenon, which is the ability of some animals living in the deep sea/ocean or on land to emit their own light in order to protect themselves against
Now, let us analyze what makes light emission verbs compatible with the causative construction. Consider the following instances:

(6) *Mom* beamed the flashlight *over the rocks halfway up the hill*. (2000-News-Denver COCA)

(7) *Grace* blinked the porchlight *twice when they pulled up in front of the house, then all the light went out*. (1997-FIC-AntiochRey COCA)

(8) *He reached down and dialled in a violet filter, then rapidly flashed the lamp while looking into the eyes of the creature in front of him*. (2004-FIC-Analog COCA)

(9) *As he spoke, the door of the shop opened and a gust of wind* flickered the candles. (2009-FIC-FantasySciFi COCA)

(10) *Thorvald handed Roger the container, then shined the light onto the text: late imperial dialect, but a Latin he could read*. (2006-FIC-Analog COCA)

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As evidenced by examples (6)-(11) the only light emission verbs that combine with a causative construction are beam, blink, flash, flicker, shine, and shimmer. In the case of the verbs beam, blink, flash, and shine, the light emitter is an electrical device controlled by a human agent. In utterance (9) it is the wind (an inanimate agent) that acts upon the candlelight (non-electrical light emitter) and makes it flicker. Shimmer is another verb that disrupts the pattern mentioned above. In example (11), a shiny object (metal stars) is used as an instrument of producing light. All these examples display an agentive adjunct (Mom, Grace, he, Thorvald, Jazzbeaux) whereas in (9) the wind functions as a causal adjunct. The wind is not a volitional controller but only a fortuitous cause of the action expressed by the verb flicker. Examples (9) and (11) run counter to both Levin & Rappaport’s (1994) and Rothmayr’s (2009) claim according to which the only way verbs of light emission could be used in the causative configuration is to use electrical devices as instruments of producing light. Nevertheless, there are many light emission verbs that describe light produced by an electric device, such as glare (headlights), blaze (headlights), burn (lamp), or glow (light bulb) but they cannot participate in the causative construction (cf. *I glowed the light bulb). Both Levin & Rappaport (1994) and Rothmayr (2009) agree that the causative pattern is felicitous only when there is direct manipulation of the light emitter by an external cause, in this case a human agent.

Let us consider the utterance You’d better slow down, that car was flashing its lights at you (Cambridge Online Dictionary). In this example the conative use of the preposition at suggests that the action of flashing the lights is directed at someone which clearly indicates the presence of a human agent (the driver) who manipulates the lights of a car by pressing a certain button. The conative construction in English introduces the verbal complement with at. The preposition at is used with verbs that involve intentionally directing attention at an object (e.g. He looked at me, He laughed at me) or directing the action towards an object without having physical impact on it (e.g. He hit at the wall =
he directed his hitting action towards the wall but did not reach it, i.e. he attempted to hit the wall). In our case, a sentence like (...)*that car was flashing at its lights (...) would be illogical because the causative pattern (*That car was flashing its lights*) requires direct manipulation of the light emitter for the light to be produced. The example mentioned above can be treated as a case of what Ruiz de Mendoza & Gonzálvez (2011) have called a constructional amalgam whereby a causative representation – resulting from subsuming the verb flash into the causative construction – is integrated into the conative construction. The reason for this is grounded in the fact that some actions can have two kinds of objects: one (e.g. the light) acts as the scope of the action (flashing) and the other acts as the goal of the action (e.g. the object at which the flash is directed). But what makes a verb like glare reject the causative configuration (cf. *I glaring the headlights straight into her eyes*)? I contend that the compatibility of light emission verbs with the causative construction also depends on the type of light different objects produce. The verb glare expresses an intense, blinding type of light, thus suggesting that it cannot be easily controlled. The same holds true for the verb blaze, which cannot fit into the causative pattern (cf. *The huge truck blazing its headlights at us*) due to the fact that it depicts a very strong and disagreeable light. Also, traffic regulations stipulate that car drivers must not use main beam headlights (high beams) since these lights would dazzle or cause discomfort to other road users (car drivers, pedestrians, cyclists or horse riders). Thus, this situation (glaring/blazing the headlights) could only be caused accidentally, which makes these verbs incompatible with both the conative and the caused-motion construction, both of which require the agent’s intentionality. In the case of the verb glow intense light is associated with great heat, which would make impossible the direct manipulation of the electrical device (cf. *I glowing the light bulb*). The glowing light is produced by the heating of a metal filament wire to a high temperature inside a glass bulb. Another explanation for the ungrammaticality of the causative construction resides in the fact that the electrical current, which travels by feed-through terminals or wires, is the key factor in the glowing event. Summing up, the subsumption of the verbs glare, blaze, and glow into the causative construction, the conative construction, and the caused-motion
construction is blocked out by Internal Variable Conditioning. Our world knowledge tells us that people do not usually direct an intense or a disagreeable light at someone else (cf. *I glared the headlights at her) or that great heat emanated by a light bulb prevents a person from touching it (cf. *I glowed the light bulb). Levin (1993: 31) claims that there are only four verbs of light emission that can happen in the causative-inchoative alternation, namely beam, blink, flash, and shine. In this section it has been pointed out, on the basis of corpus data, that the verbs flicker and shimmer can also fuse with the causative construction.

