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A paradigm of psych-predicates

Unraveling the constructional competition between light verb constructions and derived verbs in Italian

1 Introduction

The study of Light Verb Constructions (henceforth LVCs) has gained growing attention, especially in recent years (e.g., Pompei and Mereu (eds.) , 2019; Pompei et al., 2023). Their peculiar nature has been analyzed from different theoretical perspectives[1], leading to different interpretations of the phenomenon, and in several languages, including Italian (e.g., Elia et al., 1985; Cicalese, 1999; Mastrofini, 2004; Ježek, 2004, 2011; Quochi, 2016; Pompei, 2017; Ganfi and Piunno, 2019). However, the behavior of LVCs still poses many theoretical challenges that are still waiting to be addressed.

For instance, it has been noticed that the existence of LVCs in some languages seems to contradict the Principle of No Synonymy[2] (Bonial and Pollard, 2020), which holds that different forms in a language must have different meanings (Goldberg, 1995, 67). As a matter of fact, at least in Romance and Germanic languages, it is common for LVCs to have a near-synonymic synthetic verb counterpart (henceforth SV) (Alba-Salas, 2002; Sanromán Vilas, 2009; Bonial and Pollard, 2020; Alvarez-Morera, 2022a), often morphologically related. See the following examples from Italian:

(1) a. *dare un bacio*
give a kiss
'give a kiss'

b. *baciare*
'kiss'

1 Among others: Lexicon-Grammar (Gross, 1976); Lexical-Functional Grammar (Butt, 2003); Relational Grammar (Alba-Salas, 2002); Role and Reference Grammar (Fleischhauer, 2021); Generative Lexicon (Ježek, 2023); Construction Grammar (Jiménez Martínez and Melis, 2023).

2 Variously named in the literature: isomorphism, no synonymy, contrast (e.g., Haiman, 1980; Clark, 1987).

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The partial overlap of meanings covered by both LVCs and SVs entails a situation of potential competition between multiword expressions and morphological words for the same semantic niche (Masini, 2019a,b). Since competition between forms is expected to result in functional differentiation (Aronoff, 2016, 42–44), scholars have often looked for the presence of distributional and semantic peculiarities of LVCs with respect to their SV counterparts. It is generally assumed that the main function of LVCs is an aspectual one, i.e., that they denote a telic variant of the SV by expressing a bounded, single instantiation of a larger event (2) (Wierzbicka, 1982; Butt, 2003; Pompei and Piunno, 2023). However, a notable counterexample is represented by LVCs including state nouns, such as nouns denoting psychological states (3) (Bonial and Pollard, 2020).

(2) a. *fare una telefonata*
make a phone_call
'make a (phone) call'

b. *telefonare*
'phone'

(3) a. *fare paura*
do fear
'frighten'

b. *impaurire*
'frighten'

As a matter of fact, not only psych-LVCs such as (3) do not denote a bounded event, but they differ in their semantics and behavior from event-denoting LVCs such as (2). Firstly, they generally involve bare nouns (**fare la paura*, lit. do the fear), that are less referential and less syntactically flexible (e.g., they can't be extracted, nor the construction can be passivized, cf. Marini, 2003, 260-262; Mastrofini 2004, 390-391; Masini, 2009a, 195-196). Secondly, the light verb (henceforth LV) plays a greater role in determining the semantics of the predication, by imposing an argument/ event structure that could differ from the ones expressed by the noun: for instance, in (3) *fare paura* does not simply denote a psychological state (*paura* 'fear'), but the event of causation of such psychological state (Mastrofini, 2004, 388). Thus, LVCs involving state nouns have been considered as distinct constructions from event-denoting LVCs (Alba-Salas, 2004) (although connected in a radial network, cf. the usage-based analysis of *fare*-LVCs in Quochi, 2016).

From this brief overview, psych-LVCs appear to be more fixed, and closer to the semantics expressed by word-formation processes[3], while retaining some degree of transparency and compositionality. Nonetheless, there is a rather complex situation

3 Several studies observed that Verb+Noun LVCs resemble lexical items for their behaviour (Masini, 2009a; Fernández-Domínguez, 2019). This would be compatible with Goldberg's (2003b) analysis of Persian LVCs as stored objects associated with a semantics.

of competition between psych-SVs and psych-LVCs (Masini, 2019a): for instance, the existence of a LVC (4b) sometimes blocks the corresponding denominal verb (4c) – although this is not always the case (5a vs. 5b) – while it may allow the use of another LVC with different light verb and same noun (5b and 5c).

(4) a. ***paura***
'fear'
b. *avere* ***paura***
have fear
'fear'
c. °***paur****are*

(5) a. *im****paur****ire*
'frighten'
b. *fare* ***paura***
do fear
'frighten'
c. *mettere* ***paura***
put fear
'frighten'

Since, to the best of our knowledge, there is no systematic quantitative study on the matter in Italian, we will tackle the competition between denominal psych-SVs and psych-LVCs following a corpus-based methodology. We will do so from a Construction Grammar perspective, thus considering denominal verb derivation schemas (conversion, suffixation, and parasynthesis) and LVCs schemas as (semi)schematic constructions whose empty slot can be filled by nouns expressing psychological states in order to form complex predicates.

The chapter is structured as follows. In Section 2 we present previous accounts of the competition between LVCs and SVs, focusing on psych verbs and LVCs. In Section 3 we sketchily introduce Construction Grammar tenets and tools that are relevant for the present analysis. Section 4 reports on a two-step analysis, consisting of (i) the collection and description of a dataset of SVs and LVCs based on psych nouns, and (ii) a mixed-effects regression analysis on a sample of synonymous SVs and LVCs found in the dataset. Finally, in Section 5 we discuss our findings and propose a formalization of the relationship between SVs and LVCs in constructional terms. Section 6 draws some conclusions and traces future lines of research.

2 The competition between LVCs and SVs: the case of psych predicates

The coexistence of near-synonymic pairs of LVCs and SVs has been regarded in the literature as an exception to the Principle of No Synonymy (Goldberg, 2003a). So, scholars tried primarily to assess what motivates the very existence of LVCs, i.e., why such constructions should emerge at all. While sometimes the existence of an LVC fills a lexical gap, there are several cases in which a synthetic alternative does exist. First, we will briefly look at general studies on LVCs and SVs (Section 2.1), and then we will focus on psych-verbs (Section 2.2).

2.1 Motivating the existence and use of LVCs

Several studies on different languages have tackled the problem of the semantic overlap between LVCs and SVs. It is important to note, however, that while in our analysis we will focus on the competition between Verb+Noun LVCs and denominal verbs (both containing the same nouns), the treatment of analytic vs. synthetic verbs in the literature often encompasses also morphologically unrelated synonyms, such as Spanish *hacer punto* (lit. do stitch) and *tricotar* 'knit' (Piera and Varela, 1999; Alvarez-Morera, 2022a).[4]

From a semantic point of view, a first difference between corresponding LVCs and SVs is that often the SV tends to be more polysemous than the LVC counterpart, which is instead generally constrained to its most basic meaning (Giry-Schneider, 1978; Sanromán Vilas, 2009).

Furthermore, as mentioned in Section 1, in the case of eventive predicates the use of LVCs delimits a portion (or isolates one instance) of the event described by the SV, thus making it telic (cf. 2; Pompei and Piunno, 2023, 133). However, it has been observed that LVCs are not necessarily telic predicates, and that this aspectual func-

4 Furthermore, not always a SV morphologically related to an LVC implies a relationship of synonymy between the two: *dare noia* 'annoy/bother' vs *annoiare* 'bore', both created from *noia* 'boredom/nuisance' (see also Stichauer, 2000). Clearly, we won't focus on these cases, since there is no competition between the two forms.

tion cannot be applied consistently to all noun classes[5] (Bonial and Pollard, 2020, 15).

Although meaning is often called upon, the most cited motivations for the use of LVCs is not strictly semantic and pertains to the possibility to modify the nominal element through the use of adjectives or relative clauses (Huddleston, 2002; Sanromán Vilas, 2009; Bonial and Pollard, 2020; Pompei and Piunno, 2023). Such a possibility is granted by the fact that in LVCs the predication is dispersed over more than one lexical unit (Hopper, 1991). As a matter of fact, even though in some cases there is a semantic equivalence between adjectival modification of the noun in an LVC (6a) and adverbial modification of an SV[6] (6b) (Mirto and Granifero, 2022, 45-47), the first option seems to be chosen significantly more frequently (Bonial and Pollard, 2020):

(6) a. *Anzi tutto questo mi* ***dà*** ***molto*** ***fastidio***.
prior all DEM.PROX.M.SG to_me give.PRS.3SG much.M.SG annoyance.M.SG
'First of all, this annoys me a lot (lit. gives me much annoyance).'
(CORIS[7], NARRAT)

b. *Anzi tutto questo mi* ***infastidisce*** ***molto***.
prior all DEM.PROX.M.SG to_me annoy.PRS.3SG much
'First of all, this annoys me a lot.'

However, Alvarez-Morera (2022b) showed that this motivation could be at best language-dependent. Indeed, in languages different from English, the frequency of LVCs showing noun modification is quite low (Alvarez-Morera, 2022b). Thus, modification might be not so available as a cue for determining the choice of LVCs over SVs.[8]

Notwithstanding this, the multiword nature of LVCs can still be considered to be an explanation for the use of LVCs, especially in unplanned communicative situations. Since, as we said, in LVCs the predicate is distributed over more than one lexical unit, this could facilitate information monitoring and processing (Brugman,

5 In some cases, there is indeed an aspectual function, but it is not related to telicization: with nouns indicating an indefinite process the use of the LVC can trigger a habitual, more specific interpretation with respect to some activity, while still creating an atelic predicate, e.g., *nuotare* 'swim' vs *fare nuoto* 'do/go swimming' (Pompei and Piunno, 2023, 133).

6 Or between an adjectivally modified and an adverbially modified LVC (Fleischhauer and Neisani, 2020).

7 Corpus available at https://corpora.ficlit.unibo.it/TCORIS/, last access 27/10/2024.

8 For the concept of 'cue availability' as opposed to 'cue reliability' in the prediction of alternations, see Nesset and Janda (2023, 73).

2001). This, combined with the fact that generally the words that form a LVC are more frequent than the corresponding SVs (Amenta, 2008, 539), could explain the preference for LVCs in spoken discourse observed in the literature (Shahrokny-Prehn and Höche, 2011).

To sum up, even though there is no definitive answer, several functional motivations have been proposed to account for the use of LVCs over (or along with) SVs, ranging from semantic differences to information processing. Although not all of them are extensible to all noun classes, nor to all languages, what emerges clearly is that there is not a unique motivation for selecting analytic predicates over synthetic ones. Therefore, a multifactorial approach is needed to disentangle this complex relationship.

2.2 LVCs and SVs as alternative strategies of predicate formation from psych-nouns

The relationship between LVCs and SVs becomes even more complex by looking at the specific case of psych-predicates. Psych-verbs have been a subject of debate in syntactic research due to the high amount of variation in their argument structure (Croft, 1993; Verhoeven, 2010; Pijpops and Speelman, 2017). The most renown peculiarity pertains to the alignment between semantic roles (Experiencer, i.e., in our case the animate entity affected by the mental state; Stimulus, i.e., the animate or inanimate entity that causes the Experiencer to enter the mental state) and syntactic arguments. Generally, for Italian, Belletti & Rizzi's (1988) classification is assumed, consisting of three different configurations: Subject-Experiencer and Object-Stimulus (7a), Subject-Stimulus and Object-Experiencer (7b), Subject-Stimulus and Indirect Object-Experiencer (7c).

(7) a. [*I vampiri*]$_{Exp}$ *temono* [*la luce*]$_{Stim}$
[the vampires]$_{Exp}$ fear [the light]$_{Stim}$
b. [*Le tempeste*]$_{Stim}$ *preoccupano* [*i marinai*]$_{Exp}$
[the storms]$_{Stim}$ worry [the sailors]$_{Exp}$
c. [*Ai topi*]$_{Exp}$ *piace* [*il formaggio*]$_{Stim}$
[to mice]$_{Exp}$ like [cheese]$_{Stim}$

This tripartite distinction is relevant also in terms of event structure, since the configuration in (7b) generally includes verbs with causative meaning (where the Stimulus causes the Experiencer to enter some psychological or emotional state).

While this classification has been largely discussed and revisited by later studies (e.g., Cifuentes Honrubia, 2015; Vietri, 2017), argument realization does not repre-

sent the only way to classify psych-verbs. For instance, Jackendoff (1990, 140) cites at least two other criteria, namely: (i) the distinction between positive and negative affect (e.g., *please* vs *hate*); (ii) the distinction between stative and eventive verbs (*bore* vs *annoy*). This last bipartition intertwines with the causative/non-causative nature of the verbs, and this is quite evident in Italian since causative and non-causative eventive verbs are often formally related. As is well known, Italian psych-verbs take part into the anticausative alternation, by adding the reflexive pronoun *-si* to the causative form of the verb to create (usually) an inchoative predicate (8) (Centineo, 1995; Ježek, 2000; Vietri, 2017).[9]

(8) *appassionare – appassionar**si***
'excite' 'get passionate'

By intersecting the stative/ eventive and the causative/ non-causative dimensions, we find that psych-verbs cover all three main event types proposed by Croft (1991) (or aspect-causative types, cf. Talmy, 2000): stative, inchoative, agentive (or causative). This is true not only of SVs, but also of psych-LVCs. Therefore, both synthetic and analytic psych-noun-based verbs can express three different kinds of events, as illustrated in (9).

