Coordination and disjunction in a language without 'and'

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1. Overview of the Warlpiri data

Warlpiri (Pama-Nyungan, Australia) possesses only a single coordinator, *manu*. Linguists generally gloss *manu* as 'and' (Nash 1980:177). However, some linguists have also glossed *manu* as 'or' (Legate 2003:92). Warlpiri speakers produce *P manu Q* in response to the English prompt 'P and Q,' and also translate *P manu Q* into English as 'P and Q.' *Manu* can coordinate all lexical categories in constructions of the form *P manu Q*:

(1) Cecilia **manu** Gloria=pala yanu tawunu-kurra. (Jirrama=juku yanu.)
Cecilia manu Gloria=3DU.SUBJ go.PST town-to two=exactly go.PST
Cecilia and Gloria went to town. (Both went.)

To express disjunction, Warlpiri speakers combine the epistemic possibility modal *marda* 'maybe' with alternatives in constructions of the form *P marda, Q marda* (3). A single instance of *marda* can also combine with a single proposition to express epistemic possibility (2):

(2) Gloria **marda** yanu tawunu-kurra.
Gloria maybe go.PST town-to
Maybe Gloria went to town.

(3) Gloria **marda**, Cecilia **marda** yanu tawunu-kurra=ju. (Jinta-mipa yanu.)
Gloria maybe Cecilia maybe go.PST town-to=TOP one-only go.PST
Gloria or Cecilia went to town. (Only one went.)

There are a number of English disjunctive contexts in which Warlpiri speakers use *P manu Q* rather than *P marda, Q marda*. These include downward-entailing contexts such as under the scope of negation:

(4) Kula=rna=ngku yinyi rampaku **manu** loli. (Lawa.)
NEG=1SG.SUBJ=2SG.NSUBJ give.NPST biscuit manu lolly nothing
I will give you neither biscuits nor lollies. (Nothing.)

The Warlpiri data in (1)–(4) parallels data on childrens' interpretation of disjunction in English presented by Singh, et al (2013). Singh, et al show that English speaking children strengthen *P or Q* (P ∨ Q) to conjunction (P ∧ Q). I use the data in (1)–(4) to argue that Warlpiri lacks a conjunctive coordinator analogous to English 'and' and that *manu* in fact has a denotation of inclusive 'or.' Warlpiri speakers use the strengthening strategies described by Singh, et al for disjunction in childrens' English to express 'and' and 'or' with the tools available to them.

2. Analysis of the Warlpiri data

Warlpiri has the following toolkit to express conjunction and disjunction:

(5) $[\![\text{manu}]\!]^w = [\![\text{or}_{English}]\!]^w = \lambda t_1 \in D_t . \lambda t_2 \in D_t . t_1 = 1 \vee t_2 = 1$

(6) $[\![\text{marda}]\!]^w = [\![\text{maybe}_{English}]\!]^w = \lambda q \in D_{<s,t>} . \exists w' \in \text{Epistemic}_w : q(w') = 1$

(7) Warlpiri has no coordinator equivalent to $[\![\text{and}_{English}]\!]^w$ $(\lambda t_1 . \lambda t_2 . t_1 = 1 \wedge t_2 = 1)$.

It is generally assumed that the English *P or Q*, which has a non-strengthened meaning of P ∨ Q, is strengthened by pragmatic reasoning to ((P ∨ Q) ∧ ¬(P ∧ Q)) through competition with *P and Q*. Given the above toolkit, *P manu Q* (P ∨ Q) cannot be pragmatically strengthened in this way since it does not compete with another coordinator meaning P ∧ Q like $and_{English}$. Sauerland (2004) suggests that the set of alternatives to English *P or*

Q is effectively {(P ∧ Q), P, Q, (P ∨ Q)}. Since Warlpiri does not have $and_{English}$, I will assume instead that the set of competing stronger alternatives to *P manu Q* is {P, Q, (P ∨ Q)}. This assumption is also made by Singh, et al for the set of alternatives available to English-speaking children for *P or Q* (P ∨ Q). Singh, et al assert that this is due to the inability of English-speaking children to access the lexicon and include P ∧ Q when generating alternatives, whereas I crucially claim that the set of alternatives available to Warlpiri speakers simply falls out from the lexical items that are available to them.

Singh, et al follow the recursive strengthening approach given in Fox (2006). Assuming that English-speaking children have a non-strengthened denotation of (P ∨ Q) for *or*, recursive application of Fox's strengthening function introduced by a covert syntactic operator yields (P ∨ Q) ∧ ¬(P ∧ ¬Q) ∧ ¬(¬P ∧ Q), namely P ∧ Q. This is how Warlpiri speakers use *manu* in conversation, showing that this strengthening strategy is also applicable to *manu*. I will also discuss the compatibility of this proposal with Katzir (2013).

P marda, Q marda constructions are underlyingly the disjunction of epistemic possibilities ('maybe P or maybe Q'). The covert disjunctive coordinator can be optionally overtly realized as *manu* in *P marda manu Q marda* constructions, which then can undergo strengthening to ◇P ∧ ◇Q. However, *P marda, Q marda* cannot be interpreted identically to English *P or Q* disjunctions. In particular, Warlpiri speakers do not interpret these constructions as exhaustive (Zimmermann 2001).

P manu Q and *P marda, Q marda* are both compatible with P ∧ Q, necessitating an explanation as to why speakers choose *P manu Q* over *P marda, Q marda* for expressing P ∧ Q. I propose an optional covert universal epistemic modal, MOD, attached at the root node in *P manu Q* constructions. I will show that this universal modal strengthens *P manu Q* constructions such that speakers always choose *P manu Q* over *P marda, Q marda*.

In summary, the strengthened usage of *P manu Q* expresses a conjunction (sometimes of epistemic necessities), whereas *P marda, Q marda* expresses a conjunction of epistemic possibilities. The (P ∨ Q) denotation of *manu* also accounts for its occurrence in downward-entailing contexts like (4), where it follows de Morgan's law in its distribution and results in a straightforward 'neither P nor Q' reading.

3. Comparison of Warlpiri with Hungarian

The distribution of *manu* in downward-entailing contexts resembles the behavior of conjunctive *és* 'and' in Hungarian (Szabolsci & Haddican 2004). Hungarian speakers use *és* under the scope of negation:

(8) Mari nem járt hokira **és** algebrára.
Mari not went hockey-to and algebra-to
Mary didn't take hockey and didn't take algebra. (Szabolsci & Haddican 2004:1)

Szabolsci & Haddican argue that *vagy* 'or' is a PPI; since *vagy* cannot occur under the scope of clausemate negation, Hungarian speakers use *és* 'and' instead. Like *vagy* 'or,' *marda* 'maybe' also does not occur within the scope of clausemate negation. This suggests there is a syntactic similarity between Warlpiri and Hungarian with respect to the distribution of disjunctive constructions. This also accounts for the distribution of *manu* in downward-entailing contexts due to the fact that it does not compete with *P marda, Q marda*.

Selected references: Fox, Danny. 2006. "Free choice disjunction and the theory of scalar implicature." In Uli Sauerland & Penka Stateva, eds, *Presupposition and Implicature in Compositional Semantics*, 71-120. Singh, Raj, et al. 2013. "Children interpret disjunction as conjunction." Carleton University, ms. Szabolsci, Anna & Bill Haddican. 2004. "Conjunction meets negation." *Journal of Semantics* 21: 219-249.