

# Causalness and the Encoding of the Causative/Anticausative Alternation in Italian Psych Verbs Extending Heidinger's Corpus Research of French and Spanish Change-Of-State Verbs

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**Abstract** Italian verbs participating in the causative/anticausative alternation encode the alternants in two ways. The causative and the anticausative alternant may have a marked or an unmarked variant depending on the verb type. The aim of this research is to extend to Italian Heidinger's (2015) corpus study, which shows that the encoding of the alternants is related to the causalness of the verbs, i.e. the quantitative relation between the causative and the anticausative use. Heidinger's research is based on a sample of 20 French and 20 Spanish verbs. The author states that, in both languages, verbs used more often as causatives than as anticausatives have a high degree of causalness, while verbs used more often as anticausatives than as causatives have a low degree of causalness. The present research assesses a sample of 22 Italian psych verbs which participate in the causative/anticausative alternation. I will show that Italian verbs with a high degree of causalness tend to form unmarked causatives and marked anticausatives, while verbs with a low degree of causalness tend to form marked causatives and unmarked anticausatives.

**Keywords** Causative/Anticausative. Alternation. Psych Verbs. Unmarked/Marked Causatives. Unmarked/Marked Anticausatives. Degree of Causalness.

**Summary** 1 Introduction. – 2 Psych Verbs and the Causative/Anticausative Alternation. – 3 The Encoding of the Causative and Anticausative Alternants. – 4 The Corpus Study: Data and Method. – 5 Results. – 6 Comparisons. – 7 Conclusions. – 8 Annex.



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## 1 Introduction

The causative/anticausative alternation is a widespread phenomenon across languages.<sup>1</sup> It refers to verbs such as ‘break’, which may appear in a transitive structure, as in (1), or an intransitive one, as in (2). I will adopt the definition of anticausative:

all types of intransitive change-of-state verbs that have a causative counterpart, irrespectively of whether such an intransitive verb comes with or without special morphological marking. (Schäfer 2008, 1 footnote 2)<sup>2</sup>

(1) John broke the window.

(2) The window broke.

Languages differ in the morphological realisation of the causative and anticausative alternants. Haspelmath (1993) distinguishes five types of causative/anticausative encoding cross-linguistically:

- Causative, where the causative alternant is formally marked and derived from the anticausative, as in Georgian. Cf. e.g. *duy-s* ‘cook’ (intr.) and *a-duy-eb-s* ‘cook’ (tr.).
- Anticausative, where only the anticausative alternant is marked, as in Russian. Cf. e.g. *rasplavit’-sja* ‘melt’ (intr.) and *rasplavit’* ‘melt’ (tr.).
- Labile, where no formal change occurs in the verb, as in English ‘break’ (tr. and intr.) in examples (1) and (2).
- Equipollent, where both the causative and the anticausative variant are marked, as in Japanese. Cf. e.g. *atum-aru* ‘gather’ (intr.) and *atum-eru* ‘gather’ (tr.).
- Suppletive, where different verb roots are used to express the causative and the anticausative alternants, as in Russian. Cf. e.g. *goret’* ‘burn’ (intr.) and *žeč’* ‘burn’ (tr.).

Languages may also differ in the verbs that alternate. For example, Alexiadou, Anagnostopoulou, Schäfer (2006) observe that the verbs ‘kill’ and ‘destroy’ do not have an intransitive alternant in English while their Greek counterparts *skotono* and *katastrefo* do.

<sup>1</sup> Among others, cf. Nedyalkov, Silnitsky 1973; Rothemberg 1974; Zribi-Hertz 1987; Haspelmath 1993; Levin, Rappaport Hovav 1995; Folli 2001; Chierchia 2004; Alexiadou, Anagnostopoulou, Schäfer 2006 and 2015; Schäfer 2008 and 2009; Koontz-Garboden 2009; Legendre, Smolensky 2009; Rott, Verhoeven, Fritz-Huechante 2020.

<sup>2</sup> The phenomenon is also known as the ‘causative/inchoative alternation’ or the ‘ergative alternation’. The term ‘anticausative’ originally referred only to the formally marked alternant (cf. Nedyalkov, Silnitsky 1973; Haspelmath 1993).

In the past decade, quantitative studies have been conducted in order to investigate the correlation between corpus frequencies and the causative/anticausative alternation.<sup>3</sup>

Samardžić and Merlo (2012) based their study on an English monolingual corpus and examines the link between corpus frequencies and verb meaning. Merlo (2016) claims that

if the likelihood of external causation is high, then the causative alternants will be more frequent and the anticausative form will be the marked form of the pair [...]. If the likelihood of external causation is low, the converse is observed. (Merlo 2016, 24)

The lexical property named ‘likelihood of external causation’ (inspired by the feature +c/-c in Reinhart 2002) is an underlying component of meaning and “expressing components of meaning of a verbal root as a probability or a gradient score” (Merlo 2016, 24). Samardžić and Merlo (2018, 895) conducted a quantitative study on a German-English parallel corpus whose aim is to explain why

some verbs in some languages participate in the anticausative/causative alternation while their counterparts in other languages do not. (Samardžić, Merlo 2018, 895)

According to the authors the results suggest that this variation is due to the ‘likelihood of external causation’.

Haspelmath et al. (2014) conducted a corpus study on seven languages (English, Japanese, Maltese, Romanian, Russian, Swahili and Turkish). The results of this study highlight that in verb pairs with a more ‘spontaneous’ core-event, such as ‘dry’, ‘melt’ and ‘freeze’, the noncausal member is more frequent, so that the causal member tends to be coded overtly (as causative). On the other hand, in verb pairs with a less ‘spontaneous’ core-event, such as ‘break’, ‘open’ and ‘split’, the causal member is more frequent, so that the noncausal member tends to be coded overtly (as anticausative). Haspelmath et al. (2014) state that

in human languages, there are recurrent diachronic mechanisms which create patterns in which short forms are used for frequent meanings because of their predictability. (Haspelmath et al. 2014, 6)

Unmarked forms are more frequent than marked forms and the

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<sup>3</sup> Cf. Samardžić, Merlo 2012 and 2018; Merlo 2016; Haspelmath et al. 2014; Heidinguer 2015.

form-frequency correspondence gives rise to the most efficient information-conveying system.

