

# The construal of constructions: causal and temporal interpretations in change constructions<sup>1</sup>

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## Abstract

In this paper I first discuss some non-causal change constructions which have largely gone unnoticed in the literature, such as *The butler bowed the guests in* (which is said to code mild causation) and *The supporters booed Newcastle off at the interval* (which only codes temporal coextension between its two constitutive subevents). Since the same structure (i.e. the transitive object-oriented change construction) can be used to code a wide spectrum of causal and temporal relations, the question arises of what cognitive mechanisms may be involved in such meaning shifts. I argue that variation can be motivated on the basis of the figure/ground segregation which the conceptualiser can impose upon the integrated scene coded by the change construction. The integrated scene depicts a force-dynamic scenario but also evokes a unique temporal setting (i.e. temporal overlap or coextension between the constitutive subevents). Such a “bias” towards temporal overlap can be used by the conceptualiser to background causation and highlight temporal overlap interpretations. It is also shown that figure/ground segregation can be appealed to to account for the causal interpretation of intransitive change constructions, e.g. *The kettle boiled dry*. If the conceptual distance between the verbal event and the non-verbal event is (relatively) great, causality can be highlighted even in intransitive patterns.

## 1. Introduction: Causal variations

Goldberg's (1995) seminal analysis of the Caused Motion Construction (CMC), see (1), and Resultative Construction (RC), see (2), associates their transitive instantiations with a causal reading, while intransitive examples are regarded as being noncausal (see also Rappaport Hovav & Levin 2001 on the latter point).

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|------|--|-------------------|
| (1a) | She kicked the ball out of the window. | (transitive CMC)  |
| (1b) | The ball rolled down the hill.         | (intransitive MC) |
| (2a) | They watered the tulips flat.          | (transitive RC)   |
| (2b) | The river froze solid.                 | (intransitive RC) |

(1a) is a CMC because it refers to a change of place (rather than state) and can roughly be paraphrased as “She caused the ball to end up out of the window by kicking it”. (2a) is a causal RC because it refers to a change of state (rather than position) and can be paraphrased as “They caused the tulips to become flat by watering them” (see also Goldberg & Jackendoff 2004: 538). No such paraphrases are used for (1b) and (2b). Importantly, since “intransitive CMC” would be a misnomer (for the intransitive variant is regarded as noncausal), the label Goldberg (1995) assigns to examples like (1b) is “intransitive Motion Construction (MC)”.

It can easily be shown that the analysis of intransitive cases as noncausal is not always tenable. Observe that Goldberg (1995: 62) herself claims that in cases like (3), an example of the MC, “the sound is a *result* of the motion and occurs simultaneously with the motion” [italics in the original]. It is clear therefore that the verbal event can be said to be caused by the motion event.

- (3) The wooden-legged man clumped into the room.  
(from Goldberg 1995: 62)

Further, consider the following examples, which should be contrasted with (2b) above:

- (4a) The kettle boiled dry.  
(4b) The wounded policeman bled to death.

Both (4a) and (4b) code a resultative meaning (“The kettle ended up dry” and “The policeman ended up dead”) but, crucially, both can be interpreted causally despite being intransitive. We can paraphrase them, respectively, as “The kettle became dry because (the water in) it boiled for too long” and “The policeman died because he lost too much blood”. By contrast, *Constructions* SV1-4/2006 ([www.constructions-online.de](http://www.constructions-online.de), urn:nbn:de:0009-4-6765, ISSN 1860-2010)

it is debatable whether (2b) is amenable to a causative interpretation since *to freeze* already means (literally) ‘to become solid’. In other words, a paraphrase like “The lake became solid because it froze” may sound as a tautology to many speakers (although, admittedly, psycholinguistic research is needed to establish to what degree). What is clear, however, is that intransitive examples (to varying degrees) can be interpreted causally. Further, the direction of causality is not always the same. In (3), it is the motion event which is responsible for the verbal event (i.e. motion results in sound emission). In (4), on the other hand, it is the verbal event which is responsible for the change of state coded by the non-verbal phrase.

Goldberg and Jackendoff (2004) analyse intransitive examples like (1b) and (2b) slightly differently from Goldberg (1995). They claim that we should distinguish between a constructional subevent (i.e. the one determined by the construction) and a verbal subevent (the one determined by the verb of the sentence). For example, the constructional subevent for (2b) is given in the theory-neutral format  $X_1$  BECOME  $Y_2$  (i.e. *the river* BECOME *solid*) and this noncausative subevent is linked causally to the verbal event of freezing, see Goldberg and Jackendoff (2004: 540 and, especially, note 11 on p.540). They employ the label MEANS to indicate such a causal link and offer a similar analysis for (1b). Goldberg and Jackendoff however do not explain why there should (always) be a causal relation between the two subevents. As was pointed out above, combining *freeze* with *solid* causally could result in a tautology for many speakers. Further, even if Goldberg and Jackendoff’s analysis were on the right track, we should represent cases like (3) and (4) above differently from (1b) and (2b) because (3) and (4), at least intuitively, unambiguously code a causal meaning. In fact, Goldberg and Jackendoff (2004) hypothesise that in examples like (3) the relation between the constructional subevent, which is said to be noncausative and is represented as  $X_1$  GO Path<sub>2</sub> (i.e. *the man* GO into *the room* in the case at hand), and the verbal event is not MEANS but RESULT, i.e. motion results in sound emission. Since, however, the label RESULT is intended to (presumably) capture causality from the

constructional event to the verbal event – unlike in (1b) and (2b), where, assuming that causality does obtain, causality would be from the verbal subevent to the constructional subevent – the analysis for (3) cannot be extended to (4). Hence, given Goldberg and Jackendoff’s (2004) theory, it is not clear how to tackle cases like (4).

Of course, one could claim (as is pointed out by a reviewer) that (4a) and (4b) would be viewed as “noncausative” – rather than “noncausal”, which is the term I use in this paper – in Goldberg and Jackendoff’s (2004) approach because Goldberg and Jackendoff may seem to employ “causative” rather narrowly in the sense, roughly, of “subject causes object to assume resultant state/location coded by the resultative phrase”. But even if this were the case, i.e. the term “causative” were to be restricted to transitive cases, we would still have to account for the fact that some intransitive patterns may be more prone than others (e.g. (4) vs. *She walked into the cinema*) to evoke causal nuances (taking “causal” to be a more general, i.e. transitivity-independent, term than “causative”). That is, Goldberg and Jackendoff’s analysis does not account for the fact that causal interpretations may be a matter of degree.

