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ARTICLE

Linguistic variation in the interpretation and production of Italian motion event constructions in younger and older adults: evidence for language change?

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Abstract

Languages vary in the way they encode motion. Following Talmy, languages can be divided into verb-framed (VF, henceforth) or satellite-framed (SF, henceforth), based on how they encode path of motion. However, this difference is not always clear-cut. Italian, for instance, is typically considered a VF language but has also been shown to display a hybrid pattern. Since variation has typically been considered a prerequisite for language change, we investigated whether variation in encoding Italian motion events could indicate incipient language change. We simulated the chain of language change adopting an apparent-time approach and investigated whether the impact of semantic properties (the manner verb's association with directional motion) on the interpretation and productions of SF Italian constructions was affected by participants' age. We found that, although this semantic property affects both the interpretation and production of SF constructions, younger participants more readily accepted SF constructions than older participants; this age difference, however, was not significant in the production task. We suggest that these findings might speak for incipient language change, which starts from comprehension and subsequently gradually influences production.

Keywords: Motion events; Linguistic variation; Language change; Apparent-time approach; Comprehension vs. production

1. Introduction

In recent decades, linguistic research has focused on how different languages encode motion events (see Beavers et al., 2010; Slobin, 2004; Talmy, 1985, 2000, among others). Even though motion events present a universal set of semantic components, such as a FIGURE moving relative to a GROUND entity along a PATH (the course followed by the figure in relation to the ground), and optional co-events such as

MANNER (the way the movement is executed by the figure) or CAUSE (the cause related to the movement), languages show variation concerning both whether and how they typically verbalize these components. Following Talmy's (1985, 2000) influential proposal, languages can be divided into verb-framed (VF, henceforth) and satellite-framed (SF, henceforth) languages. This distinction is based on how path, the 'core schema' of a motion event, is expressed in the sentence. In VF languages, like Italian, Spanish and French, path is encoded in the main verb, and manner, if expressed, is encoded in a different component, typically in subordinate PPs, adverbial expressions or gerundive elements as shown in (1). Conversely, in SF languages, such as English and German, path is encoded in the verbal periphery, through a satellite, such as a verb particle or an affix, while manner is expressed in the main verb, as presented in (2).

(1) La bottiglia entrò nella grotta (galleggiando).
The bottle entered into the cave (floating).
'The bottle floated into the cave'.

(2) The bottle floated into the cave.

More recently, different studies have provided evidence that individual languages may encode motion events both with SF and VF constructions (see Beavers et al., 2010; Croft et al., 2010; Fortis, 2010; Iacobini & Masini, 2006; Martínez Vázquez, 2015). In this context, Italian has been shown to display a hybrid pattern in expressing motion events (Fortis, 2010; Iacobini & Masini, 2006; Martínez Vázquez, 2015). While it is typically categorised as a VF language, it allows motion events to be encoded using SF constructions. The presence of (pseudo-)satellite-framed constructions is already attested in early stages of the Italian language (13th and 14th century), although their origin is still a matter of debate (Hijazo-Gascón, 2021, p. 109). One explanation proposed in the literature is that contact with Germanic languages may have played a causal role in the emergence of some of these SF innovations (e.g., Gsell, 1982). Nevertheless, most accounts favour explanations in terms of language internal mechanisms of change (e.g., Iacobini & Masini, 2006). In the present study, however, we are interested in investigating the production and interpretation of motion events in Italian in synchrony.

Although both the production of motion events in Italian (e.g., Anastasio, 2021, 2017; Bernini, 2006, 2008; Cavicchio, 2021; Spreafico & Valentini, 2010) and – to a lesser extent – their interpretation (Cardini, 2012) have been investigated in previous studies, to our knowledge, no previous study has focused on the comparison of these two domains. Moreover, given that variation has typically been considered a prerequisite for language change (Labov, 1994; Weinreich et al., 1968), our aim was to explore whether this variation in Italian motion encoding might indicate incipient language change at a synchronic level. To this end, we investigated Italian SF constructions encoding a boundary-crossing event with (i) more canonical SF constructions involving directional manner verbs, such as *correre* ('to run'), as well as (ii) less canonical ones involving non-directional manner verbs, such as *ballare* ('to dance'). The first type (i) is already attested in Italian, as we will present in the following section, while the latter (ii) would constitute an innovative use/interpretation of such constructions potentially providing evidence of incipient language change. Moreover, we simulated the chain of language change by: (i) using an

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apparent-time approach (Bailey et al., 1991; Labov, 1994), and (ii) testing both the interpretation and the production of these constructions. Regarding (i), we examined whether speakers' age (younger versus older adults) could predict variation in the acceptance and/or production of SF constructions, potentially providing evidence for incipient language change at a synchronic level. As for (ii), we investigated whether there are discrepancies in the use versus the interpretation of SF constructions. This enabled us to test how language variation is manifested across different language modalities.

2. Theoretical background

2.1 Motion event constructions in Italian

VF languages may use a manner verb as the main verb in a path expression (i.e., an SF construction) only when the figure is not undergoing a change of state; therefore, no boundary crossing (BC, henceforth) event such as entering, exiting or crossing is implied, as in (3) (Slobin, 1997, 2004; Slobin & Hoiting, 1994).

(3) La palla rotola giù dalla montagna.
'The ball rolls down the mountain'.

To express manner in BC events, a subordinate construction is typically necessary in VF languages, as seen in (1). Notably, the unavailability of SF constructions with manner verbs in BC events in Italian as well as other languages has been suggested to be linked to the status of prepositions. Italian simple prepositions are inherently linked to a locative interpretation, since they do not provide a complex directional or telic structure (Folli & Ramchand, 2005, among others). Therefore, Italian prepositions lack the inherent directionality required to convey path of motion in BC events (e.g., 'entering') when manner is integrated into the main verb, as in example (4).

(4) L'uomo balla dentro la stanza.
'The man dances in/*into the room'.

In (4), the preposition *dentro* ('in') can only have a locative reading, whereby the man dances inside the room.

Notwithstanding this last point, different studies have proposed that motion events can be interpreted as denoting direction and even BC when using particular manner verbs in combination with PPs, as is shown in (5) (Aske, 1989; Cardini, 2012; Folli & Ramchand, 2005).

(5) L'uomo corre dentro l'edificio.
'The man runs into thebuilding'

Folli and Ramchand (2005) propose that this is due to the fact that only specific manner verbs allow resultative projections which license a telic reading. They suggest that Italian manner verbs associated with directional motion such as *correre* ('to run') should allow for a BC interpretation when combined, for instance, with a simple PP (example (6)), while manner verbs that are not associated with directional motion such as *camminare* ('to walk') should not (example (7)).

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(6) Il gatto è corso dentro la stanza.
The cat is run$_{PAST}$ into the room.
'The cat has run into the room'.

(7) *Il gatto è camminato fuori dalla stanza.
The cat is walk$_{PAST}$ out of the room.
'The cat has walked out of the room'.

The idea that the availability of SF constructions expressing a BC is linked to properties of the verb is shared by other scholars. According to Cardini (2012), for instance, this phenomenon is particularly conspicuous with manner verbs that are associated with directional motion, that is manner verbs which are typically associated with motion along a specific spatial axis (e.g., *lanciarsi*, 'launch oneself') and therefore, based on our world knowledge, are likely to be associated with a change of location (Lewandowski & Mateu, 2020). In Aske's (1989) work on Spanish, it is claimed that both intransitive (e.g., *correr*, 'to run') and transitive/causative (e.g., *empujar*, 'to push') verbs which strongly imply motion tend to promote the production of SF constructions more frequently than verbs with a higher degree of manner saliency, such as *cojear* ('to limp') if the end point is not explicitly mentioned but inferred from the context. Notably, not all verbs are univocally classified as belonging to one of these categories. For instance, the verb *nuotare* ('to swim') is considered a non-directional manner verb by Folli and Ramchand (2005) and Cardini (2012), but its Spanish counterpart (*nadar*) is considered directional by Aske (1989).

