

Causes and expectations: On the interpretation of the Tagalog ability/involuntary action form*

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Abstract The Tagalog Ability / Involuntary Action (AIA) verbal form conveys apparently unrelated modal meanings: that an action was within what an agent could do or that it was beyond what an agent could control, for instance. Recent analyses for the Malagasy and St’át’imcets counterparts of this form propose that this morphology contributes circumstantial modality and conveys, roughly, that the event that it describes follows from a set of facts (Davis, Matthewson & Rullmann 2009; Paul, Ralalaoherivony & de Swart 2016). In Alonso-Ovalle & Hsieh forthcoming we discuss some challenges for extending this type of analysis to Tagalog. Here, we present an alternative proposal. We follow previous analyses in assuming that the AIA form projects its domain of possibilities from a set of facts, but depart from these analyses in proposing (i) that the modal component of the Tagalog AIA form is non-at-issue and (ii) that it conveys, via a presupposition, that, given the facts that the described event is assumed to causally depend on, this event was not expected.

Keywords: Tagalog, modality, actuality entailments, out-of-control morphology, implicative verbs

1 Introduction

There are two classes of verbal forms in Tagalog: the neutral and the so-called ‘ability/involuntary action’ (AIA) form (Schachter & Otones 1972; Dell 1983). These forms contrast in their interpretation, as the pair of sentences in (1) shows. The sentence in (1a), with its verb in the perfective aspect neutral form, conveys that

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Lisa opened the door. The sentence in (1b), with its verb in the perfective aspect AIA form, does too. On top of that, (1b) makes an extra modal claim: that opening the door was within what Lisa could do or that it was beyond what she could control, depending on the context.¹

- (1) a. B<in>uks-an ni Lisa ang pinto.
 <PFV.NTL>open-LV GEN Lisa NOM door
 ‘Lisa opened the door.’
 b. Na-buks-an ni Lisa ang pinto.
 PFV.AIA-open-LV GEN Lisa NOM door
 ‘Lisa managed to open the door. / Lisa accidentally opened the door.’

At first sight, the AIA form seems to lump together what look like unrelated modal meanings. Why? Do the attested interpretations derive from one and the same core meaning? What kind of modality does the AIA form express?

These questions are not new. They have been recently addressed and answered in connection with similar verbal forms in other languages.² The Tagalog AIA form finds counterparts in the Malagasy verbal prefix *maha-* (Paul et al. 2016), and, outside Austronesian, in the ‘Out-of-Control’ circumfix *ka-...-a* in St’át’imcets (Davis et al. 2009), among others. Like the Tagalog AIA form, the Malagasy and St’át’imcets forms can convey ability attributions or describe accidental actions, as shown in (2) for Malagasy and in (3) for St’át’imcets.³

- (2) a. Mahaongotra fantsika amin’ ny tanana Rabe.
 AHA.pull-out nail with DET hand Rabe
 ‘Rabe can pull out nails with his hands.’
 b. Nahasotro poizina izy.
 PST.AHA.drink poison 3
 ‘He drank poison [by accident].’ (Paul et al. 2016)

1 Tagalog examples use the following abbreviations for glosses: AIA: Ability/Involuntary Action Form, AV: Agent Voice, CV: Conveyance Voice, GEN: Genitive, IMPF: Imperfective, LK: Linker, LV: Locative Voice, NEG: Negation, NOM: Nominative, NTL: Neutral Form, OBL: Oblique, PFV: Perfective, PROS: Prospective, PV: Patient Voice, Q: Question Particle. Morpheme boundaries are indicated following the Leipzig Glossing Conventions. Non-Tagalog examples follow the glosses used in the source texts.

2 To our knowledge, there is no standard term used to refer to the Tagalog AIA forms and also to their counterparts in other languages. Here, we will use ‘AIA’ to refer to Tagalog forms and, occasionally, to its counterpart on other languages.

3 The parallel is not perfect, though. Unlike the Tagalog AIA forms, Paul et al. (2016) observe that when *maha-* combines with stative predicates, it receives a causative interpretation that the Tagalog AIA does not seem to have. Davis et al. (2009) also report a number of other interpretations of *ka-...-a*. We discuss some of the differences in Alonso-Ovalle & Hsieh forthcoming.

- (3) a. ka-gwél-s=kan-a
 OOO-burn-CAUS=1SG.SUBJ-OOO
 ‘I managed to get it lit.’
 b. ka-gwél-s=kan-a ta=ngúy’tten=a
 OOO-burn-CAUS=1SG.SUBJ-OOO DET=bed=EXIS
 ‘I accidentally set my bed on fire.’ (Davis et al. 2009)

Davis et al. (2009) and Paul et al. (2016) (for St’át’imcets and Malagasy, respectively) have put forth semantic analyses of AIA forms that answer the questions above. These analyses assume that the interpretation of AIA forms in Malagasy and St’át’imcets derive from one and the same modal core. Although there are significant differences in their implementation, these analyses propose, for the languages that they study, that AIA forms contribute circumstantial modality; in particular, that they convey that a certain outcome follows from a set of facts.⁴

In Alonso-Ovalle & Hsieh *forthcoming* we assess the extent to which this type of approach can be extended to Tagalog by focusing on the interpretation of the Tagalog AIA forms in the perfective aspect. We conclude there that there are differences in the interpretation of AIA forms in Tagalog, Malagasy, and St’át’imcets, and that this line of reasoning faces some challenges when extended to Tagalog. For reasons of space, we will not reproduce here the main conclusions that we arrive at in that paper, to which the interested reader is referred. Instead, we will present here an alternative analysis of the Tagalog AIA form, one that partially follows previous proposals about other AIA forms, but departs from them in several respects.

