A'ingae =*sa'ne* and the semantic typology of apprehensional adjuncts

I. Introduction: All languages presumably have lexical means of encoding fear, worry, and other related negative prospective or *apprehensional* attitudes. Recent typological work by Lichtenberk (1995), Vuillermet (2018) and others has begun to explore the typology of functional morphemes expressing such meanings (particularly common in Australia, Amazonia, and Oceania). This literature has distinguished 5 kinds of apprehensional functions, though languages differ in the extent to which these functions correspond to distinct morphemes vs. one single form covering these various uses. In this paper, we present a formal semantics for a particular apprehensional morpheme: the enclitic *=sa'ne* in A'ingae (a linguistic isolate of Amazonian Ecuador, ISO: con). We focus primarily on the three adjunct uses of *=sa'ne* in (1) (*=sa'ne* also has complementizer uses with lexical predicates like *dyuju* 'fear'). Beyond providing to our knowledge the first formal semantic account of apprehensional adjuncts, we also aim to derive cross-linguistic asymmetries between these different functions.

(1) a. Ka'shi=ngi apishu'thu=ma [chan ña=ma iyû'û=sa'ne].
wash=1 dishes=ACC mother 1SG=ACC scold=APPR
'I washed the dishes lest my mother scold me.' **Avertive**

b. Chaketa=ma=ngi undikhû [ûnjin tûi=sane].
jacket=ACC=1 don rain splash=APPR
'I put on a jacket in case it rains.' **In-case**

c. Anae'ma=ni=ngi phi [thesi=sa'ne].
hammock=LOC=1 sit jaguar=APPR
'I'm in a hammock for fear of a jaguar.' **Timitive**

II. Semantics of avertive =*sa'ne*: Informally, avertive *=sa'ne*, (1a), introduces a clausal adjunct describing a situation that agent responsible for the main clause (usually its subject) intends to avoid. The avertive use, therefore, can be thought of as the negative counterpart of what have been dubbed 'rationale clauses' by Faraci (1974), Huettner (1989), and subsequent literature on English infinitive adjuncts (e.g. 'I ran (in order for my partner) to escape.'). We therefore build on Grosz (2014)'s rationale clause semantics, with the following changes: **(i)** treat rationale clause as a propositional rather than event modifier (cf. Huettner (1989)'s syntactic claims); **(ii)** introduce the causer/initiator i whose (q-relevant) goals the modal base refers to via Grano (2017)'s reworking of Farkas (1988)'s RESP relation (i.e. $\textsc{resp}(a, p) \approx a$ intentionally brings it about that p); **(iii)** make the existence of such an initiator a presupposition of the rationale clause modal (to capture rationale clauses which modify main clauses with no explicit agent like *Fruits have seeds (in order) to reproduce.*). Avertive *=sa'ne* differs from this then merely in the presence of negation: the worlds compatible with the initiator's q-relevant goals must be ones where the p does not hold:

(2) $[\![=sa'ne_{avertive}]\!] = \lambda_{p_{st}}.\lambda_{q_{st}}.\lambda w.[\, q(w)$ and $\forall w' [\, w' \in \textsc{Goal}_{i,q}(w) : \neg p(w')]\,]$
Presupposition: $\exists i.$ such that $\textsc{Resp}(i, q)$

(3) $[\![\, (1a) \,]\!] = \lambda w.q(w)$ and
$\forall w'[w' \in \textsc{Goal}_{i,q}(w)$: the speaker's mother didn't scold them in $w')]$
Presupposition: $\exists i.$ such that $\textsc{Resp}(i, q)$ (where $q = \lambda w.$ the speaker was washing dishes in w)

III. Extending the account to 'in-case' and timitive uses: While formally identical to avertive uses, in-case apprehensionals like (1b) have often been regarded as having parallel status to avertives (most explicitly by Lichtenberk (1995)). This is in part because of the existence of 'negative purpose' constructions which are infelicitous for examples like (1b). A'ingae has a periphrastic construction *=mb=e kan-ñe* =NEG=ADV try-INFIN which is of this sort, being a felicitous substitute for *=sa'ne* in (1a), but not (1b-1c). Beyond this, the main difference between the two is in their apparent meanings: whereas the subject in (1a) intends to avoid the situation the *=sa'ne* clause describes, the subject in (1b) merely intends to be prepared for it (i.e. wearing a jacket has no causal connection with whether it will rain). While the subject does not aim to avoid the stated situation (indeed it may even be a positive one), we pursue the intuition that these cases are nonetheless avertive of a 'larger' situation including the stated one (e.g. it raining and being unprepared), analyzed as in (4).

(4) $[\![\text{=}sa\text{'}ne_{precautioning}]\!] = \lambda_{p_{st}}.\lambda_{q_{st}}.\lambda w.[\, q(w) \text{ and } \forall w'\,[\, w' \in \textsc{Goal}_{i,q}(w) : \neg r(w')]\,]$
where r is a contextually available proposition such that $r \Rightarrow p$
Presupposition: $\exists i.$ such that $\textsc{Resp}(i, q)$

Avertive uses arise when r is contextually recoverable by virtue of being encoded in the *=sa'ne* clause (i.e. $r \Leftrightarrow p$), while in-case uses arise when context provides a different r (i.e. $r \Rightarrow p$ and $p \not\Rightarrow r$). Pragmatic factors determine which 'reading' is found, such as: **(i)** the likelihood that i can control p, **(ii)** the presence/absence of a causal connection between q and p, and **(iii)** the desirability of p to i. Finally, for timitive uses like (1c), we propose that context always plays a role, providing a contextually available proposition involving *=sa'ne*'s DP argument. The added reliance on context also helps explain the preference for DPs which are event-denoting and/or have stereotypically associated adverse situations (the full paper compares this with an alternative relying on coercion)

(5) $[\![\text{=}sa\text{'}ne_{timitive}]\!] = \lambda_{x_e}.\lambda_{q_{st}}.\lambda w.[\, q(w) \text{ and } \forall w'\,[\, w' \in \textsc{Goal}_{i,q}(w) : \neg r(w')]\,]$
where r is a contextually available proposition such that r "involves" x
Presupposition: $\exists i.$ such that $\textsc{Resp}(i, q)$

IV. Typological predictions: In addition to providing a unified semantics for A'ingae *=sa'ne*, the proposed account makes several clear typological predictions. Whereas a dedicated avertive semantics is possible, (2), the proposed in-case/timitive semantics, (4-5), cannot exclude avertive uses since the proposition denoted by the *=sa'ne* clause will necessarily be contextually available by virtue of being explicitly stated. We therefore predict that morphemes with in-case uses will necessarily also have avertive uses. For timitives, the semantic prediction is the same, but we expect that languages may have distinct forms due to their difference in syntax/semantic type. These predictions are to our knowledge borne out in the extant data summarized in the table.

Predicted typology of apprehensional adjuncts:

Language	Form	Avert	In-case	Timit
A'ingae	*=sa'ne*	✓	✓	✓
A'ingae	*=mbe kañe*	✓	✗	✗
To'aba'ita	*ada*	✓	✓	✗
Warrgamay	*-la/-nga*	✗	✗	✓
[Unattested]	—	✗	✓	✗
[Unattested]	—	✗	✓	✓
[Unattested]	—	✓	✗	✓

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