6. Light emission verbs and emotions

The classification proposed by Faber & Mairal (1999: 261) of verbs of stable/unstable light proves very helpful for the examination of the manipulation process of the light emitter. Tables 1 and 2 show that there is direct correlation between the parameter of stability and the type of emotion encoded by a light emission verb (either positive or negative).

<table>
<thead>
<tr>
<th>LIGHT</th>
<th>shine</th>
<th>gleam</th>
<th>beam</th>
<th>glow</th>
<th>glare</th>
<th>blaze</th>
</tr>
</thead>
<tbody>
<tr>
<td>EMOTION</td>
<td>happiness</td>
<td>sudden emotion</td>
<td>friendliness, cheerfulness</td>
<td>contentment, pride, satisfaction</td>
<td>anger</td>
<td>intense anger, fury</td>
</tr>
</tbody>
</table>

Table 1. Verbs of stable light

<table>
<thead>
<tr>
<th>LIGHT</th>
<th>flash</th>
<th>glitter</th>
<th>twinkle</th>
<th>flicker</th>
<th>sparkle</th>
<th>glimmer</th>
</tr>
</thead>
<tbody>
<tr>
<td>EMOTION</td>
<td>sudden</td>
<td>greed</td>
<td>pleasure, nervousness</td>
<td>happiness, hope, interest</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

25
Table 2. Verbs of unstable light

Faber & Mairal (1999: 261) also order verbs of light emission according to a scale of intensity, which is reproduced here in figure 2. The most generic term is the verb *shine*, since the presence of light in our environment is a default value. I contend that the verbs *glare* and *blaze* cannot be found in the causative construction since they express a very bright or extremely bright type of light emission that cannot be directly controlled by a human agent.

Fig. 2. Intensity scale of *light*

The taxonomy of verbs of stable/unstable light, together with the intensity scale of light emission, shows that verbs that denote agreeable types of light emission (e.g. *sparkle*, *twinkle*, *beam*) are associated with positive emotions, as can be seen in *He/His face/His eyes beamed with happiness/pleasure/delight/glee/excitement/pride, etc.*, or *His eyes sparkled with liveliness/mirth/joy/excitement, etc.*. On the other hand, verbs that encode disagreeable types of light emission (e.g. *glitter*, *glint*, *blaze*, *flame*) will be associated with negative emotions (cf. *His eyes glittered with greed/cruelty, His eyes blazed with anger/fury/rage, His eyes flamed with anger/resentment/fury or His eyes flared with anger/lust/rage*). These examples are accounted for by Lakoff & Johnson’s (1980) metaphor *THE EYES ARE CONTAINERS FOR THE EMOTIONS*, whereby emotions
are treated as substances that are inside a container, which corresponds to the eyes. I would like to argue that the association of ‘anger’ with verbs like burn, blaze, flame, and flare is not a random connection. Kövecses (1990) demonstrates that there is a clear connection between the cultural model of the physiological effects of anger and the conceptual expressions that are used to code this emotion. Some of the physiological effects of anger are increased body heat, increased heart rate and blood pressure. Therefore, it is no wonder that anger is expressed by means of verbs related to fire which produces extreme heat. The sentence His eyes flamed/burnt/blazed/flared with anger is motivated by Kövecses’ (1990: 58) metaphor ANGER IS FIRE, which displays the following correspondences:

Source: FIRE
Target: ANGER

- The fire is anger
- The thing burning is the angry person
- The cause of the fire is the cause of the anger
- The intensity of the fire is the intensity of anger
- The physical damage to the thing burning is mental damage to the angry person
- The capacity of the thing burning to serve its normal function is the capacity of the angry person to function normally
- The object at the point of being consumed by fire corresponds to a person whose anger is at the limit

