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Verbs of Anger and Intimately Related Emotions: A Lexical Constructional Account

CARLOS VAN ARKEL-SIMÓN *
Instituto Universitario de Lingüística Andrés Bello
Universidad de La Laguna (Spain)

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ABSTRACT
This paper analyses the domain of verbs of anger and closely related emotions in order to implement a formalised lexical constructional account. Through a detailed analysis of psych-verbs, this research explores their syntactic and semantic specifications. By investigating the roles of experiencers and stimuli arguments either as syntactic subject or object when causing changes in psychological states, the study attempts to shed light on the syntactic and semantic properties of anger and related verbs and the constructions in which they occur. Drawing on constructional and lexical templates for argument structure, this study provides a detailed mapping of how language lexicalises verbal predicates of anger. Overall, this research offers an insight into their formalised representation, relying on the general principles of the Lexical Constructional Model (LCM) (Ruiz de Mendoza & Galera-Masegosa, 2014; Ruiz de Mendoza & Mairal-Usón, 2007, 2008, 2011), Role and Reference Grammar (RRG) (Bentley et al., 2023; Van Valin, 2005; Van Valin & La Polla, 1997), and Construction Grammar (CxG) (Fillmore & Kay, 1996; Goldberg, 1995, 2006; Hoffmann, 2022; Michaelis, 2013; Sag & Boas, 2012).

KEYWORDS: Anger Psych-verbs; Constructional Template; Lexical Template; Lexical Constructional Model (LCM); Role and Reference Grammar (RRG); Construction Grammar (CxG).

1. INTRODUCTION

Verbs of anger and closely related emotions can be classified as psych-verbs, or verbs of psychological state, which describe the bringing about of a change in a psychological or

Address for correspondence: Departamento de Filología Inglesa y Alemana, Facultad de Humanidades, Campus de Guajara, Universidad de La Laguna (ULL), Apartado 456, 38200, La Laguna, S/C de Tenerife, Canarias; e-mail: carlos.van.arkel@ull.edu.es

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emotional state. These are mainly transitive verbs whose object is the experiencer of the emotion and whose subject is the cause of the change in the psychological state. In English, few of these verbs are found in transitive/intransitive pairs of the type associated with the causative alternation. The predominant intransitive use of these verbs with an experiencer subject is interpreted as belonging to the middle alternation (Levin, 1993, pp. 188–192):

*Causative Alternation[i]:

(1) a. His attitude infuriated the teacher.
b. *The teacher infuriated (at his attitude).

Middle Alternation[ii]:

(2) a. The bartender frustrated the customers.
b. The customers frustrate easily.

According to the Principle of Lexical Iconicity, "the greater the semantic scope of a lexeme, the greater its syntactic variation" (Faber & Mairal-Usón, 1999, p. 187), so the degree of syntactic variation of these particular verbs should be, at least, considerable within the general domain of verbs of feeling, especially if we take into account the key role they play in the salient realm of verbs expressing emotion. In terms of this lexematic approach, the *genus*, which is the most prototypical term of a verbal subdomain, has its definition contained in the definition of the other members of the lexical domain, and, conversely, the syntax of the more specific members can be derived from that of the prototypical term. As a result, the semantic scope of lexemes increases with the distance between sister characterisations in a domain.

Thus, we can also infer that there exists a great deal of lexicalisation in this group of verbs, since, following the Lexical Principle of Conceptual Salience, "the conceptual salience of a given semantic domain is proportional to its degree of lexicalization" (Faber & Mairal-Usón, 1999, p. 234). Providing for the pre-eminence of anger and closely related psych-verbs in human communication and adaptive behaviour[iii], we can assume such a cognitive-conceptual salience in this semantic domain.

This entails that, since a verb's syntactic properties are predictable from its meaning, the ties between a verb's meaning and its syntactic behaviour can –and should– be made explicit. For Levin (1993, pp. 12–16), the key to maintaining this hypothesis is the identification of the relevant components of meaning and the identification of the appropriate representation of verb meaning. As a matter of fact, the nature of these meaning components influences the lexical representation of verb meaning, traditionally depicted in cognitive and functional accounts in

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the form of several predicate decompositions and different subcategorization frames for each verb class.

Due to the relevance of accurate representation in appropriately interpreting the syntactic-semantic interface, as well as the role pragmatics plays in syntactic behaviour, which is especially significant in the case of cognitively salient verbs –such as the psych-verbs of anger and intimately related emotions discussed here– in this paper I put forward a formalised syntactic-semantic and, to a certain extent, pragmatic account for these verbs, using the tenets of the Lexical-Constructional Model (LCM) (Mairal-Usón & Ruiz de Mendoza, 2009; Ruiz de Mendoza & Galera-Masegosa, 2014; Ruiz de Mendoza & Mairal-Usón, 2008, 2011), Role and Reference Grammar (RRG) (Bentley et al., 2023; Van Valin, 2005; Van Valin & La Polla, 1997), and Construction Grammar (CxG) (Fillmore & Kay, 1996; Goldberg, 1996, 2006; Hoffmann, 2022; Michaelis, 2013; Sag & Boas, 2012), for lexical and constructional representation. As we shall see, this methodology will prove useful in formally interpreting syntactic structure motivated by the semantics and pragmatics of different types of lexemes and constructions in the cognitive-functional sphere. The relevance of this integrated approach, using certain features of both RRG and CxG, is that it represents a first and necessary step in the development of a formalised framework for the LCM.

Thus, I will start with Levin's (1993) lexical classification of anger psych-verbs, in order to proceed with the interpretation of the diatheses in which they tend to appear as constructions, in the sense of Ruiz de Mendoza (2013), which refines that of Goldberg (1995), and, finally, to provide a detailed analysis of the lexical-constructional integration of these verbs within the general framework of the LCM.

2. VERBS OF ANGER AND INTIMATELY RELATED EMOTIONS: A DESCRIPTIVE ANALYSIS

It is fairly difficult to identify all the specific verbs that make up the class of verbs of anger and related emotions ("annoy", "blow up", "bridle", "enrage", "erupt", "flare", "fume", "rail", "seethe", "storm", "turn on", "vent", etc.). Among the psych-verbs, these are bivalent emotional verbs that express psychological reactions, inclinations, and attitudes of individuals in relation to people and things (Bosque & Gutiérrez-Rexach, 2009, p. 411, as cited in Iacobuzio & Silva, 2022, p. 14). Iacobuzio and Silva (2022, p. 14) state that they present the particularity of having two arguments: one in the semantic role of *experiencer* and the other as an *agent* or *cause* of change in a psychological state. These arguments are linked to each other by the lexical expression of an emotion or a mental/emotional condition, generally expressed by the lexicalization of a verb.