(9) a. *simpatizzare* ∼ *avere simpatia*
sympathize have sympathy
'sympathize' [stative]
b. *impaurir-si* ∼ *prendere paura*
frighten-SI take fear
'get frightened' [inchoative]
c. *angosciare* ∼ *mettere angoscia*
distress put anguish
'distress' [causative]

This situation becomes more complex if we take into account the various possible patterns available for creating psych predicates from nouns. As for SVs, denominal psych-verbs can be formed by means of suffixation (9a), parasynthesis (9b), and

9 Nonetheless, even though generally it is assumed that the anticausative *si-* counterpart is an eventive, inchoative predicate expressing a change of state, in some cases it could also be a stative, non-telic predicate (Marín and McNally, 2011). This is due to the fact that not all causatives are actually eventive, even though it is not always easy to draw this distinction at the type-level (Vietri, 2017, 115–116):

(i) *annoiare* ∼ *annoiarsi*
'bore' 'be/to get bored'

conversion (or zero-derivation) (9c). All three processes can form both causative verbs and dynamic non-causative verbs, while suffixation and conversion can form also stative verbs (Grossmann, 2004a,b; Iacobini, 2004). If we look at LVCs, we often find more than one pattern to express each of the mentioned event types: statives can be expressed by LVCs with *avere* 'have' and *essere in* 'be in'; inchoatives by LVCs with *prendere* 'take'; causatives by LVCs with *dare* 'give', *fare* 'do', and *mettere* 'put' (Pompei, 2017, 120).

Recently, the competition between the three strategies of denominal verb formation in Italian has been investigated (Iacobini and De Rosa, 2024), and also the rivalry between each of them and LVCs has been acknowledged (Mirto, 2008; Masini, 2009a; Iacobini and Pompei, 2022). In this multifaceted situation, a critical point is that it is generally impossible to predict which LVC will have a corresponding SV (and vice-versa), and which LVC pattern will be selected by a specific noun (Alba-Salas, 2002, 49, 51). However, at least with regard to the selection of the LVC pattern, some tendencies were found by classifying psych-nouns according to various semantic criteria: for instance, as regards Spanish, Sanromán Vilas (2003, 2012) analyzed stative and inchoative psych-LVCs, and proposed that the choice of the LVC depends on the external or internal nature of the cause of the psych noun, i.e., if the noun denotes a state that originates from the experiencer itself or as a reaction to an external source. Instead, a contrastive analysis on MAKE/GIVE causative LVCs in various Romance and Germanic languages by Wiskandt (this volume) shows an effect of the (positive or negative) valence of the psych-noun on the selection of the light verb. However, such effect is configured as a probabilistic rather than categorical constraint.

Hence, there is competition both at the level of predicate-formation schemas (several alternative options being available), and between specific forms, since in some cases both an SV and one (or more) LVC patterns are created from the same noun. Some recent studies on German have addressed the issue of the rivalry both between synthetic vs analytic psych-verbs, and between different analytic patterns, finding an effect of semantic features of the arguments (animacy, eventivity, etc.; Wiskandt and Turus, 2022; Fleischhauer, 2023; Fleischhauer and Turus, 2023).

It is by now clear that, in order to disentangle the relationship between denominal psych-SVs and psych-LVCs in Italian, we need to consider several aspects, both at the level of patterns and at the level of specific expressions. At the level of patterns, we first need to distinguish between stative, inchoative and causative predicates: for each of them we need to identify which nouns enter in which patterns of predicate formation. At the level of specific forms, we need to take into account both 'general' factors (cf. Section 2.1) and psych-verbs' specific argument structure features in order to motivate the coexistence of LVCs and SVs expressing the same meaning.

3 Theoretical background: Construction Grammar

Before delving into the analysis of the competition between psych SVs and LVCs, we briefly outline the theoretical framework adopted in the present case-study, namely Construction Grammar (henceforth CxG), and we explain why it is a fitting choice.

CxG approaches (Goldberg, 1995; Hoffmann and Trousdale (eds.), 2013; Hilpert, 2019; Ungerer and Hartmann, 2023) rely on the notion of 'construction' as a conventionalized form-function pairing, namely a sign. Our linguistic knowledge is modeled on constructions, which vary in both complexity and schematicity, therefore spanning from words to argument structures. All together, constructions form a complex network called 'constructicon' (Fillmore, 1988; Diessel, 2023), which ultimately captures the totality of our knowledge of language (Goldberg, 2003a, 219). Given its non-modular nature (the language architecture is not organized in separate and sequential modules, but in symbolic and holistic entities – constructions – that subsume formal and functional information of various type), phenomena straddling the boundaries of (what we traditionally call) morphology and syntax (like multiword expressions, including LVCs) are expected rather than exceptional.

In the next two subsections we focus on two conceptual tools of constructionist approaches that are relevant for our current purposes: (i) constructional schemas as intended in Construction Morphology (Booij, 2010) (Section 3.1), and (ii) links that connect constructions and are ultimately responsible for the network-like shape of the constructicon.

3.1 Constructional schemas

Although CxG originally began as a syntactic theory with a passion for idiomatic structures (cf. Fillmore et al., 1988), it recently extended to all linguistic structures including morphology. Construction Morphology (henceforth CxM) is the theory developed by Booij (2010) to account for morphological facts in a constructionist fashion and today is a full-fledged part of CxG. As summarized by Masini and Audring (2019), CxM is signed-based, word-based, and usage-based. It is signed-based in that, like CxG, it regards form-function pairings ('constructions') as the basic units of language and assumes a continuum between grammar and lexicon. It is word-based in that the minimal constructions is the word (not the morpheme), therefore adhering to word-based approaches such as Word-and-Paradigm theories of morphology (see, e.g., Blevins et al., 2019; Stump, 2019). It is usage-based (and exemplar-based), since it assumes that morphology is acquired bottom-up from the input (Tomasello, 2003)

and that speakers are sensitive to usage and frequency in building and shaping their linguistic representations (Bybee, 2013).

The main consequences of this view of word knowledge are that both words and multiword expressions (like LVCs) may be stored in memory (as constructions), and that there is no principled distinction between words and 'rules', since both concepts are encompassed by the notion of construction: complex words (like *impaurire* 'frighten' or *simpatizzare* 'sympathize') are fully specified constructions in the constructicon, whereas the processes that lead to their creation (namely, parasynthesis and *-izzare* suffixation, respectively) are not represented as 'rules' of some sort but are constructions themselves but with a higher level of abstraction (Booij, 2010 calls them 'schemas').

See for instance (10a) (adapted from Masini and Iacobini, 2018, 97), which represents the schema for Italian denominal parasynthetic verbs with causative meaning. This schema can be unified with a suitable nominal base (e.g., the noun *paura* 'fear', which is independently stored as a fully lexically specified construction) to form a complex verb (e.g., *impaurire* 'frighten', see 10b).[10] Crucially, the schema in (10a) and the complex verb in (10b) are connected via an Instance Inheritance Link (Goldberg, 1995, 79), which connects a more general construction (sometimes called 'mother construction') to one or more specific ('daughter') constructions. The mother construction motivates the daughter(s); the daughter construction is an instance of the mother, from which it inherits many properties while adding new (more specific) ones, that may even override the mother's properties (default inheritance).

(10) a. $< [\text{PREF } [[x]_{N\alpha k}]_{Vi}]_{Vj} \leftrightarrow [\text{CAUSE to have SEM}_k]_j >$

Instance Inheritance Link

b. $< [\textit{impaurire}]_{V\gamma j} \leftrightarrow [\text{CAUSE to have FEAR}]_j >$

Therefore, words and word formations processes are both constructions: they are just represented at different levels of schematicity or abstractness. In this way, schemas (mothers) capture generalizations over stored lexical items and at the same time serve as templates for the formation of new lexical items.

Things work similarly for those multiword lexical items that have the same concept-naming function as lexemes (so-called 'phrasal lexemes'; Booij, 2009; Masini, 2009b) and may be argued to be productive at least to some extent. LVCs fall

10 As Masini and Iacobini (2018, 101) explain, "[s]ince parasynthetic verbs are largely equivalent semantically independently of the prefix used (*ad-*/*in-*/*s-*), and the combinations of their properties (prefix, base, inflectional class) show [...] no systematic correlation, new verbs are formed by analogy with actual verbs, thus clustering in 'paradigmatic families' " (cf. Crocco Galèas and Iacobini, 1993). This is the reason why the PREF slot is not specified.

in this category. For instance, for causative LVCs with *fare* 'do/make' (see Section 2.2), we may posit a semi-specified construction like (11a) (where *fare* 'do/make' is specified whereas the N slot remains variable and can be filled by psych nouns), which motivates fully lexically specified constructions like *fare paura* in (11b). Also in this case, an Instance Inheritance Link applies between mother construction and daughter construction.

(11) a. < [[*fare*]$_{V\alpha k}$ [y]$_{N\beta i}$]$_{V\gamma j}$ ↔ [CAUSE to have SEM$_i$]$_j$ >

Instance Inheritance Link

b. < [*fare paura*]$_{V\gamma j}$ ↔ [CAUSE to have FEAR]$_j$ >

To sum up, a constructionist view to complex lexical items allows to keep together, in the same representational space (the constructicon), morphologically complex lexemes and multiword lexemes, creating the conceptual ground for studying the interplay between these two strategies, including competition, when it applies. Let us now turn to links.

3.2 Connecting the dots of the network: vertical and horizontal links

As we saw in (10) and (11), higher-level (mother) constructions are instantiated by lower-level (daughter) constructions. Both entities are available for analysis, the formation pattern and the specific lexical item, thus making it possible to speak of competition at both levels: the (morphological) schema in (10a) can be thought of as competing with the (multiword) schema in (11a) by virtue of the constructions' similar meaning, whereas the parasynthetic verb in (10b) can be thought of as competing with the LVC in (11b), on the same semantic basis. What does this competition entail in terms of representation?

We already saw that the relationship between (10a) and (10b), and between (11a) and (11b) is a vertical or taxonomic one, similarly to the hypernym-hyponym relation in lexical semantics. The Instance Inheritance Link is just one type of vertical link: Goldberg (1995, 75-78, 81) identified three more types of Inheritance Links, namely Metaphorical, Polysemy, and Subpart. Whereas the use of these vertical links is quite established in constructional analyses, the horizontal dimension has been much less explored, until recently, when a discussion about horizontal links emerged.

In fact, Goldberg (1995, 67, 91) already mentioned (albeit cursorily) two types of horizontal relations, namely 'S-synonymous' and 'P-synonymous', to represent the equivalence, either in semantic (S) or in pragmatic (P) terms, between construc-

tions that are not related syntactically. These synonymy relations do not constitute, technically, motivation links and are used by Goldberg (1995, 67) to shape the 'Principle of No Synonymy': "If two constructions are syntactically distinct, they must be semantically or pragmatically distinct".

Later, horizontal relations, intended as "relations that combine two or more constructions at the same level of specificity" (Diessel, 2023, 58), have been explored more in depth and various types of links have been proposed (see Diessel, 2023 for a recent overview).

Cappelle (2006) introduces the notion of 'allostruction' to refer to "(truth)semantically equivalent but formally distinct manifestations of a more abstractly represented construction" (Cappelle, 2009, 187). Cappelle (2006) applies this notion to the continuous and discontinuous orders of transitive particle verbs in English (*pick up the book* vs. *pick the book up*), which would be two allostructions of a more general verb-particle construction underspecified for word order.

Within CxM, Booij and Masini (2015) develop the notion of 'second-order schema' for capturing relations between morphological schemas that display a semantics-morphosyntax mismatch. Second-order schemas are claimed to be exploitable for paradigmatic word formation. Audring (2019) further develops this idea and puts forward the concept of 'sister relation' to account for morphological constructions (like [N-*ful*]$_A$ and [N-*less*]$_A$, or *helpful* and *helpless*) that are systematically related although they are not motivated or licensed by a shared higher-order schema. Second-order schemas and sister relations are also used in CxM to model inflectional paradigms (Booij, 2010; Masini and Audring, 2019; Jackendoff and Audring, 2020). In a similar fashion, Diewald (2020) proposes to regard inflectional paradigms as complex signs or 'hyper-constructions' where word forms (e.g., singular vs. plural) are related to one another by horizontal links.

Diessel (2023, 62) argues that, like lexemes and word forms, also "phrases and sentences are organized in paradigms of contrastively related constructions", like for instance inflectional periphrasis and clause types (declarative main clauses vs. yes/no questions, etc.). Diessel points out that, like morphological paradigms, also syntactic paradigms exhibit asymmetry, with a member of the paradigm being unmarked with respect to others.

