

Reportative evidentiality in Paraguayan Guaraní*

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1. Introduction

In Paraguayan Guaraní, reportative evidentiality is marked by the clitic =*ndaje*, glossed ‘SAY’. Pablo’s utterance in (1) conveys that Pablo has reportative evidence for the proposition that his father is still working.¹

(1) (*Context*) Pablo arrives at home. His father isn’t there. Pablo tells his mother:

Che-rú=**ndaje** o-mba’apo guéteri.
B1sg-father=SAY A3-work still

‘It’s said that my father is still working.’

The idea that =*ndaje* (which predominantly occurs in second position in naturally occurring data) marks reportative evidentiality is already present in dictionaries and reference grammars of the language, which translate =*ndaje* into Spanish as *se dice* ‘it is said’ or *dicen* ‘they say’ (Guasch and Ortiz 2001, Guasch 1996, 264, Zarratea 2002, 102) and into German as *angeblich* ‘alleged, putative, reportedly’ or *man sagt* ‘it is said’ (Lustig 1996).

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¹The Guaraní examples are given in the standardized orthography of the language used in Paraguay (Ministerio de Educación y Cultura 2004, Velázquez-Castillo 2004, 1421f.), except that all postpositions are attached to their host. Following this orthography, stressed oral syllables are marked with an acute accent and stressed nasal syllables are marked with a tilde; acute accents are not written for normally accented words (stress on the final syllable). The following glosses are used: A/B 1/2/3 sg/pl = set A/B first/second/third person singular/plural cross-reference marker, AT = co-temporaneity marker, CAUS = causative, CONTRAST = contrastive topic, EMPH = emphatic, MIGHT = possibility modal, NEG = negation, NOM = nominalizer, N.PROSP = nominal prospective aspect, PERFECT = perfect, POL = politeness marker, pron.S/O = subject/object pronoun, PROSP = prospective aspect, QU = question, RC = relative clause, SAY = reportative evidential.

In section 2 of this paper, I provide detailed empirical evidence that *=ndaje* is a reportative evidential, comparable to reportative evidentials in languages like Cuzco Quechua (Faller 2002, 2007), St'át'imcets Salish (Matthewson et al. 2007), Cheyenne (Murray 2010) and Tagalog (Kierstead 2012a,b). Differences between *=ndaje* and other reportative evidentials emerge once we consider, in section 3, the syntactic embeddability of *=ndaje* under negation, modals, antecedents of conditionals, propositional attitude verbs and questions, and the interpretations such complex constructions receive. The three consultants I worked with vary significantly, but regularly, in their judgments, and this variation, along with strategies for dealing with it, is discussed in section 4. Section 5 concludes the paper.

2. Basic meaning properties of atomic sentences with *=ndaje*

Utterances of atomic sentences that contain *=ndaje* give rise to (at least) two implications. The first one is the so-called 'prejacent' implication, which is the proposition expressed by the atomic sentence without *=ndaje*: in (1), the prejacent is the proposition that Pablo's father is still working. The second implication is the 'reportative' implication that it is said that *p*, where *p* is the prejacent: in (1), the reportative implication is the implication that it is said that Pablo's father is still working.

Evidence for the prejacent implication comes from discourses where some discourse participant reacts to the prejacent. Pablo's mother can, for example, follow up on Pablo's utterance in (1) with (2), which shows that Pablo's utterance gives rise to the implication that Pablo's father is still working.

(2) (*Context*) In continuation of (1), Pablo's mother asks Pablo:

Ha araka'e o-poí-ta?
and when A3-let.go-PROSP
'And when is he going to stop?'

Utterances of sentences containing *=ndaje* do not, however, commit the speaker to the truth of the prejacent, as has also been observed for reportative evidential utterances in some other languages (see e.g. Faller 2002, 193ff. on Cuzco Quechua, but see Matthewson et al. 2007 on St'át'imcets). For example, instead of (1), Pablo could utter (3), which explicitly denies a commitment to the truth of the prejacent of (1).

(3) Context as in (1)

Che-rú=**ndaje** o-mba'apo guéteri, há=katu n-ai-mo'ã-i
B1sg-father=SAY A3-work still and=CONTRAST NEG-A1sg-think-NEG
o-mba'apo-ha guéteri.
A3-work-NOM still

'It's said that my father is still working, but I don't think he's still working.'

The unacceptability of utterances like (4) provide evidence for the reportative implication. The second conjunct of (4) conveys that the speaker is not committed to there

Reportative evidentiality in Paraguayan Guaraní

being a report of Pablo's father still working. The fact that (4) is unacceptable is accounted for under the hypothesis that the first conjunct (which is identical to (1)) gives rise to the reportative implication that it is said that Pablo's father is still working.

(4) Context as in (1)

#Che-rú=**ndaje** o-mba'apo guéteri há=katu mavavéa nd-e'í-ri.
B1sg-father=SAY A3-work still and=CONTRAST nobody NEG-A3.say-NEG
#‘It's said that my father is still working, but nobody said that.’

In sum, whereas a speaker of (1) is not committed to the truth of the prejacent, the speaker is committed to the truth of the reportative implication.