Goldberg and Jackendoff’s analysis also faces another serious problem, independently of the definition of “causal” vs. “causative”. In some cases, we seem to end up with a double notion of causation (broadly construed), which is difficult to understand and justify conceptually. A transitive sentence such as *Bill rolled the ball down the hill* would involve “double causation” in Goldberg and Jackendoff’s framework. The constructional subevent would involve the causal predicate CAUSE: *Bill CAUSE [ball GO down the hill]* (cf. Goldberg and Jackendoff’s analysis of (2a) as *They CAUSE [tulips BECOME flat]*). But *Bill rolled the ball down the hill* would also involve MEANS, cf. the discussion of (2b) above, in that a causal relation is said to obtain between the constructional subevent and the verbal subevent (see Goldberg & Jackendoff 2004: 540). The problem here is that it is not clear why *roll* should be related causally to an already (constructionally) causal event. In sum, Goldberg and Jackendoff’s analysis appears to be both

theoretically (cf. the notion of double causation) and empirically (cf. the gradience observed in causal interpretations) problematic.

Not only intransitive patterns are amenable to a variety of interpretations but even the transitive S(ubject) V(erb) O(bject) R(esultative phrase)<sup>2</sup> pattern (i.e. the same pattern as the CMC and the transitive RC) does not always evoke a causal interpretation. Some instantiations can be interpreted causally only in a derivative sense or are better regarded as non-causal, i.e. as coding temporal overlap or coextension between two (sub-)events:

(5a) The butler bowed the guests in.

(5b) A series of Newcastle attacks at the start of the second half finally generated some optimism among supporters who had *booed* them *off* at the interval.

(*The Observer*, electronic edition, 31.08.2003)

(5a) describes two concurrent events (or, more accurately, subevents with respect to the whole clause), that of the butler's bowing and that of the guests entering some place. There is a predicative relation between the constructional object, *the guests*, and the final intransitive preposition *in*, as is the case in "ordinary" (i.e. causal) CMC/transitive RC examples. Crucially, if causation is to be read into this sentence, it is not clear what paraphrase one should offer. Should one say that the guests were allowed, or "caused", to go in because the butler bowed? Or perhaps was it the fact that the guests went in that caused the butler to bow (provided that the guests had invitations)? Alternatively, couldn't one say that both causal interpretations can be activated (possibly with different degrees of salience)? Be that as it may, native speakers agree that the primary interpretation is temporal co-occurrence: the butler bowed as the guests went in. Since the exact nature of causality in (5a) is difficult to pin down and probably of secondary importance

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<sup>2</sup> I use the term "resultative phrase" as a convenient label to refer to PPs/APs that code states/positions achieved by the object referent. This term will be replaced with change phrase in the next section.

with respect to temporality (i.e. temporal overlap between two events), I will refer to such cases as coding “mild causality”.

Let us now examine (5b). In this example too, there exists a predicative relation between the constructional object *them* and the intransitive preposition *off*: *the players ended up off the pitch*. Hence, object orientation obtains for the spatial phrase *off* in the same way as in causal CMC/transitive RC examples. However, the temporal prepositional phrase *at the interval* in (5b) makes it clear that the players did not leave the pitch because they were booed. The players left the pitch simply because they had to since it was half-time. The players could not possibly have left the pitch at the interval because they were booed. The latter interpretation would not make sense in the football context of (5b).<sup>3</sup> (5b) only codes temporality: Newcastle were booed as they left the pitch.<sup>4</sup>

It should be remarked, at this point, that a temporal, rather than causal, SVOR pattern has already been discussed in the literature in some depth. Jackendoff (1997) studied the “time”-*away* construction, e.g. *Fred drank the night away* (i.e. “Fred spent the night drinking”). In this construction there obtains a dynamic predicative relation between the constructional object *the night* and *away*: the night ends up being “away”, that is “finished”. Nevertheless, the

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<sup>3</sup> A sentence like *The public booed the singer off the stage*, which does not contain any temporal phrase unlike (5b), may in fact be ambiguous between a causal and a temporal interpretation. For example, the *Longman Dictionary of Contemporary English* (LDOCE) highlights the causal interpretation of *She was booed off the stage* (recorded under the verb *boo*) by paraphrasing it as “they shouted ‘boo’ until she left the stage”. A corpus analysis is needed to study the interplay between the two interpretations in more detail. Still, the crucial point remains that the only possible interpretation of (5b) is temporal, not causal.

<sup>4</sup> The non-causal SVOR pattern can sometimes give rise to very interesting novel creations like (i) below:

- (i) We sat around in the sling chairs and **talked** the dusk **into** night. (John D. Mac Donald, *The Deep Blue Goodnight*, 1965, quoted in Rivière 1981)

Although Rivière (1981) classifies it as an example of the RC (which he seems to take as implying causation), (i) does not code causality. One might perhaps want to argue that causality obtains metaphorically in that the event of talking can be construed as a force acting on the dusk thus causing it, metaphorically speaking, to transform itself into the night. Be that as it may, it seems intuitively clear that the primary, and possibly only, interpretation of (i) is temporal: we went on talking until dead of night, i.e. until the dusk became night.

constructional type I will discuss here differs from Jackendoff's in at least two respects. First, the resultative phrase (see note 2 on the use of this term) is not specified lexically – while it is filled by *away* in Jackendoff's study. Second, the type analysed in this paper contains verbs that can refer indifferently to either activities or states. (5b), for example, contains the activity verb *boo*. But now consider (6), which contains the stative verb *sit*:

- (6) I found the play terribly tedious – I don't know how I managed to *sit* it *out*.  
(*Oxford Dictionary of Phrasal Verbs* (OPV))

*Sit out* is paraphrased in the OPV as “remain in one's seat till the end of a performance, even though one may find it unpleasant”. The sentence has a temporal meaning (i.e. “I sat until the play came to an end”) potentially involving temporal coextension between the state of sitting and the event of the play's unfolding (until its end). Further, one can take *out* to be a resultative phrase predicated of *it* (the play) in the sense that *out* (metaphorically) designates the final state achieved by the play: the play is “out” (of our current reality and thus incapable of interfering with it), that is “finished”.<sup>5,6</sup> Crucially, however, stative verbs are not compatible with the ‘time’-*away* construction (cf. *Bill slept the afternoon away* vs. \**Bill sat two hours away*).

