

# The Italian Periphrastic Causative and Force Dynamics\*

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This paper investigates the division of labor between the syntactic and the conceptual system for the interpretation of the Italian periphrastic causative construction with *fare*. Both syntactic and lexical-conceptual information are necessary to capture the whole set of data. The argument structure of the verb embedded under *fare* determines whether the causative sentence can have one or two readings. Furthermore, when the causative sentence can structurally have two readings, some cognitive constraints on the causal dynamics of the described situations limit *de facto* the availability of one of the two readings. I claim that the cognitive conditions on the use of *fare* are pragmatic. I conclude by showing that neither a uniquely structural account (*i.e.*, a tacit external argument in the valency of some of the predicates embedded under *fare* blocks the relevant reading), nor the force dynamics constraints by themselves, can account for the whole paradigm of data.

## 1. Introduction

This paper constitutes an investigation of the division of labor between the syntactic and conceptual system with regard to the interpretation of sentences containing the Italian periphrastic causative construction with *fare*. In analyzing this type of construction both syntactic and lexical-conceptual information are necessary to capture the whole set of subtly different data.

Specifically, the argument structure of the verb embedded under *fare* determines whether the causative sentence can have one or two readings. If the embedded predicate alternates a transitive and intransitive form, it creates the possibility for two different readings when in construction with the causative *fare*. Reading (a) involves the subject of *fare* having somebody else perform the action expressed by the embedded predicate. Reading (b) sees the subject of *fare* performing the action expressed by the embedded predicate herself. If the embedded predicate has only the transitive form or only the intransitive form, the number of readings available decreases to one. In the case of a non alternating transitive predicate the only reading it produces when embedded under *fare* is (b). When the non alternating predicate embedded under *fare* is intransitive, it creates reading (a) if unergative and reading (b) if unaccusative.

It is not the case, however, that the embedding of an alternating predicate assures the availability of both the interpretations. In particular, reading (b), in which the agent of the causative is also the agent in the event expressed by the embedded predicate, is available only when some conditions in the force dynamics of the event described by the periphrastic construction are met. Specifically, the causative *fare* cannot be used to describe effortless continuous mechanical causation of the resultant state expressed by the embedded verb caused by agent of *fare*. This condition can be subsumed under the definition of 'indirect causation', a notion that has been used to describe the behavior of the periphrastic causative in English and other languages<sup>1</sup>. Observing that the use of the periphrastic

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\* I would like to thank Barry Schein for the extensive discussions and correspondence on issues related to this paper. I also had many fruitful discussions with Hagit Borer and Jim Higginbotham. Thanks also to Roumyana Pancheva for her insightful comments and Mario Saltarelli for the conversations on the topic. The organization and the clarity of this paper is greatly improved thanks to the comments of two anonymous reviewers. Finally, thanks to the four Italian speakers who had to imagine a variety of ways of moving rocks and opening doors.

causative is discriminated by the force dynamics of the situations considered amounts to the claim that the use of the periphrastic causative is sensitive to our conceptualization of the world, and that our cognitive system is involved in the procedure of attributing truth values to sentences. Force dynamics, when relevant for language, is in fact a branch of naïve physics. Naïve physics is the investigation of the physical world as given in everyday pre-theoretical experience. Naïve physics' inquiry of the physical world determines its ontology on the bases of direct perception, and it is thus distinct from 'real' physics whose investigation is mathematical in nature and its ontology often based on indirect experimental investigation<sup>2</sup>.

The paper is organized as follows. Section 2 introduces the Italian periphrastic construction and claims that it constitutes a case of *fair-par* construction. In section 3, I claim that the argument structure of the embedded predicate determines whether the causative construction has one or two readings. Section 4 illustrates the hypothesis that when an alternating verb is embedded under *fare* the reading of the causative construction where the subject of *fare* is the agent of the event described by the embedded predicate becomes available only when this event, in case it is a state, is not the result of effortless continuous mechanical causation. The validity of force dynamics is, furthermore, discussed against the notion of stereotypical causation. In section 5, I show that the force dynamics requirement for the relevant reading is pragmatic content. Section 6 briefly presents an account of the lack of the relevant reading based on the valency of the predicates embedded under *fare*, and shows that it is not correct. In section 7 I highlight that the force dynamics constraints on the interpretation of the periphrastic causative are not sufficient to capture the whole set of data, and that they need to be indeed combined with the structural analysis described in section 3.

## 2. Causative construction with *fare* with no causee expressed

Italian has a lexical causative construction formed with the causative verb *fare* in the matrix clause and an infinitival clause as a complement. An example of such a causative construction is given below:

- (1) Gianna ha fatto riparare la macchina  
 Gianna has made repair the car  
 Gianna had the car repaired.

The main focus of this paper is the semantic study of the *fare* construction when it is not modified by any prepositional phrase. This construction as it is exemplified in (1) can typically take two prepositional phrases, '*da* + DP' (by + DP), and '*a* + DP' (to + DP), which in turn, following Kayne (1975), constitute two different types of syntactic constructions.

The two syntactic structures are called, based on the French causative, *faire*, which in such respect is similar to the Italian *fare*, *faire infinitive* and *faire par* respectively. The following sentences exemplify the two structures:

- (2) Gianna ha fatto riparare la macchina da Piera  
 Gianna has made repair the car by Piera  
 Gianna had the car repaired by Piera.
- (3) Gianna ha fatto riparare la macchina a Piera  
 Gianna has made repair the car to Piera  
 Gianna made Piera repair the car.

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<sup>1</sup> The attempts to define this notion have not been fully successful so far. For an overview of the literature on the various definitions of direct and indirect causation see Wolff (in press).

<sup>2</sup>Force dynamics has been considered in its significance for language by, for example, Talmy (2000) and Jackendoff (1990). Wolff (in press) provides a persuasive cognitive model of Talmy's theory of force dynamics in the analysis of the English lexical causative based on experimental data utilizing 3D animations.

Sentence (2) represents a case of *faire par* construction, while sentence (3) exemplifies a case of the *faire infinitive* one.