In Alonso-Ovalle & Hsieh *forthcoming*, we find no reason to challenge the hypothesis that the type of modality that AIA forms contribute is sensitive to a set of relevant circumstances or facts. Accordingly, our proposal in this paper follows previous analyses in assuming that the Tagalog AIA form projects its domain of possibilities from a set of facts. We depart from previous analyses, however, in proposing (i) that the modal component of this form is non-at-issue, and (ii) that it conveys, via presupposition, that, given the facts that the described event is assumed to causally depend on, this event was not expected—rather than conveying that the described event follows (or is expected to follow) from the relevant circumstances.

The paper is organized as follows. To make the paper self-contained, Section 2 repeats some background about the form of the Tagalog AIA morphology presented in Alonso-Ovalle & Hsieh *forthcoming*, and introduces two properties of the interpretation of the perfective form that guided our discussion in that paper. Section 3 presents our proposal: its basic components are introduced in Subsections 3.1

⁴ The analysis in Davis et al. 2009 was first presented in Davis, Matthewson & Rullmann 2007. In what follows we will mainly refer to Davis et al. 2009, which is a longer version of Davis et al. 2007.

	Neutral	AIA
AGENT	b<um>ukas	naka -bukas
PATIENT	b<in>ukas*	na -bukas*
LOCATIVE	b<in>kus- an	na -buks- an
CONVEYANCE	i -b<in>ukas	na-i -bukas

Table 1 Sample voice forms for the neutral and AIA forms of *bukas* ‘open’ in the perfective (Forms marked * are slightly marginal)

	Neutral	AIA
PERFECTIVE	b<in>uks-an	na-buks-an
IMPERFECTIVE	b<in>u~buks-an	na-bu~buks-an
PROSPECTIVE	bu~buks-an	ma-bu~buks-an
(INFINITIVE)	buks-an	ma-buks-an

Table 2 Sample aspect forms for the neutral and AIA forms of *bukas* ‘open’ in the locative voice

and 3.2, Subsection 3.3 illustrates how the proposal works in some of the scenarios discussed in Section 2, and Subsection 3.4 comments on the non-at-issue status of the modal component of AIA forms. Section 4 concludes with a brief summary and an important question for further research.

2 The Tagalog AIA inflection: Form and interpretation

We start with some basic background about verbal forms in Tagalog.

As discussed in the introduction, Tagalog verbs can appear either in the neutral or in the AIA form. Each of these forms inflect for voice and aspect: Table 1 shows the neutral and AIA forms in the perfective aspect in different voices, and Table 2 the neutral and AIA versions of the locative voice in different aspects.

Voice marking correlates with the argument marked as the so-called ‘pivot’, which bears nominative *ang/si*. This is shown, for AIA forms, in (4).

- (4) a. Naka-bili ang bata ng mani.
PFV.AV.AIA-buy NOM child GEN peanut
‘The child {managed to buy / accidentally bought} peanuts.’
Agent Voice ↔ Agent Pivot

- b. Na-bilh-an ng bata ng mani *ang kapatid niya*.
PFV.AIA-buy-LV GEN child GEN peanut NOM sibling 3SG.GEN
'The child {managed to buy / accidentally bought} peanuts *for her sibling*.'
Locative Voice ↔ Location/Recipient Pivot

Aspect provides temporal orientation. Without overriding temporal modifiers, perfective, imperfective and prospective forms are interpreted as past, present/habitual, and future, respectively, as (5) illustrates for the first two forms.⁵

- (5) a. K_{um}ain si Junior ng gulay.
 <PFV.AV.NTL>eat NOM Junior GEN vegetables
 ‘Junior ate vegetables.’ *Perfective form, past interpretation*
- b. K_{um}a~kain si Junior ng gulay.
 IMPF.AV.NTL~eat NOM Junior GEN vegetables
 ‘Junior {eats / is eating} vegetables.’
Imperfective form, present/habitual interpretation

We will focus here on the interpretation of AIA forms in the perfective aspect by introducing two properties that set these forms apart from their neutral counterparts.

The first property is that AIA morphology restricts the possible contexts in which the sentence that it occurs in can be felicitously uttered. To illustrate this, we will make use of the following three scenarios:

- (6) a. *Scenario 1 (Expected Outcome)*. Lisa is trying to open an automatic door. All that is required to open the door is to press a button. It's impossible for the door not to open if the button is pressed. Lisa presses the button. As expected, the door opens. (inspired by [Baglini & Francez 2016](#))
- b. *Scenario 2 (Ability / Overcoming an Obstacle)*. Lisa is trying to open an automatic door locked with a numeric code. To open the door, you need to enter the right code and press the open button. Lisa presses the button, but she doesn't know the code, so she tries different combinations of numbers. She eventually enters the correct code, and the door opens.
- c. *Scenario 3 (Involuntary Action)*. Same door. Lisa presses the button. She remembers the code but doesn't have the intention to open it. She falls over the keypad and enters the right code by chance. The door opens.

In all three scenarios in (6), Lisa opened the door. The perfective AIA sentence in (1b), repeated below in (7a), conveys that Lisa opened the door, just like its counterpart in the neutral form in (1a), repeated below in (7b), does. Yet, the AIA

5 See Schachter & Otanes 1972 for details.

sentence in (7a) cannot be felicitously used to describe all three scenarios. It can be felicitously used to describe Scenario 2, and, in that case, it is naturally paraphrased with the English sentences *Lisa managed to open the door* or *Lisa was able to open the door*. It can also be used to describe Scenario 3, where it is naturally paraphrased with the English sentence *Lisa accidentally opened the door*. But (7a) cannot be felicitously used to describe Scenario 1—to the extent that Lisa’s opening of the door is taken to be completely predictable and expected, as intended. In contrast, the neutral form sentence in (7b) can be felicitously used in all three scenarios—although speakers can express a preference for (7a) in Scenarios 2 and 3.