Heidinger (2015) presents a corpus study on French and Spanish change-of-state verbs that participate in the causative/anticausative alternation, like *fermer-cerrar* 'close', *jaunir-amarillear* 'make/become yellow', and *augmenter-aumentar* 'increase'. In both languages the causative and the anticausative alternant may have a formally marked or unmarked variant. The unmarked causative variant corresponds to the plain lexical causative verb, while the marked causative variant is to be composed of the lexical causative verb and the verbs *faire-hacer* 'make' for French and Spanish, respectively. On the other hand, the unmarked anticausative verb corresponds to the intransitive verb, and the marked variant is formed with the verb and the clitic *se*, as in Italian which employs the clitic *si*. The author claims that there exists a strong correlation between causalness and the encoding of the alternation. 'Causalness' is defined as the quantitative relation between the causative and the anticausative use. This term refers to the dimension that distinguishes the French verbs *améliorer* 'improve' and *grandir* 'make/become big': *améliorer* 'improve' is used more often as a causative than as an anticausative, whereas *grandir* 'make/become big' is used more often as an anticausative than as a causative (cf. Heidinger 2015, 567). The results of the corpus study show that French and Spanish verbs with a higher degree of causalness display the tendency to have unmarked causatives and marked anticausatives. On the other hand, verbs with a low degree of causalness do not typically form marked anticausatives, but they form marked causatives more often than verbs with high causalness. Therefore, the correlation between causalness and encoding shows that in both languages "the percentage of marked anticausatives tends to increase with the degree of causalness" (Heidinger 2015, 577).

Although the alternation in Romance languages like French and Spanish has been extensively examined in the literature, Heidinger (2015) is an innovative study since it investigates the correlation between causalness and the encoding in two languages which exhibit a similar variation in the encoding of the causative and anticausative alternants.

The corpus study I present in this article extends Heidinger's (2015) analysis of the relation between encoding and causalness to Italian and to the subclass of Italian psych verbs that participate in the causative/anticausative alternation.

I refer to Heidinger (2015) for two main reasons. First, Italian is closely related to French and Spanish in the encoding of the causative/anticausative alternation. Secondly, rather than the more general issue of the correlation between frequency and markedness examined in Samardžić and Merlo (2012, 2018) and in Haspelmath et

al. (2014), I investigate the more specific issue addressed by Heiding-er (2015), who is interested in finding a predictor for the encoding of alternating French and Spanish verbs. Furthermore, the present study offers a punctual picture of the correlation between causalness and encoding as it assesses a class of Italian verbs that refer to a well-defined semantic domain and participate in the alternation, as well as those non-psych alternating verbs examined in Heiding-er's (2015) study.

I will adopt Heiding-er (2015, 567) to measure the degree of causalness of alternating verbs, which is calculated as in (3), where the causalness value represents the proportion between the causative and the anticausative uses of a verb:

$$(3) \text{ Causalness value: } \frac{\text{causative uses} \times 100}{\text{causative uses} + \text{anticausative uses}}$$

The number of a verb's causative uses multiplied by 100 is divided by the sum of its causative and anticausative uses. Furthermore, the number of a verb's causative uses is the sum of its unmarked and marked causative variants; the number of a verb's anticausative uses is the sum of its unmarked and marked anticausative variants.

Heiding-er (2015, 568) tests the prediction in (4), which concerns the relation between causalness and the encoding of the causative and anticausative alternants. On the basis of (4), a co-variation between the 'Causalness variable' and the 'Encoding variable' is expected. I will test Heiding-er's prediction on a sample of Italian psych verbs that participate in the alternation:

(4) **Prediction**

- (a) Causalness and encoding of anticausative:  
A positive correlation exists between causalness and the percentage of marked (as opposed to unmarked) anticausatives.
- (b) Causalness and encoding of causative:  
A negative correlation exists between causalness and the percentage of marked (as opposed to unmarked) causatives.

The paper is structured as follows. In § 2, I give an overview of the Italian psych verbs that exhibit the causative/anticausative alternation. In § 3, I examine the encoding of the causative and anticausative alternants. Furthermore, § 4 presents the data and the methodology adopted, while §§ 5 and 6 present the results of the corpus study and the comparisons among French, Spanish and Italian. Eventually, § 7 draws some conclusions. The Annex contains details on the frequency of causative and anticausative variants.

## 2 Psych Verbs and the Causative/Anticausative Alternation

The syntactic configuration and the aspectual properties of psych verbs have long been discussed in the literature since Belletti and Rizzi (1988). The authors claimed that Subject Experiencer verbs such as *temere* ‘fear’ in (5) are transitive, while Object Experiencer verbs such as *spaventare* ‘frighten’ in (6), and *piacere* ‘appeal’ in (7) have an unaccusative structure. The authors propose that the D-structure of both Object Experiencer verbs has two internal arguments, whereas the NP movement to the subject position allows the derivation of the S-structures (6)-(7).<sup>4</sup>

In this way, the three verb types – *temere* ‘fear’, *spaventare* ‘frighten’ and *piacere* ‘appeal’ – have an identical underlying structure in most aspects, and the same  $\theta$ -grid. On the other hand, they show a different surface structure and ‘Case-grid’:

- (5) Gianni<sub>Experiencer</sub> teme quella sfida<sub>Theme</sub>  
 Gianni fear.PRS.3SG that challenge  
 ‘Gianni fears that challenge’.
- (6) Quella sfida<sub>Theme</sub> spaventa Gianni<sub>Experiencer</sub>  
 That challenge frighten.PRS.3SG Gianni  
 ‘That challenge frightens Gianni’.
- (7) Quella sfida<sub>Theme</sub> piace a Gianni<sub>Experiencer</sub>  
 That challenge appeal.PRS.3SG to Gianni  
 ‘That challenge appeals to Gianni’.

Grimshaw (1990), Zaenen (1993) and Pesetsky (1995) point out that there is a significant difference between ‘fear-type’ verbs and ‘frighten-type’ verbs. Causation is entailed only in the semantics of ‘frighten-type’ verbs and, therefore, the subject of the Object Experiencer verbs has the role of Causer, while the object of Subject Experiencer verbs has the role of Target/Subject of Emotion.

Furthermore, as Belletti and Rizzi (1988, 296-7, footnote 2) briefly point out, Accusative Experiencer verbs such as *preoccupare* ‘worry’ in (8) have a pronominal form which has no reflexive interpretation. The pronominal verb in (8) is formed of the plain verb and the clitic *si* and, according to the authors, sentence (8) has an inchoative interpretation, although Belletti and Rizzi did not further develop this property (on this point, cf. Ruwet 1993):

<sup>4</sup> Cf. Belletti, Rizzi 293, figures 5 and 6.

- (8) Gianni si preoccupa  
 Gianni si worry.PRS.3SG  
 'Gianni worries'.