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<sup>5</sup> The exact nature of the metaphorical mapping, i.e. the details of the metaphorical interpretation for *out*, should be the matter of future research. Nevertheless, the commonality among (some of) the transitive temporal collocations with *out*, such as *brave out*, *brazen out*, *face out*, *hold out*, *ride out*, *see out*, *stick out*, *stare out*, *sweat out*, *wait out*, *win out*, *work out* (see *Collins Cobuild Dictionary of Phrasal Verbs* (CPV): 480), seems to be that the subject referent acts in a way by which s/he is able to resist the harmful effects associated with either the direct object referent or an entity linked to it. Further, s/he is able to do so until the negatively affecting entity is out of her/his current reality (e.g. the play in (6) won't negatively affect the subject referent any more). This is self-evident in cases like *hold (a town) out*, which means to occupy or defend (a town) to the end against an enemy (see meaning 41h in the *Oxford English Dictionary* (OED)): the subject referent resists the harmful effects associated with an entity linked to the direct object, i.e. the enemy, until the town is out of the enemy's influence.

<sup>6</sup> Note also that the constructional object in (6), i.e. the play, is not a possible object for the verb used independently of the construction in which it appears. *To sit something* means to put something in an upright position, not to sit during something. The appearance of unsubcategory objects as constructional objects is a property typically found in resultative constructions (cf. *to laugh oneself silly*, *to sweep the broom broken*, etc.).

To conclude, the SVOR pattern can (primarily or exclusively) code temporality but the relevant instantiations cannot be regarded as either CMCs or RCs given Goldberg's causal definition for these two constructions. Much in the same way, the MC and the intransitive RC, i.e. the SVR pattern, can (also) code causality (alongside temporality), which is in contrast to Goldberg (1995) and Goldberg and Jackendoff (2004). The rest of this paper will deal with the former case and will tackle the latter possibility in its final section. The paper is organised as follows. Section 2 introduces the notion of change phrase and change construction. Section 3 discusses causal and temporal object-oriented change constructions (in section 3.1 and section 3.2 respectively). It proposes the figure/ground solution to account for the emergence of temporal interpretations against their prototypical causal/force-dynamic interpretation. Section 4 evaluates an alternative solution, dubbed the temporal paraphrase solution. Finally, section 5 discusses intransitive change constructions in the light of the figure/ground solution and draws the conclusions.

## **2. The definition of change construction**

There is no consensus on what label(s) to use to refer to cases like (1) and (2) above. Goldberg (1995) calls the former (C)MC and the latter RC. Further, she regards the RC as a metaphorical extension of the CMC. Broccias (2000) argues that this distinction should be dispensed with and the umbrella term RC should be used. Similarly, Rappaport Hovav and Levin (2001) and Goldberg and Jackendoff (2004) employ the term RC to refer to various types, including Goldberg's (1995) (C)MC, although they do not discuss this terminological point. Broccias (2003a) argues that a new term is needed because there are many constructions that share a common semantic denominator with Goldberg's (1995) (C)MCs and RCs although the term RC may be misleading for them. In order to do so, Broccias (2003a) introduces the notions of change phrase and change construction:

A nonverbal phrase XP, which has neither a subject nor an object role, is said to be a *change phrase* (CP) if it refers to a state, position or circumstance possibly achieved by an entity *a* involved in an event E, provided that *a* can be postulated at the semantic pole of the relevant construction (to be called *change construction* (CC)). (Broccias 2003a: 327)

This definition implies that change phrases include what are traditionally called subject and object complements provided that they occur in sentences describing states of affairs evolving through time:

- (7a) Sally drank herself [to death]<sub>CP</sub>.  
 (7b) The kettle boiled [dry]<sub>CP</sub>. (= (4a))

In (7a), a transitive RC, *to death* is a change phrase because it refers to the change of state undergone by Sally (*a* in the definition above), who ended up dead. She was involved in an event (or successive events) of drinking (E in the definition) which caused her death. The intransitive example (7b), usually categorised as an intransitive RC, contains *dry* as a change phrase. Both *to death* and *dry* could also be labelled, using well-established terms, (dynamic) object and subject complements, respectively. Still, the definition of change phrase offered above encompasses more cases than do the traditional labels “subject complement” and “object complement”. The interested reader is referred to Broccias (2003a) for the analysis of more change construction types which have rarely been discussed in the literature and are classifiable as neither (C)MCs nor RCs.<sup>7</sup>

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<sup>7</sup> Just as a matter of illustration, consider (i) for example:

- (i) Sally kicked [at the wall]<sub>CP</sub>.  
 (i) is usually called a conative construction (see e.g. Goldberg 1995; van der Leek 1996) because it is said to describe an attempt at performing the action denoted by the verb (see also Levin 1993). In the case at hand, the action is that of Sally’s making forceful contact with the wall by using her foot. However, (i) can also be used (see Broccias 2003a: chapter 7 for details) to refer to (repetitive) successful instances of the event of hitting the wall. In order to avoid coercing the interpretation in either direction (i.e. successful vs. attempted contact), Broccias (2003a) calls constructions like (i) “allative *at*-constructions” since movement (either successful or not) towards a target is implied anyway. Crucially, *at the wall* would not be analysed traditionally as a (subject) complement for the very simple reason that this phrase cannot be predicated of the subject. It was Sally’s foot, rather than Sally, which moved towards the wall. Nevertheless, *at the wall* counts as a change phrase because entity *a* (i.e. Sally’s foot) is postulated at the  
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From the definition of change phrase, it follows that the examples provided in (5) and (6) above, repeated here below for the sake of convenience, also contain change phrases:

- (5a) The butler bowed the guests [*in*]<sub>CP</sub>.  
 (5b) A series of Newcastle attacks at the start of the second half finally generated some optimism among supporters who had *booed* them [*off*]<sub>CP</sub> at the interval.  
 (*The Observer*, electronic edition, 31.08.2003)
- (6) I found the play terribly tedious – I don't know how I managed to *sit* it [*out*]<sub>CP</sub>. (OPV)

As was argued in the previous section, they all contain (intransitive) prepositional phrases predicated of their respective constructional objects, that is the change phrase is object-oriented. Further, these examples mainly or exclusively activate a temporal interpretation. Hence, we conclude that English has temporal object-oriented CCs.<sup>8</sup>

The examples considered so far immediately raise the question as to why the same structure, i.e. the object-oriented change construction, can convey two potentially different interpretations, that is, a causal interpretation, as in (2a), *They watered the tulips flat*, and a temporal interpretation, as in (5). In fact, things are even more complex. Consider the example in (8):

- (8) Tom danced his legs stiff.