Utterances of sentences with =*ndaje* are acceptable in contexts where neither the prejacent nor the reportative implication are part of the common ground. In the naturally occurring example in (5), for example, Doña Casim's husband does not know, prior to his wife's utterance, that their daughter hasn't been able to keep anything down for three days (the prejacent) nor that it is said that this is the case (the reportative implication).

(5) (*Context*) Doña Casim just visited her daughter in her room and is now wailing, to the confusion of her husband, who asks her what's going on. She says:

Tre día-ma=**ndaje**=ko nd-o-pyta-vé-i hague i-py'á-pe
three day-PERFECT=SAY=EMPH NEG-A3-stay-more-NEG past B3-stomach-in
mba'eve!
nothing

‘It is said that since three days nothing has stayed in her stomach.’ [theater text]

The fact that examples like (5) are acceptable shows that neither implication is associated with a non-accommodatable constraint on the common ground (what Tonhauser et al. to appear call a Strong Contextual Felicity constraint). This finding suggests that an analysis of the reportative implication of =*ndaje* as a conventional implicature (Potts 2005; see e.g. Murray 2010 on Cheyenne, Kierstead 2012a,b on Tagalog *daw*) may be empirically more adequate than an analysis as a presupposition (see e.g. Izvorski 1997 on Bulgarian, Matthewson et al. 2007 on St'át'imcets, and Schwager 2008 on Tagalog *daw*).

Like reportative evidentials in other languages, =*ndaje* contributes to the sentence in which it occurs the implication that the speaker has reportative evidence (secondhand, thirdhand or through folklore) for an utterance that entails the prejacent. In (5), for example, Doña Casim has secondhand evidence for the prejacent. Utterances with =*ndaje* are unacceptable in contexts where the speaker has direct evidence for the prejacent or evidence obtained by reasoning. For example, an utterance by Pablo of the sentence in (6) is unacceptable in Context 1, in which Pablo has direct evidence that it is raining, and in Context 2, in which Pablo reasons that it is raining.

(6) (*Context 1*) Pablo is standing in the rain. He says:

(*Context 2*) Pablo, who is working in a windowless cellar, is visited by a friend carrying a wet umbrella. Pablo says:

#O-ký=**ndaje**
A3-rain=SAY

#‘It’s said that it’s raining.’

In Guaraní, evidentiality is not part of the inflectional system. Furthermore, use of the clitic =*ndaje* is optional even when the speaker has reportative evidence for the prejacent, as illustrated with the naturally occurring example in (7).

- (7) (*Context*) A consultant tells me about the time when her parents settled their land, many years before she was born.

Papa umí-a oi-ke ypy-ramo-gua-re ndaipóri va’ekue mba’eve-te.
parents those-RC A3-enter beginning-then-from-at not.exist past nothing-very

‘When my parents came here, there was really nothing here.’

However, whereas (7) commits the speaker to the truth of the proposition expressed, the minimal variant of (7) with =*ndaje* does not commit the speaker to the truth of the prejacent (see Schwager 2008, 2f. on Tagalog).

3. The interpretations of complex sentences with =*ndaje*

Evidential markers across languages can occur in assertions of positive, atomic sentences, but also in questions and negative sentences. Evidential markers differ, however, in whether they can occur in subordinate clauses. Cuzco Quechua evidentials, for example, “can only occur in assertions or content questions” but not “in the antecedents of conditionals” (Faller 2002, 209) and they also cannot occur in the complement of a verb of saying (*ibid*, 221f.). Cheyenne evidentials are part of the inflectional illocutionary mood paradigm and they are “not permitted in subordinate clauses” (Murray 2010, 69), including antecedents of conditionals. Evidentials in Japanese, St’át’imcets and Tagalog, on the other hand, can occur in complements of verbs of saying and antecedents of conditionals (McCready and Ogata 2007, Matthewson et al. 2007, §4.6, Kierstead 2012a,b).

This section shows that =*ndaje*, like other evidentials, can occur in questions and negative sentences, but also in the syntactic scope of the possibility modal *i-katu* (B3-possible) ‘it’s possible that’, in antecedents of conditionals, and in complements of propositional attitude verbs. The interpretations of these complex constructions that are discussed in this section are ones that all three consultants that I worked with on this topic agree on. Disagreements in judgments are discussed in section 4.

3.1 =*ndaje* in negated assertions

Sentential negation is realized in Guaraní with the circumfix shown in (8). The clitic =*ndaje* can only occur outside of the negation circumfix, as illustrated in (9).

- (8) **Nd**-o-ký-**i** Cháco-pe.
NEG-A3-rain-NEG Chaco-in
‘It didn’t rain in the Chaco.’