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It is considered here that anger and verbs of related emotions are only those that express the emotional articulation of an argument, excluding from the group those verbs that report cognitive or perceptive content ("believe", "think", "forget", "know", "see", etc., cf. (4)). The distinction is not merely conceptual, because although the three groups share some syntactic characteristics, for example, they participate in transitive clauses, they present notorious semantic differences; e.g., the verbs of anger's experiencer always appraises (consciously or unconsciously) the other argument that participates in the construction, and this evaluation is manifested through the psychological verb of anger, while this does not happen with the other verbs of cognitive content (Iacobuzio & Silva, 2022, p. 14)[iv]:

(3) Bush *enraged* Australian farmers. (BNC: 14175054, 606, HLF, Keesings Contemporary Archives, 1992)

(4) He was, in the opinion of many who *knew* him, a very strange man. (BNC: 61475356, 2322, EDN, *King Solomon's Carpet*, 1992)

As Iacobuzio and Silva (2022, pp. 14–15) state, we can conceive of the grammatical subject in (3), "Bush", as the *stimulus* that provokes (voluntarily or involuntarily) an emotion in another participant –the experiencer– conceptualized in the grammatical object phrase, "Australian farmers". This process represents a strictly mental concern, because it occurs –at least initially– in the mind of one of the exchange participants. Although there could be a correlate or manifestation of a physical nature, such as crying or screaming, these are the consequence of the perception of the emotion. In other words, the psychological verb of anger expresses something that occurs within one of the participants in the event –the experiencer– a situation that, mainly based on the speaker's conceptualization, encodes the use of a verb.

As we see, syntactically, the experiencer usually appears as a subject or as an object. The other argument, following Bouchard (1995, as cited in Iacobuzio & Silva, 2022, p. 15), can be called the *psychological object*. This entity represents and triggers a feeling or emotion in the experiencing verbal argument. As Bouchard asserts (1995, as cited in Iacobuzio & Silva, 2022, p. 15), psychological verbs of anger express a relationship between two arguments whose correlation is a change of state in the mental sphere. However, the label "psychological object" can be misleading, because the argument that causes the emotion is not necessarily something psychic, as it is its effect:

(5) *Doreen* had irritated me (for other reasons). (BNC: 89210, 3, J2F, "Unpublished Short Stories", 19951993)

Yet involvement is not always voluntary, as can be observed. In this light, on some occasions it is useful to resort to notions that ascribe to psychological theory, such as

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voluntariness. Actually, this notion makes it possible to distinguish degrees of motivation in the action expressed by the verb. Then, returning to the example in (3), it is possible that President Bush had –or not– the will to generate anger in the object. In (3) Australian farmers can be annoyed, for example, variously by the President's refusal to agree to particular measures, by his ways, by the memory of previous experiences, etc. (Iacobuzio & Silva, 2022, p. 15).

Thus, adhering to Iacobuzio and Silva's theory (2022, p. 15), in this paper I refer to the stimulus distinguishing *causes* from *agents*. The cause is the argument that represents an entity, animate or inanimate, which, in a non-voluntary, uncontrolled manner, triggers the psychological process designated by the verb of anger (Martínez-Linares, 1998, p. 120, as cited in Iacobuzio & Silva, 2022, p. 15). In case of a greater voluntariness on the part of the stimulus, we speak of an agent (Cano Aguilar, 1981, as cited in Iacobuzio & Silva, 2022, p. 15). It is worth mentioning that some psychological verbs of anger and intimately related emotions do not admit an agentive stimulus. These are verbs such as "dissatisfy", "disgust", etc. (Martinez-Linares, 1998, as cited in Iacobuzio & Silva, 2022, p. 15). In short, we adopt *cause* for the argument in cases of low –or no– agency and voluntariness and, therefore, little control over the course of the event. Meanwhile, I classify as *agent* the cases of the stimulus that are ranked as highly agentive, voluntary, and controlling during the event[v]:

Cause:

(6) She's *my own mother* and she disgusts me. (BNC: 11640248, 548, HJC, "Unpublished Creative Writing", 1985–1993)

(7) He flared back at *her*. (BNC: 1776930, 141, JXT, *Conspiracy of Love*, 1993)

Agent:

(8) Please don't bother *yourself*. (BNC: 2051508, 148, JXS, *Battle for Love*, 1993)

(9) *The man* was a demon and he had disturbed her to the depths of her being. (BNC: 1450414, 112, J54, *The Divided House*, 1985)

As can be seen, syntactically, the triggering argument of the emotion usually appears as a subject or as an object, but English also allows these arguments to be expressed in other types of syntactic functions, for example, as prepositional phrase adjuncts or complements (Iacobuzio & Silva, 2022, p. 16):

(10) Ronni flared *with annoyance*. (BNC: 1757453, 141, JXT, *Conspiracy of Love*, 1993)

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(11) The notion that Caro's stepbrother was called something totally different niggled *at* her[vi]. (BNC: 17193016, 648, HHA, *Only Two can Share*, 1993)

In a nutshell, syntactically, we can distinguish four classes of psych-verbs of anger and related emotions: two of them are transitive verbs, and the other two are intransitive verbs taking prepositional phrase adjuncts or complements (cf., respectively, (10) and (11)). Among the transitive classes, we find those verbs whose subject is the experiencer of the state or change of state denoted by the verb (*Abhor* subclass verbs). The other transitive class is comprised of those verbs whose object is the experiencer of the psychological state or change of state (*Annoy* subclass verbs). By the same token, intransitive psych-verbs of anger and related emotions fall into two classes, whether the experiencer is expressed as the subject (*Fume* subclass verbs) or as the object of the preposition heading the prepositional phrase complement (*Niggle* subclass verbs) (Levin, 1993, p. 189).

Semantically, anger psych-verbs can be tentatively classified by their Aktionsart type between two opposites: as states, or as causative states and achievements, according to the primary meaning of the verb, the precise thematic roles corresponding to its arguments and satellites –particularly the degree of agentivity of the stimulus– and the construal of the specific event at a constructional level[vii]. Thus, initially, causative states, but also achievements, are mainly found when the stimulus is an agent (cf. 4) and the situation is conceived of as durative or punctual. For example, in (12) the verb "annoy" can be depicted as a causative state essentially with a durative interpretation, and in (13) the verb "anger" can also be construed as an achievement with a punctual meaning:

(12) When I talk and the news is on it really *annoys* him. (BNC: 5353516, 290, JYM, "TNT Training Session", 1985–1993)

(13) The deal *has angered* environmentalists. (BNC: 4246755, 268, J33, *The Environment Digest*, 1985–1993)

In turn, states are found when the situation is codified as durative and, furthermore, we observe mostly a cause stimulus. For instance, "hate" in (14) can be defined as a state with a durative reading, as can "abhor" in (15), which can also be interpreted as a state:

(14) She *hated* Matthew Preston as much as he obviously hated her. (BNC: 1437788, 112, J54, *The Divided House*, 1985)

(15) I *abhor* the criticism made by the hon. Member for Luton, North (Mr. Carlisle) of Lambeth palace, which is in my constituency. (BNC: 15256225, 622, HHW, "Hansard Extracts", 1992)

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Using the notational system of RRG, these Aktionsart types can be made explicit by way of the corresponding prototypical Logical Structures (LS) (cf. Van Valin, 2023, p. 95), which can be enriched by means of Constructional Templates (CT) and Lexical Templates (LT) as projected in the LCM (cf. Mairal-Usón & Faber, 2002; cf. 4), for comprehending the syntactic variation attested in these structures on the grounds of semantic concerns.

