Anchored Implicatives: Tagalog Ability/Involuntary Action

[Intro] Cross-linguistically, we find verbal morphology whose interpretation lumps together *prima facie* unrelated modal notions: ability attributions and the claim that an action is beyond the control of an agent, among others. Some examples are the Out-of-Control (OOC) circumfix *ka-...-a* in St'át'imcets [1], Malagasy *maha-* [2] and the Ability/Involuntary Action prefixes *ma-/maka-* in Tagalog [3,4]. To illustrate: Tagalog (1a), where the root *kain* 'eat' combines with *maka-* in its perfective form, can convey, depending on the context, that Bong *managed to* eat fish or that he *accidentally* did so. This contrasts with the "neutral" form in (1b), marked by infix *<um>*, which simply conveys that Bong ate fish.

(1) a. ***Naka-kain** si Bong ng isda.*
　　　 PFV.OOC-eat NOM Bong GEN fish

　　 b. ***K<um>ain** si Bong ng isda.*
　　　 <PFV>eat NOM Bong GEN fish

[Claims] For [1,2], OOC contributes circumstantial modality: it conveys what follows from a set of facts. Tagalog *ma-/maka-* asks for a refinement of this view. We focus on [2], and show that extending it to Tagalog faces two challenges: (i) it predicts *ma-/maka-* to be appropriate when the relevant facts guarantee an outcome, counter to intuitions, and (ii) it derives truth conditions that are too strong. We keep the idea that relativizing OOC to a set of circumstances can unify its interpretations, but propose, to avoid (i) and (ii), that OOC conveys (as non-at-issue content) that the circumstances are necessary but not sufficient for the occurrence of an event (as in [5]).

[Background] [2] analyze Malagasy OOC using sublexical modality, drawing on [6]'s analysis of so-called defeasible causatives, which proposes that certain VPs describe relations between individuals and events that cause a certain state s in all worlds in a given modal base (as in (2)). For [2], the difference between neutral and OOC forms in Malagasy is rooted in a difference in the role of the external argument. For them, in the neutral form the external argument is an agent, and this requires (by assumption) an *energetic* modal base, picking out worlds where the agent achieves their goal. In the OOC form, the external argument is a causer, and, for them, this requires the sublexical modal to range over a *circumstantial* modal base—a set of facts in the world of evaluation. The infinitive of the form in (1a) would then express the function in (2). Because circumstantial modal bases are realistic, the evaluation world must be one where result state holds.

(2) $\lambda x_e \lambda y_e \lambda e.\text{eat}(e) \wedge \text{causer}(y,e) \wedge \text{theme}(x,e) \wedge \square_{\text{circ}} \exists s\,[\text{be-eaten}(s) \wedge \text{cause}(e,s) \wedge \text{theme}(x,s)]$

[Challenges] 1. Felicity. This analysis predicts OOC sentences to be felicitous and true whenever the causing event is guaranteed, given the relevant facts, to lead to the result. Consider (3), uttered in a context where a fire was burning and someone threw some paper into it. In that situation, there was an event of the fire burning the paper that, given the circumstances, had to cause a state of the paper being burnt. (3) is predicted to be appropriate and true, but it is infelicitous. **2. Strength. (A) Positive environments.** The predicted truth-conditions are too strong. There are cases where OOC sentences are felicitous, as expected, but are wrongly predicted to be false. Consider the positive version of (4) (modified from [3]). Counter to predictions, (4) can truthfully describe a scenario where the circumstances did not guarantee drawing an ace—as in a typical card game scenario.

(3) #***Na-sunog** ng apoy na ito ang papel.*
　　 PFV.OOC-burn GEN fire LK this NOM paper
　　 'This fire managed to burn the paper.'

(4) *(Hindi)* ***Na-bunot** ni Fe ang alas.*
　　 NEG PFV.OOC-pull GEN Fe NOM ace
　　 'Fe has (not) drawn the ace.'

(B) Under negation. Counterpart to (A), negating sentences like (4) is predicted to result in truth-conditions that are too weak. The positive version of (4) is assigned the truth-conditions in (5). [2] predicts that negation scopes over the (necessarily low) sublexical modal operator. The negative version of (4) is thus expected to convey that (5) is false. (5) can be false in a situation where Fe

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drew a card that happened be an ace, as long as the circumstances did not require that the action would result in drawing the ace. However, the version of (4) with negation conveys that Fe did *not* draw an ace.