The reason why intense and unstable light is associated with negative emotions is straightforward. Light is perceived by the retina and whatever disturbs the human eye is regarded as negative. What is more, excessive light can cause headaches, fatigue and increase in blood pressure. Exposure to an intense light (glare, glow) blocks our vision by creating temporary flash blindness which, if experienced on roads at night, can result in car accidents. Gazing at the intense light of the sun or any other artificial source
without eye protection can result in photokeratitis, which is characterized by increased tears and an abrasive and painful sensation in the eyes. These symptoms are usually noticed several hours after exposure. Experts show that people who live and work in white brightness polluted environments can suffer from dizziness, insomnia, loss of appetite and even cataracts. In addition, color light pollution, which is defined as constant exposure to black lights, fluorescent or incandescent lamps, glinting and flickering color light sources used in discos, can cause damage not only to the eyes but also to the central nervous system of the brain.

The combination between light emission verbs and their corresponding emotions gives rise to three types of construction that shall be examined in detail here. The first pattern, NP1 V-light emission with NP2-emotion (e.g. *His eyes blazed with anger*), is licensed by the high-level metonymies INSTRUMENT FOR ACTION FOR MANNER (OF PERFORMING THE ACTION). The second configuration, NP1 V-light emission in NP2-emotion (e.g. *His eyes blazed in anger*), is accounted for by the metaphor STATES ARE LOCATIONS, according to which experiencing a state is seen as being in a location. This second construction can be paraphrased by a NP2 V-light emission in NP1 pattern (e.g. *Anger blazed in his eyes*) in which the object of the first variant becomes a subject in the second variant. In the third pattern, NP1 V-light emission of NP2-emotion (e.g. *His eyes blazed of anger*), the noun anger expresses the cause of the blazing event (as in *He died of cancer*). The PP is optional in all three cases (cf. *His eyes blazed like fire*).
7. Light emission verbs and the resultative and the intransitive motion constructions

This section first addresses the issue of the non-participation of light emission verbs in the resultative construction (cf. *I flashed the lights red vs. The lights flashed red) and then examines the principles that license the incorporation of this verbal class into the intransitive motion construction. The adjective red in the sentence The lights flashed red is not a result of the flash of lights, but it is the color that the lights took anyway (the lights can also glow/glimmer, etc. red). This sentence could also be paraphrased The lights, which were red, flashed because the adjective red functions only as a predicative complement. So, the sentence *I flashed the lights red is unacceptable because the verb describing the action (the flashing of lights) does not precede the event of lights turning red. The light flashing and becoming red happen simultaneously. Nevertheless, some light emission verbs can appear in the intransitive motion construction (X MOVES Y). Let us take into account the example The craft blazed out into space. Goldberg & Jackendoff’s (2004) notions of constructional and verbal subevents are very useful to explain such intransitive motion configurations or, as Goldberg & Jackendoff (2004) call them, path resultatives. The meaning of an utterance contains two separable subevents: a verbal subevent, determined by the verb of the sentence and a constructional subevent, determined by the construction. The verbal subevent is the means by which the constructional subevent can happen; it can also be said that the scenario depicted by the verb is prior to the one described by the schematic construction. In the previous sentence the verbal subevent (blaze) functions as the means of the subject’s motion. Any rocket fuel is composed of fuel and oxidizer. The explosion that launches the spaceship into space is produced by a burst of heat added to the fuel and the subsequent introduction of the oxidizer. Following Talmy (1996), it is possible to state that the example The craft blazed out into space describes
an *open path* event with windowing over the final part of the trajectory of the moving entity (*into space*) and initial and medial gapping (i.e. nothing is said about the starting point of the trajectory which is the launch pad nor about the motion of the spaceship through the air). Nonetheless, it is perfectly acceptable to construe a sentence that provides maximal windowing over the whole of the conceptually complete path (cf. *The craft blazed out from the launch pad through the air into space*) since the verbal subevent describes the means by which the motion event takes place. Also, the integration of the light emission verb *blaze* into the intransitive motion construction can be explained by means of the CAUSE (OF MOTION) FOR EFFECT (MOTION) metonymy whereby the blazing event makes possible the motion event.

To conclude, the PP slot of the intransitive motion construction can vary depending on which part of the light trajectory is profiled: 1) the initial part, which sometimes can coincide with the source of light (e.g. *The sunlight blazed from the sky, Fire blazed from the sun*); 2) the medial part of the path followed by the light (e.g. *The lights blazed through space, The lights blinked across the sky*); 3) the final part or the destination of the light (e.g. *The lightning flared into my face*).