2.1. *Annoy* subclass verbs (causative states and achievements)

Annoy verbs are the most numerous and illustrative among psych-verbs of anger and closely related emotions. Included in this subclass we can identify, among others: "anger", "annoy", "antagonise", "appal", "bother", "discomfit", "discompose", "disconcert", "disgruntle", "disgust", "distress", "disturb", "enrage", "erupt", "frustrate", "gall", "harass", "infuriate", "insult", "irritate", "jar", "jolt", "madden", "miff", "nauseate", "nettle", "outrage", "pain", "peeve", "perturb", "pique", "plague", "provoke", "pester", "rankle" "repel", "repulse", "revolt", "rile", "ruffle", "scandalize", "shock", "sicken", "sting", "stir", "torment", "upset", "vex", etc. Within this group we find the majority of the subject/stimulus agentive arguments. Some of these verbs are also used in a physical action sense (Levin, 1993, p. 191):

(16) The way we kill whales *revolts and appals* many people. (BNC: 172073, 15, J2W, *The Environment Digest*, 1985–1993)

According to Levin (1993: 190), in addition to coming out mainly with the intransitive Middle Construction (cf. (2)), *Annoy* verbs predominantly avoid the Causative Construction (cf. (1)) and appear in the PRO-Arb(itrary) Object Construction (17)[viii] and the Possessor Subject Possessor-Attribute Factoring Constructions (18)[ix]:

(17) a. That feeling alone annoyed *her* more than ever. (BNC: 9624766, 442, HGD, *A Healing Fire*, 1993)
b. That feeling alone annoyed more than ever.

(18) a. Her aunt*'s tone* annoyed Lucy. (BNC: 16529604, 638, HHB, *Wilder's Wilderness*, 1993)
b. Her aunt annoyed Lucy with her tone.

Annoy subclass verbs can also turn up with the Extraposition of Sentential Complements (19), and in the Passive Construction with different prepositions (20)[x]:

(19) a. *It irritates me* that I can't think of enough rare foods. (BNC: 59555693, 2252, G07, *The Collector*, 1989)
b. That I can't think of enough rare foods irritates me.
c. *It irritated her* to think that she hadn't been doing anything reckless. (BNC: 111206841,

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3999, FPB, *Crimson*, 1992)
d. To think that she hadn't been doing anything reckless irritated her.

(20) a. She was a bit annoyed *about* him. (BNC: 75269647, 2764, KNR, 3 "Recorded Conversations", 1985–1993)
b. I was a bit annoyed *with* my Oh crikey. (BNC: 82320141, 3039, KE3, 150 "Recorded Conversations", 1985–1993)
c. Annie was annoyed *by* the abrupt way he turned away. (BNC: 39295820, 1562, A6N, *Amongst Women*, 1990)
d. Peck was annoyed *at* the interruption. (BNC: 16575099, 640, HHC, *Wychwood*, 1992)
e. I was very annoyed *over* the whole business this end. (BNC: 43630456, 1695, AR8, *The SAS at War 1941–1945*, 1991)
f. I was quite annoyed *because of* Social Services. (BNC: 29044427, 1107, HDM, Suffolk Sound Archive, 1985–1993)
g. I was somewhat annoyed *in view of* the definitive nature of the arrangement. (BNC: 47541092, 1854, B20, *Look About and Die*, 1991)

They can also appear in Resultative Phrases[xi]:

(21) a. They particularly distressed the bishop responsible. (BNC: 40316427, 1587, A68, *Michael Ramsey: A Life*, 1991)
b. They distressed him to sickness.

The bulk of these verbs can materialise as –ing Predicative Adjectives (22), and, in other cases, as –ing Attribute Modifiers (23):

(22) The initial shock was distressing. (BNC: 31173166, 1178, A48, *Independent: Health Pages*, 1985–1993)

(23) Such potentially distressing events are predictable. (BNC: 6488879, 357, J14, *Preventing Mental Illness*, 1988)

Finally, *Annoy* verbs may form Derived Nominals with a passive interpretation (24), and some of them are found as -er Nominals (25) and -able Adjectives (26):

(24) a. The king's annoyance about the treaty. (BNC: 67659244, 2507, E9V, *Crown and Nobility 1272–1461*, 1985–1993)
b. *The treaty's annoyance of the king.

(25) From the point of view of Henry II and Richard they were disturbers of the peace. (BNC: 65711462, 2443, EFV, *Richard the Lionheart*, 1989)

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(26) The supposedly irritable elderly person. (BNC: 12539855, 561, HJ1, Rapid: "ESRC Grant Abstracts", Unknown)

2.2. *Abhor* subclass verbs (states)

The members of this type of psych-verbs of anger and related emotions are transitive verbs with an experiencer subject. Among members of this group we can distinguish verbs such as "abhor", "despise", "detest", "execrate", "hate", "loathe", etc.:

(27) Many people abhor the extremity of this view. (BNC: 15467260, 625, HH3, *New Internationalist*, 1985–1993)

The semantic role of their direct object has been classified as theme, target of emotion, stimulus, and subject matter. As previously explained, I will refer to them as the stimulus, distinguishing between cause and agent, if necessary. These verbs block the Middle Construction:

(28) a. Many people abhor this view.
b. *This view abhors easily.

The verbs in this category vary as to whether they allow sentential complements and, if so, which types (29). According to Levin (1993, p. 192), some of those that take sentential complements allow expletive *it* in object position with an Extraposed Sentential Complement (30):

(29) She hates the fact that I've lost nothing. (BNC: 7621136, 391, HRA, *Goshawk Squadron*, 1960–1974)

(30) She hated it when men started to act cute. (BNC: 2213224, 151, JXU, *Castle of Desire*, 1991)

These verbs also appear in the Possessor Object Possessor-Attribute Factoring Construction[xii] (31), and in the Attribute Object Possessor-Attribute Factoring Construction[xiii] (32):

(31) a. He abhorred its prettiness. (BNC: 110940357, 3992, FP1, *The Maid of Buttermere*, 1991)
b. He abhorred it for its prettiness.

(32) a. She hated the quaver in her. (BNC: 17612108, 661, H7W, *Bay of Rainbows*, 1993)
b. She hated her quaver.

They do not arise in the *As* Alternation[xiv]:

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(33) a. The metropolitan middle classes despise him as a thug. (BNC: 41434336, 1619, ABH, The Economist, 1991)
b. *The metropolitan middle classes despise him a thug.

Abhor subclass verbs moreover materialise as Derived Nominals with an active interpretation only:

(34) a. Society's abhorrence of the offence. (BNC: 106524942, 3805, FBC, *The Penal System*, 1992)
b. *The offence's abhorrence by society.