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semantic pole of the construction, that is, it is part of our conceptual representation for (i). In this sense, *at the wall* is said to be a *sublexical* change phrase because the entity *a* (cf. the definition of change phrase above) is not instantiated overtly in the syntax.

<sup>8</sup> There also seem to exist temporal transitive CCs which exhibit subject-orientation:

- (i) Sally read the novel well [*into the night*]<sub>CP</sub>.  
 (i) clearly allows only a temporal interpretation and is (perhaps controversially) analysed in Broccias (2003a, 2003b) as having a change phrase predicated of the subject referent. Sally was engaged in an event of reading and metaphorically moved through time (i.e. through the night) while carrying out that activity. If one accepts this analysis, (i) is a subject-oriented CC because the CP *into the night* is predicated of the constructional subject *Sally*.  
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Whereas a sentence like *John hammered the metal flat* codes both causation and temporal coextension between the events of John's hammering the metal and the metal's becoming flat, (8) may only code a causal relation between the event of Tom's dancing and that of Tom's having stiff legs. As is pointed out by Rappaport Hovav and Levin (2001), temporal coextension is not required. Tom may have finished dancing on Saturday night feeling no pain in his legs and have woken up with stiff legs on Sunday morning. Conversely, (5b), as was explained above, only codes temporal coextension between the events of the team's leaving the pitch and the fans' booing the players. We thus observe that a continuum obtains from (potentially) causal-only examples such as (8) through causal and temporal examples like *John hammered the metal flat* to purely temporal examples like (5b). This conceptual flexibility behind object-oriented CCs deserves further scrutiny. Of course, the problem we are about to discuss is a problem of motivation in that it concerns the elucidation, on the part of the linguist, of those (cognitive) mechanisms that motivate the language user to employ the same structure albeit with two (potentially) different meanings. However, motivation may not always be an issue for the language user since change constructions are not always novel creations. In fact, they can be regarded (in many cases) as units (or entrenched schemas) in the sense of Langacker (1987), i.e. sound/meaning pairs accessed automatically, see e.g. Boas (2003) and Hampe and Schönefeld (2003) on this point.

### **3. The construal of constructions**

#### *3.1. Causal object-oriented change constructions*

The very fact that the noncausal (i.e. temporal) interpretation of the object-oriented change construction has largely gone unnoticed in the literature should suffice to convince us that the causal reading is primary or prototypical (the latter term is used here as a synonym of "more frequent" and hence more entrenched in the speaker's mind). In more detail, Broccias (2003a)

argues that the causal object-oriented CC can be analysed as a variant of Langacker's billiard-ball model:

[w]e think of our world as being populated by discrete physical objects. These objects are capable of moving about through space and making contact with one another. Motion is driven by energy, which some objects draw from internal resources and others receive from the exterior. When motion results in forceful physical contact, energy is transmitted from the mover to the impacted object, which may thereby be set in motion to participate in further interactions. Let us refer to this way of thinking about the world as the **billiard-ball model**. (Langacker 1991: 13)

The causal object-oriented change construction primarily depicts an energetic interaction between two entities. A sentence like (9), under its causal interpretation (see also note 3), is said to instantiate the Force Change Schema, see Figure 1.

(9) The public booed the singer off the stage.

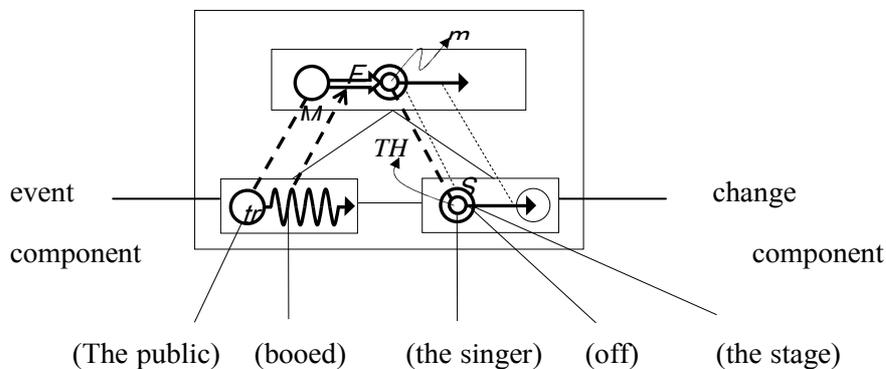


Figure 1. The Force Change Schema

The construction *The public booed the singer off the stage* can be analysed as originating from the integration (or blending in the sense of Fauconnier & Turner 2002) of two components, the event component and the change component. The event component depicts a generic event (hence the squiggly line), to be equated here with the event of booing, whose trajector (*tr*) is *the public*. For simplicity's sake, the entity referred to by *the singer* has not been represented in the

event component (cf. *The public booed at the singer*) but only appears in the change component. The change component schematically depicts an entity called theme (*TH*) as moving either literally or metaphorically (that is, undergoing a change) along a path *P* from a location/state *S* (for source) to a location/state *T* (for target). Note that only those subcomponents within either component that are realised phonologically are depicted in bold. It is also worth pointing out that the linear arrangement of the event and change components is intended to represent the causal relation existing between the two. The two components are integrated into the component depicted as the upper box in the diagram, which shows an energetic interaction or energetic flow *F* (for force) from a manipulator *M* to a manipulee *m* resulting in the change of state/position of the latter. The upper box is therefore a variant of the cognitive archetype dubbed “billiard-ball model” by Langacker (1991). Crucial to the blending of the event and change components is the operation represented by way of the dashed arrow starting from the event component and ending in the upper box, that is, the operation of *force construal*: the event of booing is conceptualised as a force causing the change of place of *the singer*. Consequently, the trajector (*the public*) is put in correspondence with the manipulator in the upper box and the theme in the change component is equated with the manipulee in the upper box. The remaining dashed correspondence lines indicate the equivalence between the source and path subcomponents of the integrated structure and those in the change component. In sum, the causal object-oriented CC evokes a force-dynamic scenario: a manipulator acts on a manipulee thus causing the latter to change its state/location.

