## The 'no-agent' scalar implicature triggered by anticausatives is stronger when the causative alternative is structurally-defined

**1.** Schäfer & Vivanco (2016) propose that **anticausative** (**AC**) expressions such as in (1a) form scales with their (lexical) causative counterparts as in (2) ( $\langle break(y), break(x, y) \rangle$ ). Under this view, AC statements should exhibit a similar behavior as other items triggering scalar implicatures (Grice 1967, Horn 1972, Gazdar 1979, Noveck 2001 a.m.o): they should be felt less natural in a context fulfilling the stronger alternative (e.g., to describe a broken window and a smiling boy with a sling-shot in the hand in front of it), because the AC alternative is too weak in such contexts as it triggers a 'no-agent' scalar implicature (SI), i.e. an inference that there is no agent involved in the event denoted by the AC (see (1a/b)).

(1) a. The window broke.

- (2) Someone broke the window.
- b.  $\rightarrow \neg$ (Someone broke the window)

**2.** In English, ACs and causatives, however, are not of equal formal complexity: While ACs involve a vP denoting a set of events endured by the theme argument, causatives have on top of this vP a Voice-projection introducing an external argument variable (Kratzer 1996 a.o.). English ACs therefore do not have causative counterparts as *structurally-defined* alternatives (Katzir 2007, Katzir and Fox 2011). Structurally-defined alternatives for a structure  $\phi$  are at most as complex as  $\phi$ . This holds if they obtain via deletion or substitution. More complex structures do not count as alternatives, unless they are salient in the discourse (i.e. are *contextual* alternatives). In English, causatives are therefore at best contextual alternatives of ACs. On this view, (1a) is not expected to trigger the SI (1b), unless a causative statement such as (2) is salient in the context.

**3.** Languages like French differ from English in that a subset of their ACs receive morphological marking (*se* in French), either optional or compulsory, depending on their morphological class (-se, +se, or  $\pm se$  verbs, cf. Doron and Labelle 2011 a.o.). For instance, (1a) is translated in French either as in (3) or (4), as *casser* is a  $\pm se$  verb.

(3) La fenêtre casse/ the window breaks. (4) La fenêtre se casse/ the window se breaks

Under Alexiadou et al.'s (2015) and others view, the anticausative morphology has no semantic impact; e.g., (3/4) are truth-conditionally equivalent. ACs such as (4) are not semantically reflexive, and both marked and unmarked ACs are logically entailed by their causative counterparts. But they differ in syntactic complexity: while unmarked ACs have no Voice projection just as in English, marked ones involve a Voice projection (cp. (6b) and (6c) on p.2), and are therefore *syntactically* transitive although they have exactly the same inchoative semantics as their unmarked counterparts (Alexiadou et al. 2015, Schäfer 2017). This is because in marked ACs, Voice is semantically expletive: it denotes the identity function and hosts an expletive argument (*se*) in its specifier. On this view, marked ACs and causatives *do* have the same structural complexity; e.g., *Ana casse la fenêtre* 'Ana breaks the window' and (4) both involve a Voice projection on top of vP, see (6a/b). This means that *marked ACs have causatives as structurally-defined alternatives* (unlike unmarked ones). Adopting Katzir's 2007 and Fox & Katzir's 2011 characterization of alternatives, we thus put forward the hypothesis in (5).

(5) The no-agent SI triggered by AC statements is stronger when the corresponding causative statement is a structurally-defined alternative.

**4.** We tested the hypothesis in (5) through an online acceptability judgement study with native speakers of English and French. Participants (N=80 per language, 70 for French and 63 for English after exclusion) were asked to answer the question *Is the sentence below a natural description of what you see in the pictures*? through a [1-5] scale (1=not at all natural; 5=perfectly natural). Three factors were involved. **Agentivity:** whether the picture representing the change of an object depicts an agent or not (+AG vs. –AG pictures; see Figure 1b). **Syntactic frame:** whether the

test sentence is a (short) passive (e.g., *The ladder has been tipped over*) or an AC (e.g., *The ladder has tipped over*). We tested short passives of causatives rather than transitive causatives in order to keep the number of overt arguments constant across conditions. **Morphology:** whether the anticausative is morphologically marked or unmarked (relevant for French only). 25 verbs were tested across 50 items in English; 18 +*se* verbs and 9 –*se* verbs were tested across 54 items in French ( $\pm$ *se* verbs were not used to avoid the problem of competition between forms). The visual stimuli were the same across languages. Participants were divided in two groups; all of them saw all pictures, but the pairing between sentence types and pictures was different between groups.

**5.** Our predictions were as follows. As descriptions of +AG pictures, passives should be fully acceptable. In the same +AG condition, *marked* ACs should be felt infelicitous by participants sensitive to the non-literal meaning of our test sentences: the corresponding causative expressions being structurally-defined alternatives, marked ACs should trigger a clear no-agent SI (clashing with the presence of the agent in the +AG condition). *Unmarked* ACs should be rated better than marked ACs, since the corresponding causative is not a structurally-defined alternative. Furthermore, marked and unmarked ACs should be rated well as descriptions of -AG pictures. Passives were expected to be slightly penalized in the same -AG condition, since the intervention of an invisible agent, although always plausible, needs to be accommodated for the passives to describe -AG pictures felicitously.

**6.** Our predictions were confirmed by the results (see Fig. 1a). Both in English (left panel) and French (right panel), passives were at ceiling in the +AG condition. AC statements were rated less well than passives as descriptions of the same +AG pictures in both languages (p<.01). But in French, marked ACs receive much lower ratings than unmarked ones, confirming hypothesis (5). In the same +AG condition, the means for unmarked ACs is high but the responses somewhat scattered, which we take to indicate that unmarked ACs do trigger a SI, but a rather weak one. Assuming that passive test sentences play the role of contextual alternatives in our experiment, this confirms that the SI is weaker when the alternative is contextual only. Turning to -AG pictures, ACs received higher ratings than passives in both languages, as expected. Responses for passives were somewhat spread out, suggesting that participants differed in their readiness to accommodate the intervention of an invisible agent.



Figure 1: (a) Results: Mean acceptance per person (b) Two pairs of visual stimuli (+AG and -AG pictures);