Lastly, these verbs are also found as -er Nominals (35) and -able Adjectives (36):

(35) I'm not a hater by nature. (BNC: 59584447, 2252, G07, *The Collector*, 1989)

(36) All terrorist crime is detestable. (BNC: 16056180, 635, HHV, "Hansard Extracts", 1992)

2.3. *Fume* subclass verbs (states and achievements)

As specified by Levin (1993, p. 193), the members of this set of psych-verbs of anger and related emotions are intransitive verbs. Each takes an experiencer subject and expresses the stimulus/object of emotion in a prepositional phrase –functioning as a complement– headed by one of a variety of prepositions:

(37) She bridled at his autocratic tone. (BNC: 4581573, 277, JY5, *Lover's Charade*, 1992)

Among these verbs, we find "anger", "blow up", "bother", "bridle", "flare", "fret", "fume", "let rip", "madden", "rage", "rail", "rave", "seethe", "storm", etc. These verbs do not show as wide a range of syntactic behaviour as either of the types of transitive anger psych-verbs. Thus, some of them just appear in the passive:

(38) Why should we be bothered about protectionism? (BNC: 1034399, 73, J94, *NONE*, 1985–1993)

Furthermore, various verbs from this list are also used transitively as *Annoy* subclass verbs – these have been cross-listed here (cf. 2.1.):

(39) Branson was personally angered over the negotiations. (BNC: 103248205, 3632, FNX, *Richard Branson: The Inside Story*, 1989)

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2.4 *Niggle* subclass verbs (causative states)

According to Levin (1993, p. 193), this category is the smallest of the four subclasses of psych-verbs of anger and related emotions. Its members are intransitive verbs taking the stimulus as subject and expressing the experiencer in a prepositional phrase headed by one of a variety of prepositions –most of the time, it works as a complement. Among these verbs we find "grate", "jar", and "niggle".

Their pattern of argument expression involves the stimulus manifested as a nominative noun phrase (NP) and the experiencer as a dative NP:

(40) A statement that would have jarred on his predecessor. (BNC: 37592061, 1445, A50, *The Independent*, 1989)

(41) The sound of her voice grated on her. (BNC: 88747800, 3218, CK9, *The Rag Nymph*, 1992)

They do not show the range of syntactic behaviour that either of the transitive types of anger psych-verbs show. In fact, these verbs do not even appear in the passive:

(42) *She is grated on (by the sound of her voice).

Considering this preliminary analysis, there is a need to deepen the formal analysis of the precise argument structure of psychological verbs of anger and intimately related emotions, integrating their patterns of modification and complementation. Next, considering all the characteristics of these verbs, it is necessary to outline an approach that reflects the essential semantics of these arguments, i.e., the degrees of voluntariness for the stimuli that trigger the emotion, and also the emotional involvement in the case of the experiencer. Finally, there is a need to apprehend the constructional schemas that might fully capture the nature of these verbs and their argument expression, explaining at least their key subsidiary semantic, morphosyntactic, and, to some extent, pragmatic features.

3. THE LEXICAL CONSTRUCTIONAL MODEL (LCM): A BRIEF OVERVIEW

The LCM (cf. Butler & Gonzálvez-García, 2014; Ruiz de Mendoza & Galera-Masegosa, 2014; Ruiz de Mendoza & Mairal-Usón, 2007, 2008, 2011) is a comprehensive model of meaning construction through language in context, which integrates cognitive and functional accounts (Iza-Erviti, 2021, p. 23). This model distinguishes four meaning construction levels: (1) argument structure, or core grammar module (level 1); (2) implicational structure, or pragmatic

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module (level 2); (3) illocutionary structure, or high-level inferential module (level 3); and (4) discourse structure, or cohesion and coherence module (level 4) (cf. Iza-Erviti, 2021, p. 25).

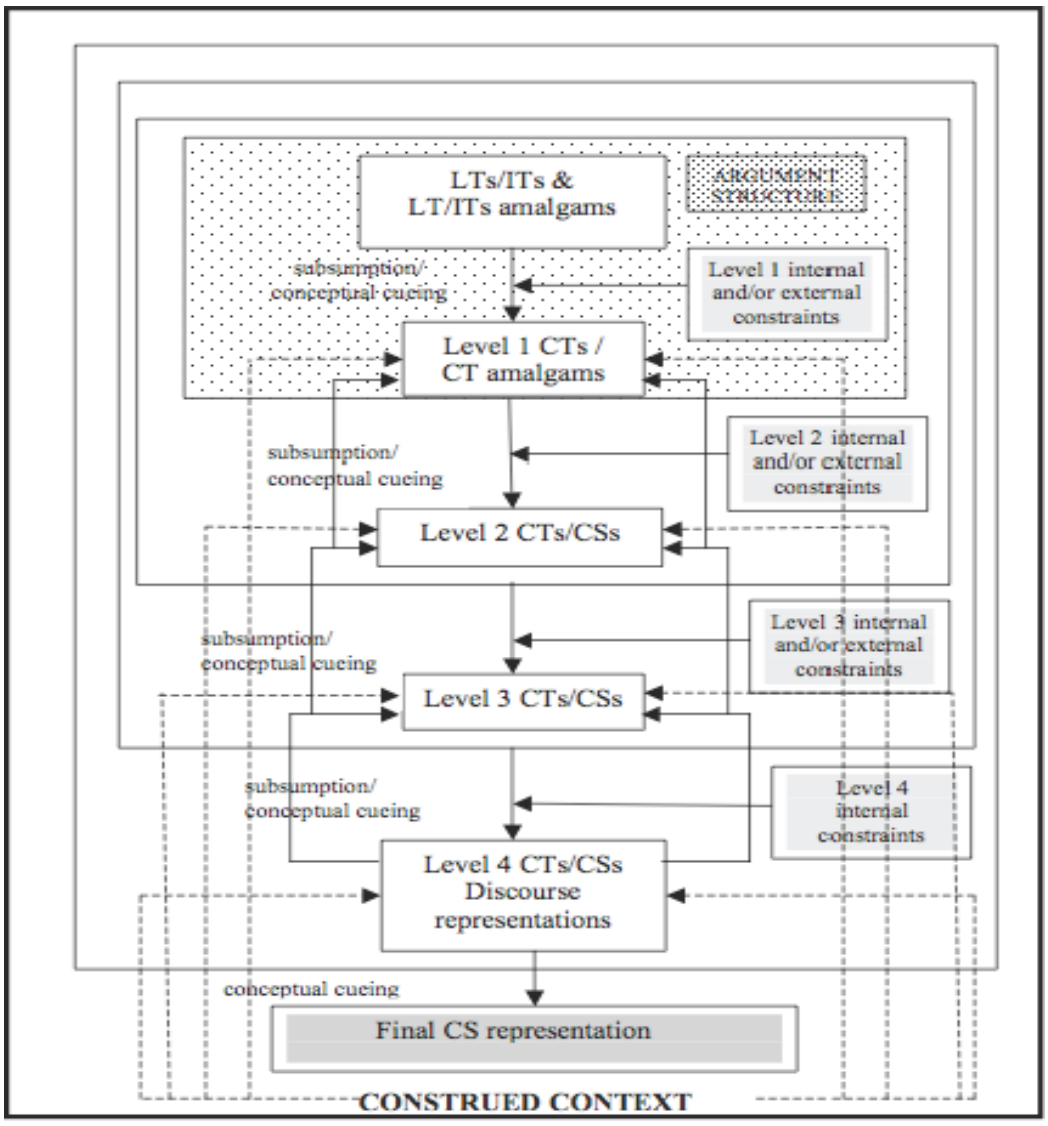

Figure 1. The overall architecture of the Lexical-Constructional Model (Ruiz de Mendoza & Mairal-Usón, 2007) (LT: Lexical Template; CT: Constructional Template; CS: Conceptual Structure).