It is important to stress that the Force Change Schema distinguishes between two levels of representation. The bottom tier in figure 1 depicts unintegrated reality, i.e. the fact that an event caused another event to happen (irrespective of temporal overlapping) or, in Fauconnier and Turner’s (2002: 178) words, a diffuse causal chain of events. Such a diffuse event chain is conceptualised in terms of a force-dynamic scenario at the level of the upper tier in figure 1. The two causally related events depicted as the event component and the change component are

compressed into a force-dynamic event. This point is also made by Fauconnier and Turner (2002) in their (brief) analysis of resultative constructions, which is reminiscent of the one proposed here. One of the relevant passages from Fauconnier and Turner (2002) deserves to be quoted *in toto*:

[if] it is our job to turn off the burner under the pan containing zucchini in boiling water, and we forget about it and all the water evaporates, we can say, confessionally, “No zucchini tonight. I boiled the pan dry. Sorry.” In the diffuse input [i.e. the unintegrated input], the causal chain runs from forgetting to the invariant position of the burner knob, to the flow of gas, to the flame, to the temperature of the pan, to the temperature of the water, to the level of the water, to the dryness of the pan. The agent performs no direct or indirect action on the pan at all. But in the blend, the compressed structure associated with the grammatical construction is projected together with some selected participants from the diffuse chain of events in the diffuse input. In the blend, the agent acts directly on the pan. Moreover, although the boiling of the water is an event and its cause was something the agent did or did not do, there is a cause-effect compression in the blend such that in the blend, although not in the input spaces, *boiling* is an action the agent performed on the pan. (Fauconnier & Turner 2002: 178-179).

The fact that we construe a diffuse input as a compressed force-dynamic event also motivates why we may feel prone to “visualise” the two component events, the causing event and the caused event, as overlapping temporally with each other. At the level of the upper box in figure 1, we activate a scenario which, by definition, invokes a unique spatial-temporal setting. Observe that all the involved elements are represented within the same box in figure 1, i.e. within the same spatio-temporal scenario. This is also implicit in Langacker’s definition of the billiard-ball model (see above). The billiard-ball model, by involving physical energetic interactions, describes instantaneous motion (i.e. change) of the affected entity. In this sense, there is temporal coextension or overlap between the application of a force and its result: no intermediary time interval is possible between the two. Whether the two subevents are overlapping temporally in the “real world” is however a matter of world-knowledge and hence pertains to unintegrated reality (the lower level in figure 1) rather than compressed (or construed) reality (the upper box in figure

1).<sup>9</sup> The Force Change Schema primarily captures the conceptualisation of causal event sequences in terms of energy flows. Real-world temporality is of secondary importance. Still, the conceptualisation of unintegrated reality as a compressed force-dynamic event biases us towards temporal coextension: at the level of integrated reality, the two subevents are conceptualised as unfolding together to some degree (since they are merged into a single, albeit complex, billiard-ball scenario). This observation turns out to be crucial for the rise of purely temporal examples, as the next section intends to show.

### 3.2. Temporal object-oriented change constructions

Having pointed out that the force-dynamic interpretation of the object-oriented change construction is regarded as primary, we must now try to understand what motivates its temporal use. I propose that the motivation lies with the language user's ability to further construe the scene associated with the force-dynamic object-oriented change construction given the bias towards temporal overlap mentioned in the previous section.

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<sup>9</sup> It can be shown (see Broccias 2004) that temporal overlap interpretations depend on the notion of animacy (rather than the distinction between subcategorised and unscategorised objects, pace Goldberg 1995; Wechsler 2005; Goldberg & Jackendoff 2004). Consider (i):

- (ia) Sally sprayed her skin wet.
- (ib) Sally sprayed her skin soft.

Both (ia) and (ib) contain a subcategorised object, i.e. *her skin*. Still, (ia) is interpreted as involving temporal coextension: the skin's becoming wet unfolds with the skin's being sprayed. This is not the case in (ib). (ib) is based on an old Nivea advertisement which read "Spray your skin soft". The natural interpretation of this ad is that your skin becomes soft if you use Nivea, not that your skin necessarily becomes soft while you are spraying it. The change in the texture of your skin may also happen after you have finished spraying your skin. The difference in interpretation between (ia) and (ib) depends on our different conceptualisation of the skin in the two examples. In (ia), the skin is conceptualised as an inanimate surface which was being covered with some liquid substance. Hence, temporal coextension is expected. In (ib), on the other hand, some property intrinsic to the skin actively participates in the event of its becoming soft. The skin is not conceptualised as an inanimate surface but as a (possibly three-dimensional) entity whose properties bring about changes in its texture. In this sense, I say that the skin is "animate" (although, of course, the skin is not engaged volitionally in the event). Crucially, if some property intrinsic to the skin is involved in the process of its change of state (i.e. its change of state does not only depend on external forces), temporal coextension need not obtain.

Let us consider again both (9), *The public booed the singer off the stage*, and (a simplified version of) (5b), *The supporters booed the players off at the interval*. If we ignore causation, the integrated scene in both the causal and non-causal examples is the same, amounting to the temporal coextension (construed at a sufficiently coarse-grained temporal level) between the booing event and the event of the players'/singer's leaving the pitch/stage. Of course, the causal variant in (9) is compatible with a scenario where the public stopped booing before the singer began leaving the stage, but this observation pertains to the "real world" level. At the level of compressed reality, booing and leaving are part of the same scenario (cf. the upper box in figure 1). Hence, the bias towards the temporal overlap between the booing event and the leaving event. In (5b), on the other hand, the two subevents necessarily unfold together for some time even at the level of unintegrated reality. However, if we disregard unintegrated reality (i.e. optional vs. necessary temporal overlap between the verbal event and the change-of-place event), it is clear that, at the level of compressed reality, the two cases can be construed as depicting much the same scenario, which has been diagrammed in figure 2. The public's/supporters' booing unfolds (at least partially) with the singer's/players' motion. Observe that figure 2 also includes a force-dynamic component in the form of a dashed large arrow. This is intended to represent the fact that booing can be construed as a force bringing about the theme's (i.e. the singer's/players') displacement. This arrow has been dashed and depicted as having an outline less thick than the other components precisely because the force-dynamic interpretation is optional, being possible only in (9). By contrast, the singer's/players' motion is represented as unfolding together with the booing event in either case.