Reportative evidentiality in Paraguayan Guaraní

- (9) a. Nd-o-ký-i=**ndaje** Cháco-pe.
NEG-A3-rain-NEG=SAY Chaco-in
'It is said that it didn't rain in the Chaco.'
- b. *Nd-o-ky=**ndaje**-i.
NEG-A3-rain=SAY-NEG

Since only expressions inside the negation circumfix are in the semantic scope of negation (Tonhauser 2009), the meaning contributed by =*ndaje* in (9a) is not part of the scope of negation, as indicated by the translation. Evidence for this analysis comes from the fact that (9a) is acceptable in Context 1 in (10a), but not in Contexts 2 or 3 in (10b,c):

- (10) a. (*Context 1*) Pedro, who lives in the Chaco, called Paloma yesterday and told her that it didn't rain in the Chaco yesterday. Paloma tells her neighbor:
- b. (*Context 2*) Paloma needs to know whether it rained in the Chaco yesterday, but nobody she asked knew anything about the weather there. Paloma tells her neighbor:
- c. (*Context 3*) Pedro tells Paloma that it rained in the Chaco yesterday, but Paloma knows that it didn't rain in the Chaco yesterday. She says:

In Context 1, Paloma has reportative evidence that it didn't rain in the Chaco yesterday. The fact that (9a) is acceptable in this context is compatible with the hypothesis that the prejacent of =*ndaje* in (9a) is the negated proposition that it didn't rain in the Chaco yesterday. I represent this reading with the logical form '**ndaje**($\neg p$)', where **ndaje** is the meaning contributed by =*ndaje* and *p* is the proposition that it rained in the Chaco yesterday.

In Context 2, Paloma does not have reportative evidence that it rained in the Chaco yesterday. The fact that (9a) is unacceptable in this context shows that (9a) does not have an interpretation according to which the reportative implication is in the semantic scope of negation, denying the existence of a report that it rained yesterday. The logical form ' \neg (**ndaje**(*p*))' represents this (unattested) interpretation.

Finally, in Context 3, Paloma has reportative evidence that it rained in the Chaco yesterday, but she also knows that it didn't rain there yesterday. The fact that (9a) is not acceptable in this context suggests that (9a) does not have a projective interpretation according to which the meanings contributed by negation and =*ndaje* do not stand in a scope relation to each other, as represented by the logical form '**ndaje**(*p*) & $\neg p$ '.

As mentioned above, evidentials cross-linguistically have been observed to be able to occur in negative sentences. Guaraní =*ndaje* also parallels other languages with evidentials in that =*ndaje* cannot take semantic scope under negation (see e.g. Faller 2002, §6.3.1 on Cuzco Quechua, Schwager 2008, 7 on Tagalog).

3.2 =*ndaje* with the possibility modal *ikatu* 'it's possible that'

The possibility modal *i-katu* (B3-possible) 'it's possible that' is a stative verb that takes a clausal complement, which is enclosed in square brackets in (11a). The evidential =*ndaje* can occur as part of the clausal complement, as illustrated in (11b), or cliticize to the modal verb, as illustrated in (11c).

- (11) a. I-katu [o-mano Pédro].
 B3-possible A3-die Pedro
 ‘It’s possible that Pedro died/is dying/will die.’
- b. I-katu [o-manó=**ndaje** Pédro].
 B3-possible A3-die=SAY Pedro
 ‘It is said that it’s possible that Pedro will die.’
- c. I-katú=**ndaje** [o-mano Pédro].
 B3-possible=SAY A3-die Pedro
 ‘It’s said that it’s possible that Pedro will die.’

The prejacent of =*ndaje* in (11b,c) includes the meaning contributed by the epistemic modal, regardless of the syntactic position of =*ndaje*. Evidence for this claim is that (11b,c) are acceptable in Context 1 in (12a), but not in Context 2 in (12b).

- (12) a. (*Context 1*) My neighbor Pedro had a bad car accident and was taken to a hospital. His wife was at the hospital where some doctors told her that Pedro might die. She tells us:
- b. (*Context 2*) My neighbor Pedro had a bad car accident. His wife was at the hospital where she tried to talk to Pedro’s doctors but since they spoke in a language she does not quite understand, she is not sure what they said about her husband. She tells us:

In Context 1, Pedro’s wife has reportative evidence that Pedro might die. The fact that (11b,c) are acceptable in this context is compatible with the hypothesis that the possibility modal is part of the prejacent of =*ndaje*, regardless of the syntactic position of =*ndaje*. The logical form of this interpretation is ‘**ndaje**(possible(*p*))’, where possible is the operator contributed by *ikatu* ‘it’s possible that’ and *p* is the proposition that Pedro dies.

In Context 2, Pedro’s wife does not have reportative evidence that Pedro might die. Instead, it is a possibility that the doctors said that Pedro would die. The fact that (11b,c) are not acceptable in this context suggests that the possibility modal may not scope over the reportative evidential for an interpretation that can be represented by the logical form ‘possible(**ndaje**(*p*))’.

Faller (2002, 252ff.) shows that epistemic modals can co-occur with the Cuzco Quechua reportative evidential. She finds cases where the epistemic modal is in the scope of the evidential, as in (11b,c), but also hypothesizes (p.255f.) that some of her examples show that the reportative evidential and the modal are not scoped with respect to each other. This projective interpretation (represented by the logical form ‘**ndaje**(*p*) & possible(*p*)’) is also possible for one of my consultants, as discussed in section 4.

3.3 =*ndaje* in the antecedents of conditionals

In Guaraní, a conditional statement is realized by marking the verb of the antecedent of the conditional with *-ramo* ‘if’ (short form: *-rō*), as illustrated in (13) where the antecedent and the consequent are both enclosed in brackets.

Reportative evidentiality in Paraguayan Guaraní

- (13) [O-ký-**ramo** ko'ẽro], [a-pytá-ta che-róga-pe].
A3-rain-if tomorrow A1sg-stay-PROSP B1sg-home-at
'If it's going to rain tomorrow, I'm going to stay home.'