Diessel (2023) also distinguishes horizontal relations within paradigms from horizontal relations modeling so-called 'families' and 'neighborhoods', namely groups of constructions that share some salient properties, in either form or function or both. Diessel (2023, 66) further proposes to distinguish families and neighborhoods along the following terms (although he points out the distinction is rather blurred): the former concept "describes a group (or pair) of similar constructions that are categorized as subtypes of the same schema", whereas the latter "describes a group (or pair) of similar constructions that are licensed by different schemas".

Since families and neighborhoods are reminiscent of 'associative' relations à la de Saussure (1916), for simplicity, here we will use the term 'associative' to refer to horizontal links within families and neighborhoods, whereas we use 'paradigmatic' to refer to horizontal links within paradigms. According to Diessel (2023, 74), associative links are based on similarity, are open-ended, and do not entail differences in marking; instead, paradigmatic links are based on contrast, are (tendentially) closed, and display an opposition between overt and zero marking.

At this point, we may therefore ask what kind of link connects schemas for complex verb formation (like (1a)) and schemas for LVC formation (like (2)) on the one hand, and – at the lower level – SVs like (1b) and LVCs like (3). The main difference between our case and what has been discussed in the literature so far is that the two constructions belong to different levels of complexity (morphologically complex verb vs. multiword verb), thus displaying different internal structure despite similarities in form (the psych noun) and, obviously, in meaning. We come back to this theoretical issue in Section 5.3, after exploring the empirical evidence and discussing the results.

4 Methods, data and analysis

Even though LVCs in Italian have been explored by several works (cf. Section 1), to the best of our knowledge there is no systematic study on the competition between SVs and LVCs, and Italian psych-LVCs, despite being often cited in the literature, have not been thoroughly investigated yet. This situation has two consequences: firstly, an empirically collected list of Italian psych-LVCs is not available, and studies tend to take into account and generalize from a handful of very frequent ones, such as *fare paura* 'frighten'; secondly, the relationship between psych-SVs and LVCs expressing different event types has not been systematized yet.

The aim of this study is to fill these gaps by analyzing the relationship between denominal verb formation and light verb constructions as two competing strategies for the creation of complex predicates from psych-nouns.

First and foremost, we provide a comprehensive list of Italian psych-SVs and psych-LVCs by means of lexicographic and corpus data (Section 4.1), since a clear picture is needed to address this topic. The core of the study will concern the competition between forms, i.e., the coexistence between SVs and LVCs from the same

noun.[11] Our hypothesis, coherently with the Principle of No Synonymy, is that the co-existence of the two strategies is regulated by their tendency to occupy different functional and distributional niches. We assess this hypothesis by taking into account several linguistic and extra-linguistic factors (Section 4.2).

4.1 Data collection: the distribution of denominal SVs and LVCs across nouns and event types

Since our aim is to study the behavior of predicate formation from nouns, we started by collecting a list of psych-nouns.

The most complete source for Italian is ItEM (Italian EMotive lexicon; Passaro et al., 2015), which comprises a large list of lemmas with their association score, expressed as cosine similarity, with Plutchik's (1994) basic emotion terms (Passaro et al., 2015). ItEM includes ca. 9300 nominal lemmas. We selected the relevant ones by testing their acceptability in the construction *provare/ sentire* N 'feel N', ending up with a list of 199 nouns. We further enriched the list by comparing it with the one provided in Zammuner (1998), thus reaching the number of 217 nouns. For the sake of simplicity and feasibility, we decided to take into account only underived psych-nouns.[12] Hence, we filtered out deadjectival and deverbal nouns. We did so by relying on the data contained in the Italian dictionary GRADIT (Grande dizionario italiano dell'uso; GRADIT, 2007). The final list contains 86 nouns.

For each of the nouns we annotated the frequency, found in the Italian corpus itWaC (Baroni et al., 2009), and we collected the corresponding SVs and LVCs, dividing them into the three aspect-causative categories (see Section 2.2), based on the meanings in (12):[13]

11 For reasons of space, we cannot adequately discuss competition at the level of patterns. However, we propose some preliminary considerations on trends in the formation of causative predicates through qualitative observations.

12 We chose to do so to avoid making the picture more complex. For instance, if we had taken into account deadjectival nouns, we would have had to consider also Light Verb + Adjective patterns as a competing strategy. Instead, by taking into account deverbal nouns, we would have had to broaden the pool of actional meanings expressed by nouns, since psych-nouns formed from verbs have been said to denote not only states but also events (Melloni, 2017).

13 Such a tripartition was elaborated from typological literature on event types and from theoretical literature on Italian psych-LVCs (e.g., Croft, 1991; Pompei and Piunno, 2023). The assessment of the meanings of the actual predicates was carried out by using lexicographic resources in the case of SVs, while for LVCs we employed both classifications from the literature and our own intuition.

(12) stative = X feels/is in a state of N (towards Y)
inchoative = X begins to feel N
causative = Y causes X to feel/begin to feel N

For the SVs, we collected for each noun the corresponding denominal verbs we found in GRADIT, filtering out the ones marked as obsolete or literary-only. Instead, for the LVCs we first restricted our search to 9 patterns selected from the literature:

– *essere in* N 'be in N', *avere* N 'have N', *provare* N 'feel N', and *sentire* N 'feel N' for the stative meaning;[14]
– *prendere/si* N 'take N', *farsi* N 'do oneself N', for the inchoative meaning;
– *fare* N 'do N', *mettere* N 'put N', and *dare* N 'give N' for the causative meaning.

We added to this list another pattern generally overlooked in the literature (though briefly mentioned in Vietri 2017, 112), namely *andare in* N 'go in N', which seems to show an inchoative meaning in opposition with the stative *essere in* N. We then checked for the occurrence of all these patterns filled by the 86 nouns from our list in itWaC small[15], assuming that their presence in a reasonably large corpus speaks in favor of their existence as LVCs. We did this by crossing the pattern and the noun lists and by searching the frequency list of the resulting 860 possible multiword expressions in itWaC small. Multiword expressions with frequency lower than 5 were discarded; moreover, the ones that are attested but do not actually correspond to the meanings in (11) were discarded. The SVs and LVCs were coded for type of word formation process or LVC pattern, and for their frequency in itWaC. Table 1 illustrates the top five nouns by frequency in the dataset with the corresponding synthetic and analytic predicates.

By looking at the dataset, we notice that there is generally only one SV per noun (except for *paura* 'fear', that has both *impaurire* and *spaurire* 'frighten') and the only

14 While most light verbs are basic ones, *provare* and *sentire* 'feel' are light verb extensions used instead of (and sometimes more often than) *avere* 'have' in the case of stative psych predicates (Salvi, 1988; Cicalese et al., 2016; Pompei and Piunno, 2023). However, despite being defined as extensions in the literature, they do not seem to point at any relevant semantic (e.g., modal, aspectual, etc.; cf. Ježek, 2004) difference from the basic stative light verbs. Their peculiarity is that they can only be combined with psych-nouns, hence they result to be specific to a particular semantic class. As we mentioned, we used these two constructions as tests to select psych-nouns from ItEM. Thus, we could say that *provare/ sentire*-LVCs seem to be less idiomatic and less restricted than generic LVCs with respect to the selection of the nouns filling the construction slot. However, we should remember that the sole acceptability of *provare* and *sentire* with a noun doesn't imply that the pattern is actually used frequently enough to be considered as a LVC.

15 https://bellatrix.sslmit.unibo.it/noske/public/#dashboard?corpname=itwac1, last access 27.10.2024.

Tab. 1: The top five nouns by frequency in the dataset and the corresponding predicates.

noun (freq.)	stative predicate (= feel N)		inchoative predicate (= begin to feel N)		causative predicate (= cause X to feel N)	
	SV	LVC	SV	LVC	SV	LVC
interesse 'interest' (260748)	*interessarsi*	*avere interesse*; *provare interesse*	*interessarsi*	*prendere interesse*	*interessare*	*dare interesse*
amore 'love' (186567)		*avere amore*; *provare amore*; *sentire amore*	*innamorarsi*			
dubbio 'doubt' (93128)		*essere in dubbio*				
paura 'fear' (89449)		*avere paura*; *provare paura*; *sentire paura*	*impaurirsi*	*prendere paura*	*impaurire*; *spaurire*	*fare paura*; *mettere paura*; *dare paura*
pena 'pain' (71264)	*penare*	*essere in pena*; *avere pena*; *provare pena*; *sentire pena*		*prendersi pena*		*fare pena*; *dare pena*

cases in which we find more than one SV per noun is when the anticausative alternation applies (e.g., *interessare* 'interest' and *interessarsi* 'be/ get interested' in Table 1). This could be taken as evidence for blocking preventing to form a potential SV while a synonymous one already exists; however, blocking is not the only phenomenon that can explain this distribution, since it would not make sense for a stative SV to be blocked by the existence of a causative SV. Thus, this situation also shows a relative scarcity of predicates expressed by SVs, since we generally find only one event type per noun expressed through SVs (if we do not take into account anticausative SVs). Instead, we often find more than one LVC per noun, expressing both the same and different event types. In order to understand this distribution better, we can

analyze the whole dataset along the two axes also used in Table 1: nouns and event types.

If we look at the nouns ordered by raw frequency per lemma, we notice that higher ranked nouns have generally more corresponding predicates than lower ranked ones (Figure 1). The positive correlation between the $\log_{10}$ of the frequency of nouns and the number of predicative constructions results to be quite high by calculating Kendall's tau coefficient of correlation (tau = 0.55, $p < 0.001$). This is quite expected since the more frequent a noun is, the more available it is as a base for predicate formation.

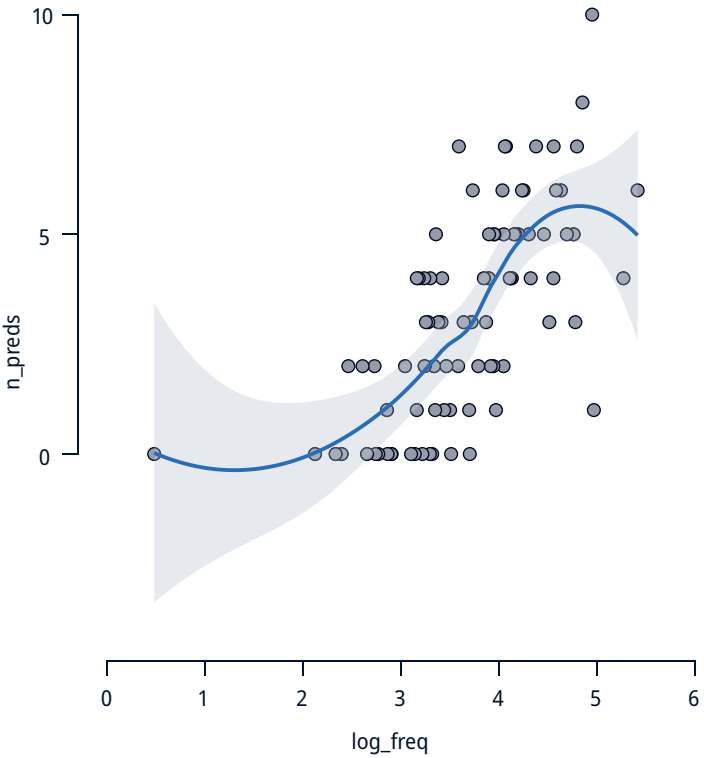


Fig. 1: Log frequency of nouns plotted against the number of predicates per noun.

However, if we separate SVs from LVCs, we see that the correlation is mainly driven by the increase of LVCs (tau = 0.57), while the number of SVs per noun shows a low positive correlation with noun log frequency (tau = 0.26).

The fact that more frequent nouns have a higher possibility of forming predicates has consequences also on the expression of different event types from the same noun. If we divide the nouns in four groups, based on how many event types are lexicalized by both SVs and LVCs (from 0 to 3), we see that the groups expressing more event types comprise more frequent nouns on average[16] (Figure 2, left part). This is probably due to the fact that the more predicates are created from a noun, the more plausible it is that this abundance helps to express all the three possible meanings, as testified by the very high correlation between the number of predicates created from a noun and the number of event types expressed for each noun (tau = 0.8, p < 0.001) (Figure 2, right part).

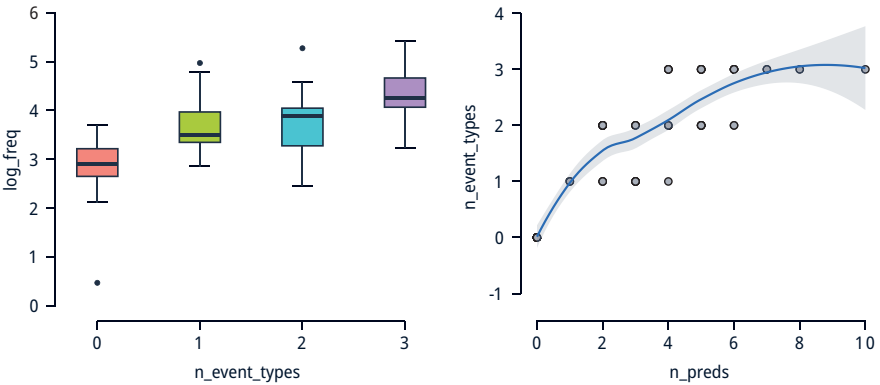


Fig. 2: Log noun frequency grouped by number of event types expressed per noun (left) and number of predicates per noun by number of event types expressed per noun (right).

