Constructional Creativity in a Romance Language: Valency Coercion in Italian

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The present contribution summarizes findings on the understudied area of Italian valency coercion – i. e. the interaction of verbs and argument structure constructions in novel and creative ways – from four different studies. It highlights their innovative character, theoretical significance, and crosslinguistic implications for Construction Grammar. The paper suggests that valency coercion resolution involve different phenomena, such as distributional properties of constructions and compatibility between verb and construction. Sociolinguistic factors such as age and diatopic variables are also suggested to be relevant.

Keywords: Construction Grammar; Italian; coercion; experimental linguistics

1 Introduction

Humans use language creatively but not arbitrarily, following language-specific flexibility constraints. For instance, any English speaker will understand a sentence like (a) *she sneezed the napkin off the table*. However, a sentence like (b) ?*she thought the napkin off the table* is much harder to comprehend. That is, constructional and lexical semantics can 'clash' with each other (e.g., an intransitive verb in a transitive argument structure construction), but only to a certain extent. The incongruence is resolved by 'coercing' the mismatching element into a novel meaning more in line with constructional semantics. In the example above (Goldberg 1995, 156), the Caused Motion Construction contributes the abstract meaning of 'someone causes the napkin to move'. This phenomenon – or rather this family of related phenomena – is called *coercion* (Lauwers and

Willems 2011). Particularly, the mismatch of a verb occurring into an argument structure construction (ASC) is referred to as *valency or constructional coercion.*[1]

Peculiarities in verbs and ASCs combination have been studied for several decades, particularly in the domain of lexical semantics (de Swart 1998), and Generative Lexicon theory (Pustejovsky 2011). Construction Grammar (CxG) has used coercion as a pivotal argument corroborating the need for independent constructions (Boas 2011). However, despite the crucial role of coercion phenomena in CxG, not many languages other than English have been investigated (for notable exceptions, see Fried and Östman 2004; Boas and Gonzálvez-García 2014; Perek and Hilpert 2014). This is problematic if CxG aspires to have crosslinguistic validity, as English is renowned for its language flexibility (Levin 1993; Michaelis 2004). Crucially, there are no studies on valency coercion in Italian – to the best of the author's knowledge.

1.1 Valency coercion in English and Italian

Since not all creative combinations are acceptable (as *?she thought the napkin off the table*), language is said to display a *partial productivity,* which constraint overgeneralizations (Suttle and Goldberg, 2011; Goldberg, 2019). Verb and general construction should effortlessly combine for a novel combination to be sensical. We claim that a novel coinage is sensically coerced when its main verb is *partially compatible* with constructional semantics (Yoon 2016, 2019; Goldberg 2006, 2019; Busso, Perek, and Lenci in press).[2] As compatibility is gradient, a range of intermediately compatible structures are found in language. For instance, sentence (c) *She pushed the napkin off the table* perfectly aligns with Caused Motion constructional semantics, as the verb *push* denotes an event of 'moving an object by means of pushing'. Instead, in example (b) above, the verb *think* is incompatible with the construction, as it does not entail any motion or direction. In between these two poles of compatibility, a sentence such as (a) above can be found, where the semantic

[1] Other types of coercion are *nominal coercion* ('You have apple on your shirt') and *aspectual* coercion ('I'm believing you').
[2] Two linguistic components are compatible if the semantic properties of the filler verb at least partially fit those of the construction (Yoon 2019).

specifications of *sneeze* are partially compatible with a motion event. Hence, the conventional meaning of the ASC successfully provides the general caused motion interpretation of the sentence, and the main verb specifies the manner of the movement.

As was mentioned earlier, English ASCs are extremely flexible, and we could envisage a highly specific context for (b) to be used felicitously. Other languages – such as Romance languages – are however less flexible. A typological distinction along these lines has been proposed in the literature: Germanic languages are said to be more *constructionally tolerant* – i.e. flexible in combining constructions and lexical items in creative ways – and Romance languages *valency-driven* – i.e. imposing stricter constraints on novel coinages (Perek and Hilpert 2014).