The evidential =*ndaje* can syntactically embed in the antecedent of the conditional, as shown by the example in (14):

- (14) (*Context*) It is said that the cricket used to be a young woman with a beautiful voice.
[Sapy'ánte mombyry-gua o-hendú-ramo=**ndaje** chupe] [i-jurujái o-pytá-vo].
suddenly far-from A3-hear-if=SAY pron.O.3 B3-wonder A3-stay-AT
'It is said that if somebody heard her from far away, they stayed with mouth open.'
(slightly modified from Acosta and de Canese 2003, 54f.)

The entire conditional forms the prejacent of the reportative evidential in (14). This interpretation also arises when =*ndaje* is realized on the verb *ijurujái* 'they wonder' in the consequent of the conditional. Thus, regardless of the position of =*ndaje* in (14), an interpretation arises that can be represented by the logical form '**ndaje**(if(*p*,*q*))' where *p* and *q* represent the meanings of the antecedent and the consequent, respectively.

(15) is another example that illustrates this interpretation (terere and mate are water-based infusions that are very popular in Paraguay):

- (15) (*Context*) The USA ambassador of Paraguay says:
Ho'ú-rõ=**ndaje** terere ha ka'ay, i-katú-ma o-ñe'ẽ guaraní-me.
A3.drink-if=SAY terere and mate B3-possible-PERFECT A3-talk Guaraní-at
'It is said that if you drink terere and mate, you can already speak Guaraní.'

This example only has an interpretation according to which the content of the conditional forms the prejacent of =*ndaje*. Interpretations according to which the ability to speak Guaraní is conditional on it being said that one drinks terere and mate (represented by the logical form 'if(**ndaje**(*p*),*q*)') or according to which it is said that one drinks terere and mate, and if one drinks terere and mate, one can speak Guaraní (represented by the logical form '**ndaje**(*p*) & if(*p*,*q*)') are not supported by world knowledge.

3.4 =*ndaje* in questions

Questions can be formed in Guaraní using the second-position clitic =*pa*. My consultants generally prefer for =*pa* to precede =*ndaje* when they co-occur, as in (16):

- (16) Mba'é=**pa=ndaje** o-jehu fiésta-pe?
what=QU=SAY A3-happen party-at
'What is said happened at the party?'

This question is acceptable in Context 1 in (17a), in which the addressee has reportative evidence from a newspaper article for what happened at the party, but not in Context 2 in (17b), in which the addressee only has direct evidence.

- (17) a. (*Context 1*) My friend Paula went to a party hosted by rich people last night. It seems that there also was a reporter present because today's paper is full with pictures and reports of what went on at that party. I'm reading the paper when Paula comes over. She asks me:
- b. (*Context 2*) I went to a party last night with my friend Paula. Many things at the party were not to my liking, so I just sulked in a corner and left after a while without talking to anybody. This morning I see Paula and she asks me:

The fact that (16) is acceptable in Context 1 but not in Context 2 is compatible with the hypothesis that the question targets not what the addressee knows about the party but what the addressee has heard about the party.

I assume that the meaning of a question is the set of possible answers (Hamblin 1973). A question thus partitions the relevant set of worlds into subsets such that the worlds in each subset represent a possible answer. Whereas the relevant set of worlds typically is the context set (the set of worlds compatible with the information in the common ground), the relevant set of worlds for a question with *=ndaje* is the set of worlds compatible with what the addressee has heard (regardless of whether that is part of the common ground). The relevant alternatives implied by (16) thus are all based on what the addressee has heard, but vary in the proposition x such that x happened at the party. This interpretation is represented here by the logical form ' $\text{qu}_x(\text{ndaje}(p_x))$ ', where p_x is the open proposition that x happened at the party, and qu is the question operator.

In Cuzco Quechua, questions with the reportative evidential can denote a report that a question was asked. This interpretation is not attested for Guaraní questions with *=ndaje*, as illustrated with the example in (18), which is parallel to examples considered in Faller (2002, 233f.; 2007, 226f.).

- (18) (*Context*) Malena asks Julia *Mba'éichapa?* 'How are you?', but Julia doesn't hear her. The speaker says to Julia:

#Mba'é-icha=*pa=ndaje?*
what-like=QU=SAY

(Intended: It is said how are you?)

Thus, questions with *=ndaje* do not have an interpretation according to which what is reported is the fact that a question was raised (cf. the logical form ' $\text{ndaje}(\text{qu}_x(p_x))$ ').

My consultants' judgments also suggest that a projective interpretation is not possible for questions with *=ndaje*. The consultants consistently reject examples like (19).

- (19) (*Context*) You know that it is said that the store close to your house sells beans but you've never been to the store and therefore don't know whether that's true. You go to the store and ask the owner:

#Re-vendé=*ndaje* kumanda?
A2sg-sell=SAY beans

#'According to what is said, do you sell beans?'

(Intended: It is said that you sell beans, and I wonder whether you do?)

The context in (19) is set up such that the speaker knows the reportative implication, but not the prejacent. The fact that the question with =*ndaje* in (19) is not acceptable in this context is compatible with the hypothesis that the question cannot be used to inquire about the truth of the prejacent, but only about whether, in all worlds compatible with what the addressee knows to be said, she sells beans (which, of course, is an absurd thing to ask the store owner). This projective interpretation is represented by the logical form ‘*ndaje*(*p*) & *qu*(*p*)’, where *p* is the proposition that the owner sells beans.