These different layers interact among one another following a number of construal principles called *internal* and *external* constraints. The former work on the compatibility between the conceptual characterisations of lexical predicates and argument structure constructions, and the latter operate on how lexical structure can be re-construed to make it fit into a non-lexical construction (Iza-Erviti, 2021, p. 25; cf. Ruiz de Mendoza, 2013). Therefore, in the context of the LCM, the unification of a lexical template and a constructional template is determined by subsumption operations and constraints. Thus, the subsumption process integrates predicate argument structure with linking constructions, where the main differences between the two

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correspond to the specific elements of a given predicate, so that constructional templates actually subsume lexical templates (Cortés-Rodríguez, 2008, pp. 248–255).

The templates for lexical and constructional formalization in the LCM are based on the logical structures of RRG, introducing a rich semantic decomposition by means of semantic primitives and internal and external variables. The former are those semantic parameters that do not necessarily have a grammatical realisation, but which help define a domain: that is, instrument, manner, result, and so forth. The latter constitute the predicate argument structure (Jiménez-Briones, 2004, p. 123).

In the LCM, cognitive modelling, i.e., the activity of cognitive operations on concepts, partly occurs in response to human communicative needs. Therefore, the resulting conceptual characterizations are brought about by formal devices in different degrees of complexity (Iza-Erviti, 2021, p. 25). At the same time, the notion of construction has cognitive status and applies to all types of lexico-grammatical unit (Iza-Erviti, 2021, p. 26; cf. Ruiz de Mendoza, 2013; cf. Ruiz de Mendoza & Mairal-Usón, 2008). In the model, a *construction* is specifically "a form-meaning […] pairing where form affords access to meaning and meaning is realized by form to the extent that such processes have become entrenched […] in the speaker's mind and are generally recognized […] to be stably associated or are at least potentially replicable […] with immaterial variation in its form and meaning" (Ruiz de Mendoza, 2013, p. 238). As we can see, in the LCM, constructions are present at all levels of linguistic description, from argument structure depictions to discourse organization, and, like lexical items, they are arranged in families of related conceptual configurations (cf. Gonzálvez-García, 2009, as cited in Iza-Erviti, 2021, p. 26).

4. VERBS OF ANGER AND INTIMATELY RELATED EMOTIONS FROM A LEXICAL CONSTRUCTIONAL PERSPECTIVE

From the previous description (cf. (2)), we can deduce the main features of the lexical subdomain of psych-verbs of anger and intimately related emotions, proposing the following specification that captures the core meaning and the schematic syntactic information of the class: ***to cause somebody to feel emotion aversion***, which can also be rendered in the following (Lexical) Constructional Template (CT), which adapts the corresponding Logical Structures of RRG (cf. Martín-Mingorance, 1998, for a detailed account of verbal semantic classes; cf. also Jiménez-Briones, 2004):

(43) [(**do'**/**pred'** (x, ∅))] CAUSE [INGR/∅ **feel'** (y, [aversion**.about'**] [**in.manner** (β) **for.sometime** (ε)**. because'**(φ)] (x,y))]

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As we can see, this CT mirrors the most numerous subclass of anger psych-verbs, that is, the transitive *Annoy* subtype, which can be depicted, prototypically, as a causative state. Using this CT we can start to formalize the syntactic and semantic patterns that make up the whole class (cf. Martín-Arista, 2002, for an illustration of The Principle of Lexical [Constructional] Template Instantiation)[xv].

The template codifies two subevents: the first one, an activity –or a state– carried out by *x*, causes the second subevent, or the change of state or situation –in the latter an achievement– of *y* in a certain manner (β), for some time (ε), and because of a particular reason (φ). As we can see, conventionally, causing subevents are codified as unspecified activities in lexical-constructional representations, which may be cancelled in specific predications (Cortés-Rodríguez, personal communication, May 2024). The external variables *x* and *y* point to the argument structure of the construction, and the internal variables (β, ε and φ), though not obligatorily expressed, mark the semantic parameters of MANNER, TIME, and REASON that permeate the whole subdomain, allowing us to distinguish several of the specific predicates that form this lexical class (cf. Jiménez-Briones, 2004, pp. 125–126).

When we designate a causative state, as it occurs predominantly in the *Annoy* transitive subclass, the first argument (*x*) will take the macrorole (MR) ACTOR –i.e., the stimulus, codified in this subtype mainly as agentive– selected as the Privileged Syntactic Argument (PSA), and assigned the Nominative case, whereas the second argument (*y*) will take the Accusative case and the MR UNDERGOER –the experiencer, whose emotional involvement nevertheless varies in this specific subcategory (cf. Jiménez-Briones, 2004, p. 131).

For the transitive *Abhor* verbal subgroup (cf. (44)), which characteristically encodes a state in transitive structures, a different interpretation of the first argument is required– reflected on its own CT– which takes the MR ACTOR, is selected as the PSA, and is assigned the Nominative case. In these instances, this experiencer is mostly emotionally involved; thus, it complies with the selection properties of this particular subclass. In these structures, the stimulus is not predominantly from one specific category, so when assigned the MR UNDERGOER and the Accusative case, basically, there is no conflict in the syntax-semantics mapping[xvi]:

(44) [**feel'** (y, [aversion**. about'**] (z))]

Similarly, for the *Fume* subclass of intransitive verbs, we select the inchoative pattern from the constructional template in (43) –the experiencer is manifested here predominantly as emotionally involved, assigned the MR UNDERGOER and the Nominative case, and selected as the PSA– while an internal variable REASON (φ) articulates the stimulus –which is marked in this subdivision mainly as agentive– as the complement of an adjunct-marking preposition:

(45) [INGR/∅ **feel'** (y, [aversion**. about'**] [**because'**(φ)])]

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The CT in (43) also captures the rest of the alternating patterns of anger psych-verbs (cf. (2)). In the Middle Construction for the *Annoy* subclass, the highest-ranking argument (*x*) can be omitted, since it is understood as generic or indefinite (cf. Goldberg, 1995, p. 183). In this alternation, a new predicate is also introduced as an adjunct, which attributes a property –generally MANNER (β)– to the subject (cf. Van Valin & La Polla, 1997, p. 417). Thus, the General Lexical Rule for the Middle Construction in anger psych-verbs can be posed as follows (cf. Jiménez-Briones, 2004, p. 128):

(46) **be'** ([[(**do'** (∅, ∅)] CAUSE [INGR/∅ **feel'** (y [aversion**. about'**] [**in.manner** (β)])]]

In this structure, there is only one argument (*y*), which will be assigned the macrorole UNDERGOER –the experiencer: not distinctly marked as emotionally involved in this case– selected as the PSA and assigned the Nominative case. The semantic characterization of the other major subtype, the transitive *Abhor* subclass, entails an external variable (*z*) that blocks the generic interpretation of the first argument (*y*) so its occurrence with the Middle Construction is also prevented. At the same time, the Middle Construction performs the primary function of transforming different predicates into states, something that is redundant indeed in the particular *Abhor* subclass (Cortés-Rodríguez, 2013, p. 230).