The aspectual properties of 'Object Experiencer verbs' have long been debated in the literature. Arad (1998) claims that 'Accusative Experiencer verbs' may be ambiguous, falling between a [ $\pm$  agentive] eventive reading and a stative reading. According to the author, *spaventare* 'frighten' in sentence (9) may receive a [+agentive] reading, according to which 'Gianni has intentionally frightened Maria' or a [-agentive] reading where 'Gianni has unintentionally frightened Maria'. On the other hand, *spaventare* 'frighten' has a stative reading in (10). The stative versus the eventive reading depends on the linguistic context, that is the presence of a definite subject and of particular moods, and the tense contributes to the stative reading:

- (9) Gianni ha spaventato Maria  
 Gianni have.PRS.3SG frighten.PTCP Maria  
 'Gianni frightened Maria'.

- (10) I cambiamenti spaventano Maria  
 The changes frighten.PRS.3PL Maria  
 'Changes frighten Maria'.

Arad (1998, 3-6) also claims that only in the [+agentive] reading is there a change in the Experiencer's mental state: the stative interpretation does not involve any agent or mental change. Thus, eventive causation differs from stative causation: only the latter entails no change of mental state. According to the author, Object Experiencer verbs receiving an agentive/eventive reading are transitive verbs and, therefore, all the properties that Belletti and Rizzi (1988) identify for the Object Experiencer occur only in the stative reading.

Furthermore, many studies claim that some psych verbs are purely stative, such as 'fascinate' and 'depress'.<sup>5</sup> The ambiguity between an agentive and a stative reading remains unresolved and continues to raise many questions. Grafmiller (2013) conducted a corpus study on 'Object Experiencer verbs' and claims that the variation between a stative and a non-stative reading is probabilistic and dependent on context and world knowledge.

Vietri (2024) states that numerous Italian 'Accusative Experiencer verbs' regularly undergo the alternation between the transitive structure (11) and the unaccusative pronominal structure in (12). The Accusative Object Experiencer in (11) appears as the Subject

<sup>5</sup> Cf. Verhoeven 2010; Hartshorne et al. 2016; Alexiadou 2018.

Experiencer in (12), while the Causal Subject of (11) occurs as the NP in the prepositional phrase in (12):

- (11) Le minacce di morte hanno spaventato Gianni  
 The threats of death have.PRS.3PL frighten.PTCP Gianni  
 ‘The death threats frightened Gianni’.
- (12) Gianni si è spaventato (delle + per le)  
 Gianni si be.PRS.3SG frighten.PTCP (of the + for the)  
 minacce di morte  
 threats of death  
 ‘Gianni got frightened of the death threats’.

Psych verbs like *spaventare* ‘frighten’ undergo the causative/anticausative alternation in the same way as lexical causative verbs like *rompere* ‘break’ in (13) and (14). The direct object/Theme in (13) is the surface subject in (14), while the Causal Subject of the transitive structure (13) appears in the unaccusative pronominal sentence (14) as the NP in the prepositional phrase. The unaccusative sentence (14) denotes the change of state of an entity and alternates with the transitive sentence (13), whose subject denotes the entity that caused the change of state:

- (13) (L’esplosione + il forte vento) ha  
 (The explosion + the strong wind) have.PRS.3SG  
 rotto le finestre  
 break.PTCP the windows  
 ‘The (explosion + the strong wind) broke the windows’.
- (14) Le finestre si sono rotte (con + per)  
 The windows si be.PRS.3PL break.PTCP (with + for)  
 (l’esplosione + il forte vento)  
 (the explosion + the strong wind)  
 ‘The windows broke with the (explosion + strong wind)’.

The taxonomy of Italian (non-psych) lexical causative verbs that display the causative/anticausative alternation identifies several classes.<sup>6</sup> In the case of a verb like *rompere* ‘break’, the anticausative alternant is morphologically marked as in (14). On the other hand, causative transitive verbs like *seccare* ‘dry up’ can alternate either with an (unaccusative) anticausative marked variant – *seccarsi*, ‘get

6 Cf. Cennamo, Jezek 2011; Cennamo 2012; Vietri 2017.



dried up' <sup>7</sup> or with an unmarked variant (*seccare*, 'dry up'), whereas verbs such as *umentare* 'increase' are unmarked in both the causative and anticausative alternants.

Furthermore, a transitive verb like *bruciare* 'burn' displays both an anticausative marked variant (*bruciarsi* 'get burned') and an unmarked variant (*bruciare* 'burn'): the unmarked variant can be an unaccusative verb (auxiliary *essere* 'be') that has a telic reading or an ergative verb (auxiliary *avere* 'have') that has an atelic reading. However, not all Italian causative verbs alternate. As pointed out in Alexiadou, Anagnostopoulou, Schäfer (2006, 14), the verbs 'kill' and 'destroy' do not have an intransitive alternant in English, while their Greek counterparts *skotono* and *katastrefo* do. In Italian only the verb *distuggere* 'destroy' alternates. I refer the reader to the above-mentioned references for a more detailed description of the causative/anticausative alternation in Italian.

'Accusative Object Experiencer verbs' such as *spaventare* 'frighten' in (11) display an obligatorily marked anticausative alternant in (12). On the other hand, *sbalordire* 'astonish' and *allibire* 'appall' in (15) and (17) display an anticausative alternant which may be optionally marked, as in (16), or obligatorily unmarked, as in (18), respectively:

(15) Quella notizia sbalordì i ragazzi  
That news astonish.PST.3SG the guys  
'That news astonished the guys'.

(16) I ragazzi (si) sbalordirono a quella notizia  
The guys (si) astonish.PST.3PL at that news  
'The guys were astonished at that terrible news'.

(17) Quella notizia allibì i ragazzi  
That news appall.PST.3PL the guys  
'That news appalled the guys'.

(18) I ragazzi allibirono (a + per) quella notizia  
The guys appall.PST.3PL (at + for) that news  
'The guys were appalled at that news'.

The 'Accusative Object Experiencer verbs' participating in the causative/anticausative alternation, as in (11)-(12) and (15)-(18), can be regarded as transitive change-of-state verbs (cf. also Anagnostopoulou and Iatridou 2007). As in the case of non-psych verbs, not all 'Accusative Object Experiencer verbs' participate in the alternation: for

<sup>7</sup> The clitic *si* is infinitive-final, i.e. attached to the verb in the infinitive.

example, the verbs *affascinare* ‘fascinate’ and *colpire* ‘strike’ do not display the causative/anticausative alternation.

Most ‘Accusative Object Experiencer verbs’ that undergo the causative/anticausative alternation display only the morphologically marked anticausative alternant: according to Vietri (2024) only 36 out of 200 verbs also have the unmarked anticausative variant, and just 2 verbs display the unmarked variant alone.