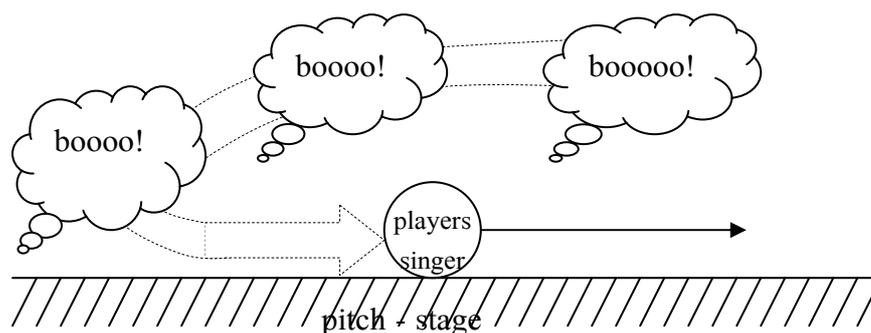


Figure 2. The *booing* scenario

I have already pointed out that sometimes temporal coextension between the verbal event and the change event (i.e. the event hinted at by the change phrase) does not hold at all in change constructions (at the level of unintegrated reality). (9) *may* involve temporal coextension at the level of unintegrated reality. (8) above, *Tom danced his legs stiff*, and *Sally sprayed her skin soft* (see note 9 on this example and see Broccias 2003a: 140-152 for a detailed discussion of more examples) are unlikely to code temporal coextension in the real world. By contrast, the non-causal object-oriented CC always implies temporal coextension at the unintegrated level and a force-dynamic interpretation is either secondary (see the discussion of (5a) above, *The butler bowed the guests in*) or probably does not hold at all (as in (5b) and *I sat the play out*). We can therefore arrange the examples discussed so far along a continuum, as in figure 3 below.



also activate some residual force interpretation (since it is prototypically associated with it). Its strength depends on its plausibility vis-à-vis unintegrated reality. It may make some sense to say that, to some extent, the butler's bowing and the guests' entering a room are related causally but it is very difficult to see how the event of the fans' booing their team and the team's (necessary) leaving at the interval can be construed as a causal sequence. Hence, the difference depicted in figure 3 for the two examples in question. (Needless to say, psycholinguistic experiments are needed to confirm the arrangement proposed in figure 3, which is based on few native speakers' intuitions. Still, the point remains that change constructions can exhibit varying degrees of causal and temporal interpretations.)

The importance of figure 3 lies in the way in which we can read it. The differences in the causal and temporal interpretations of each example can be analysed as instances of a fundamental cognitive operation, namely *figure/ground segregation* (see Ungerer & Schmid 1996: chapter 4 for a short introduction and its relevance to language). The notion of force, which is prototypically associated with the object-oriented CC (cf. *boo the singer off the stage*), is brought into the background (and perhaps is cognitively relevant only in a derivative sense) in *to bow the guests in*, where temporality is foregrounded. In *to boo the players off at the interval*, force-dynamics has a virtually null degree of salience. Conversely, *to dance one's legs stiff*, under the interpretation specified in the discussion of (8), foregrounds force-dynamics at the expense of temporality.

The motivation for the existence of change constructions like (5b), *The supporters booed the players off the pitch*, resides therefore in the speaker's ability to impose a figure/ground reversal upon the scenario coded (i.e. construed) by the prototypical object-oriented CC, i.e. the force-dynamic scenario schematised in figure 1. The conceptualiser further construes the change construction by bringing (the bias towards) temporality to the fore and "bleaching" causation. One more example can be cited at this juncture which lends support to the proposed analysis. The construction *to cry oneself to sleep*, for instance, is paraphrased as "bring oneself into a specified

state by crying” in the *Shorter Oxford English Dictionary* and “weep until one falls asleep” in the OPV. Clearly, the former paraphrase highlights causation while the latter foregrounds temporality (i.e. the process of weeping is construed as overlapping with the process of falling asleep). The two paraphrases show that the conceptualiser can focus on either causality or temporality and such ambiguities may be conducive to the emergence of (almost) purely causal or temporal examples.

### 3.3. A note on grammaticalisation

The previous subsection has shown that temporal examples can be regarded as originating from the backgrounding of the force construal of the event component within an integrated (i.e. blended) scene where the two subevents (i.e. those captured by the event and change components) unfold together. I will refer to the explanation sketched above as the figure/ground solution. This solution is of course not dissimilar to those studied by grammaticalisation theory, where certain meaning components are progressively bleached in favour of others (see Hopper & Traugott 2003 for an overview). Here, however, we do not observe a shift from lexical to grammatical structure (cf. the evolution of the future-time-marking-construction *be going to*, which can give rise to the contracted form *be gonna*, see Hopper & Traugott 2003: 2-3 for details).

In fact, one might argue (Sonia Cristofaro, p.c.) that the figure/ground solution apparently contradicts what is known about grammaticalisation. For example, it is well-known that causal adverbials develop out of temporal ones rather than the other way around (see Hopper & Traugott 2003). But the evolutionary momentum hypothesised for change constructions is exactly the opposite. However, the grammaticalisation argument should obviously only apply to grammatical elements. That is, there is no obvious shift from lexical to grammatical structure under the figure/ground solution; hence, the grammaticalisation argument should not be brought to bear on it.

Further, the crucial “licensing” factor for causal object-oriented CCs is the activation of a force-dynamic construal. That is, the figure/ground solution primarily involves the notion of force

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dynamics over that of causation.<sup>10</sup> It follows that the grammaticalisation argument does not, strictly speaking, apply here because the figure/ground solution involves an evolutionary path from force dynamics to temporality rather than the (allegedly impossible) shift from causality to temporality.

I would like to conclude this section by pointing out that the proposed model does not necessarily imply that a temporal construction featuring a specific verb evolved from a causal construction containing the same verb. For example, *boo* can occur equally well both in causal and temporal constructions but this is not the case with *sit*:

(10a) I found the play terribly tedious – I don't know how I managed to *sit it out*. (= (6))

(10b) \*I sat the grass flat.