Yet, Italian is rather atypical in the context of Romance languages, displaying hybrid characteristics between constructionally tolerant and valency-driven languages (Koch 2001). For instance, Italian has a highly productive system of Verb Particle Constructions, a typical feature of Germanic languages (Masini 2005). We can then hypothesize that this 'mixed' character could also affect Italian construction flexibility. Indeed, valency coercion coinages are found in colloquial Italian quite easily – although not as frequently as in English. They are typically used for overtly creative purposes, as in example (1), taken from a literary blog, or (2), taken from the front page of a colouring book for adults.

(1) *Tossì* *una* *risata* *leggera*
(He) coughed a laugh light
'(He) coughed a light laugh'

(2) *Coloravia* *l'* *ansia*
Colour away the anxiety
'Colour anxiety away'

In this contribution, we summarize results from recent studies conducted by the author and collaborators on different aspects of valency coercion. Particularly, preliminary findings on 'coercibility', cognitive processing, and sociolinguistic aspects will be outlined (Busso, Pannitto, and Lenci 2018; Busso, Lenci, and Perek 2020; Busso, Perek, and Lenci in press; Busso and Romagno forthcoming).

2 Experimental findings on valency coercion in Italian

2.1 Does valency coercion exist in Italian?

A first experiment in the form of an acceptability rating task on 9 Italian ASCs (Table 1) was devised to investigate whether valency coercion phenomena are recognized by native Italian speakers (Busso, Pannitto and Lenci 2018; Busso, Lenci and Perek 2020)

Constructions	**frames**
CAUSED MOTION (CM)	NPj-V-NP -PPlocation
CAUSED MOTION + via (CMvia)	NPs-V-NPobj
DATIVE (DT)	NPs-V-NPj-PPrecipient
INTRANSITIVE MOTION (IM)	NPs-V–PPlocation
PASSIVE (PASS)	NPs-V-PP
PREDICATIVE (PRED)	NPs-V–AdjPpredicate
VERBA DICENDI explicit (sentential) (VDE)	NPs-V-cheVP
VERBA DICENDI implicit (sentential) (VDI)	NP-V-diVP

Table 1: Set of constructions used

The experimental design follows Perek and Hilpert (2014) in presenting 3 different conditions: *grammatical, impossible*, and *coercion*. Grammatical stimuli are natural Italian sentences in which

verb and constructional meaning perfectly align (3). Impossible sentences are constructed with fully incompatible verbs and constructions (4). Finally, coercion stimuli display partial (in)compatibility, and result anomalous (5).

(3) *Giacomo* *ha versato* *birra* *su* *tutto* *il* *tavolo*
Giacomo spilled beer over all the table
'Giacomo spilled beer all over the table'

(4) *Giacomo* *ha bevuto* *birra* *su* *tutto* *il* *tavolo*
Giacomo drank beer over all the table
'Giacomo drank beer all over the table'

(5) *Giacomo* *ha tossito* *birra* *su* *tutto* *il* *tavolo*
Giacomo coughed beer over all the table
'Giacomo coughed beer all over the table'

The dataset, composed of 189 stimuli, was presented to 120 Italian native speakers of three age groups: adolescents (12-14 years old), young adults (18-39 years old), adults (over 40 years old). The variable of level of education was controlled for. The data was statistically analysed with mixed effect modelling (Kuznetsova, Brockhoff, and Christensen 2017), with 'experimental condition', 'construction', and 'age groups' as predictors. The models performed were selected using Likelihood Ratio Tests via the *afex* R package (Singmann et al. 2018).

Results found coercion ratings at an 'intermediate' level between grammaticality and ungrammaticality. Moreover, different constructions exhibit different levels of flexibility: IM, VDE and VDI coercion stimuli were rated as significantly more acceptable than average, while CO, DT and PASS constructions received lower ratings. We interpret this finding as evidence that

naturalness of coercion resolution (a notion that we labelled 'coercibility') is highly construction-dependant. These results suggest that coercion effects are not only present in Italian but appear to (at least partially) depend on construction type. The findings for the predictor of 'age group' are discussed below (section 2.4).