At this point the question arises whether the sentence in (1), where the causee is not phonetically realized, is a case of the *faire par* or *faire infinitive* construction. According to Guasti (1996) and Burzio (1986) it constitutes a case of the *faire par* construction. Guasti provides the following evidence. She takes into consideration a verbal phrase like *prendere la medicina*. This expression can mean either 'ingesting the medicine' or 'taking hold of the medicine'. This ambiguity disappears in causative sentences: in the *faire par* construction only the first meaning is retained, as the following sentence shows:

- (4) La maestra ha fatto prendere la medicina al bambino  
The teacher has made take the medicine to+the child  
The teacher made the child take the medicine.

Sentence (4) has the meaning of 'ingesting the medicine'. This is not the case, however, for the *faire par* construction, where only the meaning of 'taking hold of the medicine' is retained, as sentence (5) illustrates:

- (5) La maestra ha fatto prendere la medicina dal bambino  
The teacher has made take the medicine by+the child  
The teacher had the child take hold of the medicine.

When the causee is missing, as in (6), the sentences can only have the meaning 'taking hold of the medicine', on a par, thus, with (5).

- (6) La maestra ha fatto prendere la medicina  
The teacher has made take the medicine  
The teacher had (someone) take hold of the medicine.

Burzio provides a different type of evidence supporting the claim that sentences (1) and (6) are cases of the *faire par* construction, comparing the grammaticality of the causative in the reflexive form of the *faire par* and *faire infinitive*:

- (7) Maria<sub>i</sub> si<sub>i</sub> e' fatta accusare da Gianna  
Maria herself is made accuse by Gianna  
Maria had herself accused by Gianna.

- (8) \*Maria<sub>i</sub> si<sub>i</sub> e' fatta accusare a Gianna  
Maria herself is made accuse to Gianna.

As (7) and (8) illustrates, only the *faire par* construction in (7) is grammatical, the *faire infinitive* is not even interpretable. The fact that (9) below is grammatical makes it a case of the *faire par* construction, with the non overt causee expressed as generic:

- (9) Maria<sub>i</sub> si<sub>i</sub> e' fatta accusare  
Maria herself is made accuse  
Maria had herself accused.

If sentence (9) had the same syntactic structure of (8) it would be ungrammatical as well, the difference being reduced to the phonological realization or non-realization of the *by* phrase.

To summarize, in this section I showed that the periphrastic causative with no causee expressed is a case of the *faire par* construction. In the following section I will illustrate that the causative construction with *fare* with no causee expressed produces two different interpretations when predicates alternating the transitive and the intransitive forms are embedded. I will argue that the argument

structure of the verbs embedded under *fare* is a condition (not sufficient, as I will show in section 4) determining the causative sentence to have one or two readings

### 3. Argument structure driven interpretations for *fare*

Among the predicates that alternate the transitive and the unaccusative forms some of them, like *affondare* and *sciogliere*, when embedded under *fare*, allow two readings. The reading where the agent of *fare* is also the person that performs the event denoted by the embedded predicate and the reading where the agent of *fare* has some other person to perform the event denoted by the embedded verb. The sentences below provide the transitive, unaccusative and *fare* construction for both predicates:

- (10) Gianna ha affondato la barca  
Gianna has sunk the boat  
Gianna sunk the boat.
- (11) Gianna ha sciolto la cioccolata  
Gianna has melted the chocolate  
Gianna melted the chocolate.
- (12) La barca e' affondata  
The boat is sunk  
The boat sunk.
- (13) La cioccolata si e' sciolta  
The chocolate SI is melted  
The chocolate melted<sup>3</sup>.
- (14) Gianna ha fatto affondare la barca  
Gianna has made sink the boat  
Gianna made the boat sink/Gianna had (someone) sink the boat.
- (15) Gianna ha fatto sciogliere la cioccolata  
Gianna has made melt the chocolate  
Gianna made the chocolate melt/ Gianna had (someone) melt the chocolate.

Sentence (14) has the meaning in which Gianna herself sunk the boat and the meaning in which Gianna had someone else sink the boat as well. Likewise, sentence (15) has both the readings in which Gianna is the agent of the melting and Gianna made some other person melt the chocolate. The types of situations against which I have tested sentences (14) and (15) are something like the following ones. Gianna, for example, had the boat sunk by causing a leak in it. Gianna had someone else sink the boat by, for example, ordering him to cause a leak in it. As regarding sentence (15), possible scenarios are Gianna melting the chocolate by, for example, putting it under the sun, and Gianna asking some other person to melt the chocolate. The data considered so far are persuasively explained in Zubizarreta (1985).

Zubizarreta claims that the interpretation where the agent of *fare* has another person to cause the event expressed by the embedded verb is given when *fare* embeds the passive form of the verb, and as a result, the external argument remains semantically present but it can be syntactically not realized. This is the reason why, according to Zubizarreta, the *faire par* construction and the passive construction are very similar, as has been repeatedly recognized.

The primary and obvious reason for comparing these two constructions is that both of them express the optional agent as a "da+DP" (by+DP) phrase. Guasti (1996) claims that the *faire par*

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<sup>3</sup> Some alternating verbs form the unaccusative with the particle *si*, like *sciogliere*, some do not, like *affondare*. I will not discuss the merit of this issue in this section. It will be addressed later.

construction has the structure in (16), i.e. *fare* subcategorizes a bare, not inflectional VP. When the PP *da*+DP is overt, it is realized as an adjunct to the VP:

(16) [<sub>ip</sub> *X fare* [<sub>vp</sub> [<sub>vp</sub> *VP*] *da Y*].

Thus, sentence (17), with the prepositional phrase *da Piera* (by Piera) added optionally, has the structure in (18):

(17) Gianna ha fatto affondare la barca (da Piera)  
 Gianna has made sink the boat (by Piera)  
 Gianna had the boat sunk (by Piera).

(18) [<sub>ip</sub> *Gianna ha fatto* [<sub>vp</sub> [<sub>vp</sub> *affondare la barca*] (*da Piera*)].