In this context, Cardini categorises Italian manner verbs into three groups based on their selection of auxiliaries. In the present study, we will focus on two of them: (i) '*Manner verbs that can form composite tenses both with the auxiliary essere ("be") and the auxiliary avere ("have")*' and (ii) '*Manner verbs that can form composite tenses with the auxiliary avere ("have"), but not with the auxiliary essere ("to be")*' (Cardini, 2012, pp. 175–176). In the first group, we find verbs such as *correre* ('to run') or *volare* ('to fly'). These verbs can potentially encode one of two meanings: one associated with directional motion and the other with non-directional motion. The distinction between the two meanings is determined by the choice of the auxiliary. The selection of the auxiliary *essere* ('to be') results in a BC interpretation (e.g., *Il piccione è volato dentro il capannone*, 'The pigeon flew into the shed'), while the use of *avere* ('to have') results in locative reading (e.g., *Il piccione ha volato dentro il capannone*, 'The pigeon flew in the shed'). The use of the present tense leads to an ambiguous interpretation between a locative and a BC reading. Regarding the second group of verbs, Cardini proposes that they lack the capacity to convey directionality and, consequently, they are not commonly found in SF constructions. Examples of such verbs include *zoppicare* ('to limp') and *ballare* ('to dance').

It is important to note that the directionality of the manner verb is not the only relevant aspect which determines the acceptability of SF constructions expressing a BC in VF languages. Slobin (2004) argues that manner verbs that encode a high-force dynamic, that is, motion patterns which implicate high energy and typically result in punctual actions (such as 'throw oneself'), are likely to license a BC interpretation. The properties of directionality and high-force dynamic in some cases overlap (e.g., 'to run' is a directional verb with high-force dynamics), but in some other cases do not overlap (e.g., 'to slide' is a directional verb with low-force dynamics). Co-textual information and pragmatic inferences also play a role in the acceptability of SF

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constructions expressing a BC. In this regard, Iacobini and Fagard (2011) argue that grounds that are conceived of as fixed spaces (e.g., a room) are more suited to a BC reading than entities with ill-defined boundaries (e.g., a park). Moreover, the preposition used might also play a role. Prepositions which more strongly imply the attainment of a goal such as *dentro* ('into') and *fuori* ('out of') might be more likely to be interpreted as expressing a BC (Iacobini & Fagard, 2011). Other constraints could apply to the use of specific prepositions. For instance, *attraverso* ('across'), unlike its English counterpart, lacks the possibility of expressing a one-dimensional space crossing, i.e. 'undergoing motion from one side to another of something on a surface' (Cardini, 2012, p. 191) and therefore can hardly be used in these contexts. Other prepositions, for instance, *fuori* ('out of') or *via* ('away'), can assume an aspectual meaning in combination with specific manner verbs (e.g., *tirare fuori*, 'to pull out' + telic) (Iacobini & Fagard, 2011).

As illustrated above, not all SF constructions can be considered innovative to the same degree. Several theoretical studies have illustrated this point. Lewandowski and Mateu (2020) propose that the expression of BC through a satellite with a directional manner verb can be considered an extension of the VF pattern. In these instances, path is still associated with the main verb, but rather than being intrinsically encoded in the verb, it is inferred from the verb's lexical meaning and conceptual representation. In the same vein, Iacobini and Fagard (2011) argue that some exceptions to the typical VF pattern are more significant than others in determining trends of linguistic change. They claim that the dynamics of language change can be the result of change in speakers' individual behaviour and that some exceptions in language use are better cues to language change than others. Specifically, they consider the use of constructions with a manner verb and a satellite expressing a BC as significant exception to VF framing as opposed to the use of these satellites to reinforce a path verb (e.g., *uscire fuori* 'to exit out' or specifying the direction of a deictic verb (e.g., *andare fuori* 'to go out'). For these reasons, in the present study, we will only focus on constructions with a manner verb and a satellite expressing a BC as indicative of language change. Furthermore, we will investigate differences in the interpretation and production of more canonical SF constructions (with directional manner verbs as in example (5)) versus less canonical SF constructions (with non-directional manner verbs as in example (4)).

However, to the best of our knowledge, there is limited empirical evidence available concerning both the interpretation and the production of SF constructions with a BC reading in Italian. Amongst the few available empirical studies on this, Cardini (2012) tested the interpretation and the judgement of Italian native speakers on SF constructions containing a locative preposition and a manner verb with ambiguous readings (BC versus locative reading). The results showed that manner verbs falling under the (ii) category received low acceptability ratings when used in conjunction with locative prepositions to convey a change of location. Cardini's study presents evidence of the use of SF constructions in Italian, emphasising the role of the verb's semantic properties focusing on interpretation.

The objective of the present study is to close this gap in current research on Italian motion events across both production and interpretation. Specifically, we aim to contribute to the understanding of the semantic factors that constrain motion event constructions in these two modalities taking into account the possibility that this domain is undergoing incipient language change. In order to do this, we focus on three specific aspects – directionality, modality and age – and investigate their impact

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on the availability of SF constructions in Italian to shed light on what drives the frequently attested hybrid pattern. In doing so, we wish to broaden the scope of research on intra-typological variation in the domain of motion events. In the current study, we adopt Folli and Ramchand's (2005) verb classification, confirmed also by Cardini (2012), based on the distinction between manner verbs which are associated with directed motion (henceforth, directional) and those which are not (henceforth, non-directional). In addition, this study explores item-specific differences among manner verbs. We consider this investigation relevant for the following reasons: (i) as we have outlined above, the division between directional and non-directional manner verbs includes some doubtful cases (e.g., *nuotare* 'to swim'); (ii) the investigation of the behaviour of specific items which mismatch in their properties of directionality and force dynamics might shed some light on the interaction between these two factors in the acceptability and use of SF constructions with a BC reading.

2.2 The chain of language change

2.2.1 Age as a proxy for language language change

Studies adopting a sociolinguistic perspective typically focus on how innovations arise within a community, by correlating them with external factors such as age, gender, and socio-economic status. In the present study, we investigate not only to what extent innovative SF constructions are interpreted and produced by Italian speakers but also whether speakers' age could predict variation in the interpretation and production of these constructions. We use the apparent-time approach (see Bailey et al., 1991; Labov, 1994, among others) by comparing younger adults, ranging between 18 and 28 years of age, with older adults, ranging between 52 and 73 years. This comparison aims at potentially providing evidence for incipient language change as an active process that occurs synchronically in age based linguistic variation.