The *Niggle* intransitive subclass can be interpreted in a similar vein as the Middle Construction, where the sole argument (*w*), the stimulus –which tends to be a cause– is instantiated with the MR UNDERGOER, selected as the PSA, and assigned the Nominative case; and the experiencer –which is mainly marked for emotional involvement– is re-codified as the complement of an argument-marking preposition, expressed by means of the internal variable MANNER (β)[xvii]:

(47) **be'** ([[(**do'** (w, ∅)] CAUSE [INGR/∅ **feel'** (∅ [aversion**. about'**] [**in.manner** (β)])]

In the PRO-Arb Object Construction for the *Annoy* subclass, the object is the argument that is not syntactically realized because it is understood as an arbitrary object. In this alternation, the only argument (*x*) will be assigned the MR ACTOR (effector), selected as the PSA, and assigned the Nominative case –the stimulus: not characteristically expressed in this alternation as cause or agent. This structure favours the expression of internal variables as adjuncts specifying different facets of the predication denoted by the psych-verb (Levin, 1993, p. 38, as cited in Jiménez-Briones, 2004, p. 129):

(48) [(**do'** (x, ∅)] CAUSE [INGR/∅ **feel'** (∅-arb, [aversion**. about'**] [**in.manner** (β) **for.sometime** (ε)**. because'**(φ)])]

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The Possessor Subject Possessor-Attribute Factoring Constructions in the *Annoy* subclass involve the expression of a possessor and an attribute of the possessor. The CT for this alternation shows the opposition between the entity that starts the change of state and its properties. The structure manifests the attribute of the possessor in a single genitive NP –the stimulus, chiefly marked here as cause– operating as the subject of the verb and assigned the MR ACTOR (effector), or as three constituents: the possessor as subject –again assigned the MR ACTOR (effector), PSA, and Nominative case– the attribute in a *with*-PP –specifying the stimulus, predominantly sanctioned in this alternative as agent– and the experiencer, codified with the MR UNDERGOER and assigned the Accusative case, not specifically marked as emotionally involved. This variant constitutes a proper subevent of the causative canonical CT depicted in (43), so there is a third argument (*z*), which refers to the possessor's attribute, which is a Non-Macrorole Argument that is assigned the Dative case. As we can see, this argument (*z*) is not selected as the head of the NP subject but is syntactically realised either as a possessive genitive or as an argument-adjunct, not codified in this case as an internal variable (cf. González-Orta, 2004; cf. Jiménez-Briones, 2004, pp. 130–132):

(49) ([(**have.as.characteristic'** (x, z)] CAUSE [INGR/∅ **feel'** (y [aversion**. about'**] (x, y))]

In a very similar disposition to the one in the intransitive *Fume* subtype, for the transitive *Abhor* subclass, the Possessor Object Possessor-Attribute Factoring Constructions codify the experiencer as emotionally involved, being assigned the MR ACTOR, selected as the PSA, assigned the Nominative case, and specifying the stimulus as agentive with a *for* argument-marking preposition by means of an internal variable REASON (φ). When the possessor and attribute are expressed as a single noun phrase, we find mainly the stimulus as a cause. In both cases, the stimulus is codified with the MR UNDERGOER and assigned the Accusative case. Thus, in the second variant a different interpretation of the first argument is required as not particularly codifying emotional involvement, but being assigned the MR ACTOR again:

(50) [**feel'** (y, [aversion**. about'**] [**because'**(φ)]/ ∅ (z))]]

In the same way, in the Attribute Object Possessor-Attribute Factoring Constructions for the *Abhor* subtype, the structure that selects the possessor and attribute as two distinct constituents –the attribute as direct object, and the possessor via an *in* argument-marking prepositional phrase codified by means of an internal variable MANNER (β)– expresses the stimulus as a cause. The variant with a single noun phrase operating as the direct object tends to manifest an agentive stimulus, which is codified in both cases with the MR UNDERGOER and assigned the Accusative case. The first argument is interpreted as the MR ACTOR,

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selected as PSA, and assigned the Nominative case, denoting emotional involvement on the part of the experiencer:

(51) [**feel'** (y, [aversion**. about'**] [**in.manner** (β)]/ ∅ (z))]]

The Resultative structure for the *Annoy* subtype is made up of a phrase that describes a state achieved by the referent of the NP that it is the predicate of, as a result of the action named by the verb. In the CT of the Resultative Construction, the result phrase (a PP, an AdvP or an AdjP) is an argument to the structure through a second Logical Structure, that is, the LS that designates the new state of affairs (cf. Jiménez-Briones, 2004, pp. 130–132):

(52) LS_1 *CAUSE* LS_2 [INGR/∅ **pred'** (y)]

(53) [(**do'** (x, ∅)] *CAUSE* [**feel'** (y, [aversion**. about'**)] CAUSE [INGR/∅ **pred'** (x, (y))]

At the same time, in the constructions that involve clausal arguments, we find complement clauses and infinitive clauses functioning mainly as agentive stimuli. In the transitive *Annoy* subclass, subject complement clauses are extraposed, and the experiencer is clearly not emotionally involved. For the finite dependent clause subtype, we observe clausal subordination as "daughter", which can be instantiated as a nexus-juncture bond using the Layered Structure of the Clause (LSC) of RRG, where the subordinate clause is dependent to the matrix introduced by the clausal complementizer *that*[xviii] (cf. Martín-Padrón, 2023, pp. 5–8). For the non-finite dependent clause subtype, we observe subject-to-subject raising, where the logical subject of the main clause is the entire *to*-clause, and again the experiencer is not notably emotionally involved.

The semantics-to-syntax linking specifies these interclausal relations in connection to argument structure. The construct in (15) *–It irritates me that I can't think of enough rare foods–* is an instantiation of an extraposed complement clause, which can be represented by means of the diagram in Figure 2 and the corresponding LT in (54)[xix]. However, we observe that, depending on the placement of the focus, we can extract the entire complement clause as an information unit (IU) to a post-core slot (PoCS) position, thus substituting it for the first argument within the potential focus domain (PFD) of the complement clause[xx]. This implies a sentence-initial narrow-focus, where the pre-posed subject narrow-focus highlights the agentive character of the stimulus, assigning the MR AGENT to the pre-posed pragmatic pronoun and the MR UNDERGOER to the accusative personal pronoun (cf. Shimojo, 2023, p. 623).