On the other hand, the reading where the Agent of *fare* is also the person who causes the event denoted by the embedded verb occurs when *fare* embeds the unaccusative form of the predicate. Reasonably, this reading would have a structure similar to (16), to the extent that also in this construction *fare* embeds a VP that does not project any inflection. However, since the unaccusative form of the predicate is embedded and no external argument exists within such a form, no prepositional phrase *da*+P expressing the external argument can be adjoined to the VP. This structure is shown in (19) and the structure corresponding to the reading where Gianna sank the boat, in (20):

(19) [<sub>ip</sub> *X fare* [<sub>vp</sub> [<sub>vp</sub> *VP*]].

(20) [<sub>ip</sub> *Gianna ha fatto* [<sub>vp</sub> [<sub>vp</sub> *affondare la barca*]].

We will expect, given the analysis presented above, that non-alternating transitive and intransitive verbs would create only one reading when in construction with *fare* without an overt modifier. This expectation is fulfilled:

(21) Gianna ha fatto spingere il libro  
 Gianna has made push the book  
 Gianna had the book pushed.

(22) Gianna ha fatto mangiare la mela  
 Gianna has made eat the apple  
 Gianna had the apple eaten.

Sentences (21) and (22) with the non-alternating transitive verb *spingere* (to push) and *mangiare* (to eat) respectively, have only the interpretation where Gianna had somebody else push the book or eat the apple and they cannot mean that Gianna pushed the book or ate the apple herself.

Next, I will provide sentences with non-alternating intransitive verbs in the two subgroups of unaccusative verbs, like *arrivare* (arrive) and unergative verbs, like *correre* (run):

(23) Gianna ha corso  
 Gianna has run  
 Gianna ran.

(24) Gianna e' arrivata  
 Gianna is arrived  
 Gianna has arrived.

When these different types of predicates are embedded under the causative *fare* without any phonetically realized modifiers, they show different behavior with regards to possible readings

available for the construction *fare*+VP. When we consider a sentence with an unergative verb embedded under *fare*, the only possible interpretation is one in which the agent of *fare* causes someone else to perform the action denoted by the embedded verb, as exemplified by the sentence below:

- (25) Gianna ha fatto correre  
Gianna has made run  
Gianna had (someone) run.

Sentence (25), although a little awkward if taken out of context, can have the interpretation where Gianna had some unspecified people run, for example, in a situation in which Gianna is an exercise trainer and ordered the trainees to run. This sentence cannot have any other meaning; in particular it cannot have the reading in which Gianna forced herself to run. This result is not surprising, given that there is an unergative as an intransitive predicate with an external argument, which becomes the causee when the predicate is embedded under *fare*.

The case is exactly the opposite if we consider unaccusative verbs that do not alternate with a transitive form. The only meaning available is the one in which the agent of *fare* is also the agent of the event expressed by the embedded verb:

- (26) Gianna ha fatto arrivare il pacco  
Gianna has made arrive the parcel  
Gianna had the parcel delivered.
- (27) Gianna ha fatto partire la macchina  
Gianna has made leave the car  
Gianna had the car started.

Sentence (26) can only mean that Gianna arranged things for the delivery of the parcel herself, and it cannot have the interpretation where Gianna ordered somebody else to arrange for the delivery of it. Sentence (27) also has the meaning in which Gianna started the car herself, but not the interpretation where Gianna asked somebody else to start the car. The argument of non-alternating unaccusative predicates is never an agent, thus the lack of the reading where the agent of *fare* asked somebody else to perform the event expressed by the embedded predicate is expected.

To summarize, among the different classes of verbs considered so far, i.e. alternating causative/unaccusatives, transitives, unergatives, and non-alternating unaccusatives, only the former display two different readings when embedded under *fare* with no prepositional phrase overtly expressed. This result is predicted by Zubizarreta's analysis. This analysis, however, although able to account for the structural nature of the two interpretations under discussion, is not sufficient to provide an account of the difference between *sciogliere*-type predicates and another group of alternating predicates, let us call them *rompere*-type predicates, which typically do not allow the double interpretation (this is the content of the next section). In order to account for this phenomenon, I will cross the borders of syntax and ventured into the conceptual system. If some of the alternating verbs do not allow one of the readings, it is because the required force dynamics condition does not exist. In other words, the behavior of the causative construction with *fare* is given by the interaction of the syntactic system, in the form of the argument structure, with the conceptual system, in the sub-field of force dynamics.

#### 4. The causative construction with *fare* and force dynamics

##### 4.1 Force dynamics

Some of the alternating verbs do not show the pattern illustrated in the previous section for *sciogliere* and *affondare*. A verb like *rompere* when embedded under *fare*, typically allows only one reading, namely the one in which the agent of *fare* had somebody else to perform the event expressed by the embedded predicate. The causative construction with *fare* is sensitive to the dynamics of the

mechanical forces involved in the causation of the state expressed by the embedded predicate<sup>4</sup>. I claim that the data I will discuss in this section are constrained by our conceptualization of the mechanics of the causation and the nature of forces involved in the complex event constituting their denotation. Later on, I will show that these phenomena cannot have a simple explanation exploiting the usual grammatical apparatus. In particular, they cannot be explained with a valency difference. In what follows I test *fare* in constructions with *rompere*-type alternating predicates against a variety of situations and reach the conclusion that this construction is not compatible with effortless continuous mechanical (non 'occult') causation of a resultant state, exerted by the subject of *fare*.

The following sentences are examples of the transitive, unaccusative and *fare* construction of *rompere*, respectively (the symbol # indicated that a sentence is not felicitous):

(28) Gianna ha rotto il vaso  
Gianna has broken the vase  
Gianna broke the vase.

(29) Il vaso si è rotto  
The vase SI is broken  
The vase broke.

(30) Gianna ha fatto rompere il vaso  
Gianna has made break the vase  
#Gianna made the vase break/Gianna had (someone) break the vase.