The apparent-time approach has been proposed to serve as a valuable empirical tool for modelling linguistic change within a synchronic perspective. This approach involves the analysis of a linguistic phenomenon across speakers of different generations within the same time period. It is suggested that such a comparison can reveal generational differences that may reflect ongoing language change (Labov, 1994, 2001). In other words, it is claimed that a linguistic form may be undergoing change if its use/acceptability shows a significant increase in younger compared to older speakers within a given speech community (Tagliamonte & D'Arcy, 2009, for an overview). In the sociolinguistic literature, apparent-time analyses have provided evidence of differences between younger and older speakers in their linguistic behaviour (see, e.g., results regarding the generational gap in the use of intensifiers in English found by Ito & Tagliamonte, 2003; Roels & Enghels, 2020; Tagliamonte, 2008, among others). These studies have highlighted that innovative constructions tend to emerge primarily among adolescents and young adults, making them significant drivers of language change (e.g., Cournane, 2017; Kerswill, 1996; Labov, 2001, 2007; Tagliamonte & D'Arcy, 2009). Processes of identity formation, which are prominent in younger speakers, have been suggested to play a crucial role in this respect: linguistic convergence enhances association with members of an in-group, while linguistic divergences establish distance from members of out-groups (e.g., Cornips, 2008; Kerswill, 1996; Tagliamonte & D'Arcy, 2009). Our aim is to investigate the interpretation and production of SF constructions with a BC interpretation

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in younger and older adults, using an apparent-time approach. This investigation has the potential to offer evidence indicating whether language variation may possibly lead to language change in motion event constructions in contemporary Italian.

2.2.2 From comprehension to production

The relationship between comprehension and production has frequently been suggested to play a crucial role in language change (Meyer et al., 2016). This relationship, influenced by adaptation and learning processes (Levelt, 2014), has been highlighted in conversational analyses, revealing that speakers in dialogue contexts tend to align their speech to their listeners' speech (Levelt & Kelter, 1982; Schenkein, 1980; Weiner & Labov, 1983). During dialogue, interlocutors must switch between comprehension and production, and they can be influenced by what they have just heard when formulating their subsequent responses. Such mechanism, namely the speakers' tendency to produce a syntactic structure that appeared in a prior stimulus, as opposed to an alternative one with an overlapping truth-conditional meaning, has been identified as structural (or syntactic) priming. Priming paradigms have generated substantial evidence indicating that speech perception influences speech production (Bock, 1986, among others). Moreover, it has been suggested that priming, due to its cumulative and persistent nature, can lead to long-term changes of the language input both at an individual but also at societal level, and therefore that priming may be a potential driver of language change (e.g., Kootstra & Muysken, 2019).

If this holds true, the comprehension of an innovative construction should precede (and feed) its production. Interestingly, the asymmetry between production and comprehension has been reported in several studies (Arechabaleta & Montrul, 2021; Czypionka & Kupisch, 2019; Lundquist et al., 2016). Lundquist et al. (2016), for instance, tested variation and change in the grammatical gender of Norwegian. Their results show that, in language change, comprehension of spoken-word recognition is affected early, whereas change in production is gradual and slower. Similar results were obtained by Czypionka and Kupisch (2019) and Arechabaleta and Montrul (2021) employing psycholinguistic methods. Czypionka and Kupisch (2019), who investigated variation in the semantics of definite articles in generic and specific contexts by administering both offline and online tasks to a group of native speakers of German, found that language variation was more prominent in the online comprehension task compared to the offline production task. Finally, Arechabaleta and Montrul (2021) provided further empirical evidence by investigating the innovative use of differential object marking in native speakers of Mexican Spanish. In particular, they employed several tasks, e.g., a reading comprehension task with eye-tracking, as well as an acceptability judgement task and different oral production tasks (oral elicitation and oral narrative). Their findings suggest that language variation and change may start with online comprehension and only subsequently spread to production.

Therefore, if linguistic innovations first surface in comprehension before they manifest in production, we would expect that the acceptability of SF constructions carrying the innovative BC interpretation would increase over time before being systematically produced by Italian speakers. By examining both the production and interpretation of SF constructions with a BC reading, we aim at gaining additional insights into this matter and, more generally, into the chain of language change.

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3. The present study

The aim of this study is to investigate the interpretation and production of SF constructions in Italian. We designed two experiments to test these two dimensions: an interpretation task and a video description task. Our primary objective is to investigate whether the directionality associated with the manner verb can affect the interpretation and/or production of Italian SF constructions with a BC reading. Furthermore, we want to examine whether speakers' age can predict variation in the acceptance and/or production of such constructions. We will explore how this analysis could potentially present evidence supporting the emergence of language change. The research questions of the present study are the following:

RQ1.1: To what extent are SF constructions with a BC reading accepted and produced in Italian?

Based on the literature (see Section 2.1), we expect SF construction with a BC reading to be accepted and produced to some extent, even if VF constructions represent the preferred option for Italian native speakers.

RQ1.2: Do manner-verb semantics (directional versus non-directional motion) modulate speakers' behaviour?

If the semantic properties of manner verbs modulate the interpretation/production of SF constructions, we expect to observe a higher acceptability/production of these constructions with manner verbs that are associated with directional motion. In contrast, for manner verbs associated with non-directional motion, we expect a lower or (absent) acceptability/production.

RQ2: Does speakers' age predict variation in the acceptance and/or production of SF constructions?

If the hybrid framing pattern in Italian is associated with ongoing language change (i.e., SF constructions expressing a BC becoming more prominent), we expect to observe a difference between younger versus older adults' production/acceptability of SF constructions. In particular, we suggest that ongoing language change could be reflected in younger speakers accepting and/or using more SF constructions. This could concern both SF constructions with manner verbs associated with directional motion, which are already present and attested in the language, but also extend to more innovative SF patterns with non-directional manner verbs. These latter constructions would constitute an innovation in that an existing Italian SF form would be accepted/used with a novel (BC rather than locative) interpretation.

RQ3: Is the acceptance/use of SF constructions with a BC reading reflected differently in interpretation versus production?

If it holds true that interpretation precedes production, we expect to find a stronger effect of age in the former task and a weaker (or null) effect in the latter one.

In the following sections, we present the two experiments along with their results.

4. Methods

4.1 Participants

Eighty-seven participants took part in the study. All participants were native speakers of Italian and were living in Northern Italy at the time of testing (in the regions of

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Piedmont, Lombardy, Veneto, Trentino, and Emilia-Romagna). We decided to test this group of speakers because SF constructions are more frequent in Northern Italian dialects, even though they can also be found in Southern dialects (e.g., Iacobini & Masini, 2009). The participants were recruited through flyers, advertisements distributed via social media and word of mouth. Participants were compensated by gift vouchers. All participants completed a questionnaire covering their socio-demographic and linguistic background. To control for the variety of Italian spoken by participants, individuals who were born in Central and Southern Italy and had lived in Northern Italy for less than 26 years were excluded from the analysis. Participants who had been abroad within a year before or during the testing session were also excluded, as were those who could determine the aim of the experiment and articulate it using linguistic terms during the debriefing session. All participants took part in the interpretation task. A subset of the participants also took part in the production task, which took place at least two weeks after the interpretation task. Due to dropout, only 75 participants from the original sample took part in the production task.

Based on the exclusion criteria mentioned above, 10 participants were excluded. As a result, 77 participants were included in the analysis for the interpretation task (43 older adults: 21 female, 22 male, age range: 52–73, mean age: 65.1, age *SD*: 4.8; 34 young adults: 22 female, 12 male, age range: 18–28, mean age: 22.1, age *SD*: 2.8) and 65 in the analysis of the production task (35 older adults: 17 female and 18 male, age range: 57–72, mean age: 65.3, age *SD*: 4.3; 30 younger adults: 20 female, 10 male, age range: 19–28, mean age: 22.1, age *SD*: 3.0). Participants varied in the proficiency level in foreign SF languages they reported and in the use of the dialect of their region. Given that L2-to-L1 cross-linguistic influence in motion event expression has been reported in previous studies (e.g., Brown & Gullberg, 2011), we included the variables related to proficiency and use of SF languages as well as dialects as controls in the statistical models. Since these variables might influence participants' use/interpretation of SF constructions, we included these variables to make sure that these factors did not confound the effects of our predictors of interest (age group and directionality). More detailed information on how scores for these factors were calculated can be found below. Information concerning their distribution can be found in Appendix 1 Supplementary Materials.