- (7) a. Na-buks-an ni Lisa ang pinto.
 PFV.AIA-open-LV GEN Lisa NOM door
 b. B<in>uks-an ni Lisa ang pinto.
 <PFV.NTL>open-LV GEN Lisa NOM door
 ‘Lisa opened the door.’

Moving beyond this contextual restriction, Dell (1983) notes a second property that characterizes AIA forms in the perfective in contrast with their neutral counterparts: that they entail the actual culmination of the event described. The pair of discourses in (8) illustrates this point. The discourse in (8a) feels contradictory. The first sentence, with a verb in the AIA form, implies that the rock was pushed, and therefore, that it moved. This implication contradicts the continuation, which explicitly conveys that the rock did not move. Changing the verb in the first sentence from the AIA form to the neutral form, as in (8b), turns the contradictory discourse into a consistent one.⁶

- (8) a. # Na-i-tulak ni Ben ang bato, pero hindi ito
 AIA.PFV-CV-push GEN Ben NOM rock but NEG this
 g<um>alaw dahil napaka-bigat nito.
 <AV.NTL.PFV>move because very-heavy this.GEN
 b. I-t<in>ulak ni Ben ang bato, pero hindi ito
 CV-<NTL.PFV>push GEN Ben NOM rock but NEG this
 g<um>alaw dahil napaka-bigat nito.
 <AV.NTL.PFV>move because very-heavy this.GEN
 ‘Ben managed to push the rock, but it didn’t move because it was so
 heavy.’ (after Dell 1983)

In Alonso-Ovalle & Hsieh *forthcoming* we noted that the actuality entailment of positive AIA sentences in the perfective is reversed under negation. While positive

⁶ Non-culminating accomplishments are found in other languages, too. For an overview of this topic, see Martin (*forthcoming*).

AIA sentences convey the existence of a completed actual event of the type described by the VP, their negative counterparts convey that there is no actual event of the type described by the VP—rather than the weaker claim that there is no completed actual event of the type described by the VP. To illustrate: while the positive version of (9) conveys that Fe drew the red ball, the negative version conveys that she didn't.

- (9) (Hindi) Na-bunot ni Fe ang pula=ng bola.
 NEG PFV.AIA-pull(PV) GEN Fe NOM red=LK ball
 'Fe drew / didn't draw the red ball.' (modified from Dell 1983)

To sum up, AIA forms in the perfective convey (i) a modal meaning component that restricts the types of scenarios where they can be used felicitously, and (ii) an actuality entailment that is reversed under negation. With respect to (i), we noted that AIA forms can appropriately describe scenarios where a certain event obtained despite what was likely to be the case, given the relevant circumstances, and that they are incompatible with the description of completely expected outcomes.⁷

In the next section, we will present an analysis that aims to derive these two properties. The basic idea is as follows. The actuality implications of AIA forms are reminiscent of the behavior of implicative verbs (Karttunen 1971; Baglini & Francez 2016) and invite exploring the possibility that the modal component of AIA morphology is not at issue. This is what we will assume. We will take the modal component to be contributed by a presupposition. Like in previous analyses, AIA projects the possibilities that it ranges over from a set of facts. Unlike in previous analyses, however, we will not assume that the AIA form requires the described event to follow from those facts. Instead, we will propose that the AIA form presupposes that, given the facts that the described event is assumed to causally depend on, this event was not expected. This modal presupposition rules out inevitable processes (which are completely expected, given the relevant circumstances) and is satisfied in the scenarios where the meaning contribution of the AIA form is paraphrased with the implicative verb *manage to* or the adverb *accidentally*. According to our analysis, when its modal presupposition is satisfied, an unembedded sentence with the verb in the perfective AIA form simply asserts that an event of the type expressed by the VP took place. Embedding the sentence under negation is then predicted to convey that this is not the case.

⁷ To our knowledge, the infelicity of AIA forms in contexts like Scenario 1 has not been explicitly noted before.

3 Proposal

3.1 Components

We will start by characterizing the modal component of AIA forms, which, as we mentioned before, will be taken to be non-at-issue. To capture the modal component of AIA forms, we will make use of two parameters of interpretation. We assume that the modal contribution of AIA forms is sensitive to a set of facts (true propositions) in the world of evaluation w and to a stereotypical ordering source that captures what is expected in w .

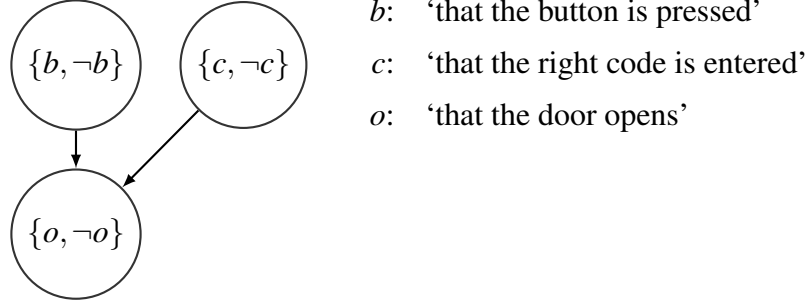
We do not depart too much from previous proposals in this respect: we follow both [Paul et al. 2016](#) and [Davis et al. 2009](#) in relativizing the interpretation of AIA morphology to a set of facts in the world of evaluation, and [Davis et al. 2009](#) in resorting to a stereotypical ordering source.

We depart slightly from previous proposals, however, in making an extra assumption about the facts that the interpretation of AIA is sensitive to: we will assume that the facts that the interpretation of AIA forms requires considering are certain properties of the world of evaluation that are causally relevant for whether not the event that the AIA sentence describes happens. But we will not have much to say about how these facts are determined; we will simply take causal dependencies to be primitive and determined by a parameter of interpretation, a causal structure \mathcal{C} .