8. The causative-inchoative alternation with sound emission verbs

As in the case of light emission verbs, all verbs of sound emission take part in the inchoative construction since most of them fall into the category of internally caused verbs. Again, one of the reasons which disallows the presence of sound emission verbs in the causative construction is that the sound emitter is not of human nature. Thus, the sound emission could be produced either by an animal or a natural force as in the examples reproduced in (12)-(15):

---

5 An open path can be defined as a path realized by an entity physically in motion over a period of time. The path is viewed as an entire unity which has a beginning point and an end point situated at different locations in space.
(12) *The dog growled, showing sharp white teeth, and the boy shivered.* (BN1-W_fict_prose COCA)

(13) *But the elephants went gaily dancing and trumpeting away over the mountains, through Roumania and Georgia, through Turkey, Iran, and Afghanistan, until they came to their native land.* (FUB-W_fict_prose COCA)

(14) *The wind wailed in the chimney.* (Longman dictionary online)

(15) *Thunder crashed and boomed outside.* (G0E-W_fict_prose COCA)

These examples illustrate that the sound emitter can be an animal as in (12) and (13) or a natural force as in (14) and (15). Other verbs that denote sounds emitted either by animals or nature are: *bubble* (water), *chatter* (birds), *gurgle* (brook), *hiss* (snakes), *howl* (wolves), *patter* (rain), *purr* (cat), *squawk* (birds), *trill* (birds), *whine* (dogs), etc. Additionally, some sound emission verbs can describe involuntary sounds that come from inside our body such as *sneeze, hiccup, belch, burp,rumble (stomach)*. The case of the verb *burp* is very interesting since it can denote both an uncontrollable sound (*The baby burped*) and a controlled noise as in *I burped the baby*. The first sentence clearly supports Piñón’s (2001) claim according to which “a causative-inchoative verb can be construed inchoatively if the type of event denoted is not necessarily caused by an agent”. Chierchia’s (2004) ‘by-self’ test can also be successfully applied (*The baby burped by itself/himself*) where the ‘by-self’ phrase plays the role of a modifier of an underlying cause indicating that it is the sole cause of the event. Nevertheless, a sentence like *The bell buzzed by itself* may sound very odd since the buzz of a bell is normally associated with a human agent (cf. Internal Variable Conditioning). The second sentence (*I burped the baby*) is perfectly acceptable since it involves direct manipulation (i.e. placing the child in a position conducive to gas expulsion and then lightly rubbing or gently hitting its lower back so that air comes out of its stomach).
This explanation is in line with both Levin & Rappaport’s (1994) and Rothmayr’s (2009) view according to which the causative pattern is felicitous only when there is direct manipulation of the sound emitter by an external cause, in this case a human agent. I also claim that the use of this verb in the causative construction can be accounted for by the high-level metonymy DIRECT/IMMEDIATE RESULT (i.e. SOUND PRODUCTION) FOR DIRECT/IMMEDIATE ACTION, which acts as a licensing factor. Thus, the causative construction *I buzzed the bell* could be paraphrased as *I pressed the bell button* (ACTION) and *the bell buzzed* (RESULT). The English language has economically merged the sound production and the action into one single lexical item, viz. the verb *buzz*. This phenomenon could also be explained by means of one of the sub-principles of Givón’s *iconicity principle* (1985: 207) according to which “the more stereotypical an object, instrument or manner adverb is as information, the less likely it is to be given independent coding expression, and the more likely it is to be incorporated into the verb”. In our case, the action of pressing the bell button is predictable from the sound emission event and is thus incorporated into the verb *buzz*.

![Figure 3. The RESULT FOR ACTION metonymy in *I buzzed the bell*](image-url)
So, the only way verbs of sound emission could be used in the causative configuration is to use devices or objects as instruments of producing sound. All sound emission verbs that take part in the causative pattern belong to the CONTACT frame (e.g. *He banged the door*, *Jerry jingled/jangled his car keys*, *I rang/buzzed the bell*, etc.). Cortés & Gonzálvez Orta (2006) also support that there is an area of overlap between sound emission verbs and contact verbs. In the case of the verbs *clash, clank,* and *clink* the conceptual domain of SOUND is inextricably intertwined with that of CONTACT as demonstrated by the presence of a *together* or *against* phrase:

(16) *The glass in her right hand still clashed against her teeth.* (FP0-W_fict_prose COCA)

(17) *These are the familiar plates of metal which, when clashed together, produce the most shattering effect of which any orchestral instrument is capable.* (GVS 779 BNC)

(18) *Whenever their team scored a goal, they leapt up and down clanking their beer cans together.* (Cambridge Online Dictionary)

(19) *As the first of them drank, the gold ring on his left index finger clinked against the crystal.* (G0P-W_fict_prose COCA)

(20) *And as they shook [her three medals], they clinked together.* (FSK-W_fict_prose COCA)

Examples (16)-(20) highlight that the sound could not have been produced in the absence of contact between two or more entities (the glass and the teeth in (16), the plates of metal in (17), the beer cans in (18), the ring and the glass in (19), and the medals in (20)). As can be noticed, when the entities that come into contact are identical the preposition *together* is preferred, whereas when the entities are different the
preposition *against* is used. Also, in the case of the preposition *together* the sound produced is volitional whilst in the case of *against* the sound may be accidental.