Since the constructions actually increasing are LVCs and not SVs, we could hypothesize that the expression of different types of events from psych-nouns is made possible by the use of LVCs. However, the situation is quite complex if we look at the distribution of LVCs and SVs among the three event types (Table 2).

While the difference between the number of stative LVCs and stative SVs is quite high[17], and thus we could say that stative psych-predicates are mostly LVCs on the type-level, inchoatives tend to be expressed by means of SVs (see below), while

16 Kruskal-Wallis test yields a p-value < 0.001 for the difference in frequency between the four groups.

17 If we took into account only basic LVs (*avere* 'have' and *essere in* 'be in'), excluding *provare* and *sentire* 'feel', LVCs would still be more than SVs (53 vs 16).

causatives show a more even distribution between LVCs and SVs.[18] Thus, the contribution of LVCs differs through the different event types.

Finally, a relevant point to highlight is that causatives are the most lexicalized event type: not only they are more numerous than statives and inchoatives, but some of the statives (n = 6) and most of the inchoatives (n = 23) are actually anticausative constructions, formed by adding *-si* to the causative SV (hence, a secondary derivation). Given the apparent 'primacy' of causative events as expressed by SVs and the high number of causative LVCs, we expect to find greater competition between the two strategies within this class.

4.2 The choice between SVs and LVCs

As we mentioned in Section 2.2, there is competition between SVs and LVCs both at the level of patterns and at the level of forms. At the level of patterns, our dataset displays many different constructional schemas used to create predicates from nouns:

- statives: conversion (N-*are*/*-ire*), suffixation (N-*izzare*), *avere* N, *essere in* N, *provare* N, *sentire* N, plus converted or parasynthetic causatives + *si*;
- inchoatives: converted or parasynthetic causatives + *si*, *prendere* N, *farsi* N, *andare in* N;
- causatives: conversion (N-*are*/*-ire*), suffixation (N-*izzare*), parasynthesis (*ad-*/*in-*/*s*-N-*are*/*-ire*), *fare* N, *dare* N, *mettere* N.

As suggested in the literature, the choice between the LVC schemas is at least partially idiosyncratic, and the same goes for the choice between LVC and one of the morphological schemas available (Alba-Salas, 2002, 51). By this, we mean that there

Tab. 2: Number of LVCs and SVs expressing the three event types.

	LVC	SV	total
statives	121	16	137
inchoatives	14	27	41
causatives	63	31	94
total	198	74	272

18 This is confirmed by looking at the standardized residuals from a chi-squared test ($p < 0.001$) on the contingency table (Table 2): stative events are associated with LVCs (std.res. 5.7), while inchoatives with SVs (std.res. 6.0). As for causatives, we find positive residuals in the LVC cell, but they do not reach the threshold of 2 (std.res. 1.5), and thus we cannot assume causatives to influence the significance of the test.

seems to be no inherent reason why **essere in paura* (lit. be in fear) is not acceptable, while *avere paura* 'have fear' is perfectly acceptable, and the selection seems to depend upon the nominal base. The question seems to be even more complex since there are also less frequent LVCs whose acceptability could be speaker-dependent (e.g., *dare paura* 'give fear').

While it would be impossible to address this topic here with quantitative methods, our data suggest that there may be some trends based on the semantics of the nouns. For instance, by looking at causatives, the *fare*-LVC schema seems to apply quite regularly to nouns associated with disgust and pity (e.g., *fare schifo*/ *ribrezzo*/ *pena*/ *pietà*, lit. do disgust/repugnance/pain/pity), while the *mettere*-LVC seems to be mostly associated with nouns of fear and anxiety[19] (e.g., *mettere paura*/ *ansia*/ *angoscia*/ *inquietudine*/ *soggezione*, lit. put fear/anxiety/anguish/restlessness/awe).[20] Conversion, instead, seems to be associated more than other schemas with positive sentiment nouns (e.g., *emozionare* and *entusiasmare* 'excite', *interessare* 'interest', *calmare* 'calm down').

However, more in-depth research is needed to disentangle pattern competition in this field. In our analysis, we focus on the competition between different forms, therefore considering cases in which one of the three possible event types is expressed by more than one predicate. More specifically, we concentrate on cases where we find an SV along with one or more LVCs. The analysis aims to unveil which functional and contextual variables motivate the use of the synthetic vs. analytic strategy. We will do so by analyzing a subset of eleven alternations through fitting two mixed-effects regression models.

4.2.1 Sampling, annotation parameters and statistical methods

As we illustrated in Section 4.1, we found a high number of SV and LVC predicates formed from psych-nouns. However, looking at their distribution (cf. Table 2, Section 4.1), we expect the coexistence of synthetic and analytic forms to actually emerge in a relatively limited number of cases.

19 This could suggest an exemplar-based analysis of the phenomenon (cf. Sundquist, 2022), whereby a very frequent LVC such as *fare schifo* or *mettere paura* is used as an exemplar for the creation of LVCs with semantically similar nouns by analogy.

20 Interestingly, between the (rare) stative types that employ *essere in*, we find three of the nouns associated with *mettere*, expressing distress and anxiety (i.e., *ansia*, *angoscia* and *soggezione*). Apart from *essere in pena*, these are the only *essere in*-LVCs that have a causative LVC counterpart in our dataset.

As a matter of fact, in our dataset there are only 35 cases of synthetic-analytic alternations: 12 within the stative class; 2 within inchoatives; and 21 within causatives. Furthermore, in most of the cases, there seems to be a large discrepancy in the frequency of the alternants: in 24 cases out of 35 (i.e., 70% of the cases) the frequency of the SV in itWaC is at least 10 times higher than the corresponding LVC frequency. Thus, to give a faithful representation of the relationship between SVs and LVCs and to maximize the chance of unveiling meaningful factors, we selected a subset of data following two criteria: frequency of the noun and difference in frequency of the predicates. We took the top 10 most frequent nouns showing alternating constructions in (at least) one of the three event types but balancing the list to include 4 alternations (out of 10) in which the difference in frequency between the rival constructions is less marked. The selected 4 alternations include cases in which the SV frequency is 1 to 5 times the LVCs frequency, and vice-versa.

As we see in Table 3, this selection turned out to be balanced also with respect to the number of stative and causative alternations (see above). In order not to exclude inchoatives completely, we included the inchoative alternation with *paura*. Another variable kept under control is the argument-semantic role alignment of the predicates, since all the statives and the inchoative enter a Subject-Experiencer construction with an optional External Argument-Stimulus (see the *gioire* class, Belletti and Rizzi, 1988; see 13), while the causatives enter Subject-Stimulus constructions with a Direct (for the SVs, cf. 14a) or an Indirect (for the LVCs, cf. 14b) Object-Experiencer.

(13) a. *Anna gioisce* (*per suo* *fratello*).
Anna rejoice.PRS.3SG for POSS.3.M.SG brother.M.SG
'Anna rejoices (for her brother).'

b. *Anna prova* *gioia* (*per suo* *fratello*).
Anna feel.PRS.3SG joy.3SG for POSS.3.M.SG brother.M.SG
'Anna feels joy (for her brother).'

(14) a. *Anna incoraggia* ***gli*** ***studenti***.
Anna encourage.PRS.3SG DET.M.PL student.M.PL
'Anna encourages the students.'

b. *Anna fa* *coraggio* ***agli*** ***studenti***.
Anna do.PRS.3SG courage.SG to.DET.M.PL student.M.PL
'Anna gives courage to the students.'

We initially extracted 500 total occurrences of the predicates listed in Table 3, considering both written and spoken data. We employed a regular expression to match all the predicates; for LVCs we included the option of up to two words intervening between the LV and the noun, to analyze nominal modification (Section 2.1). As for spoken data, we collected all available data (191 occurrences) from three corpora:

Tab. 3: The selected alternations for the construction of the sample .

noun	SV	LVC	event type
paura 'fear'	*impaurire, spaurire*	*fare/mettere/dare paura*	causative
	impaurirsi	*prendere paura*	inchoative
dolore 'pain'	*addolorare*	*dare dolore*	causative
emozione 'excitement'	*emozionare*	*dare emozione*	causative
gioia 'joy'	*gioire*	*avere/provare/sentire gioia*	stative
coraggio 'courage'	*incoraggiare*	*fare/dare coraggio*	causative
impressione 'impression'	*impressionare*	*fare/dare impressione*	causative
timore 'fear'	*intimorire*	*dare/fare timore*	causative
fastidio 'bother'	*infastidire*	*dare fastidio*	causative
simpatia 'sympathy'	*simpatizzare*	*avere/provare simpatia*	stative
angoscia 'anguish'	*angosciarsi*	*essere in/provare angoscia*	stative

LIP (De Mauro et al., 1993), gathered in the late 80s and including several types of communicative situations (30 occurrences); KIParla (Mauri et al., 2019), gathered between 2016 and 2019 and containing semi-structured interviews, dialogic and monologic speech mainly from university settings (117 occurrences); RadioCast-It (Masini and Combei, 2024), gathered between 2017 and 2021 and containing radiophonic speech (44 occurrences). We then extracted the remaining 309 occurrences as a random sample from the written Italian corpus CORIS (Rossini Favretti et al., 2002). We excluded false positives (43 occurrences) and cases in which the predicates are employed in a non-psychological (or not-strictly psychological) sense (40 occurrences, mainly with the verb *incoraggiare* 'encourage', used in the sense of 'favor, promote' (15)), for a total of 226 occurrences. Interestingly, not only SVs turned out to be polysemous, as stated in the literature, but also LVCs, if frequent enough, such as *fare paura*, can undergo a semantic extension. For instance, in (15) *fare paura* does not mean 'frighten', but 'amaze'.

(15) *Occorre pertanto, adottare una serie di iniziative*
is_necessary.PRS.3SG thus adopt.INF DEF.F.SG series.SG of initiative.PL
per ***incoraggiare*** *e sviluppare il flusso di turisti e*
to encourage.INF and develop.INF DET.M.SG flow.SG of tourist.PL and
commercianti provenienti dall' Est.
trader.PL coming.PL from.DET.M.SG east
'Therefore, a number of initiatives should be taken to promote and develop the flow of tourists and traders from the East.' (CORIS, STAMPA)

(16) […] *dopo guardi il programma della summer school*
later look.IMP.2SG DET.M.SG program.SG of.DET.F.SG summer school
fa paura.
do.PRS.3SG fear.SG
'Later, look at the summer school programme, it's amazing.'
(KIParla, TOA3001)

Our final sample thus consists of 417 occurrences and comprises 242 LVCs (13 types) and 175 SVs (11 types). In Figure 3 we show the predicates in our sample, which interestingly do not include some of the predicates in Table 3 (mainly LVCs, such as *dare angoscia* 'give anguish', *fare simpatia* 'do sympathy', etc.).

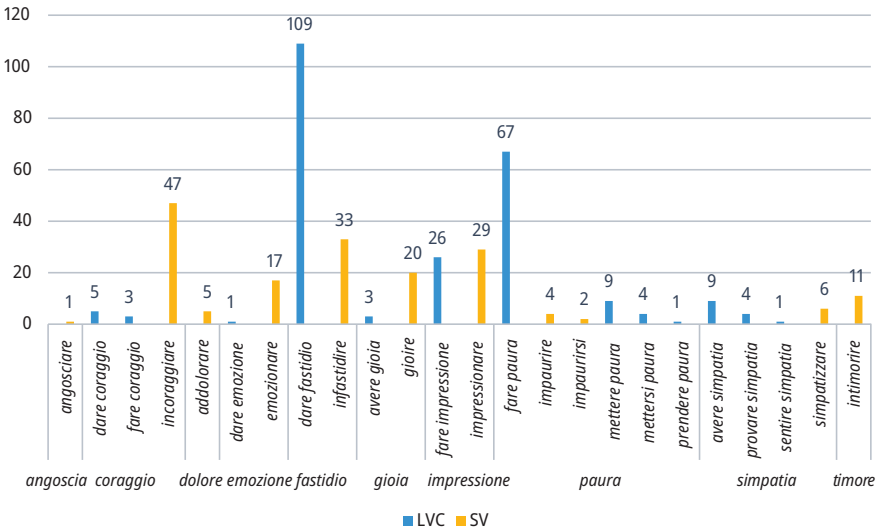


Fig. 3: Predicates in the sample, grouped by noun.

Figure 3 clearly illustrates that the SV-vs-LVC distribution varies among nouns. Thus, not only pattern selection but also the actual frequency of the specific predicates strongly depends on the nominal base. Furthermore, the predicates selected to represent statives and inchoatives turned out to occur less than we expected: causatives provide 366 of the occurrences, while we find only 44 statives and 7 inchoatives. Interestingly, no stative *essere in*-LVC and only 1 inchoative *prendere*-LVC were found. Instead, we found 4 *mettersi paura* 'get scared' (lit. put oneself fear; inchoative LVC), extracted as a false positives of *mettere paura*. We kept them in the sample, even

though *mettersi*-LVC is a diatopically marked pattern (cf. De Mauro, 2011, 399). The occurrences were coded for the variables shown in Table 4.