2.2 How much does construction semantics matter?

Coercion is generally understood as a top-down process in which constructional meaning overrides lexical semantics (Michaelis 2004). Hence, different coercibility degrees among constructions could be explained with distributional properties of constructions themselves. In other words, speakers' sensitivity to distributional semantic features of constructions could influence the perceived naturalness of coercion instances of a given construction (Barðdal 2008; Bybee 2010; Zeschel 2012; Perek and Goldberg 2017).

We test this hypothesis in a second study (Busso, Pannitto, and Lenci 2018) in which we combine acceptability ratings from Experiment 1 (section 2.1) with a distributional semantic model (Lenci 2018) to assess the role of selected distributional properties of our nine constructions: type and token frequency, and semantic density (following Barðal 2008 and Perek 2016). The literature argues that constructional semantics emerges by abstraction and categorization of the lexical meaning of high frequency verbs that co-occur with it (Barak and Goldberg 2017). Hence, we model constructional meaning as the weighted centroid vector of its most typical verbs (Lebani and Lenci 2017). We then extracted type and token frequencies of the constructions (section 2.1) and semantic density (computed as the mean value of pairwise cosines between the verbs occurring in the given construction, following Perek 2016). The effect of distributional properties on coercibility was assessed with linear mixed modelling: type and token frequency and semantic density were used as predictors, and acceptability ratings as dependent variable.[3]

[3] Specifically, in the two models (to avoid multicollinearity between type and token frequency) the dependant variable used is the difference between experimental conditions: grammatical – coercion and coercion − impossible.

Results of the statistical analysis suggest that type and token frequency of constructions facilitate the distinction between incompatible and partially compatible formulations, whereas semantic density significantly affects coercibility (i.e. naturalness). Thus, coercion is more easily resolved if the general construction is witnessed with semantically similar verbs (i.e., if the construction has a higher semantic density). This finding aligns with what Hilpert (2015) called 'Upward Strengthening Hypothesis', according to which a novel occurrence of a linguistic unit strengthens a superior node (i.e., the general ASC) only if the former is categorized "as an instance of a more abstract construction. If this categorization is not performed, or only superficially so, no upward strengthening will take place" (Hilpert 2015, 38). This explains why higher coercibility is not affected by frequency: the 'intermediate' grammaticality level of coercion does not allow for unambiguous categorization. Coercion sentences could hence elicit a 'partial categorization', as they are not unambiguously recognized as instances of a given construction. This result is in line with the idea that coercion effects are only partially explained by constructional properties, and that top-down distributional effects need to be integrated with the bottom-up influence of verb semantics and its compatibility with the general construction (Yoon 2016, 2019).

2.3 How much does verb compatibility matter?

We have so far suggested that valency coercion coinages have intermediate acceptability, given their partial categorization as instances of an abstract construction. In a third companion study (Busso, Perek and Lenci forthcoming), we investigate the role of compatibility and lexical semantics in a priming study that employs a reaction time protocol (following Johnson and Goldberg 2013). The experimental design employs four of the nine original constructions: CM, DT, IM and VD. Coercion stimuli are used as primes, as in the examples (6-9) below.[4]

(6) *Il gatto graffia via la vernice dalle sedie.* [CM]

[4] All stimuli were rated for acceptability by native speakers prior to the experiment. Only coinages of intermediate acceptability were included. Mean acceptability ratings were further used to approximate naturalness of coinages.

The cat scratches away the paint from the chairs

'The cat scratches the paint off the chairs'

(7) *La donna sbriciola pane agli uccelli*. [DT]

The woman crumbles bread to the birds

'The woman crumbles bread to birds'

(8) *Il bambino trotterella via da scuola felice.* [IM]

The boy trots away from school happy

'The boy trots happily away from school'

(9) *Giovanni fischietta che verrà domani.* [VD]

Giovanni whistles that (he) will cometomorrow

'Giovanni whistles that he will arrive tomorrow'

As targets to these primes, we used verbs related to the construction in different ways: construction associated verbs (CA), lexical associated verbs (LA), and unrelated verbs (U) as control. CA targets are prototypical verbs for a given construction, whose lexical specifications perfectly fit the constructional meaning. LA targets are near synonyms of the main verb of the prime sentence. U verbs serve as a control condition, against which to compare the two conditions of interest. For example, target verbs for example (9) above are the three following verbs:

a. *dire* ('to say', CA)

b. *canticchiare* ('to hum', LA)

c. *invecchiare* ('to age', U).