4.2 Materials

4.2.1 Background questionnaire

Information about participants' socio-demographic and linguistic profile was collected via a background questionnaire. Participants were asked to self-rate their proficiency in the foreign SF languages they knew and to report how well they comprehended and how often they spoke the dialect of their region. Based on this information, we derived an index of proficiency in foreign SF languages and an index of dialect use. For additional information on how these scores were calculated and their distribution, see Appendix 1 of the Supplementary Materials.

4.2.2 Interpretation task

Thirty experimental sentences consisting of SF voluntary motion event constructions were created.[1] In each sentence, the main verb was a manner verb, and the path of

[1]The original design included an additional 15 caused motion items, which are not considered in the present paper.

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Table 1. Manner selected according to directionality (directional versus non-directional)

Directionality	Manners
Directional	*correre* ('run'), *volare* ('fly'), *scivolare* ('slide'), *gattonare* ('crawl'), *saltellare* ('skip')
Non-directional	*ballare* ('dance'), *zoppicare* ('limp'), *pattinare* ('skate'), *sciare* ('ski'), *nuotare* ('swim')

motion was expressed in a satellite (e.g., *L'uomo corre dentro la stanza*, 'The man runs in(to) the room'). These sentences are particularly interesting because they have two possible interpretations: a BC reading (entering while running) as well as a locative reading (running inside the room). We manipulated the directionality of the manner verb such that the stimuli presented either a directional manner verb, see (8), or a non-directional manner verb, see (9). We selected five verbs for each of these categories. Our categorisation was based on the specific syntactic properties (auxiliary selection, see section 2.1) of these verbs and previous semantic classifications (see Folli & Ramchand, 2005, p. 13; Cardini, 2012). The selected manner verbs for each category are summarised in Table 1. These 10 selected manner verbs were systematically crossed with three PPs that are ambiguous between a locative and BC reading: *in* ('inside/into'), *fuori* ('outside/out of') and *dall'altra parte di* ('on the other side of/to the other side of'). The experimental items were distributed across three lists so that each participant read the five selected manner verbs for each directionality condition only once. The lists contained an equal number of the three selected ambiguous PPs (five sentences for each ambiguous PP). The sentences were all in the simple present as other tenses can bias speakers towards a BC or non-BC interpretation (see Section 2.1). We used nine unambiguous VF motion event constructions as controls, exemplified in (10). See Appendix 2 of the Supplementary Materials for the list of the experimental items used in the experiment.

(8) La ragazza corre fuori dal supermercato. *Directional*
'The girl runs outside/out of the supermarket'.

(9) Il bambino zoppica dall'altra parte della strada. *Non-directional*
'The boy limps on the other side/to the other side of the street'.

(10) Il ragazzo entra nella palestra pattinando. *Control*
'The boy enters the gym skating'.

As for the filler items, we adapted materials used in Torregrossa et al. (2020), which consisted of complex clauses with temporal subordinates in which the subject of the subordinate clause is either expressed by a null or overt pronoun. We decided to include such fillers because the referent of the pronoun was occasionally ambiguous, similar to the experimental items, as exemplified in (11). Half of the rated sentences were fillers and the other half were experimental items.

(11) Il prete saluta il turista, mentre lui va in bicicletta.
'The priest is greeting the tourist, while he is cycling'.

The design and data presented in this study both for the interpretation and production task are openly available on the OSF platform at https://osf.io/n98e6/?view_only=cc02b3b055c245c2a7eb1aad34a4ff94.

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4.2.3 Production task

The stimuli consisted of 30 short (3–6 seconds) black-and-white animated cartoons depicting various characters carrying out different motion events, all involving a change of state.[1] Specifically, the videos depicted BC motion events associated with entering, exiting or crossing actions (see Appendix 3 of the Supplementary Materials for examples of the design of the videos). As in the interpretation task, we manipulated the directionality of the manner presented in the videos (directional versus non-directional), as shown in Table 1.

The 10 manners were systematically crossed with three paths followed by the agent. All events portrayed in the videos involved a clear BC (into, out of and across various ground referents). The direction of motion (left to right and right to left) was counterbalanced as was the gender of the agent (female and male). In addition to the experimental items, an equal number of filler items were created. They consisted in black-and-white animated cartoons that showed either a transitive or ditransitive event (e.g., 'a ball hitting a wall', 'a boy giving a book to a woman'). Appendix 4 of Supplementary Materials provides a list of the experimental items.

4.3 Procedure

4.3.1 Interpretation task

The experiment was conducted online via the platform Gorilla (www.gorilla.sc). Participants were instructed to read the sentence appearing on their screen and to then press the space bar. They would then see a question displayed below the sentence they had just read. In the experimental trials, the question targeted the BC interpretation of the SF construction, as in (12).

(12) Experimental item:
Il ragazzo corre dall'altra parte della strada.
'The boy runs on/to the other side of the street'.
Question:
Secondo te, la frase dice che il ragazzo attraversa la strada?
'In your opinion, does the sentence say that the boy crosses the street?'

Participants were instructed to answer the question using a 5-point Likert scale. The lower end of the scale was labelled *impossibile* ('impossible') and the upper end *è l'unico significato possibile* ('it is the only possible meaning'), the intermediate values of the scale were numbered ('2', '3' and '4'). Participants saw four practice trials to familiarise themselves with the procedure. After completing one and two-thirds of trials, respectively, participants took a short break in which they had to complete two unrelated non-linguistic distractor tasks (lasting about 5–10 minutes each).

4.3.2 Production task

The participants were tested individually online via a video call. The experiment was run in OpenSesame (version 3.3.14) (Mathôt et al., 2012) on the experimenter's laptop whose screen was shared during the video call. The participants were instructed to watch the short videos and to briefly describe them by answering the question 'what is the character doing?' (*cosa fa il personaggio?*). Instructions and the eliciting question were provided in the simple present tense. To disguise the aim of

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the experiment, participants were also asked to answer memory questions relating to the videos (e.g., *Che personaggio hai visto nel penultimo video?*, 'What character have you seen in the second to last video?', option 1: *un motociclista*, 'a motorcyclist', option 2: *un ciclista*, 'a cyclist'). The order of the videos was pseudo-randomised such that the participants always watched one filler item followed by an experimental item. After each pair of videos, a memory question was displayed. Roughly half of the questions referred to the filler items and half of the questions to the experimental items, and they focused on either the agent, object or background (but never on the ground referents, which represented the boundary in the motion event items) displayed in the videos. The videos were divided into three blocks. In each block the same manner of motion was displayed only once and after each block participants were asked if they wanted to take a short break. The order of the blocks was randomised as was the order of experimental items within each block. The experiment started with six practice trials. After completing the experiment, participants were asked some debriefing questions to test whether they had understood the aim of the task. The experiment took about 30 minutes. All sentences were recorded, transcribed and coded by trained native speakers of Italian. This procedure was partially automatised. A Python (Python Software Foundation, n.d.; http://www.python.org) script was developed to automatically code the produced sentences for several structural and semantic aspects using regular expressions. All automatised output was checked and corrected by native speakers of Italian.

5. Statistical analysis

We analysed the data of the interpretation task using R (version 4.3.0, R Core Team, 2023) through a cumulative link mixed model using the 'ordinal' package (version 2022.11–16, Christensen, 2012) since the dependent variable was a rating scale (see also Regulez & Montrul, 2023 for a similar analysis of Likert scale ratings). To check for robustness of the results, we also ran an LMM (function lmer package lme4 version 1.1-34; Bates et al., 2015). The results were the same as in the CLMM (see Appendix 5 of the Supplementary Materials).