*Sit* can be used in the temporal object-oriented CC but not in the causal one, as (10b) shows. The reason might be that causal change constructions must always denote a dynamic energy flow from a manipulator to a manipulee, that is, their verbs must allow for force construal. *Sit*, which denotes a static spatial configuration, does not probably lend itself easily to being conceptualised as a force (within a folk theory of physics, of course).<sup>11</sup> Even if we were to find that the causative use of *sit* never occurred in the history of the English language, this would not be a problem for the analysis proposed here. The non-causal use of *sit* may have arisen out of

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<sup>10</sup> Observe that some examples are impossible (or very difficult to accept) even if a causal relation can be envisaged. Consider (i), from Levin & Rappaport Hovav (1995):

(i) \**During the spring thaw, the boulders rolled the hillside bare.* (intended meaning: “The boulders caused the hillside to become bare by rolling” or “The fact that the boulders rolled caused the hillside to become bare”)

The unacceptability of (i) depends on the difficulty in construing *the hillside* as a manipulated entity with respect to *the boulders*, i.e. in envisaging an energetic flow from *the hillside* to *the boulders*, even if a causal interpretation, as is indicated in parentheses, makes perfect sense.

<sup>11</sup> Since force construal is a matter of conceptualisation, we might expect variation in the acceptability of sentences such as (10b) both within English and across different languages. Its German equivalent, *Wir saßen das Gras flach*, is judged as being only slightly deviant by native speakers. Psycholinguistic and corpus research is needed to investigate this matter further.

analogy with already existing temporal CCs which employed *out* as a change phrase (see also note 5).<sup>12</sup> At present, I can only offer this as a hypothesis since research into the diachrony of change constructions is virtually non-existent. The main purpose of this paper is, more modestly, to point out the complexities of possible (causal and temporal) readings for change constructions and to propose a framework for their analysis (i.e. the figure/ground solution sketched above). Future historical research will be able to show whether the proposed explanation is correct or not.

#### 4. An alternative solution? The temporal paraphrase solution

The account advanced here, which I have labelled “figure/ground solution”, views the force-dynamic construal of the object-oriented CC as primary and claims that the lack of a causal reading in favour of a temporal coextension interpretation derives from the prototype via figure/ground segregation. I have already pointed out in the previous section that such a solution only apparently violates what is known about grammaticalisation. I think, however, that it is worthwhile bearing in mind the point about grammaticalisation and comparing the proposed solution against an alternative explanation which does not hypothesise an evolutionary path from force dynamics to time.

If we view the figure/ground solution as theoretically unsound, we could still motivate the existence of both primarily causal and primarily temporal object-oriented CCs by claiming that both the causal and the temporal uses derive from the simplification of a more elaborate, possibly temporal, structure. I will call such a solution the temporal paraphrase solution, which is exemplified in (11) and (12) and represented diagrammatically in figure 4.

(11a) They hammered the metal [until it became] flat.

(11b) They hammered the metal flat.

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<sup>12</sup> It is interesting to observe that, although examples for *sit something out* are not to be found in the OED (contrary to the intransitive pattern *sit out*), similar temporal constructions (see note 5) are indeed attested in the OED. For example, the first instance of *hold out* (e.g. *a town*) dates back to 1769.

(12a) They booed the players [as they went/until they finally got] off the pitch at the interval.

(12b) They booed the players off the pitch at the interval.

The resultative structure in (11b) is analysed as being obtained from the more complex sentence in (11a), which contains a temporal subordinate clause introduced by *until*. The material in brackets would later be deleted thus leaving us with the construction in (11b). A similar explanation applies to the rise of constructions like (12b).

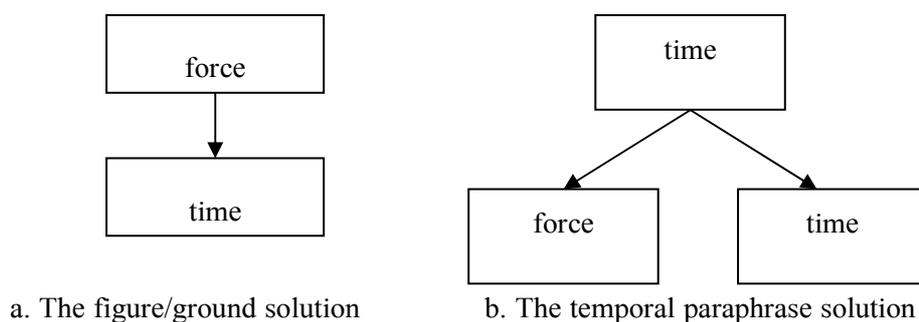


Figure 4. Two evolutionary paths for transitive change constructions

However appealing the temporal paraphrase solution might appear at first sight, this solution runs into some serious problems, which I will now consider in what follows.

(i) It is far from clear why, under the temporal paraphrase hypothesis, both temporal and causal cases should give rise to the same construction and why that structure should be of the object-oriented CC type. Importantly, the SVO pattern (i.e. the transitive pattern) prototypically correlates with a force-dynamic scenario (see Langacker 1991 *inter alia*); hence, it is to be expected that a force-dynamic scenario should also be (prototypically) associated with the syntactically more complex SVOC (i.e. transitive + change phrase) pattern. But it is not obvious why the SVOC pattern should also be associated with an exclusively temporal interpretation. By contrast, the figure/ground solution is able to motivate why the same structure can be used with two (largely) different meanings. The temporal reading is viewed as a bias in CCs and simply

emerges out of the bleaching of the causative interpretation (under contextual pressure, see the use of the temporal phrase *at the interval* in (5b)).

(ii) If both the causal and temporal object-oriented CCs derive from the same complex structure, it remains to be explained why the causal construction has many more instantiations than the temporal one. By contrast, the figure/ground approach motivates why this is so by appealing to the notion of prototypicality: the object-oriented CC prototypically imposes a force-dynamic construal.

(iii) Given the temporal paraphrase solution, we might expect (13b) to be possible since it could be derived from (13a) by way of the same mechanism of temporal subordinator deletion as in (11a) above.

(13a) He hammered **at** the metal until it got flat.

(13b) \*He hammered **at** the metal flat.

No such problems arise if we opt for the figure/ground solution since we only have one “starting” pattern, namely the transitive structure SVOC.

(iv) In some cases, the alleged reduction process does not always yield correct results:

(14a) Sally sprayed her skin soft.