The Experiment tests whether coercion sentences prime verbs associated with constructional or lexical meaning. That is, we test the hypothesis that successful coercion processing involves both verb and constructional semantics, and their degree of compatibility. 39 Italian participants were tested using a between-subjects design. The data was analysed with linear mixed effect models, with target type, construction, and frequency as predictors and (log) reaction times as dependent variable.

Overall findings validate our hypothesis: a strong priming effect is found for both constructional and lexical meaning, with constructional priming (CA) being stronger. This result supports our previous indirect findings that coercion resolution depends on the interaction of verbal and constructional meaning. It is also noteworthy that our results are consistent through different experiments (with different participants, and different stimuli): constructions that were rated as easily coercible in Experiment 1 (section 2.1) display faster reaction times for CA targets (i.e. have a strong constructional priming). The DT construction – one of the less flexible in Experiment 1 – is instead primed by LA targets. This suggests that less compatible coinages could have a higher effect of verb semantics, whereas natural coinages are principally coerced by the construction. We test this hypothesis with a second model with compatibility (approximated with mean acceptability rating) as a predictor. Results indicate that indeed compatibility of prime stimuli affects reaction times to target verbs: more natural coinages elicited slower reaction times for LA targets. That is, highly compatible sentences do not seem to rely on verb semantics in coercion processing. Constructional priming (i.e. on CA targets) is not affected by compatibility. In other words, we find that in coercion resolution constructional semantics is primary over lexical semantics, and it is always activated in processing. However, we also find a secondary effect of lexical priming, especially for less compatible formulations, which points to the importance of compatibility effects between fillers and constructions. These findings constitute the first evidence from Italian – to the best of the author's knowledge – on the cognitive reality of ASCs (Wonnacott 2013; Perek and Goldberg 2017).

2.4 Coercion and sociolinguistics

Usage-Based accounts of language share the basic tenet that language emerges from repeated exposure to the input, and is shaped by usage (Bybee 2010). Hence, sociolinguistics would seem like the natural 'companion' for Usage-Based accounts. However, little or no work has been done at their intersection. Thus in two experiments we also included a sociolinguistic perspective in investigating valency coercion phenomena (Busso, Lenci and Perek 2020; Busso and Romagno forthcoming). In fact, sociolinguistic analysis is essential for the complex and diversified Italian (socio)linguistic landscape, which consists of many primary dialects and of a generalized diglottic situation.[5]

With this in mind, in Experiment 1 (section 2.1) we included 'age group' as one of the predictors, as the impact of age groups (*cohorts*) on language usage is known in sociolinguistics (see, e.g., Eckert 2017). Specifically, we hypothesized that young speakers could rate coercion as more acceptable, as they tend to use language more flexibly and creatively (Buchstaller 2006). However, statistical significance is not in evidence for the coercion condition, but only for grammatical and impossible stimuli. The absence of significant differences between age groups for coercion sentences indicates that the only systematic source of significant variance for coerced coinages is due to different construction types. An interesting trend that is nonetheless found across age groups (adolescents, young adults, adults) is a v-shaped curve, reminiscent of the age-grading curve (Wagner 2012). Age grading refers to a pattern of age-specific differences in the use of vernacular and marked linguistic features, which are commonly used in adolescence, subject to societal pressure in adulthood, and resurface in use later in life.

A more central sociolinguistic perspective is taken in Busso and Romagno (forthcoming). The study investigates 4 intransitive path-encoding motion verbs, which are used colloquially in

[5] For an accurate description of the Italian sociolinguistic situation, see Cerruti (2011) and Loporcaro (2013).

caused motion constructions: *entrare, uscire, salire, scendere*, ('to enter', 'to exit', 'to climb', 'to descend') (Ricca 1993), as in examples (10-13).