The data of the production task was analysed using a generalized linear mixed-effects model (package lme4 version 1.1-34; Bates et al., 2015) since the dependent variable was binary (VF = 0; SF = 1). Given that this paper aims at analysing the effect of specific semantic features of manner verbs on the production of SF constructions, we included in the analysis only sentences that expressed both path (as core component of motion) and manner of motion. This resulted in the exclusion of 45% (n = 1328) of produced utterances (n = 2924).[2] Furthermore, to enable comparability with the interpretation task, we also excluded from the analysis all SF constructions that did not conform to the syntactic structure of the stimuli presented in the interpretation task (i.e., a manner verb coupled with a path PP). This resulted in the exclusion of SF constructions expressing path in a gerund (13) or other subordinate clauses (14) (89 utterances, representing 4% of data).

[2]Among the excluded sentences were sentences in which only path was encoded (n = 634), sentences in which only manner was encoded (n = 141), double framing constructions (n = 84), coordinate clauses (n = 57), SF constructions not expressing a BC (n = 161) and other (n = 251).

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(13) Un uomo saltella attraversando la strada.
'A man is jumping crossing the street'.

(14) Una persona che sta ballando mentre esce da una casa.
'A person who is dancing while he/she is exiting from a house'.

Both analyses started with a maximal model including the predictors of interest (directionality of the manner verb and age) and their interaction. The interaction was included in the model to test whether the two age groups behaved differently in the interpretation of more versus less innovative structures. We considered that if there is ongoing change, younger speakers might use/accept more innovative SF constructions with non-directional manner verbs, but they might not differ from older speakers in the use/acceptance of more well-established SF constructions with directional manner verbs. We added index of dialect use, index of proficiency in foreign SF languages, and path of motion as controls to make sure these factors did not confound the effects of our predictors of interest. These variables, except for 'path of motion', were treated as numerical and their values were centred prior to the analysis. To account for the fact that individual participants or items could vary to the extent they allow/accept SF constructions with a BC reading, we included random intercepts for participants and items in the model. We also included a by-participant random slope for the within-participants predictor of interest (directionality), and a by-item random slope for the within-item predictor of interest (age). By specifying these random slopes, we account for the fact that the effect of directionality might vary across participants and that the two generations tested might vary in the extent to which they accept/produce SF constructions when exposed to the same item.

In both analyses, the categorical variable 'age' was sum-coded to have a mean of 0 and a range of 1 (older adults, −0.5, versus younger adults, +0.5). The variable 'directionality' was also sum-coded (non-directional manner verbs, −0.5 versus directional manner verbs, +0.5). Successive differences contrast coding (Gries, 2021, p. 274) was applied to the categorical variables of 'path' (package MASS version 7.3, Venables & Ripley, 2002). This contrast was applied in order to compare the level in which SF constructions were accepted/used the least and the two remaining levels of the variables of interest. A descriptive analysis of the data showed that both the mean rating assigned to SF construction ($M = 2.7$) and the proportion of SF produced was lowest in the 'across' condition (20 SF produced, 7% of the utterances produced in this condition).

Before running the model, the possibility of the presence of a high correlation between the independent variables that were not controlled for by the design was investigated, to avoid possible multicollinearity issues. In both data sets, the correlations were moderate; hence, all variables were included in the model (see Appendix 6 of Supplementary Materials).

The full model concerning the data of the interpretation task showed a perfect correlation between the random slope for age and the random intercept for item (−1.00). This random slope was removed to have a more parsimonious random effects structure that most suitably describes the data of the factorial experiment (following Matuschek et al., 2017). A model comparison using ANOVA showed that the simplification of the random structure did not lead to a significantly worse model

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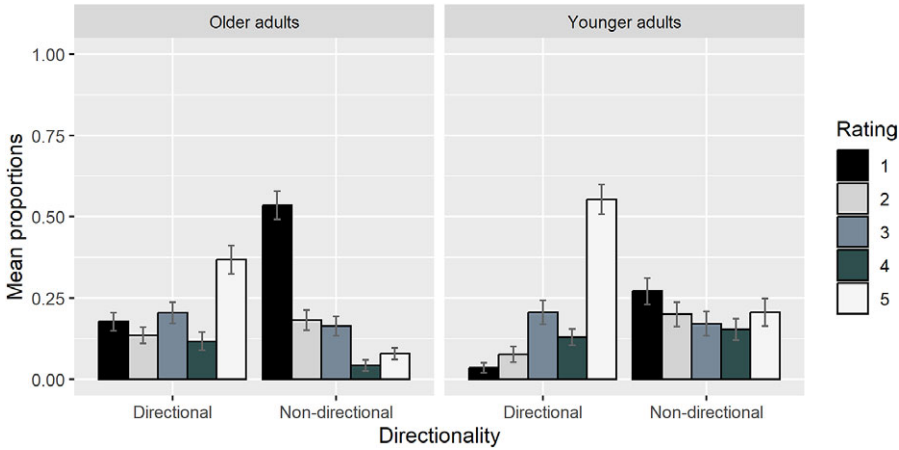

Figure 1. Proportions of each rating (1–5) and standard errors associated with the acceptance of the BC interpretation of motion events with directional and non-directional manner verbs in older and younger adults.

(p = .79).[3] The full model concerning the data of the production task showed a singularity warning. We removed random slopes, starting with those showing the highest correlation with the random intercept and accounting for the least variance. The converging model contained random intercepts for participants and items.[4]

6. Results

6.1 Interpretation task

Figure 1 presents the proportions for each rating as a function of directionality and age.[5] We see that younger adults provided higher ratings for SF constructions (higher proportions of 1-ratings and lower proportions of 5-ratings) than older adults in both directionality conditions, suggesting that they were more accepting of innovative SF constructions. To analyse the effect size, we calculated the difference in percentage of the 1-ratings given by older and younger adults, which amounts to 20%. Moreover, we see that in both age groups, directional SF constructions showed higher ratings compared to non-directional SF, suggesting that the directionality of the manner verb affected speakers' ratings. To analyse the effect size, we calculated the difference in percentage of the 1-ratings given to directional and non-directional manner, which amounts to 30%. The results of the statistical model, presented in Table 2[6], confirm

[3]The final model was: m2 = clmm(Rating ~ (Directionality *Age) + path_ME + centered_total_index_dialect + centered_fl_proficiency + (1|item_type) + (1 + Directionality|ID), data = interpretation_data).

[4]The final model was: M3 = glmer(narrow_sf_over_vf ~ (Directionality*Age) + path + centered_total_index_dialect + centered_fl_proficiency + (1 |ID) + (1 |item), data = production_data, family = binomial (link = "logit"), control = glmerControl(optimizer = 'bobyqa')).

[5]The predicted probabilities of each rating as a function of the directionality of the manner depicted and of age group were calculated using the function ggpredict of the ggeffect package (Lüdecke, 2018) and can be found in Appendix 7 of the Supplementary Materials.

[6]Parameters of the model concerning the random effects can be found in Appendix 7 of the Supplementary Materials.