A causal structure \mathcal{C} for a set of worlds W represents causal relations between variables, usually thought of as events or states ([Thomason 2014](#); [Schulz 2011](#); [Baglini & Francez 2016](#)). In the Causal Premise Semantics presented in [Kaufmann 2013](#), which we will follow here on this point, variables are modelled as partitions of W (which we can intuitively think of as yes/no questions or issues).⁸ Given a non-empty set of possible worlds W , a casual structure for W is a pair $\mathcal{C} = \langle U, < \rangle$, where U is a set of finite partitions on W and $<$ is a directed acyclic graph over U ([Kaufmann 2013](#): p.1151)—a directed acyclic graph is a binary relation (‘variable₁ directly depends causally on variable₂’) whose transitive closure (‘variable₁ depends causally on variable₂’) is a strict (irreflexive) partial order. The graph in (10) provides an illustration. The nodes in (10) represent variables and the arrows represent causal dependencies—we get an arrow from one variable to another when the latter directly depends causally on the former. Intuitively, what the causal structure in (10) conveys is that whether or not the door opens depends on whether or not the button is pressed and on whether or not the right code is entered.

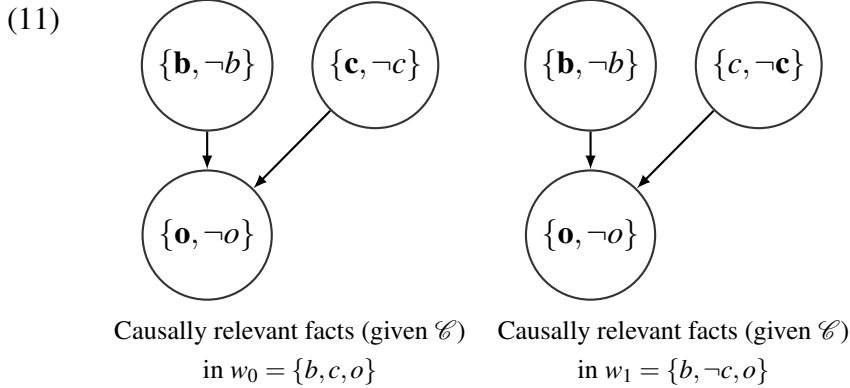
⁸ Usually, causal networks express the *probability* that a certain event happens given the fact that another event that it causally depends on happens. We follow [Baglini & Francez 2016](#) (and [Schulz 2011](#), which they borrow from) as well as [Kaufmann 2013](#) in using deterministic causal backgrounds.

(10) *Illustration of a causal structure \mathcal{C} (for a set of worlds W)*



We will keep in mind that causal structures represent causal dependencies at a certain granularity level. Variables can be represented as being independent even when at a more fine grained level they might depend on other variables, and intermediate variables that are present at a certain fine grained level might be ignored in less fine grained representations (Baglini & Francez 2016).

Given a causal structure \mathcal{C} and a world w , we can collect in a set all propositions in any of the variables in \mathcal{C} that are true in w . This will be the set of causally relevant facts in world w , which we will indicate in the graphs using boldface, as in (11), where we represent the causally relevant facts in two worlds w_0 and w_1 . We will take the interpretation of AIA forms to be sensitive to a subset of these facts.



We will assume that the interpretation of the perfective AIA forms conveys that the existence of an event of the type described by the VP is expected in the world of evaluation, given what the existence of this type of event is taken to causally depend on. In order to express this, we need to make reference to what is expected in the world of evaluation. We will then assume that the interpretation of the AIA form involves a stereotypical ordering source \mathbb{S} , which maps any world w to a set of propositions that represent what is normal or most expected in w (Kratzer 1981, 1991, 2012). As we have mentioned before, because the unexpected happens,

propositions in the ordering source can be false in the world of evaluation. Suppose, for instance, that \mathbb{S} yields for both w_0 and w_1 the singleton in (12). What is expected in w_0 is true in this possible world. What is expected in w_1 , in contrast, turns out to be false.

$$(12) \quad \mathbb{S}(w_0) = \mathbb{S}(w_1) = \{\lambda w. o_w \leftrightarrow (b_w \wedge c_w)\}$$

3.2 The modal component

Given a proposition p , a causal structure \mathcal{C} , and a stereotypical ordering source \mathbb{S} , we can check whether in a world w , p is (in)consistent with the facts in w that are causally relevant for whether p or $\neg p$ is the case (as determined by the causal dependencies in \mathcal{C}) and with what is expected in w (as determined by $\mathbb{S}(w)$).

The recipe will be familiar. We take the set of causally relevant facts in w for whether p or $\neg p$ is the case, given \mathcal{C} . This set will be the subset of the causally relevant facts that contains any true proposition in any node dominating the variable $\{p, \neg p\}$ in \mathcal{C} . We then add to this set *all* propositions from the stereotypical ordering source $\mathbb{S}(w)$, together with p . We then check whether the resulting set is consistent.⁹ If the resulting set is consistent, p is consistent with the expectations in w , given the set of causally relevant facts for whether p or $\neg p$ is the case—(at least) some of the most expected worlds that share the causally relevant facts with w are p -worlds. If the resulting set is *inconsistent*, none of the most expected worlds sharing with w the causally relevant facts for whether p or $\neg p$ is the case are p -worlds.¹⁰

We contend that the AIA form in the perfective presupposes that the occurrence of an event of the type described by the VP in the world of evaluation w is not consistent with what is expected in w and with the facts in w that the occurrence of an event of that type is taken to causally depend on. We capture this as in (13), where $\mathcal{C}_{\rightarrow p, w}$ names the set of causally relevant facts in w dominating $\{p, \neg p\}$ in \mathcal{C} , and p_{VP} names the proposition that maps any world w to true if there is at least an event e of the type described by the VP in w ($\lambda w. \exists e \llbracket VP \rrbracket^c(e)(w)$).