Sentence (30) taken out of context only has the interpretation where Gianna had someone else break the vase, while the interpretation in which Gianna is the agent of the breaking herself is not typically available. For example, a situation where Gianna broke the vase by hitting it cannot be described by using the sentence in (30). The typical scenario that comes to someone mind when hearing this sentence is Gianna asking or setting up things in such a way that somebody broke the vase.

#### 4.1.1 Occult causation

As anticipated, I believe the explanation for the phenomenon considered in subsection 4.1 needs to be found within the interaction of syntactic, semantic, and conceptual systems, since the causative construction with *fare* seems to be sensitive to force dynamics. In what follows I will provide a paradigm of the *fare* construction with respect to force dynamics. I will start by introducing 'occult causation'. The term 'occult' is used here in the specialized sense 'not by mechanical contact'<sup>5</sup>. I will use as a sample alternating verb *spostare* (to move, to dislocate, a *rompere*-type predicate (31), (32)), since it is particularly appropriate for testing mechanical causation, the relevance of which will become clear in the next subsection<sup>6</sup>:

<sup>4</sup> The mechanical dynamics between cause and effect the way I describe them in this section is relevant only when the causer is intentional. The case of force dynamics with a non-intentional causer is different. Given the complexity of the distinction between intentional vs. non-intentional causer with respect to causation, I do not include this topic in this paper.

<sup>5</sup> The Cartesian natural philosophers denominated 'occult forces' those forces that would cause an effect on a body without interacting with this body mechanically, like magnetism. Moreover, they criticized Newton's Theory of Universal Gravitation on the basis that it would imply the existence of an occult force, i.e. attraction between two distant bodies. I thank Barry Schein and Jim Higginbotham (pc.) for informing me of existence of this sense of the term 'occult'.

<sup>6</sup> Since all the examples I will consider from now on have the same structure, *fare* embedding a predicate, which has already been exemplified, I will dispense with the glosses.

- (31) Gianna ha spostato il sasso  
Gianna moved the rock.
- (32) Il sasso si e' spostato  
The rock moved.
- (33) Gianna ha fatto spostare il magnete  
Gianna made the magnet move.

Sentence (33) introduces the occurrence of an 'occult force', in this case magnetic force. Let us imagine the situation in which Gianna moves the magnet by moving it via the manipulation of another magnet of the same magnetic pole, so that whenever Gianna moves the magnet she handles toward the free magnet, the latter moves in the opposite direction. Sentence (33) is fine when claimed of the described situation. Causation via an 'occult force' is thus sufficient to license the interpretation of (33) where Gianna is the agent of the moving. This observation can be verified with some other rompere-type predicates and some other situations illustrated by sentences (34) and (30), reported here as (35), and (36):

- (34) Il soprano ha fatto rompere il bicchiere  
The soprano made the glass break.
- (35) Gianna ha fatto rompere il vaso  
Gianna made the glass break.
- (36) Gianna ha fatto spostare la macchina  
Gianna made the car move.

The interpretation where the subject of *fare* is the agent of the action expressed by the embedded predicate is possible for sentences (34)-(36) when 'occult forces' enter the scene; the soprano broke the glass with her voice, Gianna broke the vase with dynamite, and she moved a toy car with a remote control.

Returning now to sentences (14) and (15), reported here as (37) and (38), we observed that they can typically have both the readings where Gianna sunk the boat and Gianna melted the chocolate herself, or the readings where she had somebody else perform these actions:

- (37) Gianna ha fatto affondare la barca  
Gianna made the boat sink.
- (38) Gianna ha fatto sciogliere la cioccolata  
Gianna had the chocolate melt.

This is not surprising, given the nature of melting and sinking. Melting cannot be caused without recurring to an intervening occult (in the given sense) cause, heat. Sinking of a boat involves water and gravity. The condition of 'occult causation' is therefore met and the reading where Gianna sunk the boat or melted the chocolate herself are immediately available.

An act like a command is also an 'occult force' in the established sense. As discussed in section 3 and 4.1 in fact, sentences (37), (38) and (35) have the reading in which Gianna had someone else perform the event denoted by the embedding verb. These sentences refer, for example, to situations in which Gianna orders some other person to sink the boat, melt the chocolate, and break the vase, respectively. It is no surprise that this reading is possible for (35), since an order is a social force that does not obtain the desired effect by mechanical contact, thus qualifying as an 'occult' force.



#### 4.1.2 Mechanical causation

'Occult causation' is, however, not sufficient to account for all the cases in which the reading where the subject of *fare* performs the action expressed by the embedded predicate is available. There is a distinction between two types of mechanical causation: ballistic and continuous. The former renders the relevant reading available, the latter blocks it. It is sufficient to license the embedding of a predicate under *fare* for the agent's impulse to be less than continuous with the reported effect. Causal continuity between the agent's impulse and the effect, on the other hand, blocks the embedding of the predicate under *fare*<sup>7</sup>.

The contrast between mechanical ballistic vs. continuous causation is given by the following sentence and the situations it can and cannot describe:

- (39) Gianna ha fatto spostare il sasso  
Gianna made the rock move.

Sentence (39) may report Gianna's slap of the rock and its resulting skid across some ice surface, but not her pushing it across.

Similarly, the situations where the vase is pushed off the edge of the table, or the door is kicked open, can be described by sentence (30), reported here as (40), and (41), since the force exerted by Gianna is ballistic:

- (40) Gianna ha fatto rompere il vaso  
Gianna made the vase break.

- (41) Gianna ha fatto aprire la porta  
Gianna made the door open.

In (40) Gianna's hitting the vase caused directly only the felling, which in turn caused the breaking. In (41) Gianna's kick caused the door to begin the process of opening. These sentences, we saw, cannot describe the situation where Gianna broke the vase by hitting it or the situation in which she continuously opened the door by turning the doorknob. In fact, in these two situations the agent's impulse is continuous.