The literature on psych verbs and their participation in the causative/anticausative alternation across languages is extensive. For example, Alexiadou and Iordăchioaia (2014) analyse the psych causative alternation in Greek and Romanian. Biały (2005) and Jurth (2017) examine the alternation in Polish and Hungarian, respectively, while Verhoeven (2015) takes into consideration alternating psych verbs in German. On the other hand, Rozwandowska and Bondaruk (2019) argue against the causative/anticausative alternation in Polish. Alexiadou (2016) analyses the diachronic reasons why this alternation is missing from English and points out that Pesetsky (1995) discusses a small number of psych verbs that participate in the causative/anticausative alternation.

### 3 The Encoding of the Causative and Anticausative Alternants

Heidinger (2015, 564) takes up Haspelmath (1993; 2014) to state that the causative/anticausative alternation often involves variation not only cross-linguistically but also within languages. The author considers the alternation of French and Spanish change-of-state verbs such as *augmenter-aumentar* ‘increase’, *améliorer-mejorar* ‘improve’, and *fermer-cerrar* ‘close’.

In these two languages the causative and the anticausative alternant have a formally marked and a formally unmarked variant. In the case of the causative alternant, the French verb *améliorer* ‘improve’ is the unmarked variant while *faire améliorer* is the marked variant. In the case of the anticausative alternant, *améliorer* is the unmarked variant while *s’améliorer* is the marked variant.

In Italian, the plain lexical causative *rompere* ‘break’ in (19) can be embedded under the *fare*-construction,<sup>8</sup> as in (20), where *Gianni* is the Causer/Initiator<sup>9</sup> while *Paolo* is the Causee/Agent expressed by

<sup>8</sup> Among others, cf. Ruwet 1972; Kayne 1975; Zubizzareta 1982; Burzio 1986; Alsina 1992; Folli, Hurley 2007; Simone, Cerbasi 2001; Salvi, Vanelli 2004.

<sup>9</sup> With the term ‘Causer’ I refer to all types of causing entities (Copley, Wolff 2014). In sentence (20) *Gianni* brings about and controls the change-of-state event described by the verbal phrase (*rompere la vetrata* ‘break the window’) and performed by *Paolo*. In (21) the [+human] subject *Gianni* may intentionally or unintentionally cause the

a prepositional phrase (Guasti 1993, 2006). However, sentence (19), where the [+human] subject intentionally or unintentionally causes the change of state, may be in a periphrastic relation with (21). Furthermore, if the subject of *rompere* 'break' is a natural force - the strong wind - or an event - the explosion - as in (22), the *fare*-construction (23) must be in a periphrastic relation with (22). Therefore, the plain lexical causative verb *rompere* 'break' in (19) and (22), and *fare rompere* 'make break' in (21) and (23) are the unmarked and the marked variant, respectively, of the causative alternant. On the other hand, the *fare*-construction exemplified in (20) is not relevant for the causative/anticausative alternation because there is no periphrastic relation with a causative sentence like (19). In the case of the anticausative, only the marked variant *rompersi* 'get broken' is available, as in (24):

(19) Gianni ruppe la vetrata  
Gianni break.PST.3SG the window  
'Gianni broke the window'.

(20) Gianni fece rompere la vetrata (a+da) Paolo  
Gianni make.PST.3SG break.INF the window (to+by) Paolo  
'Gianni made Paolo break the window'.

(21) Gianni fece rompere la vetrata  
Gianni make.PST.3SG break.INF the window  
'Gianni broke the window'.

(22) (Il forte vento + l' esplosione) ruppe  
(The strong wind + the explosion) break.PST.3SG  
la vetrata  
the window  
'The (strong wind + explosion) broke the window'.

(23) (Il forte vento + l' esplosione) fece  
(The strong wind + the explosion) make.PST.3SG  
rompere la vetrata  
break.INF the window  
'The (strong wind + explosion) caused the window to break'.

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change of state. On the other hand, *il forte vento* 'the strong wind' in (22) is a non-volitional causer (natural force).

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- (24) La vetrata si ruppe  
 The window si break.PST.3SG  
 'The window broke'.

The Accusative Object Experiencer verbs undergoing the causative/anticausative alternation display the same behaviour as the (non-psych) lexical causatives, of which *rompere* 'break' is a representative. If sentence (25) is embedded under the *fare*-construction (26), *Maria* is the Causer/Initiator while *Paolo* is the Causee/Agent expressed by the prepositional phrase. As in the case of *rompere* 'break', sentence (25) may be in a periphrastic relation with (27). If the subject of *spaventare* 'frighten' is a natural force or an event as in (28), the *fare*-construction (29) must be in a periphrastic relation with (28):

- (25) Maria spaventò i ragazzi  
 Maria frighten.PST.3SG the guys  
 'Maria frightened the guys'.
- (26) Maria fece spaventare i ragazzi (\*a+da) Paolo  
 Maria make.PST.3SG frighten.INF the guys (\*to+by) Paolo  
 'Maria got Paolo to frighten the guys'.
- (27) Maria fece spaventare i ragazzi  
 Maria make.PST.3SG frighten.INF the guys  
 'Maria frightened the guys'.
- (28) (Il forte vento + l' esplosione) spaventò  
 (The strong wind + the explosion) frighten.PST.3SG  
 i ragazzi  
 the guys  
 'The (strong wind + explosion) frightened the guys'.
- (29) (Il forte vento + l' esplosione) fece  
 (The strong wind + the explosion) make.PST.3SG  
 spaventare i ragazzi  
 frighten.INF the guys  
 'The (strong wind + explosion) frightened the guys'.

Sentences (25) and (27) show two variants of the causative: *spaventare* 'frighten' in (25) is a plain unmarked lexical causative, while *fare spaventare* 'make frightened' in (27) is a marked (analytical or syntactic) causative (cf. Heidinger 2015, footnote 3), just like *rompere* 'break' in sentences (19) and (21). 'Accusative Object Experiencer verbs' which undergo the causative/anticausative alternation allow

both the lexical and the syntactic (or analytical) causative.

In Italian, the unaccusative change-of-state verb *fiorire* ‘flower’ in (30) does not show the alternation with an unmarked causative construction as (31) is ungrammatical: the Cause can be expressed only by embedding this verb under the *fare*-construction, as in (32):

(30) Gli alberi fiorirono  
The trees flower.PST.3SG  
‘The trees flowered’.

(31) \*L’ alta temperatura fiorì gli alberi  
The high temperature flower.PST.3SG the trees  
‘\*The high temperature flowered the trees’.

(32) L’ alta temperatura fece fiorire gli alberi  
The high temperature make.PST.3SG flower.INF the trees  
‘The high temperature made the trees flower’.