- (13) a. For any e, w , $\llbracket \text{AIA VP} \rrbracket^c(e)(w)$ is defined iff
- i. c makes available a causal structure \mathcal{C} and a stereotypical ordering source \mathbb{S} and,
 - ii. $\mathcal{C}_{\rightarrow p_{VP}, w} \cup \mathbb{S}_w \cup \{p_{VP}\}$ is an inconsistent set of propositions.
- b. If defined, $\llbracket \text{AIA VP} \rrbracket^c(e)(w) = 1$ iff $\llbracket VP \rrbracket^c(e)(w) = 1$

⁹ A set of propositions is consistent if there is at least one world where all propositions in the set are true.

¹⁰ We are assuming that stereotypical ordering sources are consistent.

In (13), we assume that *VPs* express relations between events and worlds. We take perfective aspect to map a relation $R_{\langle i, st \rangle}$ —we will use type i for events—to the proposition that is true in a world w iff R holds of at least a past event and w , as in (14).¹¹

$$(14) \quad \llbracket \text{PFV} \rrbracket^c(R_{\langle i, st \rangle})(w) = 1 \text{ iff } \exists e[e < \text{now}_c \ \& \ R(e)(w) = 1]$$

We illustrate next the predictions of this setup in some representative scenarios.

3.3 Illustrations

Consider again Scenario 1 in (6a), repeated in (15) below:

- (15) *Scenario 1 (Expected Outcome)*. Lisa is trying to open an automatic door. All that is required to open the door is to press a button. It's impossible for the door not to open if the button is pressed. Lisa presses the button. As expected, the door opens. (inspired by Baglini & Francez 2016)

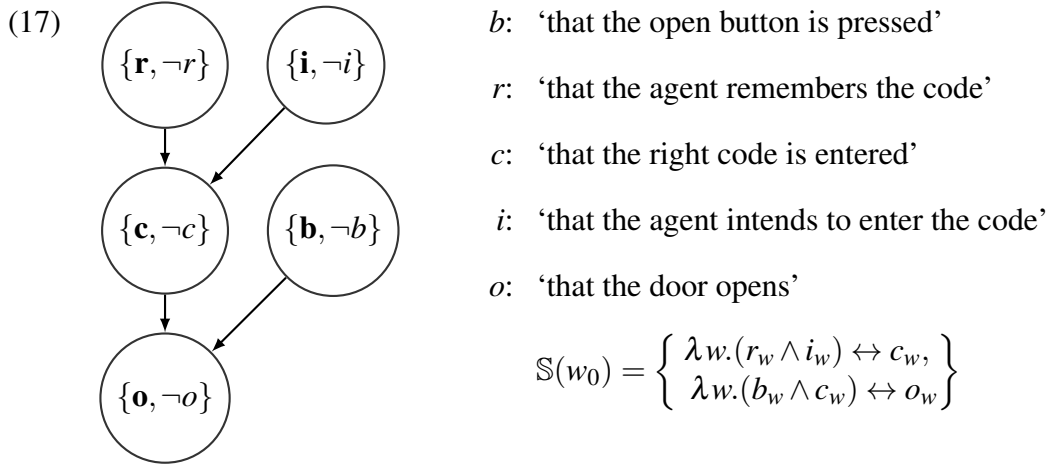
We noted in Section 2 that the sentence in (7a), repeated in (16) below, is deviant in this scenario—to the extent that the opening of the door is taken to be completely predictable and expected, as intended.

- (16) # Na-buks-an ni Lisa ang pinto.
 PFV.AIA-open-LV GEN Lisa NOM door
 ‘Lisa managed to open the door.’

Under plausible assumptions about the causal dependencies, facts, and expectations that Scenario 1 makes available, the current setup captures the deviance of (16) as a presupposition failure.

Consider, for instance, the causal structure in (17). Intuitively, what (17) conveys is that whether or not the door opens depends on whether or not the right code is entered and on whether or not the open button is pressed. Similarly, whether or not the right code is entered depends on whether or not the agent remembers the code and on whether or not she has the intention to enter the code. The propositional letters in boldface type convey the causally relevant facts: according to the scenario, Lisa remembers the code, has the intention to enter it, enters the right code, presses the open button, and the door opens.

¹¹ Note that, in this setup, the presupposition that AIA contributes has no temporal content. As far as we can see, this still allows us to make the right predictions in the critical scenarios discussed in the next subsections.



Let us assume, furthermore, as in (17), that the most expected worlds in the world of evaluation w_0 are worlds where the right code is entered if and only if the agent remembers the code and has the intention to enter it, and where the door opens if and only if the open button is pressed and the right code is entered.

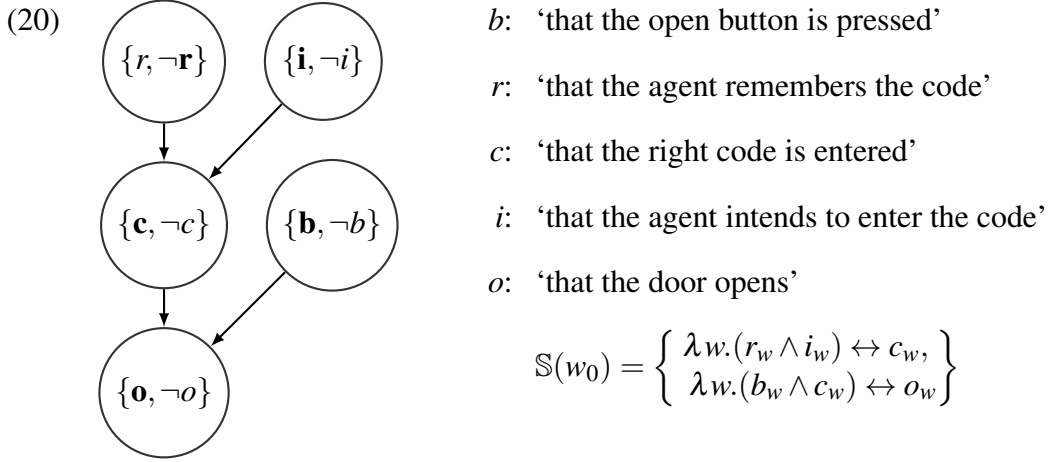
Putting together the causally relevant facts in w_0 that the opening of the door depends on with the expectations in w_0 and the proposition that the door opens gives us the set of propositions in (18). The set is consistent. In fact, the proposition that there is an event of the door opening *follows* from the causally relevant facts and the expectations. The AIA sentence in (16) is then predicted to have a presupposition failure.