We ran two distinct analyses. The first keeps together all event types and looks only at the 'general' variables (Corpus, Text genre, Modification, and Verb form). The second includes the semantic features of arguments. This last analysis was intended to be performed separately by event type; however, since statives and inchoatives are too few to find meaningful tendencies, the effect of semantic features was tested only on causative constructions (see the last two variables in Table 4). In both cases, we will fit a mixed-effects regression model.

Mixed-effects models are statistical models increasingly employed in linguistics (e.g., Baayen et al., 2008; Gries, 2015; Speelman et al., 2018). Like linear regression models, they allow us to predict the value of the dependent variable (or response variable, in our case binary: LVC vs. SV) based on several independent variables (or predictors), whose importance can also be ranked. Their advantage, however, is that predictors can be treated either as fixed effects or as random effects. While fixed effects are assumed to be non-random and constant across the population (the variables in Table 4), random effects represent the variability that is not captured by fixed effects and depends on the behavior of specific groups in the population. This is useful in our case, since we want to generalize as much as possible our results, avoiding the possible biases due to the specific predicates in our sample. For instance, we do not want our results to be influenced by the specific behavior of very frequent predicates derived from a certain noun, or of predicates expressing a specific event type. At the same time, we want to acknowledge the explanatory power attributable to nominal bases in the selection of SVs and LVCs. For this reason, we included the event type (only in the first model) and the nominal base as random effects. We used RBrul (Johnson, 2009) to select the best model (i.e., the one containing only the predictors that affect the choice) by running a step-up/step-down regression, and then fit the selected model in R using the *lmer4* (Bates et al., 2015) and *afex* (Henrik et al., 2023) packages to rank the effect of the predictors.

4.2.2 Modelling the SV vs LVC alternation

As we mentioned, we first modeled the alternation based on all occurrences, regardless of the aspect-causative meaning (n = 417). Thus, we included the predictors applicable to both transitive and intransitive predicates: Corpus, Text_genre, Verb_Form, and Modification as fixed effects; Noun and Event_type as random effects. The step-up/step-down procedure in RBrul selected the models containing all the predictors except Corpus (17).

Tab. 4: Variables chosen for the annotation of the occurrences.

Variable	Levels
Corpus	– Written – Spoken
Modification (adjectives or adverbs of quantity or quality)	– Modified – Non_Modified
Verb_Form	– Finite – Non Finite_Infinitive – Non Finite_Other (participles, gerunds)
Text_genre	– Dialogic_speech (face-to-face and telephone conversations) – Monologic_speech (university lessons, public speeches) – Broadcast (radio and TV speech) – Fiction_prose – Press – NonFiction_prose (academic and legal prose) – Websites (blog posts)
[causatives only] Sem_SubjStimulus (Subject-Stimulus semantics)	– Egophoric (i.e., non-3rd person stimulus, as in (*Io*) *vi do coraggio* 'I give you courage') – Animate – Inanimate – Clause & Clause_referred (i.e., *Camminare al buio fa paura* 'Walking in the dark is scary') – Unknown/Unspecified (i.e., the stimulus is not specified, as in *Ho visto un bambino impaurito* 'I saw a frightened child')
[causatives only] Sem_NonSubjExperiencer ((In)direct object-Experiencer semantics)	– Egophoric (i.e., non-3rd person experiencer *I rumori mi infastidiscono* 'Noises bother me') – Animate – Inanimate – Zero (i.e., the experiencer is not specified, as in *L'ignoto fa paura* 'The unknown is frightening' (lit. frightens))

(17) Construction ~ Text_genre + Verb_Form + Modification + (1|Noun) + (1| Event_type)

Subsequently, we ranked the effects of the predictors with likelihood ratio tests from the *afex* package in R. Finally, we refitted the model with *lme4* package, and applied sum-to-zero contrasts with the *emmeans* package (Lenth, 2023) to evaluate the significance of the levels of the predictors. The output of the model with the predictors ranked by effect is shown in Table 5. The levels that significantly affect the choice are highlighted according to the group (pink for SVs and blue for LVCs).

Tab. 5: Output and performance of the model including all the event types.

Predictor	Levels	Estimate	Std.Error	z_ratio	p_value	
Verb_Form	Finite	0.1529	0.4962	-3.6977	0.0002	***
*** (p <.001)	NonFinite_Infinitive	1.0610	0.5227	-1.7730	0.0762	.
	NonFinite_Other	4.7493	0.9544	2.8935	0.0038	**
Text_genre	Broadcast	2.9456	0.4481	2.1377	0.0325	*
*** (p <.001)	Dialogic_speech	0.6463	0.3782	-3.5470	0.0004	***
	Fiction_prose	2.3026	0.3208	0.9814	0.3264	
	Monologic_speech	-0.3611	1.0304	-2.2796	0.0226	*
	NonFiction_prose	3.1191	0.6516	1.7363	0.0825	.
	Press	2.1809	0.3556	0.5432	0.5870	
	Websites	3.0809	0.7030	1.5548	0.1200	
Modification	Modified	1.4869	0.1975	-2.5356	0.0112	*
** (p = .009)	Non_Modified	2.4886	0.1975	2.5356	0.0112	*
Model Performance	**Classification accuracy**	**AIC**	**BIC**	**R^2 (cond.)**	**R^2 (marg.)**	
	0.84	351.971	401.368	0.654	0.289	

As we see in Table 5, Verb_Form and Text_genre are the most important predictors, followed by Modification. As for Verb_Form, p-values suggest that Finite is associated with LVCs, while NonFinite_Other (participles, gerunds) with SVs. For Text_genre, mainly spoken genres affect the choice significantly: Monologic_speech and, most importantly, Dialogic_speech are associated with LVCs, while Broadcast with SVs. As for written genres, we find only a weak trend associating SVs with NonFiction_prose. Finally, as expected, Modification is associated with LVCs.

The same procedure was applied to obtain and evaluate the model for causatives only (n = 366). We added to the formula the two predictors related to subject and non-subject semantics (Sem_NonSubjExperiecer and Sem_SubjStimulus). However, the best models included only Sem_NonSubjExperiecer:

(18) Construction ~ Text_genre + Verb_Form + Modification + Sem_NonSubjExperiecer + (1|Noun)

As we see in Table 6, the predictor concerning the semantic features of the experiencer was the highest-ranked one. In particular, Zero (i.e., the absence of the object, yielding a generic reading of the experiencer) is strongly associated with LVCs, while Animate (3rd person) experiencers with SVs. The remainder of the model displays almost the same effects as the preceding one, with the exception of some levels (Websites is associated with SVs, while Broadcast is not) and the fact that Modification is a much less important (although still significant) factor.

Tab. 6: Output and performance of the model for causative predicates.

Predictor	Levels	Estimate	Std.Error	z_ratio	p_value	
Sem_NonSubjExp	Animate	3.2237	0.3942	2.9795	0.0029	**
*** (p <.001)	Egophoric	1.6111	0.4210	-1.0405	0.2981	
	Inanimate	2.6693	0.9414	0.6589	0.5100	
	Zero	0.6922	0.4870	-2.7861	0.0053	**
Verb_Form	Finite	0.5185	0.4868	-3.1444	0.0017	**
*** (p <.001)	NonFinite_Infinitive	1.0936	0.5392	-1.7722	0.0764	.
	NonFinite_Other	4.5351	0.9225	2.6949	0.0070	**
Text_genre	Broadcast	2.8649	0.4916	1.6594	0.0970	.
*** (p <.001)	Dialogic_speech	0.8075	0.4472	-2.7760	0.0055	**
	Fiction_prose	2.0228	0.3914	-0.0671	0.9465	
	Monologic_speech	-0.2406	1.1385	-2.0111	0.0443	*
	NonFiction_prose	2.6205	0.8601	0.6643	0.5065	
	Press	2.2360	0.4320	0.4328	0.6651	
	Websites	4.0323	0.9371	2.1163	0.0343	*
Modification	Modified	1.5717	0.2324	-2.0537	0.0400	*
* (p = .035)	Non_Modified	2.5264	0.2324	2.0537	0.0400	*
Model Performance	**Classification accuracy**	**AIC**	**BIC**	**R^2 (cond.)**	**R^2 (marg.)**	
	0.88	270.394	325.031	0.760	0.320	

5 Discussion

5.1 A paradigm of denominal psych-predicates

As mentioned in Section 4.1, the predicates formed from psych-nouns, be they synthetic or analytic, always fall in one of three main event types. Highly frequent nouns tend to have at least one predicate per event type. Thus, we suppose that speakers' linguistic knowledge includes the fact that there are three main possible meanings expressed by denominal psych-predicates (state, inchoation, causation), and that the forms expressing these meanings may be morphologically related to each other.

Our proposal is that this situation can be fruitfully described as a derivational paradigm for psych-nouns. We can preliminarily define a derivational paradigm as a set of cells specifying the set of semantic and formal features realized by actual derivational series (cf. *paradigm*$_1$ in Hathout and Namer, 2019, 154). In our case, the paradigm is formed by three cells, corresponding to the three event types. Each cell contains the following pair of information: (i) the semantic value expressed by the denominal predicates (e.g., cause X to feel N), and (ii) the schemas (formal features) used to create these predicates (e.g., N-*are*/*-ire*, N-*izzare*, *ad-*/*in-*/*s*-N-*are*/*ire*, *fare* N, *dare* N, and *mettere* N for the causative cell).

Some arguments in favor of a derivational paradigm formed by event types come from typological research. Firstly, as we mentioned, statives, inchoatives and causatives are the most commonly lexicalized event types crosslinguistically (Croft, 1991; Talmy, 2000). Secondly, some scholars have already argued that the causative-inchoative pair forms a paradigm, with other scholars adding stative predicates too (e.g., Beavers et al., 2021). In our case, this is relevant because we assessed that anti-causative morphology can form stative and not only inchoative predicates. Finally, Nichols (2019, 347) explicitly proposed that predicates denoting continuous (including states), bounded (including inchoatives) and causation events form a derivational paradigm that can be actualized in individual languages.

Our proposal can be easily translated in CxG terms (Section 3.2): psych-event types can be described as a hyperconstruction, created as an abstraction from the sets of actual morphologically related instances (e.g., *avere paura* vs *impaurirsi* vs *impaurire*). This hyperconstruction includes three cells encoding the semantic domain associated with the expression of psychological events, and paradigmatic links expressing the semantic opposition between these cells (Figure 4).

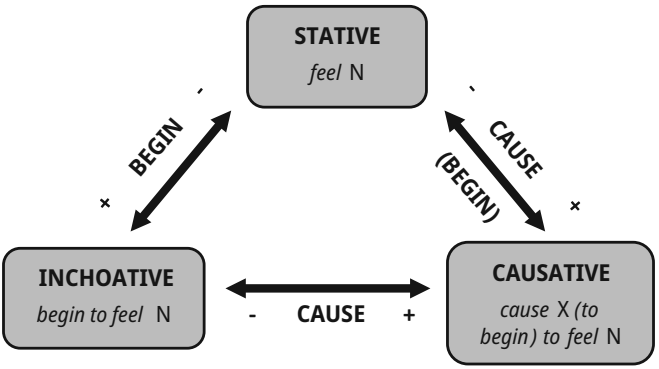


Fig. 4: The 'event types' derivational paradigm for psych-nouns.

Figure 4[21] resembles more a "content paradigm" (Stump, 2015, 5), since it only includes the abstract meanings that the predicates can express. For now, we propose this generalization, since there are several competing patterns for each cell ('differential exponence') that do not seem to form regular and predictable series: we hope future studies will shed light on this aspect. Note that differential exponence is not a problem for our proposal: the presence of multiple schemas and the lack of predictability and regularity are common in derivational paradigms and constitute a topic of debate (Bonami and Strnadová, 2019; Melloni and Dal Maso, 2022), although, as we will argue, it is possible to find a certain degree of regularity in our paradigm.

It is crucial to note that the derivational paradigm we are proposing is not a canonical one, since it includes 'periphrastic word formation'. As proposed in the literature, multiword expressions can be considered exponents in inflectional and derivational paradigms, either filling cells in complementary distribution with synthetic forms or competing with them for the same cell (Ackerman and Stump, 2004; Masini, 2019b; Cetnarowska, 2021). However, our data point precisely to broadening the notion of derivational paradigm, since LVCs do not seem to merely be 'fillers' for empty cells. Instead, the distribution of LVCs and SVs shows a quite systematic division of constructional labor, suggesting cooperation between analytic and synthetic strategies in the expression of event types:

– LVCs are the main strategy used to form stative psych predicates: LVC types (80% of which are *avere*-LVCs) are three times more numerous than the SV types. Since psych-nouns already denote states, it seems reasonable that the

21 We did not split stative and dynamic causatives, since it seems a rather complex distinction, often noticeable only at the token-level, that must be further explored. However, we highlighted that the opposition in dynamicity between stative and causatives is possible, but not always present.

most natural choice is to simply add a LV to make them predicates, instead of using a denominal verb. Furthermore, as noted in the literature, stative LVCs with psych nouns are unmarked with respect to causative and inchoative ones, since in this case the LV and the noun share their actional properties and there is coreference between their arguments (Ježek, 2004; Pompei and Piunno, 2023).