3.5 =*ndaje* in the complement of a propositional attitude verb

The fact that =*ndaje* can embed in complements of propositional attitude verbs is illustrated here with the propositional attitude verb *na’iporãi* ‘it’s not good that’, exemplified in (20):

- (20) Na-’i-porã-i [o-ky kuehe].
 NEG-B3-good-NEG A3-rain yesterday
 ‘It’s not good that it rained yesterday.’

The example in (21) shows that the evidential =*ndaje* can occur embedded in the clausal complement of this propositional attitude verb:

- (21) Na-’i-porã-i che-negósio-pe-gua-rã [che-pan dúlse=*ndaje*
 NEG-B3-good-NEG B1sg-business-at-for-N.PROSP B1sg-bread sweet=SAY
 o-poro-mbo-py’a-hasy].
 A3-all-CAUS-stomach-sick
 ‘It’s not good for my business that it is said that my sweets cause stomach ache’

As indicated by the translation of (21), the reportative implication is part of the semantic scope of the propositional attitude verb. Evidence for this claim is that (21) is acceptable in Context 2 in (22b), but not in Context 1 in (22a).

- (22) a. (*Context 1*) Raul has a bakery. His customers have been telling him that it’s not good that his sweets cause stomach ache. Raul says to a friend:
 b. (*Context 2*) Raul has a bakery. His customers have been telling him that they had a stomach ache after eating his sweets. Raul says to a friend:

In Context 1, Raul has reportative evidence for the implication that it’s not good that his sweets cause stomach ache. The fact that (21) is not acceptable in this context shows that this utterance does not have an interpretation according to which the prejacent of the reportative evidential includes the propositional attitude. This interpretation is licensed by the minimal variant of (21) in (23), where =*ndaje* attaches to the propositional attitude verb, which is acceptable in Context 1:

- (23) Na-’i-porã-i=*ndaje* che-negósio-pe-gua-rã [che-pan dúlse
 NEG-B3-good-NEG=SAY B1sg-business-at-for-N.PROSP B1sg-bread sweet
 o-poro-mbo-py’a-hasy].
 A3-all-CAUS-stomach-sick
 ‘It is said that it is not good for my business that my sweets cause stomach ache’

Thus, (23) but not (21) has an interpretation that can be represented by the logical form ‘**ndaje**(\neg good(p))’, where good is the operator contributed by the (non-negated) propositional attitude verb and p is the proposition that Raul’s sweets cause stomach ache.

In Context 2, on the other hand, Raul has reportative evidence for the implication that his sweets cause stomach ache. The fact that (21) is acceptable in this context suggests that the prejacent of $=ndaje$ is the proposition expressed by the complement of the propositional attitude verb and that the resulting reportative implication is in the semantic scope of the propositional attitude verb. The logical form of this interpretation is ‘ \neg good(**ndaje**(p))’. The fact that (23) is not acceptable in this context shows that the syntactic position of $=ndaje$ in a sentence with a propositional attitude verb affects the interpretation of the construction, contrary to what was observed above for modal and conditional constructions.

3.6 Summary

Table 0.1 summarizes the distribution of $=ndaje$ in the five constructions and the interpretations the three consultants agree upon. The first column is a catalog of the three conceivable interpretations, with O representing one of the five operators discussed above, namely \neg , possible, if, qu and \neg good. In ‘**ndaje**(... O ...)’, the meaning of the operator forms part of the prejacent of $=ndaje$; in ‘ O (...**ndaje**...)’, the reportative implication is in the semantic scope of the operator; and ‘**ndaje**(...) & O (...)’ represents the projective interpretation.

The next four columns summarize the interpretations available for utterances of sentences where $=ndaje$ occurs in the complement clause of the possibility modal *ikatu* ‘it’s possible that’, in the antecedent of a conditional, in a question and under a propositional attitude verb, respectively. Since $=ndaje$ cannot occur syntactically inside in the negation circumfix, the final column is set apart.

A checkmark (✓) in a cell of the table means that the relevant interpretation is available, and a minus (–) that it is not available. An empty box (□) in a cell represents varying speaker judgments, to be discussed in section 4.

Meaning/Logical form	Modal	Conditional	Question	Attitude	Negation
ndaje (... O ...)	✓	✓	–	–	✓
O (... ndaje ...)	–	□	✓	✓	–
ndaje (...) & O (...)	□	□	–	□	–

Table 0.1: Meanings of complex sentences with $=ndaje$

Since $=ndaje$ cannot occur inside the negation circumfix, it is entirely expected that utterances of negated sentences with $=ndaje$ only receive an interpretation according to which the prejacent of $=ndaje$ is the proposition expressed by the negated sentence.

It is surprising, however, that an interpretation where the operator forms part of the prejacent of $=ndaje$ (**ndaje**(... O ...)) is available when $=ndaje$ occurs in the complement of the modal *ikatu* ‘it’s possible that’ or in the antecedent of a conditional, but not when it occurs in the complement of a propositional attitude verb. This is particularly surprising

in light of the fact that constructions involving the modal *ikatu* ‘it’s possible that’ and the propositional attitude verb *naiporãi* ‘it’s not good that’ are syntactically parallel, both consisting of an impersonal stative verb and its clausal complement.