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Table 2. Parameters of the cumulative linked mixed model analysis related to the association between participants' ratings and the directionality (directional versus non-directional) of the manner verb, age (younger adults versus older adults), their interaction and the control variables

	Estimate	Std. error	*z*-value	*P*-value
Directionality: non-directional versus directional	2.12	0.35	6.12	< .001***
Age: older adults versus younger adults	1.46	0.27	5.47	< .001***
Path: into versus across	−0.77	0.40	−1.91	.056
Path: out of versus across	1.15	0.41	2.84	.004**
Index of dialect use	0.15	0.12	1.22	.221
Index of proficiency in foreign SF languages	0.02	0.12	0.19	.848
Directionality × Age	−0.31	0.32	−0.96	.338

this picture revealing an effect of the directionality of the manner verb ($p < .001$) and a significant effect of age ($p < .001$). Moreover, we found an effect of path of motion, our control variable. We observe that path influenced the acceptability of SF constructions. Participants gave lower ratings when sentences expressed the path 'across' compared to 'out of' ($p = .004$). To analyse the effect size, we calculated the difference in percentage of the 1-ratings given to sentences expressing these two paths which amounts to 10%. The effects of dialect use, proficiency in a foreign SF language, and the interaction between age and directionality were not significant.

We also investigated item-specific effects. According to Taylor et al. (2023), item random effect estimates of CLMM are better suited for calculating norms from Likert scale responses than means and *SD*s, given that Likert scale ratings are ordinal and not numerical. These values represent estimates of each item's most likely deviation from the corresponding fixed effect (Taylor et al., 2023, p. 2). If the item random effect estimate of one item is greater than zero, the model estimates higher predicted log odds for the ratings given to this item than the overall shared estimate. On the contrary, if the value is below zero, the model estimates lower predicted log odds for this item then the overall estimate. In other words, high values indicate that a specific item has received higher ratings compared to the other items and lower values that it has received comparatively lower ratings. In Appendix 8 of the Supplementary Materials, we report random effects estimates per item of a simple CLMM model (with ratings as a dependent variable and participant and item random intercept using the function ranef()) as well as more traditional measures such as means and *SD*s.[7] Figure 2 visualises the random effect estimates for each item. To disentangle the effects of the semantics of the manner verb and path of motion, we present the results separately for each path. Notably, item means show a very similar pattern (see Appendix 9 of the Supplementary Materials).

Interestingly, apart from a few exceptions, items with a directional manner verb tend to show higher random effects estimates than items with non-directional manner verbs. This aligns well with a categorical division based on the directionality of the manner verb. Nevertheless, it is important to highlight that other aspects need to be considered. First, as Figure 2 shows, items expressing the paths 'into' and 'out of' tend to elicit higher ratings than those expressing the path 'across'. Moreover, the division between directional and non-directional manner verbs is not always clear-cut (see 'ski into' and 'jump into').

[7]The model formula was: clmm(Rating ~ 1 + (1 | item) + (1 | participant), data = data_model1).

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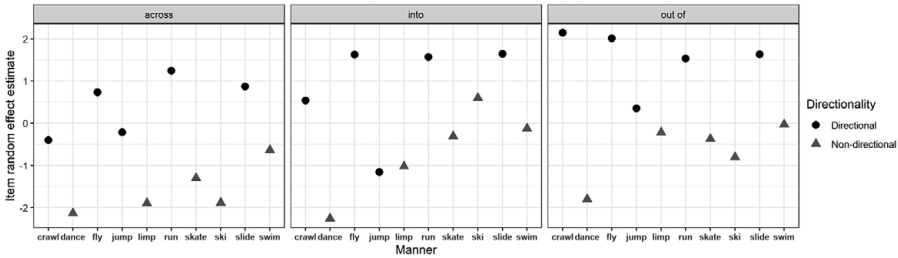

Figure 2. Random effect estimates for each item in the three path conditions ('across', 'into' and 'out of').

6.2 Production task

Participants generally produced more VF constructions (931 utterances – 86% of the data points included in the analysis) than SF structures (157 utterances – 14% of data points). In SF sentences, manner of motion was expressed in the main verb and path of motion by means of a satellite, as shown in (12). In VF sentences, path of motion was expressed in the main verb and manner of motion either via a gerund (15), a subordinate clause (16), or an adverbial phrase, as in (17).

(15) L'uomo entra nella casa correndo
'The man enters the house running'.

(16) Un ragazzo che attraversa i binari mentre balla.
'A boy who crosses the railway while he is dancing'.

(17) Una donna attraversa un fiume a nuoto.
'A woman crosses a river by the act of swimming'.

In Figure 3 we present the proportions of SF construction produced as a function of the directionality of the manner depicted and of age group.[8] As can be gleaned from Figure 3, participants produced more SF constructions when describing directional manner of motion compared to when they described non-directional manners of motion. This picture is confirmed by our results of the statistical model, reported in Table 3[9], which suggest that the degree of directionality implied by the manners portrayed in the stimuli significantly affects the production of SF constructions ($p < .001$). To analyse the effect size, we calculated the difference in percentage of SF constructions produced in the directional and non-directional condition, which amounts to 15%. The effect of age was only marginally significant ($p = .079$) and the interaction between age and directionality did not reach significance. To analyse the effect size of age, we calculated the difference in percentage of SF produced by younger and older adults, which amounts to 7%. However, we found that one of our control variables was significant. The results suggest that path of motion influenced the availability and use of SF constructions. Participants produced fewer

[8]The predicted probabilities of producing a SF construction as a function of the directionality of the manner depicted and of age group were calculated using the function ggpredict of the ggeffect package (Lüdecke, 2018) and can be found in Appendix 10 of the Supplementary Materials.

[9]Parameters of the model concerning the random effects can be found in Appendix 10 of the Supplementary Materials.

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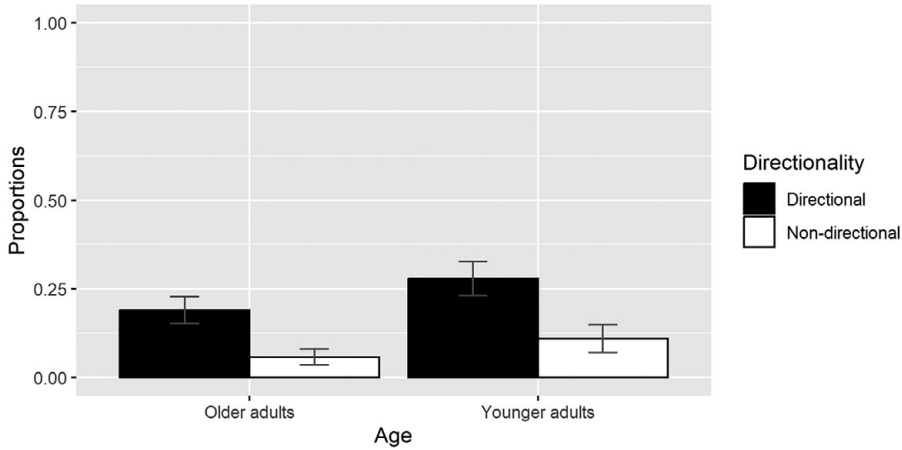

Figure 3. Proportions and standard errors of SF constructions produced when describing videos depicting directional versus non-directional manner by older and younger adults.

Table 3. Parameters of the generalized linear mixed-effects analysis concerning the likelihood of producing an SF construction as a function of directionality (directional versus non-directional) of manner, age (younger adults versus older adults), their interaction and the control variables

	Estimate	Std. error	*z*-value	*P*-value
Intercept	−2.78	0.31	−9.07	< .001***
Directionality: non-directional versus directional	1.70	0.37	4.59	< .001***
Age: older adults versus younger adults	1.09	0.62	1.76	.079
Path: into versus across	−1.19	0.45	−2.64	.008**
Path: across versus out of	0.28	0.46	0.62	.537
Index of dialect use	0.25	0.27	0.92	.358
Index of proficiency in foreign SF languages	0.00	0.27	0.02	.986
Directionality × Age	0.16	0.51	0.30	.762

SF constructions when describing events involving the path 'across' compared to the path 'into' ($p = .008$). To analyse the effect size of path, we calculated the difference in percentage of SF produced when expressing the path 'across' and 'into', which amounts to 18%. The effects of dialect use and proficiency in a foreign SF language were, once again, not significant.