Notice that the contrast of ballistic vs. continuous causation is operating only within the occurrence of a mechanical force exerted via contact between two bodies, not within the occurrence of an occult force. As described in section 4.1.1, sentence (33) can be uttered of the magnet-with-magnet moving situation, no matter the existence of continuous causation by Gianna (the free magnet stopped moving whenever Gianna stopped moving the manipulated one). Sentence (34) is acceptable whether a single, ballistic note shattered the glass or a prolonged variation in pitch did it. Similarly, sentence (35), as seen, can be uttered in the situations where Gianna broke the vase by detonating a charge, either with an effortless switch or by priming a generator until its electrical discharge triggered the explosion. Finally, we saw that (36) is fine if said of a situation where Gianna moved a toy car, disregarding whether she continuously guided it with a remote control, or whether she just switched the toy's power on and it moved freely.

To conclude, what blocks the embedding of a predicate under *fare* is the continuous mechanical (non 'occult') causation of the event expressed by the embedded verb.

#### 4.1.3 Extra effort

Extra effort exerted by the agent of *fare* is sufficient to license the embedding of the predicate under *fare*, no matter if the event denoted by the predicate is caused by a ballistic or by a continuous impulse.

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<sup>7</sup> Pesetsky (1995) observes that continuous causation is relevant for explaining some phenomena related to the double object construction and considers this case an instance of the correlation between the syntactic and the conceptual systems.

If Gianna moved a massive stone across the ice, (39) becomes felicitous, whether she exerted a strong initial push and let the stone slide on the ice or she pushed it across herself. Sentence (41) as well, is acceptable if Gianna opened a very massive door, either by kicking (ballistic), or by pushing it continuously. Finally, the extra effort accounts for the breaking in sentence (42):

- (42) L'esperto di arti marziali ha fatto rompere il mattone con un calcio  
The martial art expert made the brick break with a kick.

Breaking a brick with someone's kick, in fact, requires a big effort concentrated in a very small amount of time<sup>8</sup>.

#### 4.1.4 Causation with no resultant state

I will turn now to verbs like *muovere* and *rotolare*. They are in the *sciogliere*-class, thus the following sentences are acceptable when said of the given situations:

- (43) Gianna ha fatto muovere il sasso  
Gianna made the rock move.
- (44) Gianna ha fatto rotolare il sasso  
Gianna made the rock roll.

Sentences (43) and (44) are fine when Gianna's impulse is either ballistic or continuous. Specifically, (43) can be said of the situation where Gianna slapped the rock attached to a cord, pendulum wise, and the rock oscillated, as well as in the case in which Gianna continuously moved the rock in an oscillatory manner. Similarly, (44) is acceptable both in the situations where Gianna slapped the rock and as a result the rock rolled, and in the situation where Gianna continuously rolled the rock. I thus owe an explanation for the fact that continuous mechanical causation does not prevent embedding of these predicates under *fare* with the relevant reading. These predicates do not involve the reference to any occult extra force, thus the question needs to be resolved in the domain of mechanics.

Sentences (43) and (44) describe situations where no resultant state is achieved. There is no state where the rock is oscillated or rolled as a result of Gianna's impulse. This feature makes these situations different from the situations described by (39), repeated here as (45), and (35) and (41) above, where there exists a resultant state: the state in which the rock has been moved (to a different position than the original one), and the states of the vase being broken or of the door being open respectively:

- (45) Gianna ha fatto spostare il sasso  
Gianna made the rock dislocate.

I can thus refine the condition provided above by claiming that *fare* does not license the embedding of a predicate when it describes effortless continuous mechanical causation of an event resulting in a state in the absence of occult forces or extra effort.

Observe that the difference cannot be a standard telic one:

- (46) Il sasso si e' mosso per dieci minuti/\*in dieci minuti  
The rock moved for ten minutes/in ten minutes.
- (47) Il sasso e' rotolato per dieci minuti/\*in dieci minuti.

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<sup>8</sup> The native speakers' judgments are not as consistent on effort as on continuous, ballistic and occult causation. The use of *fare* when effort is involved is more colloquial, and has the connotation of 'being able to' lacking in the other cases.

The rock rolled for ten minutes/in ten minutes

- (48) Si sono aperte porte per dieci minuti/\*in dieci minuti  
Doors opened for ten minutes/in ten minutes.

All the sentences above are similar to the extent that they do not describe telic events, as can be seen by their ungrammaticality with the phrase 'in X time' a standard test for telicity. The following example shows that atelicity by itself cannot be what licenses the embedding under *fare* with *rotolare* or *muoversi*:

- (49) Gianna ha fatto aprire porte<sup>9</sup>  
Gianna made doors open.

Sentence (49) is not acceptable when uttered of a situation where Gianna opened the doors the usual way. If atelicity was responsible for the acceptability of (43) and (44), sentence (49) should be acceptable with the given interpretation as well. Therefore, the difference needs to be one related to the causal dynamics of the situation. The revised generalization given above can distinguish between the situations described by (43) and (44) on one hand and (49) on the other: in the situation where Gianna opened doors, there is continuous causation of various resultant states of the doors being open. This state of affairs is sufficient to rule out the embedding under *fare*, since a multiplicity of resultant states is formed of single resultant states, therefore the condition of the mechanical continuous causation of (at least) a resultant state is met, and embedding under *fare* is blocked.

To conclude, *fare* blocks the embedding of a VP denoting the effortless and continuous mechanical (non 'occult') causation of an event resulting in a state. In the following subsection I will show that the generalization I have proposed is one that correctly captures the data so far considered, and compare it with a generalization like the non stereotypical performing of the action expressed by the embedded verb, which fails to capture the entire set of data.

#### 4.2 Causal chains or non stereotypical causation?

The data so far considered show two distinct types of features in the causal events denoted by the various sentences. Many causal events are both non stereotypical and are not cases of continuous mechanical (non 'occult') causation of a resultant state, as demonstrated in the previous section. It is thus not immediately clear which one of these two distinct types of features is responsible for the phenomena under investigation. The aim of this section is teasing apart these two aspects by finding resultant states that are caused stereotypically, but in a non continuous mechanical way, and vice versa: resultant states that are effortlessly, continuously and mechanically caused, but not stereotypically. This way I can clearly point out which one of these two types of features is relevant, i.e. whether the selection of *fare* is blocked by stereotypical causation or by effortless continuous mechanical (non 'occult') causation of a resultant state. The data I will shortly present suggest that the latter is indeed the case.