Finally, the three consultants I worked with agree that projective interpretations are not available for questions and negative sentences with *=ndaje*. Judgments about whether this interpretation is available for the other three constructions vary, as discussed next.

4. Conflicting native speaker judgments

There are four interpretations, represented by the four empty boxes in Table 0.1, that the three consultants I worked with on *=ndaje* disagree on. The four examples in (24) to (27) are illustrative of the kinds of examples that were used to explore these four interpretations. In particular, one speaker (referred to as “speaker A”) consistently accepts examples like those in (24) to (27), whereas the other two speakers (referred to as “speaker B” and “speaker C”) consistently reject such examples. The dagger diacritic (†) with which these four examples are marked indicates the mixed judgments such examples receive. The English translations of the examples reflect the judgments of speaker A.

4.1 The projective interpretation of *=ndaje* with *ikatu* ‘it’s possible that’

In (24), *=ndaje* occurs in the clausal complement of the possibility modal verb *ikatu* ‘it’s possible that’. A projective interpretation of this utterance is one in which the semantic contributions of the modal and of *=ndaje* do not stand in a scope relation to each other, as represented by the logical form ‘**ndaje**(*p*) & possible(*p*)’.

- (24) (*Context*) I call Juan’s house. He isn’t home but his mother, who isn’t always too well-informed about Juan’s whereabouts, says: *Oĩ kánchape* ‘He’s on the soccer field.’ I tell my mother:

†I-katu [Juá=**ndaje** o-ĩ káncha-pe].
B3-possible Juan=SAY A3-be soccer.field-at

‘It’s said that Juan is on the soccer field and it’s possible that he’s there.’

The context of the example is set up such that the speaker has reportative evidence that Juan is on the soccer field but the speaker only considers the prejacent a possibility, since Juan’s mother is not a reliable source. Speaker A judges (24) to be acceptable, which is compatible with the hypothesis that (24) has a projective interpretation in line with the English translation given for (24). Speakers B and C, on the other hand, judge (24) to be unacceptable, which suggests that the projective interpretation is not available to them.

The fact that speakers B and C reject (24) also shows that the non-projective interpretation, according to which it is said that it is possible that Juan is on the soccer field, is not available since it is not supported contextually. This observation further supports the claim that speaker A accepts (24) under a projective interpretation.

4.2 Interpretations of sentences with =ndaje in the antecedent of a conditional

There are two interpretations of sentences with =ndaje in the antecedent of a conditional that the three consultants disagree on. The first interpretation is one in which the reportative implication constitutes the antecedent of the conditional. The context of the example in (25) is set up such that the speaker's actions are dependent on what is being said

- (25) (*Context*) Maria's birthday is in two weeks. Maria has sent out invitations, with a request for RSVP. Maria's ex-boyfriend Juan, who you can't stand, has also been invited. You tell your friends:

†Ou-rõ-je Jua, e-ré-ke chéve.
A3.come-if=SAY Juan A2sg-say-POL pron.O.1sg

'If it is said that Juan will come, please tell me.'

The fact that speaker A accepts this example is compatible with the hypothesis that (25) has an interpretation according to which the reportative implication is the antecedent of the conditional, as represented by the logical form 'if(**ndaje**(*p*),*q*)'. Speakers B and C reject the example, thus showing that this interpretation is not available to them.

The interpretation according to which the entire conditional is the prejacent of =ndaje is not contextually supported for (25). The fact that speakers B and C reject the example shows not only that this interpretation is not available for (25) but also that speaker A's acceptance of the example is not based on that interpretation.

The example in (26) is modeled after an example by Kierstead (2012a,b), who uses it to show that a projective interpretation is available for Tagalog sentences with the reportative evidential *daw* in the antecedent of a conditional.

- (26) (*Context*) Samuel lives with Arminio and Brian. One day, Samuel comes home from work and sees that his chocolate is no longer in the fridge. Samuel asks Arminio what happened to his chocolate, and Arminio says: *Brían ho'u nde-chokoláte* 'Brian ate your chocolate'.

Samuel thinks that it's possible that Arminio is lying to protect himself. He tells his mother that somebody took his chocolate and that he doesn't know who ate it:

†Ho'u-rõ=**ndaje** Brían che-chokoláte, che-pochý-ne he-ndive.
A3.eat-if=SAY Brian B1sg-chocolate B1sg-angry-MIGHT B3-with

'If Brian ate my chocolate, like it has been said, I am going to get angry with him.'

The context of this example is set up such that Samuel has reportative evidence for the implication that Brian ate his chocolate, but he is not committed to the truth of this implication. The fact that speaker A accepts this example is compatible with the hypothesis that the example has a projective interpretation, represented by the logical form '**ndaje**(*p*) & if(*p*,*q*)'. In particular, interpretations of (26) according to which the reportative implication is part of the antecedent of the conditional ('If it is said that Brian ate my chocolate, I am

going to be angry with him”) or according to which the reportative implication is the conditional (“It is said that if Brian ate my chocolate, I am going to be angry with him”) are not contextually supported. The fact that speakers B and C both consistently reject examples like (26) suggests that the projective implication is not available to them, and also provides further evidence that the latter non-projective interpretation is not available for (26).