To investigate item-specific effects, we visualise in Figure 4 the proportion of SF constructions produced in the description of each single item (see Appendix 11 of the Supplementary Materials for the result tables). Since the dependent variable is binary (SF versus VF) and each participant saw each item only once, we do not report *SD*s as a measure for variability of the data.

As in the interpretation task, Figure 4 illustrates that items with a directional manner verb tend to show higher proportions of SF produced than items with non-directional manner verbs, in line with the assumption of a categorical division between these verbs. Nonetheless, we notice a higher number of exceptions relative to the interpretation task. Thus, the verb 'to swim' elicits relatively high proportions of SF, although it is classified as non-directional. The same can be said for the item 'limp across', whereas 'crawl across' elicits few SF, despite its classification as

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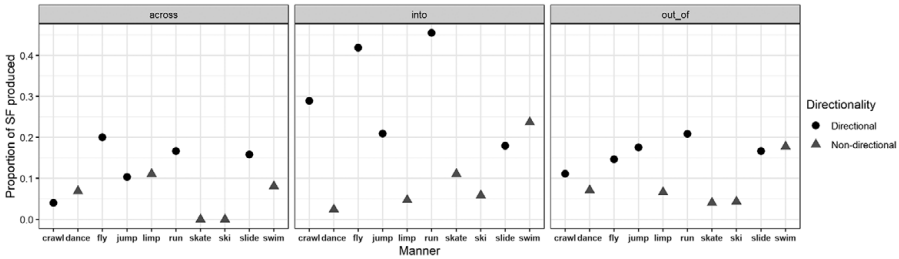

Figure 4. Proportions of SF constructions produced for each item in the three path conditions ('across', 'into' and 'out of').

directional. Path of motion seems to play an important role also in production. As in the interpretation task, items depicting the path 'into' tend to show higher proportions of SF constructions than 'across' and 'out of'.

7. Discussion

7.1 Influence of verb semantics in the interpretation and production of SF constructions

The present study aimed to explore to what extent certain semantic properties of manner verbs modulate the interpretation and the production of SF constructions with a BC reading in Italian. Previous research (Cardini, 2012; Folli & Ramchand, 2005, among others) suggests that the directionality associated with manner verbs is a key aspect in this regard. For this reason, we focused on two categories of voluntary motion verbs: directional motion verbs (like *correre*, 'to run'), and non-directional motion verbs (such as *danzare*, 'to dance'), following Cardini (2012) and Folli and Ramchand (2005). Our findings supported these predictions. In both the interpretation and the production task, we observed that this semantic property of manner verbs significantly influenced the acceptability and use of SF construction with a BC reading.

In particular, the results of the interpretation task revealed that participants more readily accepted SF constructions with a BC reading when the manner verb was associated with directional motion. Conversely, manner verbs associated with non-directional motion were accepted significantly less with a BC reading. Similar results were obtained in the production task. Participants produced more SF constructions when using a manner verb expressing directional motion compared to non-directional motion. The acceptance and production of SF constructions with directional manner verbs have already been attested in the literature (see Section 2.1). Therefore, our findings support the frequently attested presence of intra-typological variation found also in other VF languages (see also Hijazo-Gascón & Ibarretxe-Antuñano, 2013), as well as the claim that Italian presents a hybrid pattern regarding the expression of motion events (Fortis, 2010; Iacobini & Masini, 2006; Martínez Vázquez, 2015).

Interestingly, we observed that SF constructions with a BC reading were to some extent accepted and produced also when the manner verb was non-directional. This last finding may indicate that the selection of SF constructions in this group of Northern Italian speakers is not limited to directional motion verbs but has been

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extended to non-directional manner verbs, at least to some extent. This latter construction arguably represents a more innovative SF construction when it carries the BC (and hence a change-of-state) interpretation, which was targeted in the present study. Since these constructions have been characterised as ungrammatical or unavailable in other Romance languages (see Lewandowski & Mateu, 2020; Mateu, 2012), we suggest that Italian presents both intra-typological variation within the language, but also variation with respect to other VF languages (e.g., see Mateu, 2012 for Spanish, **Juan bailó a la cocina* 'John danced to the kitchen'.). This intra-typological variation could be argued to be an indication of incipient language change in Italian with the rise of SF constructions carrying an innovative interpretation.

Moreover, we observed that not only manner but also path of motion, which was one of our control variables, plays a role in the selection of SF constructions with a BC reading. We noticed that in the interpretation task participants accepted SF constructions more when the path was *fuori* ('out of') compared to *attraverso* ('across'). Similarly, in the production task, we observed that SF constructions were produced significantly more frequently with the path *dentro* ('into') compared to *attraverso* ('across'). These results suggest that while events involving the paths 'into' and 'out of' behave alike, 'across' is less likely to be accepted/produced with an SF construction by Italian speakers. This finding is in line with what has been observed by Cardini (2012, pp. 190–191) regarding the '*Lack of an Italian equivalent for the English preposition across*'. It is suggested that in Italian the expression of a figure crossing a one-dimensional space is only possible by means of the path verb *attraversare* ('to cross') (Cardini, 2012, p. 191). Furthermore, the higher frequency of use of SF constructions when expressing the path *dentro* ('into') might be due also to the pragmatic inferences mentioned by Iacobini and Fagard (2011) (see Section 2.1). The path 'into' in our videos was always associated with reaching a fixed space, e.g., a house, a supermarket, as opposed to the path 'across', in which the boundary of the ground was less defined (e.g., 'a lake', 'a field'). However, the current argumentation does not explain the lack of a significant difference between 'out of' and 'across'. The asymmetry between these two paths could possibly be explained by the 'goal bias' whereby speakers tend to include goal paths and exclude source paths (e.g., Lakusta & Landau, 2012), but more research would be needed to test this hypothesis. Moreover, we argue that the fact that some prepositions, such as 'out of' can assume an aspectual meaning in combination with specific manner verbs (see Section 2.1) could also play a role in the acceptability of SF constructions. Since the preposition *fuori* 'out of' in combination with a manner verb can be used to express not only location/change of location but also as an aspectual marker (e.g., *tirare fuori*, 'to pull out' + telic) (Iacobini & Fagard, 2011), this specific combination might be more frequently used and therefore sound more natural to participants. This might explain the higher acceptability ratings of the path *fuori* 'out of'. These results suggest that, although the semantic property of directionality plays an important role in the production and acceptability of SF constructions with a BC reading, other factors might also play a role. The significant effect of path suggests that pragmatic factors concerning the properties of ground referents as well as aspectual properties of specific prepositions associated with certain paths need to be taken into account by future research.