Therefore, a verb like *fiorire* ‘flower’ is the morphologically unmarked anticausative, while the marked causative alternant is *fare fiorire* ‘make flower’. Levin and Rappaport Hovav (1995) claim that English verbs such as ‘flower’ are ‘internally caused’ change-of-state verbs,<sup>10</sup> while Haspelmath (1993) and Haspelmath et al. (2014) establish a spontaneity scale: verbs such as *flower* are considered to be highly spontaneous verbs.

As regards psych verbs, Subject Experiencer unergative verbs<sup>11</sup> such as *gioire* ‘rejoice’ in (33) is not related to an Object Experiencer transitive verb, since (34) is not grammatical, however the *fare*-construction in (35) is in a periphrastic relation with (33). The Experiencer alternates in the constructions (33) and (35) because it appears as a surface subject in (33) and as a surface object in (35). On the other hand, the indirect object in (33) and the subject in (35) express the Cause of the Emotion; the unmarked anticausative and the marked causative alternate in (33) and (35):

(33) Paola ha gioito (di+per) quella bella notizia  
Paola have. rejoice.PTCP (of+for) that good news  
PRS.3SG  
‘Paola rejoiced at that good news’.

<sup>10</sup> For a revised hypothesis, cf. Rappaport Hovav 2014.

<sup>11</sup> Unaccusative verbs select the auxiliary *essere* ‘be’ and allow *ne*-cliticisation, while unergative verbs select the auxiliary *avere* ‘have’ and disallow *ne*-cliticisation (Burzio 1986).

(34) \*Quella bella notizia ha gioito Paola  
 That good news have.PRS.3SG rejoice.PTCP Paola  
 ‘\*That news rejoiced Paola’.

(35) Quella bella notizia ha fatto gioire Paola  
 That good news have.PRS.3SG make.PTCP rejoice.INF Paola  
 ‘That good news made Paola rejoice’.

Similarly, the Subject Experiencer unaccusative verb *arrabbiarsi* ‘get angry’ in (36) is not related to any Object Experiencer transitive verb’since (37) is not grammatical, but it is periphrastically related to (38), i.e. the *fare*-construction:

(36) Gianni si arrabiò (di+ per) tutto ciò  
 Gianni si anger.PST.3SG (of+for) all this  
 ‘Gianni was angry about all this’.

(37) \*Tutto ciò arrabiò Gianni  
 All this anger.PST.3SG Gianni  
 ‘All this angered Gianni’.

(38) Tutto ciò fece arrabbiare Gianni  
 All this make.PST.3SG anger.INF Gianni  
 ‘All this made Gianni angry’.

The data show that a set of Accusative Object Experiencer verbs participate in the causative/anticausative alternation in exactly the same way as non-psych causative verbs. Accusative Object Experiencer verbs like *spaventare* ‘frighten’ display the unmarked and the marked causative (the *fare*-construction), while the anticausative is obligatorily marked (the pronominal form). A verb like *allibire* ‘appall’ shows the unmarked and marked causative while the anticausative is obligatorily unmarked. Verbs like *sbigottire* ‘stun’ show the marked and the unmarked causative and an optionally marked anticausative. Subject Experiencer verbs like *gioire* ‘rejoice’ and *arrabbiarsi* ‘get angry’ both show a marked causative: *gioire* ‘rejoice’ has an unmarked anticausative while *arrabbiarsi* ‘get angry’ shows a marked anticausative. [Tab. 1] reports all the possible encodings:

**Table 1** The psych verb-types

Type	Unmarked causative	Marked causative	Unmarked anticausative	Marked anticausative
A	spaventare 'frighten'	fare spaventare 'make frightened'	-----	spaventarsi 'frighten'
B	allibire 'appall'	fare allibire 'make appalled'	allibire 'appall'	-----
C	sbigottire 'stun'	fare sbigottire 'make stun'	sbigottire 'stun'	sbigottirsi 'get stunned'
D	-----	fare gioire 'make rejoice'	gioire 'rejoice'	-----
E	-----	fare arrabbiare 'make angry'	-----	arrabbiarsi 'get angry'

The aim of this research is to show that the marked or unmarked encoding of the causative/anticausative alternation is related to the causalness of the verbs.

#### 4 The Corpus Study: Data and Method

The psych verbs in the sample have been chosen on the basis of the variation they display regarding the encoding of the causative/anticausative alternation. Since the causalness value of a verb is calculated on the basis of the frequencies of the unmarked and marked variants – see (3) –, the main criterion adopted to compose the sample is that verbs must display an unmarked form for at least one member of the alternation: this excludes class E from the study.

According to prediction (4) made in Heidinger (2015), A-type verbs (only marked anticausative) are expected to show a higher degree of causalness than C-type verbs (unmarked/marked anticausative) which, in turn, show a higher degree of causalness than B- and D-type verbs (unmarked anticausative).

The corpus study includes a sample of 22 verbs. According to the taxonomy of psych verbs established in Vietri (2024), 200 Accusative Object Experiencer psych verbs participate in the causative/anticausative alternation. Most of them, i.e. 162 verbs, are of the A-type. The B-type includes only 2 verbs, i.e. *allibire* 'appall', and *orripilare* 'horrify',<sup>12</sup> while the C-type includes 36 verbs. The taxonomy

<sup>12</sup> De Mauro Italian dictionary lists *orripilare* 'horrify' as a transitive and an intransitive verb, while UTET-Grande dizionario della lingua italiana (<https://www.gdli.it/contesti/xxiii-240/1544943>) lists *orripilare* 'horrify' only as an intransitive verb. This verb is not present at all in the Devoto-Oli and Zingarelli dictionaries. A search in the Italian Web Corpus, accessible through the application Sketch Engine, does confirm the

shows that most alternating ‘Accusative Object Experiencer verbs’, i.e. 81% of the total, display only the morphologically marked anticausative alternant. Finally, there are more than 30 non-transitive ‘Subject Experiencer verbs’ that alternate.

Vietri (2024) defines the verb types on the basis of the morphosyntactic information contained in the literature, in the dictionaries (De Mauro; Treccani; Devoto-Oli; Zingarelli) and in the corpora (the Italian Web Corpus 2020 accessible through the application Sketch Engine, [www.sketchengine.eu](http://www.sketchengine.eu)). In a few cases the dictionary information has been merged with other sources, as in the case of the verb *terrorizzare* ‘terrorise’ which, according to the dictionaries I consulted, does not display the anticausative alternation. However, a search in the Italian Web Corpus 2020 shows the occurrence of the marked anticausative variant: cf. [tab. 2]. In the same way, according to the dictionaries Devoto-Oli, Treccani and Zingarelli, the verb *atterrire* ‘terrify’ is likewise not a non-pronominal intransitive verb (i.e. the unmarked anticausative), while this form is present in the Italian Web Corpus 2020. Only the De Mauro dictionary considers this verb form.