– Inchoativity is generally expressed by means of anticausative SVs, formed by adding *si* to either parasynthetic (61%) or converted (39%) SVs. In fact, we found 27 SVs against 5 *prendere*-LVCs (which should be the main LVC pattern used to express anticausativity) and 1 *farsi*-LVC (*farsi coraggio*, lit 'do oneself courage'), with the LV bearing anticausative morphology, similarly to the *mettersi*-LVC (*mettersi paura*) found in the analysis. This confirms Pompei & Piunno's (2023) observation that *prendere* is not employed regularly with psych-nouns. Instead, *andare in*-LVC, though not very frequently employed (n. of types = 7), is quite regularly employed with nouns used in *essere in* stative LVC (e.g., *collera* 'wrath', *estasi* 'rapture', *panico* 'panic', etc.).
– As for causatives, there is a more complex situation since we find both SVs and LVCs and there is not a single pattern (either synthetic or analytic) that clearly predominates over the others. Hence, the causative cell shows a higher amount of 'suppletion', leading to competition at the pattern level. However, as we mentioned in Section 4.2, there seem to be some tendencies in the choice of patterns, depending on the semantics of the nominal base (e.g., *fare* shows an association with disgust and pity, *mettere* with the nouns expressing fear and anxiety, etc.) and on its sentiment polarity (positive psych-states are often expressed by converted SVs). Nonetheless, there are many cases of 'overabundance', where we find more than one strategy employed and competition between two or more available forms possibly arises.

This overview unveils some general tendencies. The link between causatives and inchoatives is weaker in the domain of LVCs (Pompei and Piunno, 2023), while it is quite strong in the domain of SVs, since it is provided more regularly by the anticausative alternation. Instead, in the domain of LVCs the counterpart of 'marked' causative LVCs are mainly statives, typically expressed through the basic *avere*-LVCs or *provare/sentire* extensions. Furthermore, the only *essere in* statives that have a causative LVC counterpart are formed from the nominal bases associated with *mettere* (see footnote 20). Finally, the only clear and regular relationship between statives and inchoatives is found between two LVCs, namely *essere in* and *andare in*.

Thus, even though further research is needed, the paradigm proposed here seems to show some degree of predictability, mainly (but not solely) provided by the division of constructional labor between analytic and synthetic strategies. However, our proposal does not downplay the differences between 'morphological' and 'pe-

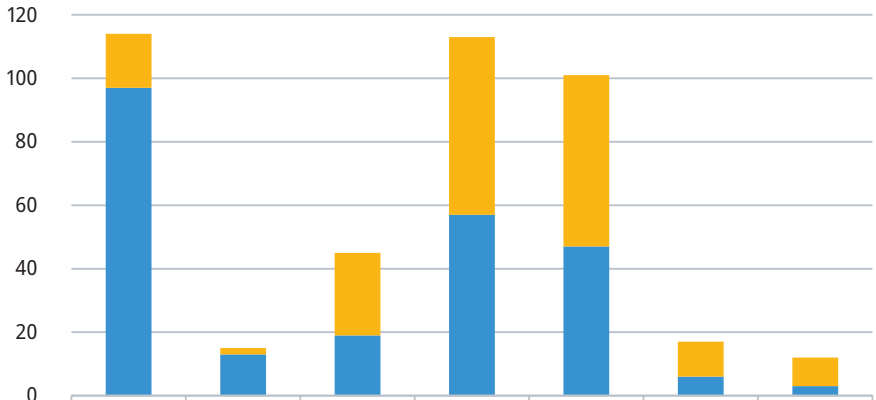
riphrastic' word formation. The most evident difference pertains the entrenchment of SVs and LVCs: overall, SVs have a higher token frequency, and thus are more entrenched and more likely to influence the formation of new items. Instead, it would be difficult to claim that all the LVCs found are equally stored in the speakers' mind: for instance, the very infrequent *dare paura* 'give fear' is possibly acceptable, but it is surely not entrenched as *fare paura* 'do fear', that is frequent enough to acquire additional senses (as SVs often do, see Section 4.2.1). Moreover, there are differences in the behavior of SVs and LVCs also at the token level, which we discuss by looking at forms occupying the same cell in the paradigm.

5.2 Overabundance: the behavior of (quasi-)synonymous SVs and LVCs

Our analysis of SVs and LVCs expressing the same meaning showed that some usage differences motivate the choice between them, such as contextual distribution, formal differences but also collocational preferences at the argument structure level (at least in the case of causatives).

The first discrepancy between analytic and synthetic predicates is their different distribution across text genres, which was selected by the model over the distribution between written and spoken data. As we see in Figure 5, some genres (i.e., monologic speech, non-fiction prose, websites) comprise only few occurrences, thus it would be difficult to draw conclusions from their distribution, although it is sometimes (weakly) significant. However, more numerous groups reveal a clearer picture: in written genres, such as fiction and press, LVCs and SVs seem to be used quite evenly, whereas in dialogic speech LVCs represent the vast majority of the occurrences. This could hint at a general spoken vs. written distinction, but if we look at broadcast (i.e., radio and TV speech) we see that its distribution actually patterns with written genres, to the point that Broadcast shows a significant association with SVs in the first model (Table 5, Section 4.2.2).
These results suggest that the distribution can be explained in terms of text genres and planning, since broadcast occurrences are primarily from radio shows (from the corpus RadioCast-It), which are more planned and formal than spontaneous dialogues. This confirms the idea that the choice of LVCs "rises through registers" (Shahrokny-Prehn and Höche, 2011), and that there could be not only stylistic but also processing factors at play: LVCs allow the speaker to better monitor their linguistic production since information is dispersed over multiple highly frequent lexical units (Brugman, 2001; Amenta, 2008).

The contextual distribution of analytic and synthetic psych-predicates can help us better understand the impact of another factor, namely modification, which is



	Dialogic speech	Monologic speech	Broadcast	Fiction prose	Press	NonFiction prose	Websites
SV	17	2	26	56	54	11	9
LVC	97	13	19	57	47	6	3

Fig. 5: Distribution of SVs and LVCs by text genre.

regarded as highly relevant in literature (Section 2.1). In our analysis, we found that, albeit significant, the putatively higher possibility of modification attributed to LVCs has a lower impact on speakers' choice than expected. Indeed, in our dataset there are many cases of adjectives (19a) and adverbs (19b) of quantity/quality interposed between the LV and the noun.

(19) a. *Mister Brontë* […] *non* ***aveva*** ***naturale*** ***simpatia*** *per*
Mister Brontë not have.IPFV.PST.3SG natural.F.SG sympathy.SG for
l' *infanzia*
DET.F.SG infancy.SG
'Mr. Brontë **had no natural sympathy** for childhood' (CORIS, NARRAT)

b. […] *faccio* *venire* *io* […] *un* *sacco* *di malati,* *finti*
do.PRS.1SG come.INF I DET.M.SG bag.SG of diseased.PL fake.M.PL
naturalmente o *li* *preferisci* *veri*? *Meglio finti,*
naturally or them prefer.PRS.1SG real.M.SG better fake.M.PL
fanno ***meno impressione***.
do.PRS.3PL less impression.SG
'I'll get a couple of journalist friends to come, and then a lot of sick people, fake of course, or do you prefer them real? It's better if they are fake, they are less shocking.' (lit. **make less impression**) (CORIS, NARRAT)

In some cases, the presence of an adjective can change the psych-state expressed by the LVC, sometimes combined with the presence of a determiner (cf. 20 with 19b). Thus, we could expect modification to crucially favor the use of LVCs, in particular adjectival modification since SVs can only be modified by adverbs (21).

(20) *Ho fatto l' esame con lui la scorsa*
have.PRS.3SG do.PFV.PTCP DET.M.SG exam.SG with him DET.F.SG past.f.sg
settimana, mi aveva fatto ***una buona***
week.SG to-me have.IPFV.PST.3SG do.PFV.PTCP DET.F.SG good.F.SG
impressione.
impression.SG
'I took the exam with him last week; he had made **a good impression** on me.'
(CORIS, STAMPA)

(21) *mi* ***emoziona*** *ancora* ***molto*** *andare al cinema* [...]
me excite.PSR.3SG still a.lot go.INF to.DET.M.SG cinema.SG
'it still **excites** me **a lot** to go to the movies.' (KIParla, PTD007)

However, modification is a (significant but) minor factor in our model. Let us look at the significance of modification in different contexts. By splitting written and spoken data (for simplicity), we see that in the former LVCs appear significantly more with modifiers (chi-square yields a $p < 0.001$), and adjectives seem to play an important role (Figure 6, left graph). Instead, in spoken contexts, there is no significant association ($p = 0.08$), and visually, the contribution of adjectives is lower (Figure 6, right graph). A possible interpretation is that in contexts where there is more competition, such as written ones (where we find approximately a 50/50 distribution), modification is indeed a factor that favors the use of LVCs when the speaker wants to modify the content of the predicate, while we do not find this situation in spoken contexts, where LVCs are highly more used than SVs anyway.
Moreover, Figure 6 clearly shows that, both in written and spoken data, the presence of modification accounts for only a small part of the variation: only 20% of the occurrences are modified. Thus, modification is not frequently available as a cue for predicting the choice between LVCs and SVs.

Instead, the most relevant factor in our model turned out to be the opposition between finite and non-finite verb forms, quite unexpectedly. While LVCs tend to appear in their finite forms in 87,6% of the cases, SVs are used in a finite form only in 54,2% of the occurrences (Figure 7). This distribution does not change significantly between written (finite LVCs = 82,3%, finite SV = 51,5%) and spoken data (finite LVCs = 92,2%, finite SV = 62,2%).

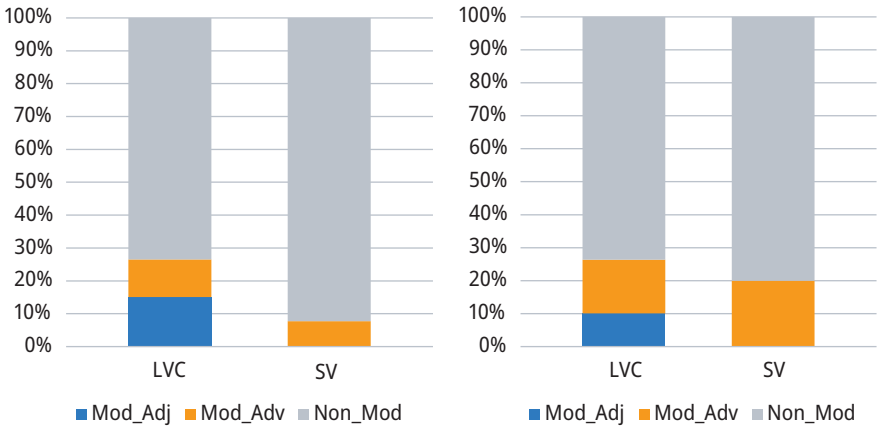


Fig. 6: Modification of LVCs and SVs in written (left) and spoken (right) data.

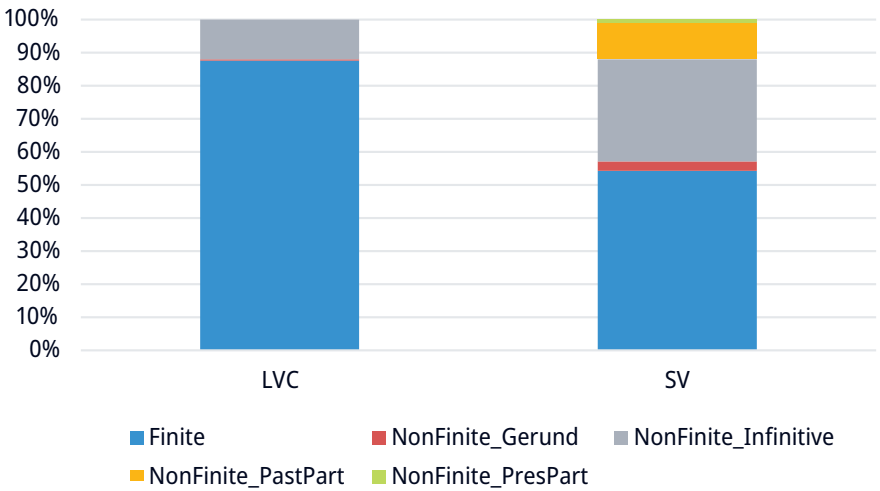


Fig. 7: Verb forms of LVCs and SVs.

This difference could partly depend on the high number of periphrases that select non-finite forms in Italian: for instance, in our dataset we find modal (22), causative (23), and aspectual (24) periphrases with infinitives.