After a close examination of all one hundred and nineteen verbs of sound emission, the following verbs have been found to participate in the causative-inchoative alternation: *bang* (Tom banged the door/The door banged), *beat* (He beat the drums/The drums beat), *beep* (He beeped his car horn/His car horn beeped), *blare* (He blared the horn/The horn blared), *buzz* (He buzzed the bell/The bell buzzed), *chink* (They chinked their glasses/Their glasses chinked), *clack* (She clacked the typewriter/The typewriter clacked), *clang* (I clanged the bell/The bell clanged), *clank* (He clanked his ring of keys/His ring of keys clanked), *clash* (He clashed the cymbals together/The cymbals clashed together), *clatter* (She clattered her fork and knife on the empty plate/Her fork and knife clattered on the empty plate), *click* (He clicked the door shut/The door clicked shut), *clink* (They raised and clinked their glasses/Their glasses clinked), *crack* (He cracked his whip/His whip cracked), *explode* (He exploded the bomb/The bomb exploded), *hoot* (The driver hooted the horn/The horn hooted), *jangle* (She jangled her bracelets on her wrist/Her bracelets jangled on her wrist), *jingle* (He jingled his car keys/His car keys jingled), *pop* (He popped the balloon/The balloon popped), *rattle* (He rattled the door handle/The door handle rattled), *ring* (He rang the doorbell/The doorbell rang), *rustle* (He rustled his papers/His papers rustled), *snap* (He snapped a twig/A twig snapped), *splash* (She splashed water on her dress/Water splashed on her dress), *squeak* (He squeaked the toy/The toy squeaked), *squeal* (He squealed the tyres/The tyres squealed), *swish* (The horse swished his tail/His tail swished), *tinkle* (He tinkled the bell/The bell tinkled), *toll* (He tolled the church bell/The church bell tolled), *toot* (He tooted his car horn/His car horn tooted), *twang* (He twanged the guitar strings/The guitar strings twanged). Thus, Levin’s (1993: 31) list of sound emission verbs involved in the causative-inchoative alternation should be enriched with the following verbs: *beat, chink, clank, clink, crack, explode, pop, rattle, snap, splash, swish, toll,* and *toot.* Some of these sound emission verbs can also appear in the conative construction thus denoting an action accompanied by sound which is directed at someone (e.g. *He blared the horn at her, He hooted his horn at her, He splashed water*
at her, He squeaked the toy at her, etc.). Just like in the case of light emission verbs, the sound emission verb cannot be separated from the direct object by means of the preposition at (cf. *I buzzed at the bell) since the sound comes from the direct manipulation of an object. In some cases the formal distance between the sound emission verb and the direct object results in a change of meaning. The example He banged the door implies that the speaker either opened or closed the door with a sudden loud noise whereas the sentence He banged at the door implies that the speaker is standing in front of a closed door and that he is hitting it because he may want to come into the house.

But what happens when there is no direct manipulation of the sound emitter? Then, the causative pattern is only possible in the presence of a directional phrase as in I squealed the tires going around a corner or She swished her skirt as she walked. In the first example the verb squeal must combine with a motion verb (go) and a PP slot indicating the idea of figurative motion since the production of this sound would not be possible without someone controlling the car in such a way that the tires will squeal.

I would also like to discuss briefly the property of intentionality which is essential in the case of the causative construction as in Don’t clatter the dishes- you’ll wake the baby up (Cambridge Online Dictionary). In the inchoative construction the agent is not realized at the linguistic level as if the action were carried out in the absence of the agent. The addition of an adverbial time clause to the inchoative construction (e.g. The saucepans clashed as he piled them into the sink - Cambridge Online Dictionary; The floorboards creaked as she walked across the room - Longman Online Dictionary) makes it clear that the sound event in the main clause is caused by the action of the agent in the as clause (the piling or the walking event). It is more than obvious that an agent is directly manipulating the saucepans or is walking on the wooden floor but the clashing or the creaking sounds may not be produced purposely.
9. Sound emission verbs and emotions

