Anchored Implicatives: Tagalog Ability/Involuntary Action

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[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 Tagalog ma-/maka-[3,4]. To illustrate: the Tagalog sentence in (1a), with a so-called “neutral” form verb (marked by infix <um>), conveys that Bong ate fish. In contrast, (1b), with maka- in its perfective form, conveys that Bong ate fish despite the circumstances (e.g., he managed to despite some impediment, or he did but accidentally [5]).

(1) a. K<um>ain si Bong ng isda. b. Naka-kain si Bong ng isda.

[Claims] For [12], OOC morphology contributes circumstantial modality: it conveys what follows from a set of facts. We argue that Tagalog ma-/maka- asks for a refinement of this view. We focus on the analysis presented in [2], and show that extending it to Tagalog faces two challenges: (i) it incorrectly predicts ma-/maka- to be appropriate when the relevant facts guarantee an outcome, and (ii) it derives truth conditions that are too strong. We keep the idea that relativizing the semantics of OOC morphology to a set of circumstances can derive its different interpretations, but propose, to avoid (i) and (ii), that OOC morphology conveys (as non-at-issue content) that the circumstances are necessary but not sufficient for the prejacent to occur (as in the analysis of manage to by [5]).

[Background] [2] analyze Malagasy OOC using sublexical modality, drawing on [6]’s analysis of defeasible causatives, which proposes that certain verbs describe relations between individuals and events that cause a certain state s in all worlds in a given domain (as in (2)). For [2], the difference between Malagasy neutral and OOC forms correlates with the thematic role of the external argument: in the neutral form the EA is an agent, requiring (by assumption) an energetic modal base (which picks out worlds where the agent achieves their goal) for the sublexical modal; in the OOC form the EA is a causer, requiring instead a circumstantial modal base—a set of facts in the world of evaluation. The infinitive of the form in (1b) would denote the function in (2).

(2) \( \lambda x \lambda y . \lambda e . eat(e) \land causer(y, e) \land theme(x, e) \land \Box_{circ} \exists s [be-eaten(s) \land cause(e, s) \land theme(x, s)] \)

Because circumstantial modal bases are realistic, the evaluation world must be one where result state holds. Conversely, energetic modal bases are not realistic, deriving the fact that neutral forms do not entail that the result state holds [23].

[Challenges] 1. Felicity. This analysis predicts sentences with OOC morphology to be felicitous and true if the causing event guarantees the result state, given the relevant facts. Consider, for instance (3), uttered in a context where someone threw some paper into a fire. 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, incorrectly, to be appropriate and true. 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 tio ang papel. (4) (Hindi) Na-bunot ni Fe ang alas.

(B) Negative environments. Negating sentences like (4) yields truth-conditions that are too weak. The positive version of (4) is assigned the truth-conditions in (5). The analysis in [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 drew a card that happened to 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) \[ \exists e [\text{pick}(e) \land \text{causer}(F, e) \land \Box \exists s [\text{have}(F, s) \land \text{cause}(e, s) \land \text{theme}(A, s)]] \]

[Proposal] We do not address the neutral form. As in [2], we relativize the interpretation of OOC morphology to a set of circumstances c without assuming that OOC conveys what follows from c. Rather, we propose an implicative semantics, in line with [5] for manage to. We assume that OOC presupposes that a salient set of circumstances (including properties of the EA) is necessary but not sufficient for the event described to occur, 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 work on modal auxiliaries [7]), which is presupposed to be part of (\(\subseteq\)) the world of evaluation and to overlap (\(\mid\)) with the EA. A domain fixing function \(f_{\text{circ}}\) maps s to the set of facts that are true in s.

(6) \[ [\text{maka-}(s)]^s = \lambda R \lambda w. e \lambda w: \begin{align*} & y \mid g(s) \land g(s) \subseteq w \land f_{\text{circ}}(s) \text{ is caus. insufficient in } w \text{ for } \lambda w. e \subseteq w, \quad R_w(x)(y)(e) \land f_{\text{circ}}(s) \text{ is caus. necessary in } w \text{ for } \lambda w. e \subseteq w \end{align*} \]

Where r is a contingent proposition, and \(f_{\text{cause}}(w)\) is a set of propositions representing the causal laws of w: a set P of propositions is causally insufficient for r in w iff \(P \cup f_{\text{cause}}(w) \cup \{\neg r\}\) is consistent; P is causally necessary for r in w iff \(\forall P' [f_{\text{cause}}(w) \cup \{r\} \cup P'\text{ is inconsistent}] \) (\(P' \in \{Q: P \neq Q \land \forall q \in P[q \in Q \lor q \in Q]\}\)). We assume that the events involved in the relation that ma-/maka- operates over are complete events, as in (7), which can be mapped by other (non-OOC) morphemes into events that can be completed, to account for non-culminating interpretations [3].

(7) \[ [\text{bunor}] = \lambda x. \lambda y. \lambda z. \lambda w. \text{pick}_w(e) \land \text{agent}(y, e) \land \text{theme}(x, e) \]

[Consequences] The “necessary but not sufficient” presupposition derives the range of interpretations that we find in connection with OOC morphology. The was able to or managed to paraphrases come about as cases where the anchor s picks out facts about the external argument (e.g., about their skill in performing a task). Consider (1b). Suppose that Bong is a 10-month-old baby and that eating fish requires a certain dexterity for a 10-month-old. Maka- can pick out a situation where relevant facts about Bong’s dexterity are true and convey that those facts did not guarantee his eating the fish, but that he would not have eaten the fish if he did not have this dexterity. The accidentally or involuntarily paraphrases are cases where, for instance, the circumstances are in some sense orthogonal to the outcome. Suppose, for example, that baby Bong has found some fish left out for the cat and ends up playing with it, putting it in his mouth in the process. Here, maka- picks out a situation including that the fish was somewhere accessible to Bong and that he played with it. These facts are necessary but not sufficient for the result (Bong’s playing did not need to involve ingesting the fish). As for (3-4), since ma-/maka- presupposes the possibility of failure, sentences with 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). Ma-/maka- can convey in (4) that a salient set of circumstances around Fe did not guarantee her picking the ace (but that she wouldn’t have picked it if these circumstances had not obtained). The negation of (4) preserves the presupposition, but conveys that there was no drawing of the ace.