(22) […] *alla fine* ***ha potuto gioire*** *con*
at.DET.F.SG end.SG have.PRS.3SG be.able.PFV.PTCP rejoice.INF with
i suoi compagni per la vittoria
DET.M.PL POSS.1SG.M.PL mate.PL for DET.F.SG victory.SG
'In the end, he **was able to rejoice** with his teammates over the crucial victory'
(CORIS, STAMPA)

(23) *sono tante le cose che* ***fanno emozionare*** *di The*
be.PRS.3PL many.F.PL DET.F.PL thing.PL REL make.PRS.3PL excite.INF of the
Imagineering Story […]
imagineering story
'there are so many **exciting** (lit. that **make excite**) things about The Imagineering Story.' (RadioCast-It)

(24) *Sind Sie rasend – ha gridato il barone* […]
have.PRSS.3SG shout.PFV.PTCP DET.M.SG baron.SG […]
cominciando a impaurir-si *un pochino*.
begin.GER to frighten.INF-si DET.M.SG little.DIM
'Sind Sie rasend – shouted the baron, […] **starting to get a little scared**.'
(CORIS, NARRAT)

We could argue that the use of LVCs, although surely grammatical in some of them, is generally disfavored in periphrases: their multiword nature would yield strings with a high degree of complexity, possibly more costly to process. See for instance (25), where example (22) is repeated with the SV substituted by an LVC:

(25) *Alla fine ha potuto provare gioia con*
at.DET.F.SG end.SG have.PRS.3SG be.able.PFV.PTCP feel.INF joy.SG with
i suoi compagni per la vittoria.
DET.M.PL POSS.1SG.M.PL mate.PL for DET.F.SG victory.SG
'In the end he was able to feel joy with his teammates for the crucial victory.'

However, our model also detects that infinitive forms lean more towards LVCs (even though not significantly). Clearly, we find instances of infinitive LVCs (26), but they are far less frequent than infinitive SVs.

(26) *sono stanco // di essermi preso questo ruolo*
be.PRS.1SG tired.M.SG of be.INF.for.me take.PFV.PTCP DEM.PROX.M.SG role.SG
[...] *vai in mezzo ai torturati e sei*
go.PRS.2SG in half to.DET.M.PL tortured.PL and be.PRS.2SG
quello che deve far coraggio.
DEM.DIST.M.SG REL must.PRS.3SG do.INF courage.SG
'I'm tired of having this role [...] you go among the tortured and you're the one who has to give them courage.' (KIParla, PTB023)

This could be due to the quasi-absence of other types of non-finite LVCs. Probably, when compared to the distribution of verb forms among SVs, infinitives are still considered as more leaning towards the LVC side overall, due to the lack of the category encompassing gerunds and participles, that are commonly used with SVs. In fact, other non-finite forms (gerunds, past and present participles) are strongly associated with SVs. This is quite expected, because, at least for past participles, LVCs, being intransitive predicates, would not assume the passive reading yielded by SVs, and thus they would be ungrammatical in the cases of adjectival-like uses of past participles (27).

(27) a. *siamo rimasti tutti molto ben* ***impressionati***
be.PRS.1PL stay.PFV.PTCP.M.PL all.M.PL a.lot well impress.PFV.PTCP.M.PL
'we were all very positively **impressed**' (LIP, NA3)

b. **siamo rimasti tutti molto ben* ***fatti***
be.PRS.1PL stay.PFV.PTCP.M.PL all.M.PL a.lot well do.PFV.PTCP.M.PL
impressione
impression.SG
'*we were all very positively **made impression**'

Interestingly, whatever the full explanation may be, the byproduct of this distribution is some sort of division of constructional labor: LVCs are almost always used in prototypical predicative constructions, where they act as main clause predicates that govern directly their arguments (28), while other uses, sometimes closer to adjectives (27) or to adverbial subordinate clauses (29), are performed by SVs.

(28) *non ci vivo quindi // **i** **difetti** **mi** **danno***
not with.her live.PRS.1SG so DET.M.PL fault.PL to.me give.PRS.3PL
relativamente fastidio.
relatively annoyance.SG
'I don't live with her so **her faults don't bother me so much**'
(KIParla, TOD2012)

(29) *Io, a Bologna, ho privilegiato la produzione*
I in Bologna have.PRS.1SG favor.PFV.PTCP DET.F.SG production.SG
al consumo, ***incoraggiando*** *gli artisti.*
over.DET.M.SG consumption.SG encourage.GER DET.M.PL artist.PL
'In Bologna, I favored production over consumption, **encouraging** artists.'
(CORIS, STAMPA)

As we mentioned, we also fitted a model comprising causative predicates only, in order to analyze the type and the semantics of their arguments. The first observation is a formal one: in LVCs the experiencer is aligned with the indirect object (30b) and not with the direct object (as in SVs, cf. 30a), since the object position is already filled by the psych-noun.

(30) a. *Lavoravano senza mettersi in vista,* ***non***
work.IPFV.PST.3PL without put.INF.themselves in sight not
infastidivano nessuno [...].
bother.IPFV.PST.3PL anyone
'They worked without putting themselves in sight, **not bothering anyone**.'
(CORIS, NARRAT)

b. [...] *il Milan* ***darà fastidio alla Lazio*** *fino*
DET.M.SG Milan give.FUT.3SG annoyance.SG to.DET.F.SG Lazio until
all' ultimo [...].
at.DET.M.SG last.SG
'Milan **will bother Lazio** until the very end.' (CORIS, STAMPA)

While this difference in formal marking does not seem to entail a difference in meaning between the predicates in (30), it has some consequences both on the expression and the type of arguments selected. As noticed for Spanish (Cuervo, 2010; Rivas, 2016), the behavior of causative LVCs is often very similar to the one displayed by the *piacere*-class predicates (Belletti & Rizzi's 1988 third class, Section 2.2). This is particularly evident in the frequent cases (46,8% of LVC occurrences) where the experiencer coincides with the speaker and is expressed through the clitic *mi*, preposed to the predicate (31a), as in the unmarked construction for *piacere*-class verbs (31b):

(31) a. *è meglio anche per me perché* ***mi dà sempre fastidio tenerlo*** [=il microfono].
be.PRS.3SG better also for me because to.me give.PRS.3SG always annoyance.SG keep.INF.it
'It's better for me too because **it always bothers me to hold** the microphone.'
(KIParla, TOD1016)

b. ***Mi piacerebbe inserire*** *anche idee e esperienze altrui*.
to-me like.COND.3SG include.INF also idea.PL and experience.PL of.others
'I would also like (lit. **it would be pleasant to me**) to include other people's ideas and experiences.'
(CORIS, EPHEM)

However, the model did not select this level as significant, since 62,2% of these cases are attributable to the sole *dare fastidio* 'give annoyance'. Instead, the type of experiencer-argument significantly associated with LVCs is Zero, i.e., when the experiencer is not overtly expressed, nor coreferential with any element in the context (32).

(32) *Quel tipo aveva un modo di fare che* ***metteva paura***.
DEM.DIST.M.SG guy.SG have.IPFV.PST.3SG DEM.M.SG way.SG of do.INF REL put.IPFV.PRS.3SG fear.SG
'The guy had a scary way about him.' (lit. had a way of behaving that **put fear**)
(CORIS, NARRAT)

This pattern differentiates psych-LVCs from *piacere*-class verbs (Rivas, 2016), probably due to the difference in argument alignment between SVs and LVCs. We could interpret this behavior, again, as a form of complexity avoidance: if we express the experiencer as a full-PP this would make the construct more complex than the corresponding SV, given the presence of a psych-noun as the "direct object". Moreover, it seems less natural to omit the experiencer in the case of SVs, or at least some of them. For instance, the substitution of the LVC in (32) with the corresponding SV in (33) is acceptable but sounds much less natural:

(33) ?*Quel tipo aveva un modo di fare che*
DEM.DIST.M.SG guy.SG have.IPFV.PST.3SG DET.M.SG way.SG of do.INF REL
impauriva.
put.IPFV.PRS.3SG
lit. That guy had a way of behaving that **frightened**.

Examples with an unexpressed experiencer are interesting from a semantic perspective, since they convey a generic reading (34). In some cases, this may be a strategy for the speakers to background their own experience of the psych-state by attributing it potentially to the whole world, while the subject-stimulus is more foregrounded (Cuervo, 2010, 150).

(34) *I cavalli di Agropoli, erranti per strada*
DET.M.PL horse.PL of Agropoli wander.IPFV.PTCP.M.PL for street.SG
hanno paura. Ancor di più, ***fanno paura***.
have.PRS.3SG fear.SG still of more do.PRS.3PL fear.SG
'Horses in Agropoli, wandering the streets, are scared. Even more, **they are scary**.'
(CORIS, STAMPA)

Finally, we should note that our model did not select the type of subject-stimulus as a relevant factor. LVCs do select more often clausal subjects (35), or at least subjects anaphorically or cataphorically referred to clauses (36): 30,4% of the subjects in the sample for LVCs are clausal or clause-referred, compared to 12,3% for SVs.

(35) *fa impressione* // ***rileggersi il discorso*** *che* [Mussolini]
do.PRS.3SG impression.SG reread.INF DET.M.SG speech.SG REL Mussolini
fece
do.PFV.PST.3SG
'It is shocking **to reread the speech** that Mussolini gave'
(KIParla, TOD1017)

(36) *Sono un fuoriclasse.* ***Questo*** *dà fastidio*
be.PRS.1SG DET.M.SG ace.SG DEM.PROX.M.SG give.PRS.3SG annoyance.SG
in Sicilia.
in Sicily
'I am an ace. **This** bothers people in Sicily.' (CORIS, STAMPA)

The presence of clausal subjects as stimuli with LVCs is not surprising (cf., e.g., Vietri, 2017, 119-120): psych-causation is among the less prototypical forms of causation events, thus it does not necessarily entail an agentive subject (Croft, 1991, 169). However, our model factored out this predictor, since, again, it seems an effect mainly

attributable to *dare fastidio*. As noted above, along with the realization of the experiencer as a clitic (see above), the lack of agentivity of the clausal stimulus, too, makes some occurrences of *dare fastidio* very close to Belletti & Rizzi's (1988) class encompassing *piacere* 'like' and similar verbs (cfr. 31).

Summing up, the factors that influence the choice between LVCs and SVs are the following:

– text genre: LVCs tend to be preferred in dialogic, unplanned speech, while in both written genres and planned speech situations (such as broadcast speech) SVs and LVCs show a more even distribution;
– verb form: LVCs are almost always used in their finite forms, while non-finite forms are mainly expressed through SVs, especially past participles with adjectival function;
– presence of modification: the possibility to modify the noun through adjectives significantly increases the number of modified LVCs in comparison with SVs, at least in written data.

Moreover, restricting our view to causative predicates, we found that LVCs are significantly more used without an overt experiencer argument, yielding an arbitrary and sometimes generic reading of the predicate. Instead, SVs tend to select animate entities as the experiencer. However, the association holds only with 3^{rd}-person experiencers, since non-3^{rd}-person animate experiencers (i.e., the speaker and the interlocutors) tend to be selected, even if not significantly, by LVCs.

5.3 The constructional network of psych-predicates

So far, we modeled the paradigm of event types expressed through denominal psych-predicates and assessed the competition between verbs expressing the same event type, by looking at high levels (hyperconstructions) and low levels (fully specified constructions) of abstraction. We now propose a representation of the interplay of SVs and LVCs in the constructicon, to show how the constructions at different levels are actually connected.

In CxG, relations between constructions are handled through links (Section 3.2). Thus, we need as many links as the number of different relations observed between constructions. We found at least two types of relationships between psych-predicates, namely paradigmatic opposition and semantic similarity (viz., near-synonymy). However, the full picture is more complex: for instance, we need to account for the peculiar nature of causative and anticausative predicates, and to address the problem of polysemy. For this reason, we need to discuss the links we selected (Table 7).

Tab. 7: Links employed to model the relationship between psych-LVCs and SVs.

	Link	Link direction and schematicity level of cxns	Relation between cxn_1 and cxn_2
——→	*instance*	from cxn_1 to cxn_2 (cxn_1 more schematic than cxn_2)	cxn_1 is instantiated by cxn_2
←——→	*S-synonymy*	between cxn_1 and cxn_2 (same level of schematicity)	cxn_1 and cxn_2 are near-synonyms
←═══→	*paradigmatic*	between cxn_1 and cxn_2 (same level of schematicity)	cxn_1 and cxn_2 are in paradigmatic opposition
——●	*subpart*	from cxn_1 to cxn_2 (same level of schematicity)	cxn_2 is a subpart of cxn_1
·····→	*metaphorical*	from cxn_1 to cxn_2 (same level of schematicity)	cxn_2 is a metaphorical extension of cxn_1
———	*filler-slot*	from cxn_1 to $slot_2$ (cxn_1 less schematic than cxn_2)	cxn_1 fills an empty slot in cxn_2

We already presented (and employed) horizontal links: this term is used in the literature to refer both to contrast and synonymy relations between constructions. Even though there is indeed a continuum between paradigmatic contrast and semantic similarity – since we assume no (full) synonymy, or no equivalence, and thus some degree of contrast between semantically similar constructions – it's useful to distinguish the so-called horizontal links into (i) paradigmatic links (Van de Velde, 2014) and (ii) S-synonymy links (Goldberg, 1995).

The former type describes a relation between non-synonymous constructions that split a common semantic domain, and thus are suited to connect cells in a paradigm. The latter type, instead, connects constructions that are truth-semantically equivalent, but not necessarily similar from the pragmatic point of view (similarly to allostructional links, cf. Section 3.2). We chose S-synonymy over the (more commonly used) allostructional links, since allostructions are generally intended to be formal variants of a more general, formally underspecified construction (Cappelle, 2006; Perek, 2015). In our case, we are dealing with an 'alternation' that straddles the boundaries of morphology and syntax, thus making it difficult (and ad-hoc) to posit a common mother construction. Paradigmatic and S-synonymy links share some features: they connect constructions at the same level of abstraction, and are bidirectional, since constructions stand in the same relation with each other.