(14b) \*Sally sprayed her skin until it became soft.

The temporal paraphrase for (14a), (14b), is not possible if (14a) is understood as *not* implying a durative action which goes on until the desired effect is achieved (see note 9 on this example). Sally may have stopped spraying her skin a relatively long time before her skin actually acquired the property of softness. This interpretation is compatible with the figure/ground solution because, as was pointed out in the previous section, actual temporal coextension is irrelevant at the level of integrated reality.

(v) The temporal paraphrase solution does not explain why a so-called “faked reflexive” is needed in cases like *Sally drank herself to death*, which one would take to originate from *She* *Constructions* SV1-4/2006 ([www.constructions-online.de](http://www.constructions-online.de), urn:nbn:de:0009-4-6765, ISSN 1860-2010)

*drank until she got to death* or similar constructions. The figure/ground solution does not run into this problem because the appearance of the object fake-reflexive is argued to signal (explicitly) the construal of *she* as a manipulee (see Broccias 2003a: 235-236).

(vi) If we opt for the temporal paraphrase solution we are at a loss to explain why verbs must denote an energy transfer (from a manipulator to a manipulee) in causative change constructions, as is shown in (15), after Halliday (1994). Only the causative structure (15a), containing an explicitly force-dynamic verb, is possible.

(15a) The soldiers trampled the field flat.

(15b) \*The soldiers crossed the field flat.

To sum up, the temporal paraphrase solution, at least as an overarching solution, is unlikely to be correct. The objections to the temporal paraphrase solution listed above are not problems for the figure/ground solution, which, at the present stage of our knowledge, should therefore be preferred.

### 5. Conclusion: Looking backwards and looking forwards

By way of the ambiguous *boo somebody off* example, I have argued for a possible path of constructional evolution (from the force-dynamic object-oriented CC to the temporal object-oriented CC) resting on the language user's capacity for constructional construal, i.e. the conceptualiser's ability to further construe the scene coded by the causal object-oriented CC. This possibility may, in turn, depend on a bias towards (construed) temporal overlap between the causing event and the caused event at the level of blended reality. I have also tried to show that the temporal paraphrase solution (as opposed to the figure/ground solution) cannot be taken as the driving force behind all examples. Still, a word of caution is necessary. We cannot a priori exclude that the temporal paraphrase solution may not have played any role in the evolution of both (some of) the causal and (some of) the temporal patterns. We should avoid the omnipresent

exclusionary fallacy exposed by Langacker (1987: 28): one explanation does not always necessarily preclude another.

It is now time to go back to the intransitive CC pattern illustrated in section 1, e.g. *The river froze solid* and *The kettle boiled dry*, with which our discussion started. It was pointed out there that intransitive change constructions can evoke causal interpretations (e.g. *The kettle boiled dry*). Further, in the case of *The river froze solid*, *solid* could be regarded primarily as an “intensifier” – after all, “to freeze” already means “to become solid”. *Solid* specifies the degree of, or “measures out”, the event of the river’s freezing. The freezing event was complete (cf. *The river froze completely*) or carried out in such a way that the river was greatly affected by it: the layer of ice was indeed a thick one.

Although causal and intensifier interpretations are possible with intransitive CCs, the temporal interpretation seems to predominate, which is different from the case with the transitive CC (see section 3.1). Even in those cases where the intransitive pattern can be interpreted as resulting from the causal merger of two subevents (e.g. with verbs of sound emission), some temporal overlap necessarily obtains between the verbal event and the event alluded to by the change phrase (at the level of unintegrated reality). Consider the following example:

(16) The module clicked into place.

(16) exhibits “reverse causation” (see section 1): the module (e.g. a RAM expansion module) clicked because it was inserted into the appropriate slot in the correct way. Further, it is the change event, i.e. the module's motion into the slot, which caused the sound emission, as was the case with example (3), *The man clumped into the room*, in section 1. (16) differs from (3), however, in that the temporal coextension between motion and sound emission is limited to the culmination of the motion event (i.e. the sound emission occurred when the module ended up in the slot) rather than obtaining throughout the motion event, as in (3).

I will assume that temporality is the default or prototypical interpretation for intransitive CC examples. Even cases like *The river froze solid*, where the change phrase is probably best analysed as an intensifier, are amenable to a temporal interpretation, e.g. “The process of the river’s changing state went on until a thick layer of ice was created”. For reasons of space, however, I will not speculate on the origin of the intransitive pattern (but see Horrocks & Stavrou 2003 for some proposals). What needs to concern us here is that figure/ground segregation can also be taken to motivate the availability of different paraphrases for intransitive examples. We can highlight different interpretations against the common background of temporality by relying on our world-knowledge. It should be observed that causality can emerge only in specific circumstances, namely when the change phrase does not seem to rephrase the meaning of the verb (i.e. their “conceptual distance” is great). For example, *boil* in *The kettle boiled dry*, see (4a), does not mean “to become dry” and hence a causal reading obtains easily. By contrast, *freeze*, as in *The river froze solid*, already means “to become solid” and thus makes the causal reading less plausible and probably triggers an intensifier, i.e. “completely”, reading. In sum, the event referred to by the non-verbal phrase (i.e. the change event) must not obviously be a part of the meaning of the verb for causality to emerge. But interpretation is a matter of construal. We cannot exclude that some speakers may background the notion of change implicit e.g. in the verb *freeze* and opt for a truly causal interpretation along the lines of “Some process internal to the river took place which caused it to end up with a thick layer of ice”.

What should have emerged rather clearly from this discussion is that both intransitive and transitive CCs can code both causality and temporality. Intransitive examples prototypically code temporality while transitive examples prototypically code causality (via a force-dynamic construal). In either case, the alternative construal, i.e. causality for intransitive cases and temporality for transitive cases, can be foregrounded if necessary. This observation can be plausibly motivated if we view constructions as no different from physical objects in the “world

out there”, where we constantly engage in figure/ground segregation in order to structure the world surrounding us for living purposes.

To be sure, much remains to be done in the study of change constructions. This paper has just tried to show how pervasive construal operations are in the interpretation, and possibly rise of, change constructions. Future research should first of all address the question of how change constructions evolved through time. This, I believe, will be a fruitful testing ground for the main suggestions put forward here, i.e. the primacy of the force-dynamic interpretation in transitive change constructions and the primacy of the temporal interpretation in intransitive change constructions.

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