Faber & Mairal (1999) exploit the notion of polarization, which was borrowed from Krzeszowski (1990), in order to discuss the connection between sounds and emotions. Human beings constantly evaluate their environment using the polarity good and bad. Tischner (in Krzeszowski, 1990: 142) proposes a three-level hierarchy of values, which range from values related to direct sensory experience (the first level), through values associated with life and health (the second level) to spiritual values such as truth, beauty or goodness (the third level). The domain of SOUND (to make a loud sound/to make a soft sound) belongs to the first-level of the hierarchy of values. Sounds can be interpreted in terms of the dichotomy pleasant/harmonious vs. unpleasant/discordant. Thus, predicates like screech, shriek, and thunder are axiologically loaded with negative connotations whereas murmur, whisper, and rustle display positive connotations since they tend to denote low and pleasant sounds. Their list could be enlarged with the inclusion of, on the one hand, blare, blast, clatter, rasp, roar, scream, shrill, squawk as verbs describing unpleasant sounds and, on the other hand, burble, gurgle, jingle, lilt as verbs which are positively loaded. In addition, I have noticed that there is a clear correlation between the intensity and the duration of a sound and the intensity of the emotion expressed by that particular sound. The longer the sound the greater the emotion described by that sound. Verbs like groan, growl, howl, shriek, squawk, ululate, wail, and whine express deep long or sharp sounds which most frequently encode negative emotions (cf. He was soon so unwell that he groaned with distress-ALH 760 BNC; Estabrook growled in fury and frustration- CRE 121 BNC; Meredith howled in despair and rage- CEB 3119 BNC; (...) a rabbit caught by some predator shrieked in terror- CA0 2509 BNC; The puppy ululated in distress every time he was left alone⁶; The nightingale wailed with sorrow⁷; The dog whined with pain when he

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⁶ Example taken from: http://twitter.com/theSKYBLUETIES (accessed on January 24, 2011)
⁷ Example taken from: http://wiki.answers.com/Q/What_is_the_love_of_Allah (accessed on January 24, 2011)
was moved (…)\(^8\). As seen in section 6, most light emission verbs can participate in a NP1 V-light emission with NP2-emotion or a NP1 V-light emission in NP2-emotion construction where the emotion coded can be either positive or negative. Contrary to them, only some sound emission verbs can display these two similar patterns (NP1 V-sound emission with NP2-emotion and NP1 V-sound emission in NP2-emotion) in which the emotion coded is more often a negative than a positive one.

10. Sound emission verbs and the resultative and the intransitive motion constructions

In this section I aim to synthesize some of the main reasons for the participation of several sound emission verbs in the resultative construction and another subtype of resultative configuration, namely the intransitive motion construction. Contrary to light emission verbs, which reject the resultative configuration, sound emission verbs can take part in it. I believe that this is so because it is possible to associate causal actions more easily with sounds than with lights. Thus, a verb like *rumble* is compatible with the resultative construction as exemplified by *I was a pro this time, turning around in the office rest room to rumble the wooden door shut from its hidden slot in the frame* (…)\(^9\). Similar examples are *She clanged the metal gate shut behind her* (*Cambridge Online Dictionary*), *I motioned for Jasper to go through, and buzzed the door open*\(^10\), (*…) Becca stepped inside the cyclone fence and clanked the gate shut behind her*\(^11\), “It’s like the last days of disco”, he said, *turned, and clattered the gate shut*\(^12\), *He mounted the steps and noisily clicked the guardrail shut*\(^13\), *Outside, she clunked the*

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\(^9\) Example taken from: [http://www.webcorp.org.uk/cgi-bin/webcorp2.nm](http://www.webcorp.org.uk/cgi-bin/webcorp2.nm) (accessed on January 24, 2011)

\(^10\) Example taken from: [http://www.fanfiction.net/s/4463635/1/Good_Morning_Mr_Cullen](http://www.fanfiction.net/s/4463635/1/Good_Morning_Mr_Cullen) (accessed on January 24, 2011)