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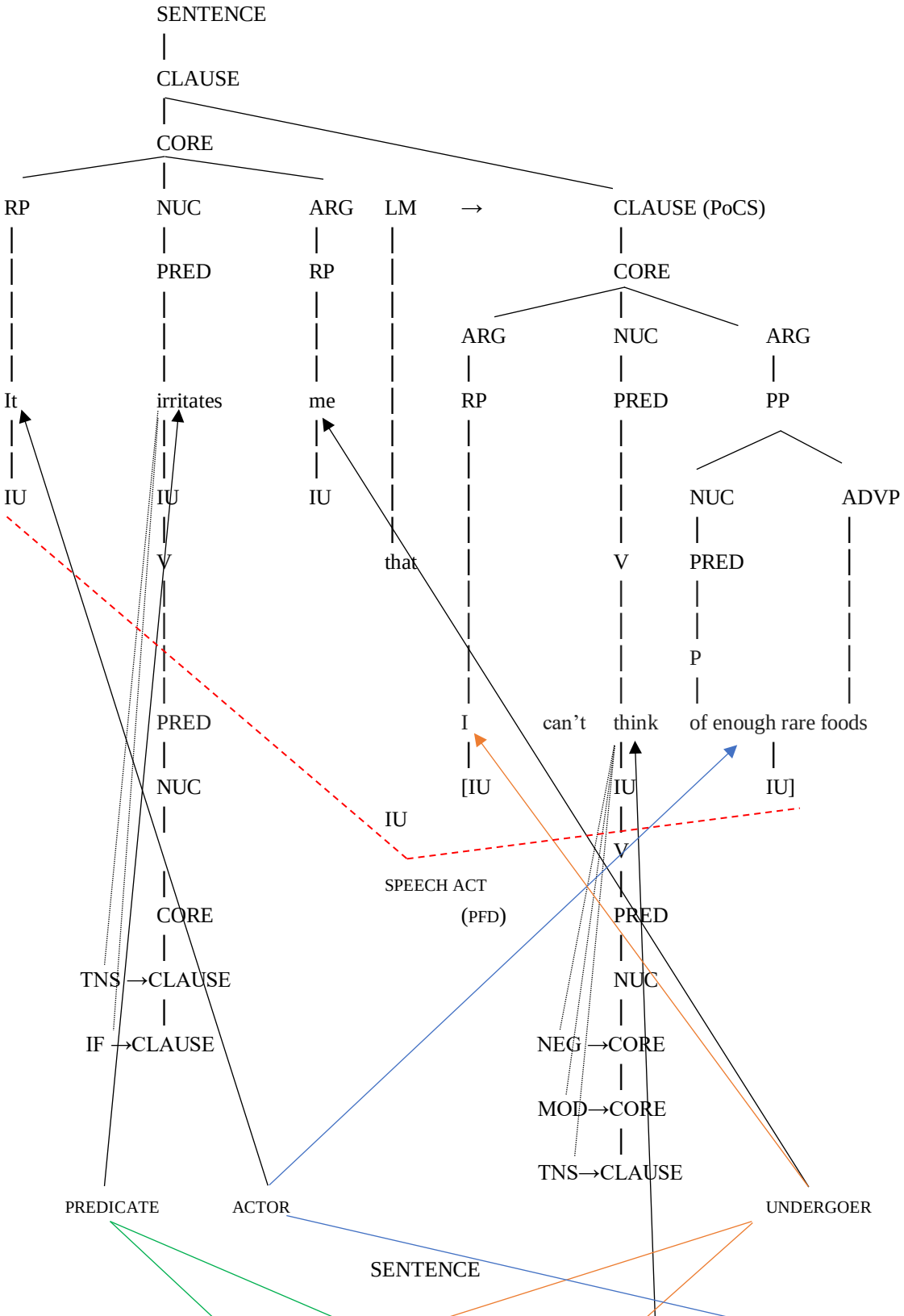

(54) [<$_{IF}$DECL <$_{TNS}$PRES [(e_1:(**do'** [<NEG <$_{MOD}$ABL **think'** (I, enough rare foods)>>]))]
CAUSE [INGR **feel'** (me, [aversion**. about'** (e_1)])]>>]

Figure 2. Potential focus domain (PFD) in clausal (daughter) subordination in an extraposed *that*-complement clause and semantics-to-syntax linking for the *Annoy* subclass.

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From the constructionist pole, for a very similar pragmatically-motivated structure, such as the alternation between active and passive voice, an information structure construction can be posed –the *Active Transitive Construction* vs. the *Passive Transitive Construction*– which, along with the argument structure construction I define in (55) (adapted from Hoffmann, 2022, pp. 183–184), will take the specific lexical verb construction, as defined in (43), and thereafter as a daughter node, and link it with another node with the appropriate argument structure (cf. Müller, 2019, p. 288, as cited in Hoffmann, 2022, p. 201). However, we can interpret this relationship as a bidirectional link in the English Construction, allowing the specific topicalization of the AGENT/ACTOR or the PATIENT/UNDERGOER that the particular active-passive diathesis requires. As we see, the lexical constructions are subsumed into other higher-level (morpho)syntactic and pragmatic constructions, which unify to create the different phrasal patterns (Hoffmann, 2022, pp. 199–206). Thus, as required, we have to pose distinct constructional templates (CTs), which unify for each specific constructional schema (Van Valin, 2023, pp. 125), primarily according to the catalogue of Generative Mechanisms for Meaning Construction (De Miguel, 2009, pp. 353–361), mostly based on the principles of subsumption, and finally arranged in the 4-layer typology of the Lexical Constructional Model (LCM) (cf. Figure 1) (cf. Peña-Cervel, 2015, for a detailed constructional analysis of causative frighten verbs).

(55) Argument Structure (Active Transitive) Construction for Mental Events

FORM:	PHONOLOGY:	$A_1/B_2/C_2/_4$
	MORPHOSYNTAX:	$[SBJ_1\ [V_2\ OBJ_3]\ _{VP}]_4$
⟺		
MEANING:	SEMANTICS:	‘TRANSFER-FORCE [$EVENT_2$ (STIMULUS/AGENT (EFFECTOR/ACTOR)$_1$), EXPERIENCER/PATIENT (UNDERGOER)$_3$]$_4$ Vantage Point: STIMULUS/AGENT(ACTOR)$_1$

Therefore, in the argument constructions in which anger psych-verbs appear, there exists essentially a bidirectional *transmission of force* (from STIMULUS to EXPERIENCER and vice versa), which allows for either participant to be construed as either agent or patient in each constructional pattern. Thus, ultimately, the specific verbal lexeme encodes one of the two possible construals (Croft, 2012, p. 233, as cited in Hoffmann, 2022, p. 184).

All these analyses point to a Level 1 argument construction in the LCM, which can tentatively be labelled as the *Aversion Causation Construction*. Thus, a full formalisation of its two canonical variants –corresponding to the *Anger* and the *Abhor* verbal subclasses (cf. (43) and (44))– should capture the relevant semantic and syntactic properties of the whole domain of anger psych-verbs, as we have seen, essentially as members of the causative and

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stative paradigms. Therefore, the constructional templates I have put forward in this paper are a first attempt at their formalisation, which can be further adapted to accommodate, following the general principles of coercion and instantiation in the broad realm of Construction Grammar (CxG) and the LCM, all the semantic nuances and syntactic diatheses I have specified for the whole verbal domain.

5. CONCLUDING REMARKS

As aforementioned, by adapting the canonical CTs in (43) and (44) to each specific CT presented in 4, I have essentially formulated the syntactic and semantic features of anger psych-verbs in terms of predicate decompositions, drawing up the specific features of each verb type. First, by indicating the role of experiencers and stimuli, either as syntactic subjects or objects, in eliciting particular changes in those psychological states –in the general frame of the postulated *Aversion Causation Construction*– I have provided a mapping of the constructional and lexical templates that ultimately reflect the different argument structures underlying these emotion verbs. I have included both syntactically relevant information, through external variables, and semantically enriched information, mainly through internal variables, so that we can distinguish each of the verbs forming the domain as they alternate in the different proposed constructions. Furthermore, I have provided the semantics-to-syntax linking of these verbs for a specific type of verbal complex complementation. Therefore, in this study I have enriched the analytical apparatus of the LCM at the core grammar level by mapping the domain of anger psych-verbs onto compatible constructions, thus providing a detailed account of how lexical-constructional integration can be carried out and projected syntactically using constructional templates. The proposed templates may indeed be replicable with other verb classes and constructions, contributing to the field of lexical-constructional studies.