$$(18) \quad \{b, c, r, i\} \cup \{\lambda w. (b_w \wedge c_w) \leftrightarrow o_w, \lambda w. (r_w \wedge i_w) \leftrightarrow c_w\} \cup \{o\}$$

Let us now consider what happens when we interpret (16) in Scenario 2, presented in Section 2 and repeated in (19) below.

- (19) *Scenario 2 (Ability/Overcoming an Obstacle)*. Lisa is trying to open an automatic door locked with a numeric code. To open the door, you need to enter the right code and press the open button. Lisa presses the button and but she doesn’t know the code, so she tries different combinations of numbers. She eventually enters the correct code, and the door opens.

We noted in Section 2 that the AIA sentence in (16) can felicitously make a true claim in this scenario. Under plausible assumptions about what kind of causal dependencies, facts, and expectations the scenario makes available, this is expected. Assume, for instance, that the relevant causal structure and expectations are the same as in (17). The only difference lies in one of the contextually relevant facts: now Lisa does *not* remember the right code, as shown in (20).



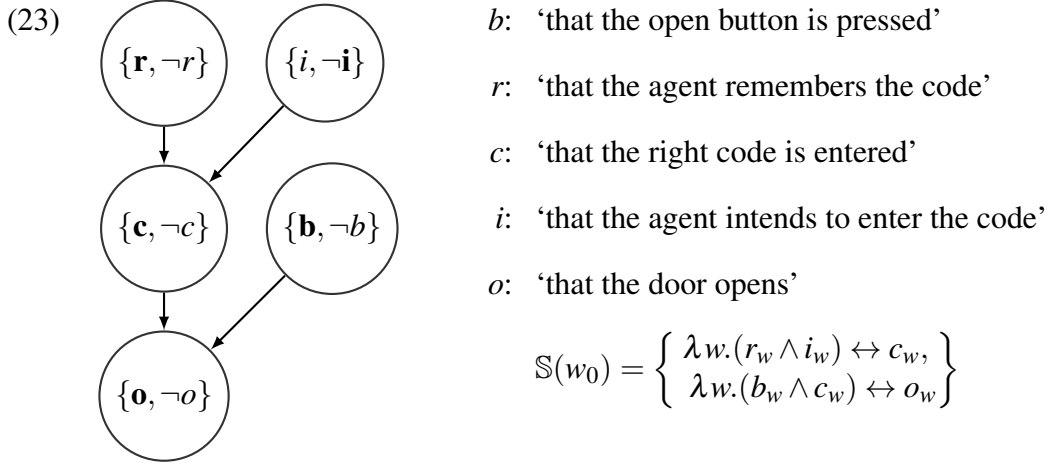
The relevant set of propositions is now (21), which differs from (18), only in that it contains the proposition that Lisa does *not* remember the code, rather than the proposition that she remembers the code. This difference has an important consequence: the relevant set of propositions is now *inconsistent*. This means that the presupposition triggered by AIA morphology will now be satisfied: the sentence in (16) is no longer a presupposition failure and makes a true claim—that Lisa opened the door.

$$(21) \quad \{b, c, \neg r, i\} \cup \{\lambda w. (b_w \wedge c_w) \leftrightarrow o_w, \lambda w. (r_w \wedge i_w) \leftrightarrow c_w\} \cup \{o\}$$

The context in (20) is one where the agent has the intention to bring about a certain state of affairs and this state of affairs obtains in the absence of one of the facts that is expected to obtain (remembering the code). In this context, (16) can be naturally paraphrased with the help of the English implicative verb *manage to*. The predicted modal presupposition is also satisfied in contexts where the relevant state of affairs obtains despite the agent’s intention, and where 16 is naturally paraphrased with the adverb *accidentally*. Consider, for instance, Scenario 3 in (6c), repeated below:

(22) *Scenario 3 (Involuntary Action)*. Same door. Lisa presses the button. She remembers the code but doesn’t have the intention to open it. She fells over the keypad and enters the right key by chance. The door opens.

The context in (22) is one where, again, (16) can be felicitously used to make a true claim. This is expected under current assumptions. The reasoning that we applied to capture what happens with Scenario 2 applies here in a completely parallel way. Suppose that we evaluate (16) with respect to the same causal structure and expectations. The causally relevant facts now include the fact that Lisa remembers the code and the fact that she does not have the intention to enter the right code.



The set of relevant propositions, in (24), is, again, inconsistent. The AIA presupposition is then satisfied in this scenario, and the claim that (16) makes—that Lisa opened the door—is true.

$$(24) \quad \{b, c, r, \neg i\} \cup \{\lambda w. (b_w \wedge c_w) \leftrightarrow o_w, \lambda w. (r_w \wedge i_w) \leftrightarrow c_w\} \cup \{o\}$$

To sum up: the modal presupposition that AIA contributes is tailored to rule out scenarios where the occurrence of an event of the type described by the VP is consistent with the relevant facts and expectations, like Scenario 1, but to allow for scenarios like Scenarios 2 and 3, where the facts that the occurrence of the described event are taken to depend on are inconsistent with the expectations.