Heidinger’s (2015) corpus study relies on the existing literature on the causative/anticausative alternation only at the preparatory stage, since the systematic analysis of causalsness is entirely based on the corpus data. This means that the marked/unmarked causative and anticausative variants were searched for independently of the existing literature, i.e. four searches were made for each verb. Unlike Heidinger’s, the present study relies on the taxonomy of psych verbs constructed in Vietri (2024) not only at the preparatory stage, but throughout the corpus analysis. Therefore, I only searched for the causative and anticausative variants admitted for each verb type, as defined in the taxonomy of psychological verbs in Vietri (2024).

I used the application on the Sketch Engine website and the Italian Web Corpus 2020 therein (Kilgarriff, A. et al. 2004, 2014). Given the Corpus size of 12,451,734,885 words, I set up strict criteria regarding the tense patterns to search, in order to have the most reliable and least ambiguous results. I used the Sketch Engine’s Concordance function and I took into account all the hits the search produced, which I then checked manually. I obtained a total of 245,897 causatives and 240,524 anticausatives. [Tab. 5] in the Annex provides the totals of the marked/unmarked causative and anticausative variants.

I searched the finite simple tenses (present, past, imperfective, future) in the Indicative, Subjunctive, Conditional, Imperative moods

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controversial nature of this verb. The search yields 22 results, 14 of which report the verb within the *fare*-construction, and 8 are in the infinitive form. I also searched the Leeds corpora (<http://corpus.leeds.ac.uk/internet.html>) which also show 22 results. Besides the infinitive form under the *fare*-construction, the latter shows some finite simple and compound tenses.

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for the causative alternant, either unmarked (see for example: *io spaventai X* ‘I frightened X’) or marked (see for example: *io feci spaventare X* ‘I made X frightened’). I searched the same finite tenses for the unmarked and marked anticausative alternants. In the marked anticausative, the verb form is preceded by the clitics *mi, ti, si, ci, vi* (see for example: *io mi spavento* ‘I get scared’). The Annex presents more detailed information on the searched patterns.

[Tab. 2] shows the composition of the sample. The abbreviations **uC** – **uAC** – **mAC** stand for ‘unmarked Causative’, ‘unmarked AntiCausative’, and ‘marked AntiCausative’, respectively. I omitted the ‘marked Causative’ since this variant is accepted by all verbs:

**Table 2** The composition of the sample

A-type	uC-mAC
	annoiare ‘bore’
	divertire ‘amuse’
	entusiasmare ‘thrill’
	esasperare ‘exasperate’
	infastidire ‘annoy’
	innervosire ‘make angry’
	scoraggiare ‘discourage’
	spaventare ‘frighten’
B-type	uC-uAC
	allibire ‘appall’
C-type	uC-uAC/mAC
	atterrire ‘terrify’
	immalinconire ‘sadden’
	impaurire ‘frighten’
	inorridire ‘horrify’
	inviperire ‘get angry’
	ringalluzzire ‘make bold’
	sbalordire ‘astonish’
	strabiliare ‘stun’
	sbigottire ‘stun’
D-type	mC-uAC
	esultare ‘exult’
	gioire ‘rejoice’
	trasalire ‘boggle’
	trasecolare ‘dumbfound’

In composing the sample, I also took into consideration the morphological variety of verbs. Thus, I included prefixed denominal verbs, such as *immalinconire* ‘sadden’ and *scoraggiare* ‘discourage’, as well as a prefixed deadjectival verb like *innervosire* ‘make angry’. In order to avoid ambiguous results, I excluded concrete verbs that have a figurative psychological use. For example a verb like *urtare* ‘hit, irritate’ may refer to a physical activity as in (39) or a psychological event, as in (40):

(39) Gianni urtò Paolo con il gomito  
Gianni strike.PST.3SG Paolo with the elbow  
‘Gianni struck Paolo with his elbow’.

(40) Gianni urtò Paolo con quel discorso  
Gianni irritate.PST.3SG Paolo with that speech  
‘Gianni irritated Paolo with that speech’.

In the same way I did not include those verbs like *preoccupare* ‘worry’, whose pronominal form *preoccuparsi* may have a psych meaning as in (41) and a non-psych meaning as in (42):

(41) Gianni si preoccupò per quella notizia  
Gianni si worry.PST.3SG for that news  
‘Gianni worried at that news’.

(42) Gianni si preoccupò di organizzare l' evento  
Gianni si worry.PST.3SG of organise.INF the event  
Gianni took care of the organisation of the event’.

## 5 Results

[Tab. 3] presents the Causalsness degree of the Italian psych verbs resulting from the present study. The verbs are listed in decreasing order of causalsness. [Tab. 3] indicates the verb type (A through D) in the second column, and the value of Causalsness in the third column. The fourth and fifth columns indicate the percentage of the marked anticausatives (%mAC) over the total of anticausative occurrences, and the percentage of the marked causatives (%mC) over the total of causative occurrences, respectively. The ‘0’ contained in the fourth column (%mAC) means that no marked anticausatives were searched for in the corpus because these verbs do not have such variants. On the other hand, the ‘100’ means that no unmarked tokens were searched for.

For example, the verb *entusiasmare* ‘thrill’ shows a causalsness value of 97.69: 100% of its anticausative uses are marked, and 0.68% of its causative uses are marked. On the other hand, the verb *inorridire*

'horrify' shows a causalsness value of 30.79: 2.79% of its anticausative uses are marked, and 92.94% of its causative uses are formally marked.

The data confirm the expectations based on Heidinger's (2015) prediction (4). The A-type verbs like *spaventare* 'frighten' (marked anticausative) tend to display a higher degree of causalsness than C-type verbs like *sbigottire* 'stun' (unmarked/marked anticausative), while D-type verbs like *gioire* 'rejoice' have the lowest causalsness value.

[Tab. 3] shows the strong preference for the marked anticausative also in the case of C-type verbs which have both the marked and the unmarked anticausative variant: only 3 out of 9 verbs show a percentage of marked anticausatives (*strabiliare* 'amaze', *sbigottire* 'stun', and *inorridire* 'horrify') lower than the percentage of the unmarked causatives.