Finally, we looked at item-specific effects to investigate more in-depth doubtful cases in the directional versus non-directional dichotomy and to gain some insight into the role of other factors in the production and interpretation of SF constructions with a BC reading. Overall, we note that the division between the two categories of

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manner verbs holds well even at the level of individual items. However, we observed that some manner verbs behave differently with respect to the pattern expected based on their directionality. Some items lead to a relatively high acceptance/production of SF constructions, even though they are typically categorised as non-directional, such as items involving the manner 'swim', or the manner–path combinations 'ski into' and 'limp across'. Interestingly, the Spanish counterpart of *nuotare* 'to swim' (*nadar*) is considered directional by Aske (1989) and indeed this verb behaves somewhat differently from the other non-directional verbs. On the other hand, other items lead to a relatively low acceptance/production of SF constructions, even though they are typically categorised as directional, such as *gattona attraverso* 'crawl across' and saltella dentro 'jump into'. Moreover, we notice that even within the same directionality category, manner verbs can present differences concerning their use and acceptance with an SF construction. For instance, 'run into' elicited more SF constructions compared to 'slide into' even though they are both categorised as directional motion verbs. We tentatively suggest that some of these differences might be due to differences in the force-dynamics of the manner verbs chosen: *gattornare* 'crawl', *scivolare* 'slide' and s*altellare* 'to jump/skip' are characterised by a lower degree of force dynamics compared to the verb *correre* 'to run' (Slobin, 2004).

Based on these findings we argue that although the two directionality categories can capture the differences found among experimental items, we also observe the existence of gradual differences both between and within the proposed directionality categories. These differences might partially be accounted for by the role played by the force dynamics of the manner verb. These results suggest that while the directionality implied by the manner verb overall represents an important predictor of the variability observed in the use/acceptance of SF constructions, item-specific differences (the specific manner verb, its force dynamics and path type) also need to be considered. Taken together, these findings highlight the crucial role of fine-grained semantic properties of verbs but also the role of path and item-specific differences on speakers' framing preferences even within the same language both for interpretation and production.

7.2 Age as a predictor of the acceptance and/or production of SF constructions

Our second research question concerned whether participants' age could predict the acceptance/production of SF constructions with a BC reading. We argue that investigating generational differences could potentially provide evidence for language change in progress. To address this research question, we used an apparent-time approach, testing two different generations of speakers: young adults (between 18 and 28 years of age) and older adults (between 52 and 73 years of age). Our results show that there is indeed a significant effect of age, but only in the interpretation task. In other words, we observe that younger adults tend to more readily accept SF constructions with a BC reading compared to older adults. Interestingly, we do not observe an interaction between age and directionality, meaning that younger adults accept more SF constructions independently of the directionality associated with the manner verb. Consequently, we tentatively suggest that the generally higher acceptance of SF constructions with a BC reading, found in the younger speakers, could reflect ongoing language change, concerning not only SF structures already present in Italian but also more innovative constructions. This

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finding may indicate that younger speakers are indeed potential agents of language change, as claimed in the literature (Tagliamonte & D'Arcy, 2009, among others).

Although the age effects observed in our study could be interpreted as indicative of ongoing language change, there are alternative explanations that need to be considered. Thus, our finding could also indicate an age-grading effect, i.e., a change that occurs regularly over the course of the individual's lifespan and can recur in successive generations at particular life stages (see Wagner, 2012). The concept of age grading suggests that speakers' speech patterns periodically undergo certain changes reflecting age-dependent social pressures to conform to (typically in middle age) or to deviate from (typically in adolescence) societal linguistic norms. In other words, it could be that each generation of younger adults temporarily accepts more SF constructions, due to various social factors (e.g., the degree of prestige/stigma or normativity associated with these forms). Thus, drawing from the concept of age grading, we would expect that this pattern – the higher acceptance of SF constructions – is repeated generation after generation as an age-appropriate linguistic behaviour. This would mirror for example the patterns observed for multiple negation, which is assumed to emerge regularly in younger generations (Wagner, 2012). However, we acknowledge that our apparent-time design does not allow us to tease apart generational variation from age-grading effects (see section on limitations and further directions).

Finally, we observed that the effect of age was limited to the interpretation task. In the production task, the effect of age was only marginal, reflecting, however, the pattern found in the interpretation task. That is, younger adults tended to produce more SF constructions compared to older adults, even if this difference did not reach significance. We will discuss this result in the next section.

7.3 Simulation of the chain of language change: from interpretation of SF constructions to their production

A third key aspect of the present study concerns whether the use/acceptance of SF constructions with a BC reading is reflected differently in production versus comprehension. If changes in comprehension indeed precede changes in production – as presented in Section 2.2.2 – we should observe a stronger effect of age in the interpretation task and a weaker, or no effect, in the production task. Our results show that, to a certain degree, SF constructions with a BC reading are produced and accepted in Italian by both groups of speakers. Nonetheless, the effect of age reaches significance in interpretation, but is only marginal in production, despite a similar observable trend in production. This finding aligns with theories positing that language change starts from comprehension and subsequently gradually starts to emerge in production. Similar results have been reported by Lundquist et al. (2016), Czypionka and Kupisch (2019) and Arechabaleta and Montrul (2021). The results from these studies demonstrate that, at a synchronic level, language change first surfaces in the online processing of innovations, followed by their offline comprehension and subsequently in speakers' oral productions. The findings reported above as well as our own thus support the hypothesis that language change may occur in comprehension first and spread to production only later.

However, this finding could also be attributed to the different designs adopted in our two experiments. In the interpretation task, participants were presented with the

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BC interpretation of SF constructions and could either accept it or not. On the other hand, in the production tasks, participants were presented with a video showing a BC event and were completely free in their choice of framing. Therefore, the difference observed between the two tasks may lie in the degree of self-monitoring involved in accepting versus producing an utterance. It is possible that the younger speakers in our study were more accepting of innovative interpretations than older speakers, but monitored their own framing choices when it came to producing an utterance, especially in an experimental setting (with audio recording), thus limiting the overall number of innovative productions elicited. Given these considerations, it is reasonable to question how directly comparable the interpretation and production tasks truly are. Therefore, the results obtained from these studies should be interpreted with caution.

7.4 Conclusion and further directions

The present study investigated both the interpretation and use of SF constructions in Italian by native speakers from Northern Italy. As we presented earlier, we decided to test this particular group of speakers since SF constructions are typically used in the dialect of their region (Iacobini, 2009), although they can also be found in Southern dialects (e.g., Iacobini & Masini, 2009). In this respect, it would be interesting to expand the present study to native speakers of Italian from Central and Southern regions of Italy. This would shed some light on whether SF constructions are accepted and produced also by Italian speakers whose dialects do not license these constructions, and hence on the wider scope of intra-typological variation in Italian.

In the present study, we focused on a particular subset of motion verbs, namely voluntary motion manner verbs associated with either directional or non-directional motion, as well as paths related to only BC events – out of, into, and across. The investigation of different paths, including non-BC events, as well as different classes of motion verbs would provide further evidence on the scope and generalisability of SF constructions within Italian.

Moreover, we employed the apparent-time approach to investigate possible ongoing language change at a synchronic level. In addition, it would be useful to adopt a real-time approach by conducting a longitudinal study, where the speech of speaker groups is compared over different time periods. Comparing the results of a real-time approach and the apparent-time approach would allow us to tease apart generational changes from age-grading effects. Evidence of ongoing language change – higher frequency in the use of SF constructions across different time periods – would support a generational change at a community level rather than an age-grading effect.

Finally, the current study would have benefitted from an online measure tapping into the processing of such constructions. As mentioned in Section 2.2.2, adopting the priming paradigm could provide further evidence on the underlying psycholinguistic mechanisms of ongoing language change. In particular, employing the priming paradigm would allow an investigation into whether and to what extent the use/acceptance of SF constructions can be boosted from comprehension to production, simulating how these constructions could be spread at a community level and possibly lead to language change.

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Supplementary material. The design and data presented in this study are openly available on the OSF platform at https://osf.io/n98e6/?view_only=cc02b3b055c245c2a7eb1aad34a4ff94.

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