Projection and belief in K'ichee': two examples of crosslinguistic semantic variation

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This paper presents a study of *projective meaning* — a category which subsumes presuppositions and conventional implicatures [1, 2, 4] — in the Mayan language K'ichee'. The study is based on a set of diagnostics developed by Tonhauser et al. [5], which are meant to be applicable in fieldwork situations in any language.

We find the Tonhauser et al. protocol must be refined in order to be useful in K'ichee'. One of the diagnostics crucially depends on a property of English belief verbs which — we show — K'ichee' lexical belief verbs do not share. Having cleared this methodological hurdle, we present results showing that highly similar projective meaning components may behave quite differently in different languages. Specifically, the additive implication of an additive particle (e.g. of English *also* or K'ichee' *choqe'* 'also') behaves differently in K'ichee' than it does in other languages that have been studied so far.

Classifying projective meaning   The Tonhauser et al. protocol involves the following diagnostics:

(1)   Let S be a sentence containing an expression t which triggers the inference that ϕ.

   a.   Do "family of sentences" variants of S, such as ⌜*not S*⌝, ⌜*maybe S*⌝ or ⌜*if S then R*⌝, also imply ϕ? If so, ϕ is said to *project*.

   b.   Can S be uttered in a context where ϕ is not already in the common ground? (That is, can ϕ be informative?) If not, ϕ is said to impose a *contextual felicity constraint (C.F.C.)*.

   c.   If S is embedded under some operator that creates a local context (such as a propositional attitude predicate), is ϕ contributed to the local or the global context? If the local context, ϕ is said to have a *local effect (L.E.)*.

Tonhauser et al. find four classes of projective content, distinguished by different combinations of the properties given above (Table 1). Interestingly, they find that comparable English and Guaraní projective meaning components always fall into the same class. (See Table 2: for instance, the prejacent of English *only* falls into the same class as the prejacent of Guaraní *-nte* 'only'; expressive meanings in English fall into the same class as expressive meanings in Guaraní; and so on.)

	Projects?	C.F.C.?	L.E.?	Meaning type	English	Guaraní	K'ichee'
Class A	yes	yes	yes	Existence of referent	A	A	A
Class B	yes			Expressive content	B	B	B
Class C	yes		yes	Prejacent of *only*	C	C	C
Class D	yes	yes		Additive implication	A	A	C

Table 1: Projective meaning classes   *Table 2: Examples of classification across languages*

We show that this pattern of close crosslinguistic correspondence is not universal. There are projective meaning components in K'ichee' that do *not* fall into the same class as their English and Guaraní counterparts. One such example is the additive implication of an additive particle (Table 2, final row). The additive implications of English *also* and Guaraní *avei* 'also' impose a contextual felicity constraint; the additive implication of K'ichee' *choqe'* 'also' does not; thus, the K'ichee' additive falls into a different class than the English and Guaraní ones do.

Belief verbs and the local effect diagnostic   In the course of adapting the diagnostics to K'ichee', we encountered a methodological hurdle which we expect will be of some independent interest. To test whether some meaning component m of a sentence S, has its effect locally (c.f. 1c), Tonhauser et al. embed the sentence S in the frame ⌜*X believes that S and that ¬m*⌝.

They reason thus: if m has a local effect, it will be contributed to X's belief context, resulting in the claim that X believes both m and $\neg m$. The result should be either infelicity or the inference that X is irrational — and this is indeed what we get in English (demonstrated in 2) and Guaraní.

(2) ?John believes that I just quit smoking and that I never used to smoke.

[Bad on the assumption that John is sane and rational.]

This diagnostic exploits a property of the English verb *believe*: speakers take it to refer to *high degrees of belief*, such that no sane person can be said to "believe" both m and $\neg m$. In K'ichee', by contrast, we show that there are no lexical belief predicates with this property. In particular, the verbs *kukojoh* and *kuchomaj*, standardly offered as translations for 'he thinks' or 'he believes,' may refer to *low but non-zero degrees of belief*, such that a sane person can have the relevant attitude towards two contradictory propositions. Thus, examples such as (3) are judged felicitous.

(3) *Ri   nunaan,   kukojoh   cher xeew le   a   Te'k   xb'anowik, e   kukojoh   cher*
    the my.mother she.thinks that only the youth Diego he.did.it   and she.thinks that
    xeew le   a   Lu'   xb'anowik.
    only the youth Pedro he.did.it

"My mother thinks [or 'is considering the possibility'] that only Diego did it, and thinks that only Pedro did it."

(My consultants take (3) to describe a situation in which the speaker's mother is entertaining two possibilities or hypotheses, and has not ruled out either one.)

This leaves verbs such as *kukojoh* unsuitable for use in this diagnostic. However, we have found that an idiomatic expression — *kub'ij wih*, literally meaning "he DOES say" but here used to mean "he's certain that" — refers specifically to high degrees of belief and thus has the correct properties for use in the local effect diagnostic. We conclude that, if this diagnostic is to be crosslinguistically valid, it cannot simply be translated into the target language; rather, the diagnostic protocol must include a validation stage in which it is confirmed that the belief predicate being used does indeed refer to a sufficiently high degree of belief.

Discussion   We have described two points of semantic variation between K'ichee' and better-studied languages. First, we have shown that some K'ichee' presuppositions fail to impose a contextual felicity constraint (C.F.C.) even though their counterparts in English and other well-studied languages do impose one. It is interesting to compare K'ichee' to St'át'imcets, in which Matthewson [3] has claimed that *all* presuppositions fail to impose a C.F.C. We can see K'ichee' as occupying the typological middle ground between St'át'imcets and English on this point.

The second point of variation concerns the meanings of lexical belief verbs. It is a phenomenon of descriptive and theoretical interest in its own right, and deserves further attention in the future; but it also serves as a sort of methodological cautionary tale, showing that a diagnostic cannot simply be translated without carefully checking that its essential properties have been preserved.

[1]   Chierchia, G. and McConnell-Ginet, S. (1990). *Meaning and Grammar*. MIT Press, Cambridge, Massachusetts.

[2]   Langendoen, T. and Savin, H. (1971). The projection problem for presuppositions. In Fillmore, C. and Langendoen, T., editors, *Studies in Linguistic Semantics*, pages 54–60. Holt, Rinehart and Winston, New York.

[3]   Matthewson, L. (2006). Presupposition and cross-linguistic variation. In *Proceedings of the 26th meeting of teh North-Eastern Linguistic Society*, pages 63–76.

[4]   Simons, M., Tonhauser, J., Beaver, D., and Roberts, C. (2010). What projects and why. In *Proceedings of Semantics And Linguistic Theory (SALT) XI*, pages 431–448, Ithaca, New York. CLC Publications.

[5]   Tonhauser, J., Beaver, D., Roberts, C., and Simons, M. (2011). Towards a taxonomy of projective content. Manuscript under submission.