**Table 3** Causalsness and the encoding for Italian psych verbs

Verb	Type	Causalsness	%mAC	%mC
entusiasmare 'thrill'	A	97.69	100	0.68
spaventare 'frighten'	A	96.84	100	0.57
atterrire 'terrify'	C	95.56	76.69	0.45
infastidire 'annoy'	A	93.67	100	0.086
sbalordire 'astonish'	C	90.65	50.45	1.99
scoraggiare 'discourage'	A	91.86	100	0.22
strabiliare 'amaze'	C	87.64	11.22	7.91
esasperare 'exasperate'	A	84.58	100	0.6
innervosire 'make angry'	A	83.71	100	15.73
impaurire 'frighten'	C	65.92	96.38	2.99
inviperire 'get very angry'	C	47.27	93.1	92.3
ringalluzzire 'make bold'	C	45.37	86.15	33.33
annoiare 'bore'	A	45.2	100	1.52
sbigottire 'stun'	C	43.88	39.31	15.3
immalinconire 'sadden'	C	41.33	94.15	1.58
inorridire 'horrify'	C	30.79	2.79	92.94
divertire 'amuse'	A	22.57	100	19.95
allibire 'appall'	B	21.96	0	28.57
trasalire 'boggle'	D	26.27	0	100
gioire 'rejoice'	D	5.83	0	100
trasecolare 'dumbfound'	D	5.78	0	100
esultare 'exult'	D	2.4	0	100

In order to analyse the correlation between causalness and the encoding of the anticausative alternant, the causalness value and the percentage of the marked anticausative uses given in [tab. 3] are set in relation and represented in [fig. 1]: each point stands for one of the 22 verbs. The graph shows that verbs with high causalness tend to form marked anticausatives, while verbs with low causalness form unmarked causatives.

I calculated the Spearman's rank correlation in order to analyse the correspondence of the Italian data with Heidinger's (2015, 568) prediction that causalness and the percentage of marked anticausatives correlate. Spearman's coefficient amounts to 0.556 - level of significance = .01 (one-sided) -, which indicates a robust correlation between causalness and the encoding of the anticausative in Italian psych verbs.

In order to analyse the correlation between causalness and the encoding of the causative alternant, the causalness value and the percentage of the marked causative uses, given in [tab. 3], are set in relation, and represented in [fig. 2]. The graph shows that verbs with low causalness tend to form marked causatives, while verbs with high causalness form unmarked causatives:

Spearman's correlation confirms this co-variation since the calculated correlation coefficient amounts to -0.635 - level of significance = .01 (one-sided) -, which indicates a strong correlation between causalness and the encoding of causatives.

Both trendlines in Italian show that the correlation between causalness and the encoding is stronger in Italian than in French or Spanish. This may be due to the language and/or to the verbs belonging to a homogeneous semantic domain.

The results confirm Heidinger (2015), who claims that verbs

used more often as causatives (compared to anticausatives) have a high degree of causalness, while verbs that are used more often as anticausatives (compared to causatives) have a low degree of causalness. (Heidinger 2015, 567)

To sum up, the encoding of the causative alternant is in correspondence with Heidinger's prediction: verbs with a low degree of causalness tend to mark the causative alternant more often than verbs with a high degree of causalness.

## 6 Comparisons

The results of the corpus study of Italian causative/anticausative psych verbs exhibit some features shared with the results of the corpus study of French and Spanish causative/anticausative (non-psych)

verbs, but also certain differences.

Heidinger (2015) points out that in French and Spanish the encoding of the causative alternant differs from the anticausative: marked causatives are less frequent than marked anticausatives. The Italian corpus study shows the same results: the percentage of Italian marked causatives (6.58%, mC: 16,185 vs mAC: 229,637) is similar to French (7.5%, mC: 53 vs mAC: 701) and Spanish (6.48%, mC: 31 vs mAC: 478).

As regards the cut-off point for the encoding of the anticausatives, Heidinger (2015, 583) points out that French verbs with a causalness value  $\geq 50$  tend to form marked anticausatives only, Spanish verbs with a causalness value  $\geq 40$  display the tendency to form marked anticausatives only, while Italian does not display a real cut-off point. However, Italian verbs with a causalness value  $> 40$  rarely form marked causatives.

Heidinger (2015) affirms that the results for Spanish and French are in line with the literature according to which French has a fairly high number of verbs which form unmarked anticausatives, while Spanish has a very small number of unmarked anticausatives. Italian shows a very low presence of alternating psych verbs which form unmarked anticausatives only: among 'Accusative Object Experiencer verbs', just two verbs display the unmarked anticausative only. This also regards Italian (non-psych) lexical causatives like *affondare* 'sink' and *aumentare* 'increase': according to Vietri (2017), the number of verbs which form the unmarked anticausative only is very low, specifically 3.89% (36 out of 924 verbs). Furthermore, the percentage of Italian unmarked anticausatives (23.68%, uAC = 56,968 vs mAC = 183,556) is much lower than French (62.63%, uAC = 1175 vs mAC = 701) and Spanish (54.77%, uAC = 579 vs mAC = 478). Only 2 out of 9 C-type verbs show a higher percentage of unmarked anticausative than the marked anticausative, namely *strabiliare* 'amaze' and *sbigottire* 'stun'.

Heidinger (2015) points out that

while the anticausative alternant is nearly always formally marked if the verb has a high degree of causalness, the causative is only rarely formally marked even if the verb has a very low degree of causalness. (Heidinger 2015, 583)

Unlike French and Spanish, the results of the corpus study on Italian verbs show the tendency to form a higher percentage of marked causatives as long as the verbs have a lower degree of causalness. Furthermore, all Italian verbs show a percentage of marked causatives, while the French and Spanish data show that a high number of verbs do not form any marked causatives.

As far as the Spearman's rank correlation is concerned, [tab. 4]

shows the values for French and Spanish compared with Italian. The correlation rank between causalsness and the marked anticausative in Italian is more similar to Spanish; this may be due to the lower presence of marked anticausatives in Spanish and Italian than in French. On the other hand, the correlation rank between causalsness and the marked causative in Italian is the highest. This may be due to the high number of marked causatives.

**Table 4** Correlation coefficients for causalsness and marked encodings

Alternant	French	Spanish	Italian
<b>Anticausative</b>	0.675 ( $p < .01$ (one-sided))	0.540 ( $p < .01$ (one-sided))	0.556 ( $p < .01$ (one-sided))
<b>Causative</b>	-0.607 ( $p < .01$ (one-sided))	-0.470 ( $p < .05$ (one-sided))	-0.635 ( $p < .01$ (one-sided))

## 7 Conclusions

The present research has been inspired by Heidinger (2015), a corpus study based on a sample of 20 French and 20 Spanish causatives verbs such as *augmenter-aumentar* ‘increase’, *jaunir-amarillar* ‘make/become yellow’, and *fermer-cerrar* ‘close’, which participate in the causative/anticausative alternation. Heidinger claims that verbs with a high degree of causalsness display the tendency to form unmarked causatives and marked anticausatives more often than verbs with a low degree of causalsness. On the other hand, verbs with a low degree of causalsness tend to form marked causatives and unmarked anticausatives more often than verbs with a high degree of causalsness. Therefore, the encoding of the alternants is related to the causalsness of the verbs, where causalsness is calculated on the basis of the frequencies of the marked/unmarked causative and anticausative use.