4.3 The projective interpretation of =*ndaje* with propositional attitude verbs

In the first sentence of (27), =*ndaje* occurs in the clausal complement of the propositional attitude verb *iporã* ‘it is good that’. The context of the example is set up such that what is good is the prejacent of =*ndaje*, not the reportative implication. The follow-up sentence reinforces this interpretation.

- (27) (*Context*) I read in the paper that the number of people who have died from motorcycle accidents has dropped in comparison to the previous year. I tell my sister:

†I-porã mbovyve-há=**ndaje** umi o-manó-va moto-’ári-gua. La
 B3-good less-NOM=SAY those A3-die-RC motorcycle-on-from the
 i-porã-va mbovyve-ha, nda-ha’é-i la o-je’é-va.
 B3-good-RC less-NOM NEG-pron.S.3-NEG the A3-say-RC

‘It’s said that less motorcyclists died and it’s good that less motorcyclists died. What is good is that less died, not that that is said.’

Speaker A accepts this example, which suggests that the first sentence has a projective interpretation in line with the English translation (and represented by the logical form ‘**ndaje**(*p*) & good(*p*)’, where *p* is the proposition that less motorcyclists died). Speakers B and C reject this example, and others like it.

4.4 Discussion of the variation in judgments

The judgments discussed above show that the speakers A and B/C consistently disagree about particular interpretations of complex sentences with =*ndaje*: the empty cells of Table 0.1 should be filled with checkmarks according to speaker A’s judgments, but with minuses according to the judgments of speakers B and C. In particular, projective interpretations of the reportative implication are available only for speaker A.

These findings show, again, that judgments obtained from one consultant cannot be assumed to generalize to the entire population of speakers of a language (see e.g. Schütze 1996, Gibson and Fedorenko in press). To identify suitable measures for dealing with such variation, it is crucial to consider reasons for such variation. Three possible reasons are entertained here (see also e.g. Schütze 1996 for discussion).

A first reason for the observed variation in speakers’ judgments may be variation among the speakers in the length of time they served as linguistic consultants. I have been working with speaker A on a yearly basis since 2004, but had only started working with speakers B and C in 2011, when the data presented here were collected. However, the fact

that these three speakers agree in their judgments on several other topics I worked on in 2011 does not support this hypothesis for accounting for the observed variation.

A second reason may be shortcomings in the elicitation. If, for example, the contexts of examples are not sufficiently controlled, speakers may employ different strategies for filling in the missing information, leading to differences in judgment. However, the fact that the three speakers consistently differ in their judgments across a wide range of examples, and agree on many others, does not lend support to this hypothesis.

Finally, speaker variation in semantic judgments may also be due to speaker-specific properties, such as age, gender, or socio-economic status. In the current case, this hypothesis is not unreasonable since speaker A is a woman in her early 50s who grew up on San Lorenzo, a city adjacent to the capital, whereas speakers B and C are men in their early 20s, who grew up in the country side. To identify the particular variable responsible for the varying judgments, the two patterns of interpretation observed here would need to be replicated with a wider range of Guaraní speakers.

4.5 Towards a formal analysis

A full analysis of the semantics and pragmatics of utterances of sentences with *=ndaje* must await a future occasion. This section only sketches an analysis for the purpose of pointing out promising avenues for puzzles that any analysis must tackle.

Let's assume that *=ndaje* syntactically modifies sentences, and is translated into the constant say'_{ag} of type $\langle\langle w, t \rangle, \langle w, t \rangle\rangle$. This constant returns true for a particular proposition and world if and only if the relevant epistemic agent *ag* (the speaker in assertions, the hearer in questions) knows in that world that an utterance that entails the proposition has been said. The assertion in (6), repeated below, is translated as in (28). According to this translation, (6) is true in a world if and only if the speaker of (6) knows in that world that it has been said that it is raining (for a discussion of temporal properties of evidentials, which are ignored here, see e.g. Lee 2011, Smirnova 2011).

- (6) O-ký=**ndaje**
 A3-rain=SAY
 'It's said that it's raining.'

- (28) $\text{say}'_{ag}(\text{rain}')$

Given an appropriate analysis of what it means to know that something has been said, this proposal makes the prediction that a speaker of (6) is committed to the truth of the reportative implication but not to the truth of the prejacent.

The analysis extends to negated sentences with *=ndaje* under the assumption that negation is realized in the syntactic and semantic scope of *=ndaje*. Since questions are taken to denote sets of propositions, the analysis correctly predicts that *=ndaje* cannot modify a question, but only the open proposition from which the question is formed.

A fuller analysis needs to account for the fact that the reportative implication is backgrounded, not at-issue content whereas the prejacent constitutes the main point and is at-issue (at least for speakers B/C). In Murray (2010), these properties of the relevant

implications of Cheyenne reportative evidential utterances are captured in a dynamic semantic framework; an alternative analysis according to which the reportative implication is a conventional implicature, along the lines of Potts (2005), is also conceivable.

Either avenue also promises to account for projective interpretations of the reportative evidential implication, which are attested for at least one speaker of Guaraní. For an analysis of the projective behavior of the reportative implication of Tagalog reportative evidential utterances see Kierstead and Martin (in print).

