Nuu-chah-nulth Evidentials and the Origo

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1 Incarnations of the Origo

Evidentials are morphemes like *apparently* and *reportedly* which indicate the relation between a proposition and a particular person—the origo (Garrett 2001). In this paper I look at how the origo is determined in different clausal environments in a particular language, Nuu-chah-nulth.[1] I propose to treat the origo as an argument of all propositions, and show how this can account for the assignments of origos in different kinds of clauses.

The origo as a concept is not new. Among its incarnations is the judge of Lasersohn (2005) and Stephenson (2007, 2008), which was proposed to account for the readings of embedded predicates of personal taste and epistemic modals. The centred worlds of Lewis (1979) and Chierchia (1989), which were proposed to account for the readings of embedded *de se* attitudes, are another incarnation of this idea.

Statements involving predicates of personal taste are only true relative to a particular individual (Kölbel 2002). In main clauses this individual, called the judge by Lasersohn (2005), is normally the speaker, while in embedded clauses this individual is the attitude holder specified in the main clause. Thus the sentence in (1a) is true if I brussels sprouts taste good to me, while that in (1b) is true if brussels sprouts taste good to Ken.

(1) a. The brussels sprouts taste good.
b. Ken thinks the brussels sprouts taste good.

Stephenson (2007) points out that epistemic modals are also interpreted relative to a judge. The judge is assigned the same way as in the cases of predicates of personal taste. In a main clause the judge is usually the speaker, while in embedded clauses it is the attitude holder. Thus in (2a) I am the one inferring that it rained, while in (2b) Kay is the one making the inference.

(2) a. It must have rained last night.
b. Kay thinks it must have rained last night.

Note that in both cases the problem to be solved is a reading of something embedded under a propositional attitude verb. Stephenson proposes that the embedded proposition has an individual argument in addition to a world and a time.

[1] Nuu-chah-nulth belongs to the Wakashan family, and is spoken on the west coast of Vancouver Island, British Columbia. The data presented here is from the Ahousaht dialect.

Stephenson (2007, 71) also points out that in an interrogative, the judge of a predicate of personal taste is the addressee. As the speaker of (3) I am asking if the addressee thinks the brussels sprouts taste good, even though I do not like them myself.

(3) Do the brussels sprouts taste good?

The incarnation of this concept under the name "origo" is due to Garrett (2001), who used it in his account of evidentials in Tibetan. He identified the origo as "the person from whose perspective a given evidential is evaluated" (Garrett 2001, 4), and pointed out that, while the origo of an evidential is identified with the speaker in declarative sentences, in questions the origo is the addressee. This distinction is illustrated below in examples from Nuu-chah-nulth. In (4) the evidential *-k'uk* 'visual inference' occurs in a declarative, and the origo is the speaker—the speaker is the one making the inference from something she visually observed. Note also that the fact that this is a declarative is indicated by the indicative mood suffix *-ʔiꞏš*.

(4) *Scenario:* Kay and her son Bill live in the same house as Kay's sister Ann. Ann went out of town for a few days, but hadn't been sure what day she would return. One day Kay and Bill came home and Kay saw Ann's shoes, and she said this to Bill.

wałyuuk'ukʔiš
wałyuː-k'uk-ʔiꞏš
be.home-VIS.EVID-3.IND

'It looks like she's home.'
p= 'She (Ann) is home.'
ORIGO = speaker (Kay)

When the same evidential occurs in a question, as in (5), the origo is now the addressee. The addressee Bill is being asked by the speaker Kay whether his aunt is home, but the speaker assumes his answer will involved an inference from something he has visually observed. Note that the fact that this is an interrogative is indicated by the interrogative mood suffix *-ḥ*.

(5) *Scenario:* Kay and her son Bill live in the same house as Kay's sister Ann. Ann went out of town for a few days and hadn't been sure what day she would return. One day Kay and Bill came home, and Bill went in first. Wondering if Bill could tell if his aunt was home, Kay asked him this.

wałyuuk'ukḥ	naʔi
wałyuː-k'uk-ḥ	naʔi
be.home-VIS.EVID-3.INTER	aunt/uncle

'Does your aunt seem to be home?'
p= 'Your (Bill's) aunt is home.'
ORIGO = addressee (Bill)

In Tibetan it is not possible for an evidential to be embedded under a propositional attitude verb, so the similarity between origos and judges and centred worlds is not so clear. In Nuu-chah-nulth, evidentials can be embedded under these verbs, and we can see that the origo patterns with judges in its behaviour. In (6) the origo of *-k'uk* 'visual inference' is the attitude holder, Linda, who is the subject of the main clause—she is the one who is making an inference from something she visually observed.