The first sentences I investigate describe situations in which the resultant state is brought about in a non stereotypical way, but causation is undoubtedly continuous and mechanical, since the agent does not use any device other than her body to cause the wanted effect in a continuous way:

- (50) Gianna ha fatto rompere il bicchiere

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<sup>9</sup> Notice that the bare plural does not play any role:

- (1) Gianna ha fatto rotolare sassi  
Gianna made rocks roll.  
(2) Gianna ha fatto muovere sassi  
Gianna made rocks move.

That these sentences are acceptable with the interpretation in which Gianna herself moved the rock shows that the infelicity of (49) with this interpretation is not due to the presence of the bare plural.

Gianna made the glass break.

Sentence (50) cannot be uttered of the situation in which Gianna broke the glass by effortlessly cracking it with her head. This is clearly a non stereotypical situation, since usually people do not harm themselves by crashing objects made of glass with their head.

(51) Gianna ha fatto aprire la porta  
Gianna made the door open.

If Gianna opened the door by effortlessly turning the doorknob with her mouth or her foot, both non stereotypical actions, sentence (51) is still not acceptable.

(52) Gianna ha fatto spostare il sasso  
Gianna made the rock move.

If Gianna dislocated the rock in an effortless way by continuously moving it with her mouth, or by keeping it in between her knees, or by continuously moving it with her back, all of which are non stereotypical ways of moving rocks, sentence (52) is also not possible.

When, on the other hand, the causal dynamic of the situation is stereotypical but not mechanically continuous, sentences with *fare* can be used. Sentence (50), for example, can be said of the situation where Gianna intentionally pushed the glass to the edge of the table so that it would break, as previously seen for sentence (40). This is, I believe, a rather stereotypical way of breaking a glass, but it is not continuous mechanical causation, since the breaking is the result of Gianna ballistically pushing the glass off the edge of the table. I believe, however, that 'to break' is not a good verb to investigate the relevance of stereotypes in the causal dynamics, since although it would be certainly easy to find non typical ways of breaking glasses, it is more difficult to define what a typical way of breaking glasses is. A better candidate is 'to open':

(53) Gianna ha fatto aprire il cancello  
Gianna made the gate open.

Sentence (53) is fine when said of the situation in which Gianna opened the gate with the remote control, a rather typical way of opening gates. To conclude with my little survey of predicates, I will consider 'to move', in its sense of dislocate:

(54) Gianna ha fatto spostare la valigia  
Gianna made the suitcase move

As an example consider the following: Gianna is an employee at the check-in counter of an airline company, and she moved some client's suitcase by pushing the button that moves the carousel. This is a stereotypical way of moving suitcases for check-in counter employees and an 'occult' way of moving suitcases, since the electronic mechanism of the carousel makes Gianna's action a case of 'occult' causation.

To summarize, it seems that effortless, continuous mechanical (non 'occult') causation of an event resulting in a state as described in the previous subsection is indeed the feature blocking the selection of *fare* and that it is only a coincidence that most of the instances of this type of causation are also non stereotypical events.

## 5. Pragmatic content

In the previous section I characterized the notion of effortless continuous mechanical (non 'occult') causation of a resultant state. In this section I entertain the hypothesis that the ban of this concept associated with the use of *fare* is the pragmatic consequence of the propensity to use periphrastic

constructions contrastively, rather than belonging to what *fare* asserts<sup>10</sup>. The condition on effortless continuous mechanical (non 'occult') causation is a Gricean conversational implicature. The reading, on the other hand, where the agent of *fare* causes another person to perform the action expressed by the embedded verb is structurally conveyed. In what follows I will illustrate these findings. I base my argument on Chierchia and McConnell-Ginet (1990) and Kadmon's (2001) discussion of pragmatics.

A conversational implicature is information conveyed by a sentence that is cancelable or defeasible. In this regard, it is different from an entailment, which provides asserted information and therefore is not cancelable. An example is given by the following sentence, which could be uttered as a response to somebody looking for women with at least one child:

(55) Joan has a child.

Sentence (55) implicates, but does not entail, that Joan has only one child. In fact, if we discover that Joan has two children, this implication would be canceled, as sentence (56), a sensible response to (55), and (57) a perfectly acceptable sentence, shows:

(56) Yeah, in fact she has two.

(57) Joan has a child, and perhaps even two.

In order to discover whether the extra information conveyed by *fare* is a conversational implicature and is not asserted we need, thus, to negate that information and see whether we still maintain an acceptable sentence:

(58) #Gianna ha fatto aprire la porta, e forse l'ha aperta da sola.  
Gianna had the door opened, and maybe she opened it by herself.

(59) ?Gianna ha fatto aprire la porta, e forse l'ha aperta normalmente girando la maniglia.  
Gianna made the door open, and maybe she opened it normally by turning the doorknob.

As we have two types of readings for *fare aprire la porta*, one being 'to have the door open by someone else', the other 'to open the door in some effort involving, ballistic or 'occult' way', as previously described, I considered both of these interpretations in (58) and (59) respectively, uttered out of context<sup>11</sup>. Sentence (58) is infelicitous without any doubt, suggesting that the information that Gianna caused somebody else to open the door is an entailment<sup>12</sup>. Sentence (59), on the other hand, is not completely bad, but it is also not completely acceptable to the degree that (57) is. I believe the reason for this unclear judgment is the following. The ban on effortless continuous mechanical (non 'occult') causation of a resultant state conveyed by *fare* seems indeed a conversational implicature,

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<sup>10</sup> The pragmatic derivation of the blocking of the periphrastic causative in case of effortless, continuous mechanical (non 'occult') causation of an event resulting in a state is a very complex matter. Since I believe that the use of *fare* in the relevant contexts is contrastive to the use of the lexical causative, this derivation would be required to develop a semantic treatment for the lexical causative, an investigation of the notion of 'direct causation' associated with it, and a pragmatic treatment to derive the pragmatic information associated with *fare* from the meaning of the lexical causative. Furthermore, the whole issue is complicated by the difference between intentional and unintentional causation, a topic that needs to be considered in the development of the semantics of the lexical causative. Due to the space limitations, I will leave the exposition of the pragmatic treatment of *fare* to future work.

