Epistemic and deontic markers in Wapichana

In this work, we present the preliminary results of our research on epistemic and deontic modality in Wapichana (iso 639-3 wap). This language belongs to the Arawak family (Rodrigues, 1986) and it is spoken by about six to seven thousand indigenous people who live in northern region of Brazil, Guyana, and Venezuela (Basso; Giovannetti, 2018). This language has descriptive grammar (Santos, 2006) covering basic phonological, morphological and syntactic aspects, and some papers covering different topics such as orthography (Francheto, 2008), possessives (Santos, 2005), noun phrases (Nunes, 2016; Oliveira; Giovannetti, 2016), classifiers (Santos, 2003; 2015; Sanchez-Mendes, 2016), quantifiers (Vicente e Giovannetti, 2018; Silva, 2018), negation (Basso; Giovannetti, 2018), gender (Melo, 2019; Santos, Anjos, 2020) etc; but it does not have any description of how modality is expressed.

The lack of descriptions covering modality in this language motivated this research. It is based on formal descriptions of modality (see Kratzer, 2012; Cinque, 1999). Our methodology consisted of applying elicitation tests with a sentence translation task, using two questionnaires: (i) Questionnaire for the elicitation of deontic indicators; and (ii) Questionnaire for the elicitation of epistemic indicators, both strongly based on the Modal Questionnaire for Cross-Linguistic Use (Vander Klok, 2014). A new version of Vander Klok's questionnaire was necessary to adapt vocabulary used in the contexts accommodating to Wapichana culture. Our questionnaires were developed in Brazilian Portuguese and, in addition to the contextualized translation task, the consultant was asked to provide other sentences to express the same content of the target sentence.

The questionnaire for the elicitation of deontic markers contains 10 contexts - 6 contexts of obligation and 4 contexts of permission - while the questionnaire for the elicitation of epistemic markers contains 12 contexts - 6 contexts of necessity and 6 contexts of possibility. Both questionnaires were applied to a total of 4 collaborators, who are bilingual speakers (WAP-BP).

From the data obtained through the application of the questionnaires, the modal item *tyryy* was used as a deontic marker as illustrated in (1a) and the modal items *man*, *zaikidian*, and *timen* were used as epistemic markers as illustrated in (1b-d).

(1) a. Wapichan paradan **tyryy** kiz y-tuminhap-kid-iau.
Wapichana language DEO in 3SG-teach-CAUS-ADJ
dunuzuinhau tuminhap-kiz iak.
indigenous teach-place in
'The Wapichan language must be taught at indigenous schools.'

b. Kanum **man** wyryy aimeakan.
what EPISTposs. this thing
'It may be this thing.'

c. Un **zaikidi**-a-n awara wyryya
1SG EPISTnecess-VE-MI wind this

‘I think/believe it is this wind.’

d. Un **timen** João ka’aw-a-naa tuminhap-kizei ik
1SG EPISTnecess João arrive-VE-IMM teach-place in
‘I think/believe João has already arrived at school.’

In example (1a), *tyryy* is produced in a context of deontic necessity, however, it also appears in contexts of deontic possibility as illustrated in (2). In our elicitation with four native speakers, 50 (fifty) sentences were collected using the deontic questionnaire and, the item **tyryy** appears in 43 (forty-three) - 22 (twenty-two) occurrences of *tyryy* appear in necessity contexts; and 21 (twenty-one) occurrences of *tyryy* in possibility contexts. These data suggest that *tyryy* marks deontic modality in both necessity and possibility contexts.

(2) Tutus **tyryy** y-makinhautinh-a-n xip-xip da’y.
Tutus DEOposs. 3SG-brincar-VE-MI bola de
‘Tutus pode jogar bola no campo de futebol’

The use of the questionnaire methodology allowed us to verify that deontic modality in Wapichana does not lexicalize modal force following the same pattern as Paresi (Brandão, 2014; Rech; Brandão 2018; Rech, Brandão; Wit, 2018) and languages such as St’at’imcets (Matthewson; Davis; Rullmann, 2007), Gitksan (Matthewson, 2013), and Javanese (Vander Klok, 2008).

The data collected through the Questionnaire also revealed an interesting phenomenon regarding constituent order. *Tyryy* appears in 33 (thirty-three) sentences between the subject and the lexical verb; but, in 10 (ten) sentences, it appears in the left periphery. Such movement might be an indication that there is topicalization of functional modal items in the language.

Examples (1b-d) illustrate productions with modal items in epistemic possibility (1b) and necessity contexts (1c-d). The modal item *man* exhibits mobility in the sentence, but occurring preferentially in the second position, as illustrated in (1b). This item is translated in the Wapichana–Brazilian Portuguese bilingual dictionary (Silva; Silva; Oliveira, 2013) by the adverb *maybe/perhaps*. Therefore, our hypothesis is that this element is a modal adverb. The modals *zaikidian* and *timen*, on the other hand, appear to behave as lexical items that select two arguments: one nominal in nature, realized in (1c) as the first-person singular pronoun (*Un*); and another, propositional in nature. Therefore, they behave as epistemic propositional attitude verbs such as *believe* and *think* expressing epistemic necessity.

So far, the items *man*, *zailidian* and *timen* seem to be exclusively epistemic and more research is needed to check if *tyryy* can be used to express other modal flavors or if it is exclusively deontic. The next steps of this research is to produce questionnaires for other modal flavors such as bouletic, teleological and circumstantial modality in order to uncover modal items and have a more comprehensive description of modality in this language.

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