(6) *Scenario:* Linda saw lights on at Ken's place after he had been out of town for a few days, and she told Kay that it looked like Ken was home. Later, Kay said this to Bill.

ʔuqɬaamitʔiš	Linda wałyuuk'ukq	Ken
ʔuqɬaːp-(m)it-ʔiˑš	Linda wałyuː-k'uk-q	Ken
think-PAST-3.IND	Linda be.home-VIS.EVID-3.SUB	Ken

'Linda thought Ken was at home.'
p= 'Ken is home.'
ORIGO = matrix subject (Linda)

My main goal in this paper is to show that by making the origo an argument, we can account for the range of interpretations of evidentials in different clausal environments. I also discuss why the origo is distinct from the embedded contexts of Schlenker (2003): verbs of saying operate over contexts while propositional attitude verbs operate over origos, and

2 Origo as a Semantic Argument

An origo is equivalent to an ordered triplet $\langle j, w, t\rangle$ consisting of an sentient entity j, a world w and a time t. It is possible to treat each element separately in the semantics, but for simplicity's sake I treat it as a single variable, o, of its own type.

The origo acts as an index of evaluation: every proposition can be thought of as the set of origos who believe it is true. In addition, situations (or events) are necessary for the semantics of evidentials, resulting in the basic schema for predicates, shown below:

(7) $\lambda s \lambda o[P(s)(o)]$

To give a concrete example of a predicate with an origo, a weather verb like *ṁiχaa* 'be raining' will thus be translated as follows:

(8) ṁiχaa $\Rightarrow \lambda s \lambda o[\text{raining}(s)(o)]$

The approach outlined here is an extension of Stephenson's (2007) analysis of predicates of personal taste to all predicates. A predicate of personal taste, like *taste good*, treating it as an atomic predicate, will have the translation given in (9) below.

(9) $\lambda x \lambda s \lambda o$[taste.good$(s)(o)(x)$]

3 Origo Assigned by Mood

Every clause in Nuu-chah-nulth contains a mood suffix which also expresses subject agreement. Several of these moods occur only in main clauses, not embedded clauses. Others occur in embedded clauses. I propose that main clause moods saturate the origo argument of the proposition of the clause, while the other moods do not. As I discuss in the next two sections, other mechanisms are at work in embedded clauses.

The indicative mood is used in making declarative statements; it assigns the speaker *sp* as the origo. The speaker as origo corresponds to the triple $\langle sp*, w*, t* \rangle$, consisting of the speaker of the utterance, the utterance world and the utterance time.

(10) -ʔiˑš $\Rightarrow sp$

If there is an evidential in a clause with the indicative mood, as in (4) above, the evidential will describe the relation between the speaker and the prejacent proposition. Before showing how the derivation of such a sentence proceeds, I give the translation of the evidential *-k'uk* in (11) below. This translation is a much abbreviated form of the full meaning of *-k'uk*. The relation vis.inf$(s)(o)(P(s'))$ indicates both that the origo is making an inference from some premise that holds at s to the conclusion $P(s')$, and that the origo perceived s visually. As well, *-k'uk* stipulates that the two situations s and s' must overlap temporally. But for this paper it suffices treat this as a single relation. Also note that *-k'uk* introduces a context dependent situation variable, the situation in which the prejacent holds.

(11) *-k'uk*$_1$ $\Rightarrow \lambda P \lambda s \lambda o$[vis.inf$(s)(o)(P(s_1))$]

The structure shown in (12a) is for the sentence *ḿiƛaak'ukʔiˑš* '(It looks like) it's raining'. A null tense morpheme -Ø will provide a contextually determined situation to saturate the situation argument of the predicate. The translation of this sentence is given in (12b); the speaker has visually perceived situation s_2, and from that infers the proposition that it is raining.