<sup>11</sup> In section 4.1.1, I observed that the case of causation via a causee qualifies as a case of 'occult causation'. As it will become clear by the following discussion, however, the case of causation via a causee, since structurally determined, needs to be distinguished from other cases of 'occult' causation.

<sup>12</sup> This is an expected output, since, as I discussed in section 3, this reading is the result of a passive sentence embedded under *fare*, which syntactically expresses an implicit causee. The entailment is thus given by the structure of the sentence, and as such is not cancelable.

although the use of *fare aprire la porta* to claim that the door is open is a marked one. In other words, in the comparison with (57), using the expression ‘to have a child’, is a common, non-marked way of saying that a woman has at least one child, while saying *fare aprire la porta* is a non-standard, marked way to say that the door got opened, the unmarked use being *aprire*. The task is then to find a context where the marked expression is justified.

For clarity, I will start with the English causative light verb *get*. ‘To get the door open’ implicates that the door is not opened in the usual way, or otherwise presents some difficulty. However this implicature is cancelled in the following context. Thieves usually do not open the door of the place they rob by turning the doorknob:

(60) A: Did the thief get the door open?

B: Yeah, and perhaps he simply opened it by turning the doorknob.

(61) The thief got the door open, and perhaps he simply opened it by turning the doorknob.

The short dialogue in (60) is fine if uttered by two detectives who do not know much about the robbery scene, but detective B knows that the owners of the robbed house are rather careless and might have left the door unlocked. Sentence (61) is also fine in a similar context.

Similarly for Italian, the robbery context makes opening doors in an effort involving, ballistic or ‘occult’ way the norm, thus justifying the use of the periphrastic expression instead of the simple causative:

(62) Il ladro ha fatto aprire la porta, e forse l’ha aperta semplicemente girando la maniglia  
The thief made the door open, and perhaps he simply opened it by turning the doorknob.

Again, a detective who knows very little about the robbery may utter (62), suggesting the idea that the owner of the apartment might have left the door unlocked. Thus, the implication that the thief forced the door opened is overridden by the second conjunct, making it an implicature.

To conclude, the periphrastic causative conveys the information of effort involving, ballistic or ‘occult’ causation of a resultant state pragmatically, while the existence of an extra agent is semantic content (the structural nature of the reading in which the agent of *fare* has another agent to perform the action expressed by the embedded predicate was discussed in section 3). An account deriving all the content expressed by the *fare* construction as structural, would fail to explain why in some contexts some of the information can be overridden, as seen with sentence (62). I will consider the latter account, and the various reasons why it is not correct, in the next section.

## 6. An account based on argument structure

Folli (2001), developing an idea found in Centineo (1995), claims that *rompere*-type verbs, when embedded under *fare* do not have the reading where the agent of *fare* is also the agent of the embedded predicate because they are basically transitive. According to Folli, these verbs derive the unaccusative form by detransitivizing from the transitive form, which is the only one represented in the lexicon, leaving the particle *si* in place of the removed external argument. Specifically, this operation leaves in place an implicit cause, this being the reason why these verbs allow only the interpretation where somebody other than the subject of *fare* caused the event denoted by the embedded verb. *Sciogliere*-type predicates, on the other hand, have both the transitive form and the intransitive form represented in the lexicon. For this reason they allow both the reading in which the subject of *fare* performed the action expressed by the predicate embedded under *fare* herself and the reading where she had someone else do it.

This analysis is not correct for various empirical reasons. First, from a morphological point of view, the distribution of the particle *si* does not coincide with the non-availability of the interpretation where the agent of *fare* performs the action expressed by the embedded predicate herself. It is not true,

in fact, that whenever a verb must form the intransitive with *si*, it does not permit this interpretation. I went through a third of the list of alternating verbs given in Levin (1993) for English and translated them in Italian. There are various verbs that need *si*, but they easily allow the reading where the subject of *fare* causes the event expressed by the embedded verb without the mediation of another person, independently of the specific situation considered. For example, *sciogliersi* (intransitive 'melt'), *muoversi* (intransitive move), *surriscaldarsi* (intransitive overheat), etc.

Second, as we saw, *rompere*-type verbs do not typically allow the reading in which the subject of *fare* performs the action expressed by the embedded predicate, but it is easy to find situations in which it becomes possible. These are all the situations I considered in section 4.1 as cases of ballistic causation and 'occult causation'. Folli owes us an explanation of why in all those situations the reading in which the subject of *fare* is the agent of the action expressed by the embedded verb becomes possible. The explanation, however, cannot be that, in all the cases in which the reading becomes possible, an extra cause is involved. This would be indeed the case when Gianna, for example, opens the door by using magic, which would constitute an extra cause other than Gianna (occult causation), but it is hard to see what the extra cause would be in the case in which Gianna opened the door by kicking it. Moreover, a non-alternating verb like *arrivare* would probably not undergo detransitivization according to Folli, since besides not taking *si*, it does not have a transitive counterpart. Nevertheless, it does not escape the prohibition of effortless, mechanical (non 'occult') continuous causation:

- (63) Gianna ha fatto arrivare il pacco sulla sua scrivania  
Gianna made the parcel arrive on her desk.

(63) is a possible sentence if Gianna sent the parcel via postal services ('occult force'), or if she threw the parcel on her desk before reaching it (ballistic force), but not if she carried the parcel and put it on her desk (continuous mechanical causation).