In Figure 8, we can see that paradigmatic links connect the constructions belonging to different cells of our paradigm. To avoid confusion in the visualization, we only connected the cells of the paradigm (the hyperconstructions), but in fact these links connect each construction in a cell with each of the constructions in an-

other cells, as shown in Figure 9. Instead, S-synonymy links connect constructions belonging to the same cell (cf. Figure 8 and Figure 9).

In Figure 8, we also find vertical links connecting the various semi-specified schemas for LVCs with a (mother) schematic psych-LVC construction (V N_{psych}).[22] This schematic construction is generalized over the semi-specified LVCs by virtue of their common formal and functional features. We posited its existence since psych-LVCs represent a class of LVCs with their own behavior, which differentiates them from other LVCs. Furthermore, instance links connect semi-specified constructions with the corresponding fully specified ones, e.g. *fare* N_{psych} with *fare paura*.

Within this general picture, we also have to account for the peculiarity of the anticausative alternation. Causative and (mainly) inchoative SVs are not only connected by paradigmatic links, but they share most of their form, since anticausatives are formed by adding *si* to their causative counterparts. We argue that this formal similarity can be expressed by subpart links. Subpart links were proposed by Goldberg (1995) to formalize cases in which a construction is formally included in another construction, and they have been later defined as "horizontal links" since they connect constructions at the same level of abstraction (Hilpert and Diessel, 2017, 60). We posit a double link between causatives and anticausative SVs, one (paradigmatic, as between all the other constructions in paradigmatic constrast) accounting for semantic relatedness and the other (the subpart link) accounting for their formal relatedness. In this way, we motivate the stronger transparency of their relation in our paradigm with respect to the other paradigmatic contrasts.

For graphical reasons, we did not include lower-level constructions in Figure 8. Nonetheless, our proposal also accounts for fully specified constructions, which are created through filler-slot relations (Diessel, 2019). This kind of link connects a construction (often a lexical element) with empty slots in (semi-)schematic constructions, based on the slots' constraints (in our case, the filler must be a noun expressing a psych-state). In Figure 10, we show filler-slot relations at work with *fare* N and *mettere* N, with the line weight showing the strength of association between a slot and a filler.

22 In order to keep the visualization of the network clear, we only included Verb + Noun light verb constructions in Figure 8. Nonetheless, in our dataset we found two Verb + Prep + Noun patterns too (*essere in* N and *andare in* N), which behave in the same way as the other constructions as far as horizontal links are concerned. The only relevant difference from other LVCs is that they are vertically linked to a schematic V Prep N construction. Since we only concentrated on two, relatively infrequent constructions motivated by this schema, we kept such schematic construction aside in the visualization of the network. Moreover, we hope that future studies will address the actual productivity (and thus the degree of entrenchment) of such schematic construction in the expression of psychological events.

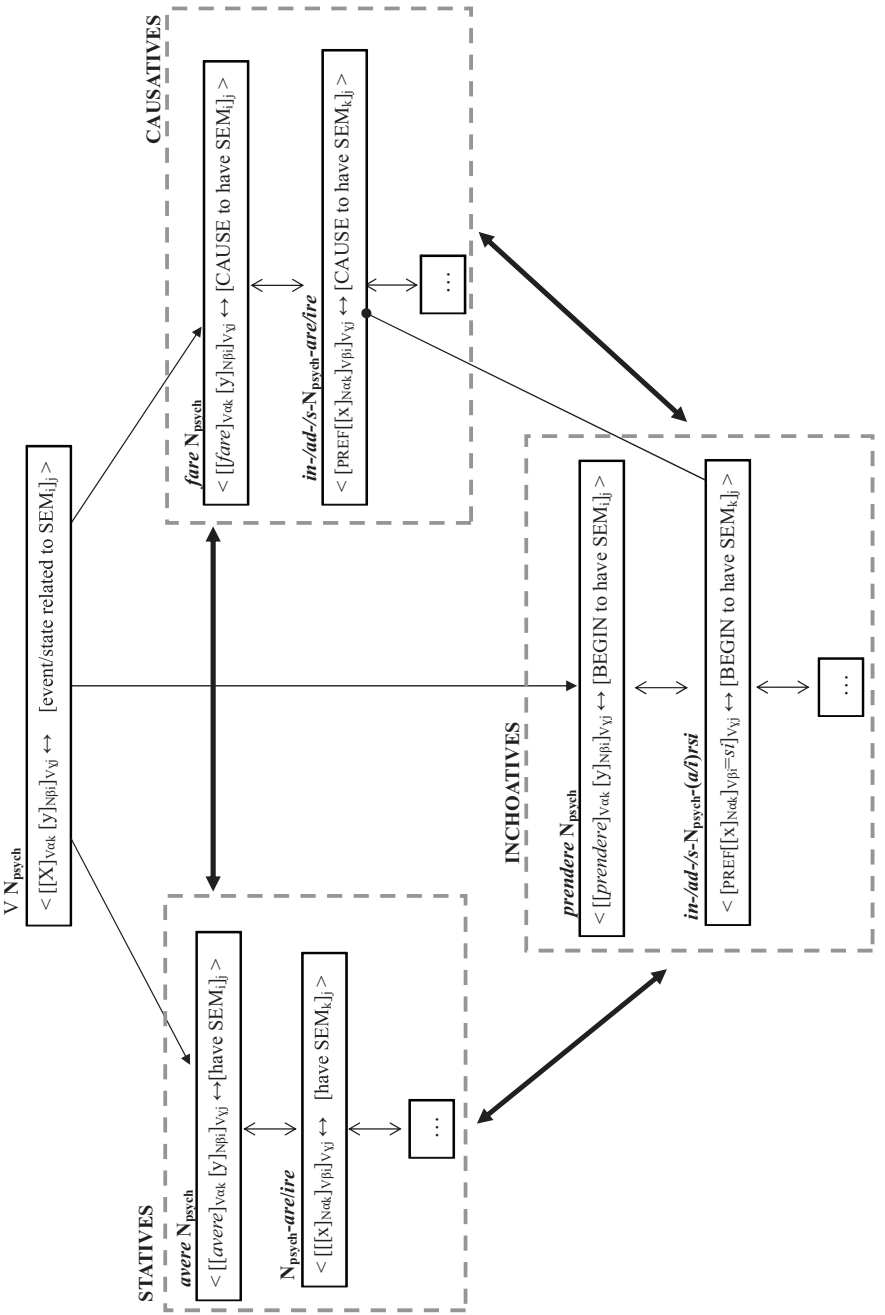


Fig. 8: The constructional network of psych-predicates.

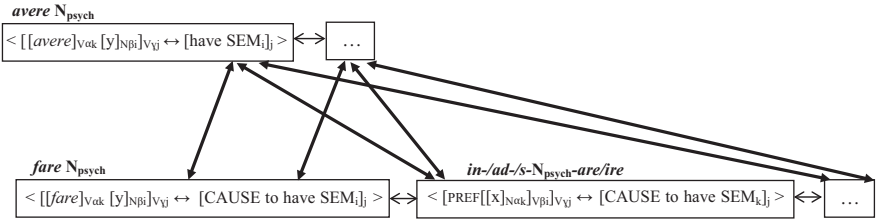


Fig. 9: Relations of similarity and paradigmatic opposition between semi-schematic stative and causative psych-predicates.

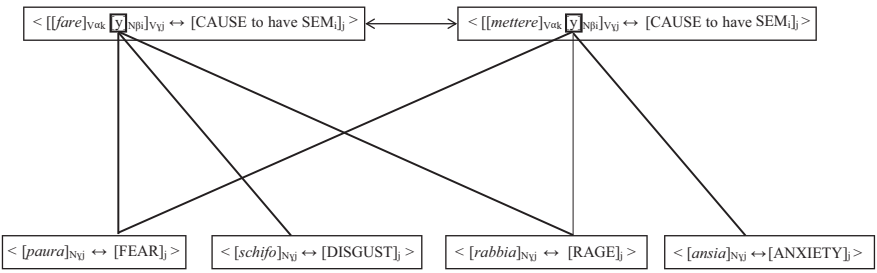


Fig. 10: Filler-slot relations between psych-nouns and *fare*- vs *mettere*-LVCs.

In Figure 11 we provide the local network for all fully specified predicates formed with the noun *paura*. As we can see, the horizontal links we posited are valid at different levels of schematicity. We also included a metaphorical link (a particular case of polysemic link, cf. Goldberg, 1995), which associates two formally identical constructions, namely the predicate *fare paura* 'frighten', expressing a basic sense, and its extended sense (*fare paura* as 'amaze').

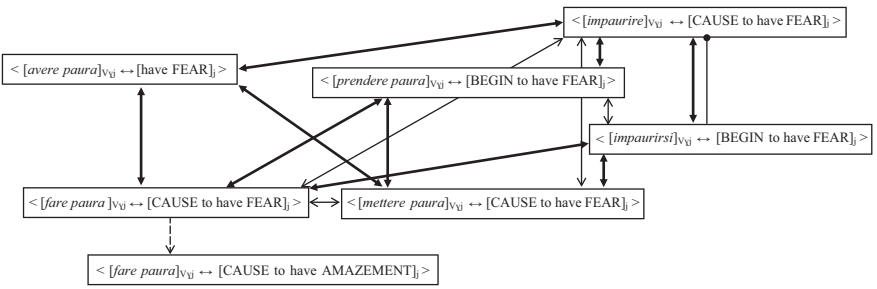


Fig. 11: Local network of fully-specified predicates formed with *paura* 'fear'.

6 Conclusion

In this paper we tried to unravel the competition between LVCs and SVs by taking noun-based psych predicates in Italian as a case study. The relationship between psych-SVs and psych-LVCs is rather complex and little investigated, since competition studies normally consider rival entities belonging to the same structural level (e.g., affix vs. affix, periphrasis vs. periphrasis, etc.). By assuming a constructionist view of language, which lacks a divide between morphology and syntax, 'analytic vs. synthetic' competition is not only possible but also an expected situation which deserves to be investigated.

We devised a methodology to tackle with this type of competition that involves quantitative analysis based on corpus data and statistical modelling. This double methodology allowed us to unveil some tendencies that contribute to regulate the distribution between psych LVCs and SVs, and therefore possibly their selection by speakers.

Overall, SVs are much more frequent, so their higher entrenchment is likely to influence the creation of new psych predicates.

At the pattern level, we found that LVCs are the preferred strategy to convey stative psych predicates, whereas inchoatives tend to be expressed by SVs (especially through *-si* verbs). Causatives are the actual battlefield, where the competition between LVCs and SVs is most active. Within causatives, the semantics of the nominal base seems to play some role, as well as its sentiment polarity.

At the level of specific lexical items, we found that the selection of LVCs vs. SVs is motivated by some usage and contextual factors: spontaneous speech definitely favors LVCs, whereas text genres with a higher level of planning, like written texts or planned speech, display a more even distribution. Modification was found to be a minor factor, playing a key role only in those texts where competition is higher, namely written texts, but not spoken texts. Quite unexpectedly, the most relevant factor turned out to be the finite vs. non-finite form of verbs. Whereas SVs are found in both forms, with a varied distribution, LVCs are strongly associated to finite forms: their occurrence appears to be disfavored within periphrases or implicit subordinate clauses, hinting at processing cost as a possible factor at play. Complexity avoidance might also be the reason why LVCs tend not to express the experiencer as a full PP, often yielding a generic reading.

Given these findings, we developed a theoretical proposal in terms of constructional network that accounts for the facts and, at the same time, might contribute to advancing our understanding of links between constructions (especially horizontal ones) and of the role of derivational paradigms within CxG.

Indeed, we regarded the triple 'stative / inchoative / causative' as a derivational paradigm where each event type corresponds to a cell, and where each cell may be filled by different strategies (SVs and LVCs). These cells are claimed to be connected by paradigmatic links, namely horizontal links between constructions at the same level of schematicity that are in some sort of paradigmatic opposition.

Paradigmatic links are, however, only part of the picture, which also includes S-synonymy links, for connecting (near-synonymous, although not fully equivalent) constructions within the same cell, as well as filler-slot relations and links of various sorts (e.g., subpart, metaphorical). Therefore, in order to provide a faithful representation of the intricate relationship between synthetic and analytic predicates, multiple links are necessary that apply at different points of the network. Our results therefore speak in favor of a highly refined network with both vertical and horizontal links of various types that encode different kinds of relationships at different levels of abstraction.

Still much remains to be done. On the one hand, the methodology proposed for this case-study could be tested for other domains, beyond psych predicates, to verify if the many factors at play are recurring and can therefore be generalized. On the other hand, further evidence could be gathered from experiments aimed at testing the tendencies we identified.

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Data Availability Statement

The datasets analyzed in the current study are available in the OSF repository: https://doi.org/10.17605/OSF.IO/QHEJ3.

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