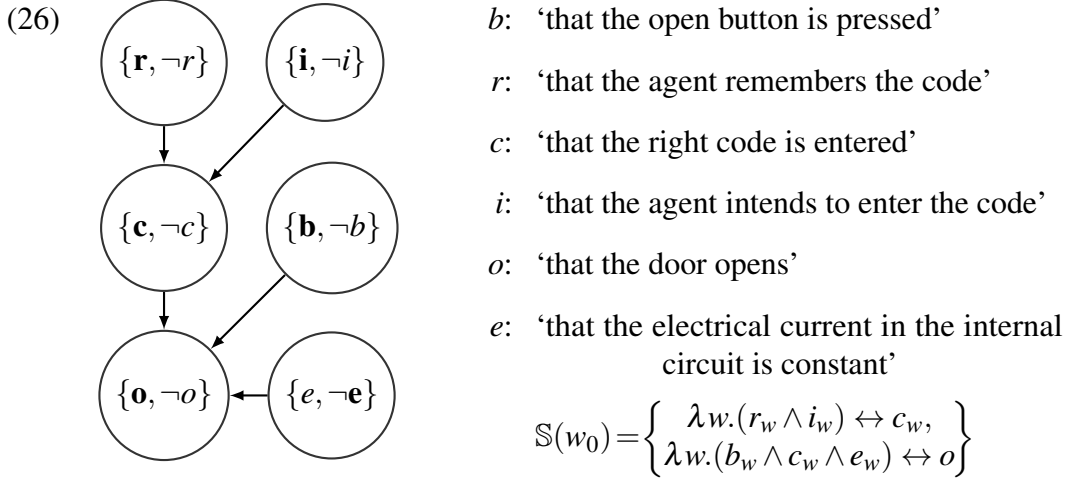
We conclude the presentation of the analysis with a few words about the nature of the modal presupposition that our analysis assumes and its projection behavior.

3.4 A modal presupposition?

Under the current analysis, the modal presupposition that AIA forms contribute imposes a weak contextual requirement. This is probably best seen through an example: We have captured the deviance of our target sentence in (16), repeated in (25) below, by making the assumption that the relevant causal structure looks like the one in (17). But recall that causal structures commit us to a certain fine-grainedness in the description of causal dependencies, and it is not difficult to add to (17) an extra intermediate causal dependency whose expected value could fail. Suppose, for instance, that we take (26) to be the relevant causal structure, where the opening of the door is taken to depend on whether the right code is entered, the open button is pressed, and, say, the electrical current of the internal mechanism is constant. Suppose that we take the expectations in the world of evaluation to be as in (26),

too. Assuming that the electrical current was not constant would make the relevant set of propositions, in (27), inconsistent, and (26) to *not* be a presupposition failure.

- (25) Na-buks-an ni Lisa ang pinto.
 PFV.AIA-open-LV GEN Lisa NOM door
 ‘Lisa managed to open the door.’



- (27) $\{b, c, r, i, \neg e\} \cup \{\lambda w. (b_w \wedge c_w \wedge e_w) \leftrightarrow o_w, \lambda w. (r_w \wedge i_w) \leftrightarrow c_w\} \cup \{o\}$

Is the predicted contextual requirement too weak? We tend to think that this is not the case. There are reasons to believe that the weakness of the contextual requirement is a virtue, rather than a defect, of the analysis. The meaning contribution of AIA forms is hard to pin down. It shines through in cases where speakers take the described event to be completely automatic and predictable. Most of the time, however, it is not completely impossible to rescue an AIA sentence by assuming that an expected fact did not obtain, as represented in the last graph. The degree of deviance of AIA sentences seems to correlate with the degree to which the described event is taken to be completely predictable. The harder it is to construe the described event as unpredictable, given what it is taken to causally depend on, the more deviant AIA sentences seem to be perceived. And this seems to align well with the proposed analysis.

We note, however, that the weakness of the contextual requirement that we assume AIA forms convey makes it difficult to detect. This, in turn, makes its projection behavior difficult to evaluate. We will wrap up with a few remarks about this topic by considering what happens with the modal component when we embed a perfective AIA form under negation or a question operator.

The behavior of the predicted modal component in negative sentences is consistent with its expected projection behavior. Consider, for instance, the sentence in

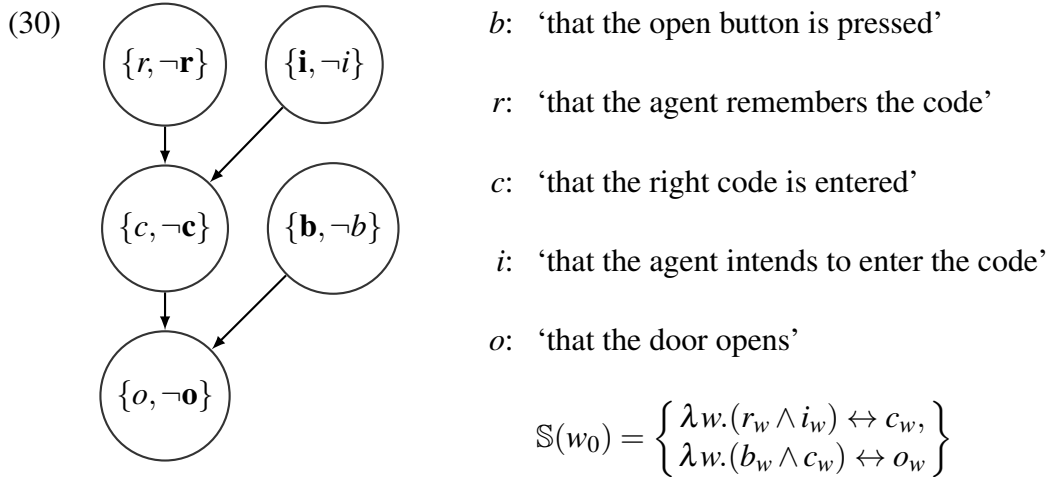
(28). If the modal component contributed by the AIA form is indeed a presupposition, it is expected to project past negation: (28) should then require that it be taken for granted that the opening of the door was not compatible with the relevant facts and expectations, and, when this is true, to assert that Lisa did not open the door.