Finally, a grammatical explanation along the lines of Folli's is undermined by the observation that the requirement of indirect causation for the periphrastic causative is pragmatic, as seen in section 5. According to Folli, in fact, the content regarding the presence of an extra cause is structurally conveyed, i.e. the existence of an implicit argument in the underlying structure of the sentence is responsible for the information that the causation occurs via an intervening cause. As shown in the previous section, however, this information must be the result of Gricean conversational derivation strategies, since it is possible to delete it without falling into a contradiction, given the appropriate context. It is not possible to delete structurally or semantically conveyed content without producing a contradiction. To emphasize this, let us remain in the domain of argument structure by considering the following sentences, where the interpretation of (64) that I am interested in is the one where the queen had the door opened by somebody else, as unequivocally captured by the English translation with the causative light verb 'have' (sentence (64) is similar to (58) in the previous section):

- (64) #La regina ha fatto aprire la porta, e forse l' ha aperta da sola  
The queen had the door open, and perhaps she opened it by herself.
- (65) #La porta e' stata aperta, e forse si e' aperta da sola  
The door has been opened, and maybe it was opened by itself.

As we saw in the section 3, following Zubizarreta (1985), the relevant interpretation of the first conjunct of (64) is given by the embedding of the transitive form of *aprire* under the periphrastic causative. The information about the presence of a causee ordered by the queen to open the door is thus given by the structure of the sentence, and as such it is not cancelable, as the oddity of (64) shows. Similarly, (65) is a contradiction, since the presence of the implicit external argument in a passive construction is structurally conveyed.

## 7. Not only forces

So far I have explained how structural information (section 3) and force dynamics (section 4) are relevant to account for the whole paradigm of data regarding the Italian causative *fare* presented in this paper. In this section I will underline how the notion of force dynamics, if taken by itself, cannot explain the whole set of data so far considered. I already show at the end of the previous section that the interpretation of the *fare* construction, where the subject of *fare* asked somebody else to perform the action expressed by the embedded predicate (64), cannot be cancelled in virtue of its structural nature. I will further emphasize that, as discussed in section 3, the syntactic combination of *fare* with embedded predicates also contributes to the acceptability of sentences with *fare* and considering force dynamics concepts exclusively would fail to account for some of the data. I will illustrate this point with the discussion of non alternating transitive predicates, which, when embedded under *fare*, can only have the interpretation of causation via a causee (see sentences (21) and (22)):

- (66) Gianna ha fatto spingere il libro con la magia  
Gianna made the book push with magic.
- (67) Gianna ha fatto mangiare la mela con la bacchetta magica  
Gianna made eat the apple with the magic wand.

Sentence (66) cannot mean that Gianna pushed the book with magic, and sentence (67) does not mean that Gianna ate the apple with the help of the magic wand. Consider that the relative transitive sentences are perfectly acceptable:

- (68) Gianna ha spinto il libro con la magia  
Gianna pushed the book with magic.
- (69) Gianna ha mangiato la mela con la bacchetta magica  
Gianna ate the apple with the magic wand.

To be precise, for (69) I have to imagine a special scenario, one in which, for example, Gianna is a paralyzed witch, and she activates her jaws and digestive system with the magic wand. Conceiving such a situation, however, does not help to get the relevant reading with sentence (67).

If, however, force dynamics was all what was necessary to explain the availability of the reading in which *fare* and the embedded verb share the same agent, sentences (66) and (67) should behave exactly like, for example, (70), which, as explained in section 4.1, is fine with the relevant reading:

- (70) Gianna ha fatto rompere il vaso con la bacchetta magica  
Gianna made the vase break with the magic wand.

In fact, the condition of occult causation is met in sentences (66) and (67). In both the situations described there is no manipulation by Gianna of the book and apple respectively (I imagine situations where Gianna does not perform any touching with her magic wand). However, these sentences are not possible with the relevant reading. There is another factor determining the availability of a certain reading with the causative construction with *fare* besides force dynamics. As we have seen in section 3, this factor is the argument structure of the embedded verb. Some readings are excluded because *fare* embeds predicates, and predicates have different argument structures. *Fare*, so to speak embeds what is available in the market, i.e. transitive and intransitive structures. Sentences (66) and (67) have only the reading where Gianna had somebody else push the book or eat the apple because *spingere* and *mangiare* are transitive predicates featuring an external argument, which in the periphrastic causative construction becomes the causee. When predicates alternate between the transitive and intransitive forms, we saw, two readings are available as far as argument structure is concerned. Our perception of



the causal dynamics of the situation described determines, however, which interpretation of the sentence is actually possible.

## 8. Conclusions

The semantic phenomena analyzed in this paper can find an exhaustive generalization only if a structural analysis is paired with cognitive observations. The valency of the predicate embedded under *fare* describes how many readings the periphrastic causative can have, while the conceptual condition constrains how many readings this construction *de facto* has. We observed that a purely structural explanation like Folli's fails to account for the entire set of data I have provided. When working at the syntax-semantics interface, it is in fact essential to give a correct characterization of the speaker/hearer referential semantic competence, i.e. the ability of the speaker/hearer to determine when a sentence is true of a certain event and false of another, very similar event. Giving a correct representation of referential semantic competence involves evaluating the target sentence against a good number of situations, carefully controlling all the variables, in order to determine the relevant factors in the content of a certain expression. Since Folli (2001) has tested her data against a limited paradigm of situations, she has not been successful in providing a correct account for them.

Future research on the phenomenon of indirect causation needs to develop the following issues. As illustrated in this paper, the content of indirect causation for *fare* is pragmatically conveyed. The next step is to determine the exact pragmatic procedure responsible for the derivation of this content. This part of the analysis requires the investigation of the meaning of the lexical causative manifesting, as repeatedly observed, 'direct causation'. Another factor that seems to play a role in the perception of the dynamics of causation is the intentionality of the causer, which seems to change the condition under which 'direct' and 'indirect' causation are evaluated. A comparison with a non Indo-European language would be extremely interesting, as it would provide some insight on the extent to which force-dynamics concepts are universal. A preliminary investigation of the Japanese causative suffix *-sase* and indirect causations seems to indicate that this language is quite similar to Italian in this respect<sup>13</sup>. Finally, it would be interesting to include the findings about direct vs. indirect causation in the recently renovated generative semantics debate on the underlying nature of the lexical causative.

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<sup>13</sup> Shibatani (1976) first investigated this phenomenon for Japanese. His range of data is, however, too limited to provide the material for an exhaustive explanation.