Further research would be valuable in making explicit all the particular linguistic entities and relevant grammatical objects associated with these verbs through an even more detailed lexical-constructional formal apparatus, so that we can actually expand the range of exemplars within a formalised framework for the LCM, and we can finally relate the internal constraints that regulate the expression of all the distinct configurations for these verbs (cf. Cortés-Rodríguez, 2021; Cortés-Rodríguez & Díaz-Galán, 2023, 2024; González-Orta & Martín-Díaz, 2024). Nevertheless, in summary, in this study I have aimed to contribute to an earlier but well-founded formalisation within the general framework of the LCM, in order to eventually fully reveal how language lexicalises the specific emotions associated with the various verbal predicates of anger.

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NOTES

[i] This type of diathesis involves verbs with transitive and intransitive uses, where the transitive use of a verb (V) can be paraphrased roughly as "cause to V-intransitive" (Levin, 1993, pp. 26–27).
[ii] The Middle Construction is characterized by a lack of specific time reference and by an understood and unexpressed agent. More often than not, this diathesis includes an adverbial or modal element. The middle alternation is restricted to verbs with affected objects (Levin, 1993, p. 26).
[iii] Adaptive behavior is viewed broadly as an individual's ability to meet the standards of social interactions in order to function properly and survive.
[iv] Data cited herein have been extracted from the British National Corpus, distributed by Oxford University Computing Services on behalf of the BNC Consortium. All rights to the texts cited are reserved.
[v] The notion of agent used here is very similar to that of *effector* in RRG's typology of grammatical relations (cf. Van Valin, 1990, p. 157). In RRG, the effector is one of the primary grammatical relations which is associated with the idea of an external "doer" of an action. In a transitive sentence, the effector is typically the NP or pronoun that carries out the action denoted by the predication. The effector is not restricted to human or animate agents; it can include inanimate entities or abstract concepts that are conceptualized as performing actions.
[vi] This minor subclass constitutes what can be labelled as the *Object of Perception Reaction Construction* (Cortés-Rodríguez, personal communication, February 2024) (cf. (3)). To the best of my knowledge, there might not be a specific construction called this in current linguistic theories.
[vii] The notion of Aktionsart captures what is also known as the lexical aspect (Vendler, 1967). Thus, Aktionsart types help describe the inherent temporal characteristics of different verb classes. Stative verbs describe a state or condition rather than an action with a specific endpoint. When it comes to psych-verbs, the stative nature reflects the enduring quality of the mental process. Achievements represent punctual situations with an instantaneous endpoint: they happen suddenly, without a perceptible duration. The basic causative Aktionsart counterparts involve an agent intentionally causing another participant to perform an action or undergo a change of state; therefore, they help describe the varied ways in which causative relationships manifest in different linguistic contexts.
[viii] In this construction, the unexpressed object intransitive variant receives an arbitrary or PRO-arb interpretation; that is, this variant could be paraphrased with the transitive form of the verb taking "one" or "people" as object. This diathesis is restricted to verbs with affected objects (Levin, 1993, p. 38).
[ix] This type of possessor-attribute factoring construction involves the expression of a possessor and an attribute –or sometimes an activity– of the possessor. The attribute/activity of the possessor is the cause of the psychological state or change of state referred to by the verb. These verbs allow the possessor and attribute/activity to be expressed either as a single noun phrase, found as the subject of the verb, or as two distinct constituents, with the possessor represented as subject and the attribute formulated in a with-phrase (Levin, 1993, p. 77).
[x] An alternative interpretation considers these structures as adjectives derived from other word classes (e.g., verbs or nouns) used in statal/ attributive constructions to describe a stable state or attribute of the referent of a noun. This type of construction allows speakers to convey nuanced information about the qualities or conditions associated with a particular entity (Cortés-Rodríguez, personal communication, February 2024). In predicative/copular constructions I retain the passive interpretation to capture the extent of syntactic variation in this subclass of verbs, especially as the agent complement in the anger psych-verb passive construction is required to specify the full meaning of the utterance.
[xi] A resultative phrase is an XP, which describes the state achieved by the referent of the noun phrase it is the predicate of as a result of the action named by the verb (Levin, 1993, p. 101).
[xii] This possessor-attribute factoring diathesis involves transitive verbs that allow the possessor and attribute to be expressed either as a single noun phrase functioning as the direct object of the verb, or as two distinct constituents: the possessor as direct object, and the attribute, via a prepositional phrase headed by *for* (Levin, 1993, p. 74).
[xiii] This particular possessor-attribute factoring alternation concerns transitive verbs that allow the possessor and attribute to be expressed either as a single noun phrase operating as the direct object of

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the verb, or as two distinct constituents: the attribute as direct object, and the possessor, via a prepositional phrase headed by *in* (Levin, 1993, p. 75).

[xiv] This diathesis is manifested by transitive verbs that take complements as the predicate of their direct object. The alternation arises because the NP that is the predicate of the direct object may either be a bare noun phrase or be expressed in an *as* phrase.

[xv] Martín-Arista (2002, p. 345) states this principle as follows: "Lexical templates tend to map maximal implementations onto syntactic structures, in such a way that isomorphism between semantic participants and syntactic constituents is maximized".

[xvi] This classification can be determined by applying the Macrorole Assignment Principles of RRG (Van Valin & LaPolla, 1997, pp. 152–153). As we can see, we can assign the ACTOR or UNDERGOER macrorole to the syntactic argument depending on those principles, and that mapping should match with the specific verb subclass in the CT. MR assignment principles are directly reflected in morphosyntactic case assignment, so in English we expect a Nominative or Accusative syntactic position for each argument according to the specific transitive anger psych-verb subtype (cf. (2)).

[xvii] Adjunct prepositions introduce an NP into the clause and head PPs, which are peripheral modifiers of the core. Argument-marking prepositions signal the core arguments of a verb, so we find them to be oblique core arguments. Argument-adjunct prepositions introduce an argument into the clause and share it with the logical structure of the core (cf. Van Valin and LaPolla, 1997, p. 159, as cited in González-Orta, 2004, p. 14).

[xviii] In RRG, complementizers are part of the category of Linkage Markers (LM), which incorporates conjunctions and other reference markers.

[xix] The mapping for the ACTOR and UNDERGOER arguments and the verbal predicates in the semantics-to-syntax linking from the LT to the tree diagram should be sufficiently straightforward if using colours, provided that in the representation the information structure projection, the operator projection, the constituent projection, and the LT are presented simultaneously.

[xx] The pragmatic property that explains certain extractions in RRG can be represented by the focus structure projection of a sentence, so that the domain of the sentence that represents the focus is the potential focus domain (PFD). As Van Valin states (2005, p. 275, as cited in Shimojo, 2023, p. 619): "The PFD extends into a subordinated clause if the subordinate clause is a direct daughter of (a direct daughter of) the clause node which is modified by the illocutionary force operator (IF)".

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