- (28) Hindi na-buks-an ni Lisa ang pinto.
 NEG PFV.AIA-open-LV GEN Lisa NOM door
 ‘Lisa did not manage to open the door.’

Consider the scenario below:

- (29) *Scenario 4.* Lisa wants to open the automatic door, but she does not remember the right code. She enters one by chance and presses the button. The door does not open.

The sentence in (28) can be used to make a felicitous true claim in this scenario. This is consistent with our expectations. Suppose that we assume, as before, the causal structure and expectations in (30). Under this assumption, the relevant set of propositions, in (31), is inconsistent: the predicted presupposition is then satisfied, and the asserted content (that Lisa did not open the door) is true.



- (31) $\{\neg r, i, \neg c, b\} \cup \{\lambda w. (r_w \wedge i_w) \leftrightarrow c_w, \lambda w. (b_w \wedge c_w) \leftrightarrow o_w\} \cup \{o\}$

Now consider the scenario below:

- (32) *Scenario 5.* Lisa wants to open the automatic door. She remembers the right code. She enters the code and presses the button. The door does not open.

Under the familiar causal structure and expectations, the relevant set of propositions, in (33), is consistent, so the predicted presupposition is not satisfied. The sentence

is predicted to be a presupposition failure in this context. Is the prediction borne out? What we see does not differ substantially from what we see with the positive counterpart of (28) in Scenario 1. Whether or not (28) is taken to be deviant seems to correlate with the extent to which the opening of the door is taken to be expected: for (28) to be felicitous, it has to be assumed that some causally required fact did not obtain.

$$(33) \quad \{r, i, c, b\} \cup \{\lambda w. (r_w \wedge i_w) \leftrightarrow c_w, \lambda w. (b_w \wedge c_w) \leftrightarrow o_w\} \cup \{o\}$$

The behavior of AIA forms in questions also seems to be consistent with what the analysis predicts. Consider one last scenario:

- (34) *Scenario 6.* Ten contestants are each in front of an automatic door. To open the door, they have to press a button and enter a code. Five of the contestants were given the correct code. The rest were not. I don't know who has the correct code and who doesn't. The contest takes place and every contestant tries to open the door. I don't see what the contestants did, but I see Lisa standing next to her door, which is open.

The question in (35) is deviant in this scenario. This is expected, since it is not established whether or not Lisa's opening of the door was expected, under the circumstances (it depends on whether Lisa knew the code.)

- (35) # Na-buks-an ba ni Lisa ang pinto?
 PFV.AIA-open-LV Q GEN Lisa NOM door
 'Did Lisa manage to open the door?'

Notice that the deviance of the question is expected even if we assumed that the predicted presupposition is accommodated. Under that view, (35) would be asking whether or not Lisa opened the door. But the speaker already knows that she did, so asking the question in this context is predicted to be deviant. If the unexpected component were *at-issue* content, (35) would *roughly* convey what the question in (36) does. Since (36) would be an appropriate question to ask, the deviance of (35) would not be expected.

- (36) Did Lisa open the door and was the opening unexpected?

4 Conclusion and further steps

To sum up: in line with previous approaches to AIA forms in other languages (Davis et al. 2009; Paul et al. 2016), the attested interpretations of the Tagalog AIA form derive from a single modal core, which is anchored to a set of facts. Focusing on its

perfective variants, we have proposed, departing from previous approaches to other AIA forms, that the Tagalog AIA form contributes a non at issue modal meaning component, which conveys that what is expected in w for the occurrence of an event of the type described by the VP does not obtain in w .

The predicted semantic contribution of the AIA form is context sensitive: it hinges on what the occurrence of an event of the type described by the VP is assumed to depend on (at a given granularity level for causal dependencies) and on what the expectations are. This—we have hypothesized—might explain why it is hard to pinpoint the exact semantic contribution of this form.

To conclude, we highlight a limitation: The analysis presented in this paper focuses on the perfective version of the AIA form, and it remains to be seen how the predicted interpretation of this morphology interacts with the semantic contribution of imperfective and prospective aspect.

AIA forms in the prospective aspect seem to convey future culmination and a meaning component that can be paraphrased with English *manage to*, as (37a) shows. The imperfective form is often used to express an ability attribution. In cases like (37b), where the imperfective contributes a habitual interpretation, the AIA form does not require the existence of an actual completed event of the type described by the VP, but the AIA form can also be paraphrased with *manage to*.

Determining whether the proposed analysis predicts the behavior of AIA forms in the prospective and imperfective requires investigating the semantic contribution of the Tagalog aspectual inflection, an important task that we need to leave for further research.

- (37) a. Ma-i-tu~tulak ni Ben ang bato, (# pero hindi ito
AIA-CV-PROS~push GEN Ben NOM rock but NEG this
ga~galaw dahil napaka-bigat nito).
AV.NTL.PROS~move because very-heavy this.GEN
'Ben will manage to push the rock, # but it won't move because it is so
heavy.'
- b. Na-i-tu~tulak ni Ben ang bato, pero nagpa~pahinga
AIA-CV-IMPF~push GEN Ben NOM rock but AV.NTL.IMPF~rest
siya ngayon.
3SG.NOM now
'Ben manages to push the rock (whenever he tries), but he's taking a rest
right now.'

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