Finally, as noted above, modal constructions with *i-katu* ‘it’s possible that’ and propositional attitude constructions with *i-porã* ‘it’s good that’ are syntactically entirely parallel, but differ in their possible interpretations when *=ndaje* occurs in the complement clauses. A working hypothesis that may account for these differences is that utterances of sentences with *=ndaje* are only acceptable for speakers B and C if the reportative implication is true in the actual world: the reportative implication thus cannot be an epistemic alternative with modal constructions or constitute the antecedent of a conditional. This hypothesis does not, however, capture speaker A’s judgments.

5. Conclusions

This paper presented evidence that *=ndaje* is a reportative evidential, which may syntactically embed under modals, under propositional attitude verbs, in the antecedents of conditionals and in questions. It is also shown that *=ndaje* semantically may scope under a question operator and propositional attitude verbs and, for one speaker, in the antecedents of conditionals. Projective interpretations of the reportative implication are only attested for one of the three speakers consulted. A more complete formal analysis is contingent on dealing with speaker variation and fully establishing the empirical generalizations.

References

- Acosta, Feliciano, and Natalia Krivoshein de Canese, ed. 2003. *Mombe’ugua’u: colección de mitos, fábulas y leyendas paraguayas*. Asunción, Paraguay: Servilibro.
- Faller, Martina. 2002. *Semantics and Pragmatics of Evidentials in Cuzco Quechua*. Doctoral Dissertation, Stanford University.
- Faller, Martina. 2007. The Cusco Quechua reportative evidential and rhetorical relations. *Linguistische Berichte* 14:223–252.
- Gibson, Edward, and Evelina Fedorenko. in press. The need for quantitative methods in syntax and semantics research. *Language and Cognitive Processes*.
- Guasch, Antonio, and Diego Ortiz. 2001. *Diccionario castellano-guaraní, guaraní-castellano*. Asunción, Paraguay: CEPAG.
- Guasch, Antonio S.J. 1996. *El idioma guaraní*. Asunción, Paraguay: Centro de Estudios Paraguayos “Antonio Guasch”, 7th edition.
- Hamblin, C. 1973. Questions in Montague English. *Foundations of Language* 10:41–53.
- Izvorski, Roumyana. 1997. The present perfect as an epistemic modal. In *Proceedings of Semantics and Linguistic Theory (SALT) VII*, 222–239. Cornell: CLC Publications.

Judith Tonhauser

- Kierstead, Gregory. 2012a. Projective content and the Tagalog reportative. Talk presented at the 2012 LSA meeting, Portland, OR.
- Kierstead, Gregory. 2012b. Projectivity and the Tagalog reportative evidential. Unpublished ms., The Ohio State University.
- Kierstead, Gregory, and Scott Martin. in print. A multistratal account of the projective Tagalog evidential 'daw'. In *Proceedings of Semantics and Linguistic Theory (SALT) 22*. Ithaca, NY: CLC Publications.
- Lee, Jungmee. 2011. Evidentiality and its Interaction with Tense: Evidence from Korean. Doctoral Dissertation, The Ohio State University.
- Lustig, Wolf. 1996. Interaktives Wörterbuch Guarani. <http://www.romanistik.uni-mainz.de/cgi-bin/guarani/Woerterbuch>.
- Matthewson, Lisa, Hotze Rullmann, and Henry Davis. 2007. Evidentials as epistemic modals: Evidence from St'át'imcets. *The Linguistic Variation Yearbook* 7:201–254.
- McCready, Eric, and Norry Ogata. 2007. Evidentiality, modality and probability. *Linguistics and Philosophy* 30:147–206.
- Ministerio de Educación y Cultura. 2004. La educación bilingüe en la reforma educativa Paraguaya. Available online at www.escuelavivamec.edu.py/investigaciones/60.pdf, last checked 08/30/08.
- Murray, Sarah E. 2010. Evidentiality and the Structure of Speech Acts. Doctoral Dissertation, Rutgers University.
- Potts, Christopher. 2005. *The Logic of Conventional Implicatures*. Oxford: OUP.
- Schütze, Carson. 1996. *The Empirical Base of Linguistics: Grammaticality Judgments and Linguistic Methodology*. Chicago: University of Chicago Press.
- Schwager, Magdalena. 2008. On what has been said in Tagalog: Reportative *daw*. In *Evidentiality*, 1–26. University of British Columbia Working Papers.
- Smirnova, Anastasia. 2011. Evidentiality and mood: Grammatical expressions of epistemic commitment in bulgarian. Doctoral Dissertation, The Ohio State University.
- Tonhauser, Judith. 2009. Counterfactuality and future time reference: The case of Paraguayan Guaraní –*mo'ã*. In *Proceedings of Sinn und Bedeutung 13*, 527–541.
- Tonhauser, Judith, David Beaver, Craige Roberts, and Mandy Simons. to appear. Towards a taxonomy of projective content. To appear in *Language*.
- Velázquez-Castillo, Maura. 2004. Guaraní (Tupí-Guaraní). In *Morphology: An International Handbook on Inflection and Word-Formation*, ed. G.E. Booij, C. Lehmann, J. Mugdan, and S. Skopeteas, volume 2, 1421–1432. Berlin: Walter de Gruyter.
- Zarratea, Tadeo. 2002. *Gramática elemental de la lengua guaraní*. Asunción, Paraguay: Marben.

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