\(^12\) Example taken from: [http://www.webcorp.org.uk/cgi-bin/webcorp2.nm](http://www.webcorp.org.uk/cgi-bin/webcorp2.nm) (accessed on January 24, 2011)

heavy red door shut and twisted some keys in some locks (...)\textsuperscript{14}, At one point I cracked the door open to spy Cora crouched down in the corner of her crib, closest to Ellie\textsuperscript{15}, She creaks the door open and steps out\textsuperscript{16}, She slammed the door shut and went back to the window (EWF-43-BNC), She snapped her briefcase shut/open (Longman Online Dictionary), Naira swished the door shut behind him, panting a little\textsuperscript{17}. In the first sentence the exact outcome must be made explicit (cf. *I rumbled the gate) since the verb \textit{rumble} denotes a state and it can only take part in the resultative construction through a subcategorial conversion process that is licensed by the high-level metaphor STATES ARE EFFECTUAL ACTIONS (Ruiz de Mendoza & Mairal, 2007). Experiential grounding makes this metaphor possible: the mind conflates the rumbling noise with the gate moving to either an opened or a closed position. On the other hand, a verb like \textit{yell} needs a “fake” reflexive object in order to appear in the resultative construction (e.g. *He yelled hoarse vs. He yelled himself hoarse). In this example the presence of the fake object could be accounted for by the fact that the resultative adjective \textit{hoarse} can only affect the animate instigator who performed the action described by the verb (cf. *He yelled Tom hoarse). I shall also postulate another high-level metaphor, namely AN ACTIVITY IS AN EFFECTUAL ACTION, as a factor that allows this verb to take part in the resultative construction. Nevertheless, it is possible to conceive the activity predicate \textit{yell} as being able to express a certain degree of object-directed intentionality as in He yelled his son into submission. In this caused-motion construction (X CAUSES Y TO MOVE Z) the state of obedience is viewed as a location on the basis of the metaphor STATES ARE LOCATIONS.

When dealing with the resultative construction, Talmy (1996) specifies that the verb in this construction must encode the immediate cause of the final resulting event expressed by the satellite.\textsuperscript{18} Let us take the utterance \textit{She slammed the door open}. The

\begin{itemize}
  \item \textsuperscript{14} Example taken from: http://www.tinyhorsey.co.uk/features/joy.html (accessed on January 24, 2011)
  \item \textsuperscript{15} Example taken from: http://sharingrace.com/ (accessed on January 24, 2011)
  \item \textsuperscript{16} Example taken from: http://fanfiction.wikia.com/wiki/GMD_Script (accessed on January 24, 2011)
  \item \textsuperscript{17} Example taken from: http://www.fanfiction.net/s/3042978/13/In_Thade_We_Trust (accessed on January 24, 2011)
  \item \textsuperscript{18} According to Talmy (1991, 2000), English is a satellite-framed language in which the core information of a sentence is mapped onto the satellite (an adverbial) and the additional information is mapped onto
\end{itemize}
adjective *open* describes the final resulting event whereas the verb *slam* encodes a prior causal subevent. So, the causal sequence (The door is opened) cannot be referred to with a sentence like *She grabbed the door open*, even if she may have first grabbed the door knob in order to open the door. In the LCM, this phenomenon is motivated by means of a subcase of the internal constraint Event Identification Condition, which concerns the proper identification of events. The verb *slam* here does not refer to the hitting event (cf. *I hit the door open*) but to the sound produced at the moment when the door is hit against the wall and makes it open. So, the sound production is the closest temporal subevent to the resulting event. It is necessary to add that the resultative construction also parameterizes the action carried out by the agent (e.g. the slamming sound could be produced either by closing or opening the door).

As far as the intransitive motion configuration is concerned, Goldberg & Jackendoff’s (2004) notions of constructional and verbal subevents, which have been defined in section 7, provide an adequately descriptive account for this construction. Let us consider the example *The frog plopped into the water*. Here, the verbal subevent (*plop*) merges the action performed by the subject (falling) with the sound produced by that action. The constructional subevent describes the movement of the subject along the path expressed by the PP. In the case of sound emission verbs, the verbal subevent is no longer the means whereby the constructional subevent takes place (cf. *The frog fell into the water*); on the contrary, it functions as the result of the constructional subevent, i.e. the sound of plopping is caused by the motion of the frog (cf. *The frog fell into the water with a plop*). According to Talmy’s (1996) conceptualization of an open path event, a sentence like *The frog plopped into the water* offers windowing over the final part of the trajectory of the moving entity (*into the water*) and initial and medial gapping (i.e. no information is given about the starting point of the trajectory which could be the grass nor about the motion of the frog through the air). In fact, a sentence that codifies the starting point and the intermediate points of the trajectory at the lexical level is deemed ungrammatical (cf. *The frog plopped from the grass through the air* the verb. In the utterance *She slammed the door open* the satellite *open* expresses the main information (the door opened) while the verb *slam* lexicalizes the manner in which the door opened.
into the water). This example could be contrasted with an utterance like The frog jumped from the grass through the air into the water in which the verb jump provides maximal windowing over the whole path. In the LCM the difference between these two verbs can again be explained by the Internal Variable Conditioning constraint, according to which the internal predicate variables place constraints on the nature of the constructional arguments. The verb plop expresses a sound that is produced at the fall of a moving entity into the water. Thus, this verb is inextricably linked to the final part of the event (the fall), which constrains the choice of the constructional subevent (into the water/*from the grass/*through the air). Another instantiation of intransitive motion construction is offered by the utterance The engine spluttered/thrummed into life (Longman Online Dictionary). This example can be accounted for by the high-level metonymy MANNER FOR ACTION since verbs like splutter and thrum designate the way in which the action takes place. This metonymy allows us to focus on the actional component underlying the sound. In the case of thrum the sound results from the action of playing a guitar idly whereas in the case of splutter the spitting sound results from the way a machine or an engine works. The prepositional phrase into life indicates that a state of existence is conceptualized metaphorically in terms of the CONTAINER image-schema (Johnson 1987, Lakoff 1987, 1989). Thus, the entity that begins to exist (the engine) is conceived as entering a container.