(10)	*Lo*	*studente*	*ha entrato*	*la*	*bici*	*in*	*casa*
	The student		entered	the	bike	in	home
	'The student entered the bike home.						

(11)	*Lo*	*studente*	*ha uscito*	*la*	*bici*	*da*	*casa*
	The student		exited	the	bike	from	home
	'The student removed the bike from home'						

(12)	*La*	*ragazza*	*ha salito*	*i*	*bagagli*	*sul*	*treno*
	The girl		climbed	the	luggage	on	the train
	'The girl put the luggage on the train'						

(13)	*La*	*ragazza*	*ha sceso*	*i*	*bagagli*	*dal*	*treno*
	The girl		descended	the	luggage	from the	train
	'The girl put the luggage down from the train'						

These uses are typical of southern Italian varieties (Cerruti 2011). However, their use is gradually expanding to substandard Italian as well. We interpret this ongoing expansion as a lexicalization process of valency coercion effects: not only are the intransitive motion verbs partially compatible with Caused Motion constructions, but also these structures are grammatical in a number of southern dialects, and are directly transferred from L1 (dialect) to L2 (Italian) (Ellis 2019).

The study includes two acceptability ratings tasks tested on two different groups of participants. Experiment 1 presented 118 first-year university students with Dataset 1, which

consists of 80 instances of coerced caused motion constructions balanced for object animacy. In Experiment 2, 60 speakers of different ages rated stimuli from Dataset 2 and 3, which consist respectively of 40 grammatical intransitive constructions (e.g. *La cliente è entrata nel negozio*, 'The client entered in the store') and 20 grammatical transitive constructions with *salire* and *scendere* (e.g. *Anna ha salito le scale, '*Anna climbed the stairs').

Findings from Experiment 1 reveal that speakers which have these transitivized structures in their native dialect's constructicon perceive them as more natural in standard Italian as well. Dialectal proficiency of speakers also positively affected acceptability. The fact that L1 positively or negatively affects coercion recognition is also the focal point of Perek and Hilpert (2014), which demonstrated that English native speakers used a target language (German) more flexibly than French speakers.

Furthermore, Experiment 2 shows that the acceptability of grammatical transitive structures as well (e.g. *salire le scale* 'climb the stairs') varies as a function of diatopy. Albeit perfectly standard, these constructions are rated as less acceptable by speakers of Central Italy – compared to other areas. We interpret this finding as a probable hypercorrection, as central dialectal varieties lack the investigated constructions. In other words, coercion effects of the 4 path-encoding verbs – beside intrinsic reasons such as partial compatibility – appear to be heavily influenced by sociolinguistic considerations: proficient diglot speakers of southern varieties are extending the lexicalised construction to (sub)standard language, although full productivity is still hindered by sociolinguistic stigma (as the hypercorrection finding suggests).

3 Conclusions

We have briefly reviewed some crucial findings of preliminary studies on valency coercion in Italian. Overall, these studies consistently point to a nuanced account of coercion which factors in lexical semantics, constructional semantics, and sociolinguistic features. The presented works are

innovative and bring evidence to the crosslinguistic literature on language creativity and partial productivity of constructions. Particularly since – as we saw – English seems to be an exception rather than the norm in its high flexibility. Moreover, the effect of sociolinguistic variables on productivity is scarcely acknowledged in the literature.

Findings also triangulate different methodologies, data and participants, and yet all support three major claims:

1. Partial productivity results in a partial categorization of coerced coinages (section2.2), which is also related to intermediate acceptability (section 2.1).
2. The higher or lower 'coercibility' of a construction depends on distributional variables of the construction itself (section 2.2) and compatibility between lexical and constructional meaning. Lexical meaning is particularly important for less coercible instances (§2.3).
3. Sociolinguistic factors are also found to be relevant, especially for novel coinages undergoing standardization (section 2.4), but much additional research at the intersection of sociolinguistics and CxG is needed.

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