The corpus study on Italian includes a sample of 22 psych verbs which participate in the causative/anticausative alternation, such as *spaventare* ‘frighten’, *sbigottire* ‘stun’, *allibire* ‘appall’, *gioire* ‘re-joice’. The results of the study confirm the tendency observed in Heidinger (2015), and also show certain common features and differences between Italian on the one hand and French and Spanish on the other.

Marked causatives are less frequent than marked anticausatives in the three languages. However, in Italian, all verbs show a percentage of marked causatives, while in French and Spanish a high number of verbs do not show any marked causatives.

As regards the encoding of the anticausatives, the French data

show that verbs have a higher tendency to form unmarked anticausatives than in Spanish. These results are in line with the literature according to which Spanish has a much smaller number of unmarked anticausatives than French. Similarly to Spanish, Italian shows a very low presence of Accusative Object Experiencer alternating psych verbs which also form unmarked anticausatives (about 36 verbs) and just two verbs which form only unmarked anticausatives.

Although the Italian study considers psych verbs and Heidinger's study regards non-psych verbs, the correlation between the encoding of alternants and the causalsness degree is confirmed for Italian. Further research will examine and compare the French and Spanish sample to the equivalent Italian one.

## 8 Annex

[Tab. 5] shows the absolute frequencies of the causative and the anticausative variants and their totals, the causalsness value, and the percentage of marked anticausatives and unmarked causatives.

As specified in § 4, I searched for the unmarked/marked causative and the marked anticausative in the case of A-type verbs, while I searched for the unmarked/marked causative and unmarked/marked anticausative in C-type verbs. On the other hand, with B-type verbs I searched for the unmarked/marked causative and the unmarked anticausative. As regards D-type verbs, I searched for the unmarked anticausative and the marked causative. Therefore, the '0' in [tab. 5] means that those sequences the '0' refers to were not searched for. I considered only the active forms.

With respect to the unmarked causative, i.e. the transitive use, all constructions with or without the direct object were taken into account, including those sequences where the direct object is pronominalised, mainly in the preverbal position. Furthermore, I considered those sequences where the subject surfaces in object positions (see for example: *sbalordisce l'arresto di Gianni* 'astonish the arrest of Gianni').

In order to perform searches that were as precise as possible, I used CQL (Corpus Query Language), especially when searching marked anticausatives. In this case, I searched for the sequences formed of the 'reflexive clitic+verb', taking into account the agreement between the clitic and the verb. For example, the sequence *mi spavento*, 'I get frightened' (both pronoun and verb are in the first person singular) is a marked anticausative while *mi spaventa*, 'it frightens me' (the pronoun is in the first person singular but the verb is in the third person singular) is an unmarked causative, where the clitic stands for the direct object. The clitic *si* followed by the verb in the third person may also refer to impersonal forms; these sequences

were disregarded.

As far as marked causatives are concerned, pronominal sequences referring to the passive forms were disregarded: a sequence like *mi feci spaventare* 'I got frightened' (both pronoun and verb are in the first person singular) is a passive form, while a sequence like *mi fa spaventare* 'it frightens me' (the pronoun in the first person singular, the verb is in the third person singular) is a non-passive *fare*-construction that I took into account. With respect to the *fare*-constructions, the overall results show the strong periphrastic relation between analytical causatives and the unmarked causatives, as pointed out in § 3: examples (25) and (27)-(29).



**Table 5** Absolute frequencies of causative and anticausative variants.

Verb	Verb Type	Causal value	Unmarked Causatives	Marked Causatives	%mC	Total Caus	Unmarked Anticaus.	Marked Anticaus	Total Anticaus	%mAC	Total C+A
entusiasmare 'thrill'	A	97.69	24,412	169	0.68	24,581	0	580	580	100	25,161
spaventare 'frighten'	A	96.84	79,284	456	0.57	79,740	0	2,596	2,596	100	82,336
atterrire 'terrify'	C	95.56	2,856	13	0.45	2,869	31	102	133	76.69	3,002
infastidire 'annoy'	A	93.67	24,337	21	0.086	24,358	0	1,646	1,646	100	26,004
scoraggiare 'discourage'	A	91.86	24,180	54	0.22	24,234	0	2,146	2,146	100	26,380
sbalordire 'astonish'	C	90.65	3,147	64	1.99	3,211	164	167	331	50.45	3,542
strabiliare 'amaze'	C	87.64	640	55	7.91	695	87	11	98	11.22	793
esasperare 'exasperate'	A	84.58	6,285	38	0.60	6,323	0	1,152	1,152	100	7,475
innervosire 'make angry'	A	83.71	6,866	1,282	15.73	8,148	0	1,585	1,585	100	9,733
impaurire 'frighten'	C	65.92	1,815	56	2.99	1,871	35	932	967	96.38	2,838
inviperire 'get very angry'	C	47.27	4	48	92.30	52	4	54	58	93.10	110
ringalluzzire 'make bold'	C	45.37	36	18	33.33	54	9	56	65	86.15	119
annoiare 'bore'	A	45.2	21,195	329	1.52	21,524	0	26,089	26,089	100	47,613
sbigottire 'stun'	C	43.88	155	28	15.30	183	142	92	234	39.31	417
immalinconire 'sadden'	C	41.33	249	4	1.58	253	21	338	359	94.15	612
inorridire 'horrify'	C	30.79	137	1,804	92.94	1,941	4,239	122	4,361	2.79	6,302
trasalire 'boggle'	D	26.27	0	1,144	100	1,144	3,210	0	3,210	0	4,354
divertire 'amuse'	A	22.57	34,039	8,484	19.95	42,523	0	145,888	145,888	100	188,411
allibire 'appall'	B	21.96	75	30	28.57	105	373	0	373	0	478
giore 'rejoice'	D	5.83	0	1,393	100	1,393	22,492	0	22,492	0	23,885
trasecolare 'dumbfound'	D	5.78	0	86	100	86	1,401	0	1,401	0	1,487
esultare 'exult'	D	2.40	0	609	100	609	24,760	0	24,760	0	25,369
<b>Total amount</b>			<b>229,637</b>	<b>16,185</b>		<b>245,897</b>	<b>56,968</b>	<b>183,556</b>	<b>240,524</b>		<b>486,421</b>

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