19 The preposition into is one of the linguistic realizations of the CONTAINER image-schema. Johnson (1987) has defined image-schemas as abstract conceptual representations that derive from our sensory and perceptual experience of the external world. Image-schemas are not innate knowledge structures. They are subject to transformations since they arise from ongoing embodied experience (cf. Lakoff 1987; Peña & Ruiz de Mendoza 2009). For example, the CONTAINER image-schema derives from our recurrent daily experience with different kinds of containers ranging from rooms, bed-covers, clothing to states.
11. Conclusions

This dissertation has mainly discussed the internal and external constraints that license or block out the integration of verbs of light emission and sound emission into the causative-inchoative alternation, and the resultative, the intransitive motion and the conative constructions. From the close inspection of the distributional range of these two verbal classes the following conclusions can be drawn:

(a) The analysis in this paper confirms Levin & Rappaport’s (1995) hypothesis according to which internally caused verbs only occur in the inchoative construction (cf. *The sun beamed through the clouds-Longman Online Dictionary; We could hear the stream gurgling down in the valley- Longman Online Dictionary) while externally caused verbs can display a causative configuration (cf. The woman blinked the porchlight; I burped the baby). However, Levin & Rappaport’s (1995) internal cause generalization can only account for examples in which the light is produced by a natural source (e.g. sun, lightning, fire, stars) and thus cannot be controlled by human beings. The examples provided in this research show that intransitive light emission verbs can also express a light produced by a bioluminescent animal (e.g. glowworms, fireflies, jellyfish) or by an entity whose surface is in contact with a source of light (e.g. jewel: sparkle, glint; shoes: shine). Examples like *The wind flickered the candle or He shimmere the red metal stars implanted in his knuckles run counter to both Levin & Rappaport’s (1994) and Rothmayr’s (2009) contention that the only way verbs of light emission could be employed in the causative construction is to use electrical devices as instruments of producing light. Moreover, many light emission verbs that describe a light produced by an electric device (e.g. glare, blaze, glow) cannot take part in the causative construction (cf. *I glowed the light bulb). The integration of a verb like glow into the
causative configuration is blocked out through Internal Variable Conditioning, on the grounds that great the heat that emanates from a light bulb makes it impossible to manipulate it directly. To sum up, the compatibility of light emission verbs with this construction is also regulated by the type of light different objects produce (cf. *I glared the headlight into his eyes). The association between light emission verbs and emotions is licensed by the metaphor THE EYES ARE CONTAINERS FOR THE EMOTIONS.

(b) The use of the sound emission verbs in the causative construction can be motivated by the high-level metonymy DIRECT/IMMEDIATE RESULT (i.e. SOUND PRODUCTION) FOR DIRECT/IMMEDIATE ACTION, which acts as licensing factor (cf. I buzzed the bell). This metonymy is in consonance with Givón’s (1985) claim that predictable or stereotypical information must be incorporated into the verb. Furthermore, the causative construction selects only the sound emission verbs that belong to the CONTACT frame. Another distinction between the causative and the inchoative construction is that the former involves the intentionality of the agent to bring about a given state of affairs. Last but not least, I have established a connection between the intensity and the duration of a sound and the intensity of the emotion expressed by that sound.

(c) The fusion of sound emission verbs with the resultative construction is motivated by the high-level metaphor STATES ARE EFFECTUAL ACTIONS (cf. I rumbled the gate shut). It has also been demonstrated that in the resultative construction the resulting event determines the choice of the verbal subevent.

(d) With respect to the intransitive motion construction, light emission verbs encode the means whereby motion takes place whereas sound emission verbs describe the result (i.e. the sound production) of the motion.
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