(5) $\exists e\,[\mathrm{pick}(e) \wedge \mathrm{causer}(\mathbf{F},e) \wedge \Box_{\mathrm{circ}}\exists s[\mathrm{have}(\mathbf{F},s) \wedge \mathrm{cause}(e,s) \wedge \mathrm{theme}(\mathbf{A},s)]]$

[Proposal] As in [1,2], we relativize the interpretation of OOC morphology to a set of circumstances c. But we do not assume that OOC morphology asserts what *follows* from c. Rather, we propose that OOC morphology has implicative semantics. In line with [5] for English *manage to*, we assume that OOC presupposes that a salient set of circumstances c (which can include certain properties of the external argument) are necessary, but not sufficient for the occurrence of an event of the type described by the VP, given the causal laws in the world of evaluation.

[Implementation] In order to restrict the circumstances that count, we let *ma-/maka-* be anchored to a (Kratzerian) situation (in line with recent literature on modal auxiliaries [7]), which is presupposed to be part of ($\sqsubseteq$) the world of evaluation and to have the external argument as a part. A domain fixing function f_{circ} maps s to the set of facts that are true in s. *Ma-/maka-* introduces the presupposition in (6) (where p is contingent, and $f_{\mathrm{cause}}(w)$ is a set of propositions representing the causal laws of w; a set P of propositions is causally insufficient for a proposition r in w iff $P \cup f_{\mathrm{cause}}(w) \cup \{\neg r\}$ is consistent; P is causally necessary for r in w iff $\forall P'\,[f_{\mathrm{cause}}(w) \cup \{r\} \cup P'$ is inconsistent] $(P' \in \{Q : P \neq Q \wedge \forall q[q \in P \leftrightarrow (q \in Q \vee \neg q \in Q)]\})$). We assume that the events involved in the relation that *ma-/maka-* operates over are *complete* events, as in (7), which, in the absence of OOC morphology should be mapped by other covert operators into events that can be in completed, in order to account for non-culminating accomplishments in the language [3].

(6) $[\![\textit{maka-}(s)]\!]^g = \lambda R \lambda x \lambda y \lambda e \lambda w : \begin{bmatrix} y \sqsubseteq g(s) \wedge g(s) \sqsubseteq w \wedge \\ f_{\mathrm{circ}}(s) \text{ is caus. insufficient in } w \text{ for } \lambda w.e \sqsubseteq w \\ \wedge\, \lambda w.e \sqsubseteq w \text{ causally requires in } w\, f_{\mathrm{circ}}(s) \end{bmatrix} . R_w(x)(y)(e)$

(7) $[\![\textit{bunot}]\!] = \lambda x_e \lambda y_e \lambda e \lambda w.\mathrm{pick}_w(e) \wedge \mathrm{agent}(y,e) \wedge \mathrm{theme}(x,e)$

[Consequences] The "necessary but not sufficient" presupposition derives the range of interpretations that we find with OOC. The *ability* interpretation comes about as a case where the anchor s picks out facts about the external argument (e.g., about the individual's skill in performing a task), and the *accidental* interpretation as a case where the agent cannot decide to bring about the outcome on purpose because the relevant circumstances around him do not guarantee that he can bring about the outcome We can also understand (3-4) under this view. Since *ma-/maka-* presupposes the possibility of failure, sentences containing *ma-/maka-* are expected to be deviant in cases like (3): given the salient context, the fire is guaranteed to burn the paper. The possibility of failure is conversely guaranteed in cases like (4). In the context above, *ma-/maka-* can convey in (4) that a salient set of circumstances around the subject did not guarantee the picking of the ace (but that the ace wouldn't have been picked if these circumstances had not obtained). The negation counterpart of (4) preserves the presupposition, but conveys that there was no drawing of the ace, in accordance with intuitions.

[References] | [1] Davis, H. *et al.* 2009. 'Out of control' marking as circumstantial modality in St'át'imcets. *Cross-linguistic semantics of tense, . . .* | [2] Paul, I. *et al.* Malagasy *maha* at the crossroads of voice, causation and modality. *BLS 42* | [3] Dell, F. 1983. An aspectual distinction in Tagalog. *Oceanic Ling.* (22/23) | [4] Schachter, P. & F. Otanes. 1972. *Tagalog reference grammar.* | [5] Baglini, R. & I. Francez. 2016. The implications of managing. *JoS* (33) | [6] Martin, F. & F. Schäfer. 2012. *The modality of* offer *and other defeasible causatives. WCCFL 30* | [7] Hacquard, V. 2006. *Aspects of modality.* PhD Thesis