(12) a. [[[ḿiƛaː-k'uk$_1$]-Ø$_2$]-ʔiˑš]

b. vis.inf$(s_2)(sp)(\lambda o$[raining$(s_1)(o)$])

The interrogative mood assigns the addressee *ad* as the origo. Again, the addressee is treated as an ordered triple, $\langle ad*, w*, t* \rangle$. This suffix also introduces interrogative semantics; in (13) I indicate this by the function *Alt*, which returns the set of alternatives of its argument.

(13) -ḥ ⇒$\lambda p[Alt(p(ad))]$

A question like *ṁiƛaak'ukḥ* 'Does it look like it's raining?' has a structure similar to that for the corresponding declarative sentence, and this structure is given in (14a) below, followed by its translation in (14b).

(14) a. [[[ṁiƛaː-k'uk$_1$]-Ø$_2$]-ḥ]
b. Alt(vis.inf(s_2)(ad)(λo[raining(s_1)(o)]))

4 Origos Assigned by Propositional Attitude Verbs

Clauses which are the complements of propositional attitude verbs do not have their origo argument saturated, but instead have it restricted by the propositional attitude verb to being its attitude holder, generally its subject.

(15) ʔuqłaap ⇒$\lambda p\lambda x\lambda s\lambda o$[think($s$)($o$)($x$)($\lambda o'[p(o')]$)]

A propositional attitude verb like this will be felicitous if the origo o believes that x is the origo for the content of the embedded clause. Thus, he sentence in (6) above, which contained *-k'uk* embedded under *ʔuqłaap* 'think' will be felicitous if the speaker believes that Linda has inferred that Ken was home from something she has seen (as of some situation s_1 that precedes the utterance time).

(16) λo[be.home(s_1)(o)(Ken)]

5 Context Dependent Origos in Adjunct and Relative Clauses

Neither adjunct clauses nor relative clauses occur with main clause moods which assign an origo, nor do they occur as the complement of a propositional attitude verb which restricts the origo. Because these other mechanisms are not present, the origo is free to be context dependent.

In (17) below, the evidential *-matak* 'inference' occurs in a relative clause clause, and this sentence can be used in scenario 1 where the origo is the speaker, or in scenario 2 where the origo is the subject of the main clause.

(17) a. *Scenario 1 (origo = speaker):*
Kay knows that some of Ken's money was stolen, and that John was staying with him. Linda doesn't know about the theft, but she recently saw John at the mall, and told the Kay this. Later Kay said this to Bill.
b. *Secenario 2 (origo = main clause subject):*
Kay knows that some of Ken's money was stolen, but not that anyone was staying with him. Linda knows that John was staying with him, and recently saw him at the mall. Linda told Kay that she saw the man who might have stole

Ken's money. Later Kay said this to Bill. Kay still doesn't know that anyone was staying with Ken, only that Linda saw someone who she thinks might have stolen the money.

c. ẖaatsiičiƛitwaʔiš Linda čakup yaqmatakitiič
ẖaːtsi-ši(ƛ)-(m)it-waˑʔiš Linda čakup yaqʷ-matak-(m)it-(y)iːč
see-MOM-PAST-3.QUOT Linda man REL-IND.EVID-PAST-3.INDF.INF
kuuẇiłčip Ken taana
kuẇil-čiˑp Ken taːna
steal-BEN Ken money
'Linda saw the man who might have stole Ken's money.'

I have not found a suitable way to model the context dependent determination of the origo in adjunct and relative clauses. They will have the same structure as a complement clause, namely a proposition with an unsaturated origo argument. In order for its origo to be context dependent, it should be saturated with an indexed origo variable.

There is a resemblance between the bound and free origo readings and bound and free pronoun readings. A pronoun like *he* can be bound by an operator, or it can be context dependent. However, a pronoun can remain context-dependent in the scope of an quantifier, while an origo is always bound in the scope of a propositional attitude verb. Treating all origos as indexed variables will therefore not correctly capture their behaviour in complement clauses. The problem remains.

6 Origos vs. Embedded Contexts

The origo also shares some properties with embedded contexts, in the sense of Partee (1989), who invoked them to account for predicates with implicit context-dependent arguments, and Schlenker (2003), who invoked them for embedded shiftable indexicals. Here I argue that thy are distinct, and both are necessary for the correct interpretation of evidentials in Nuu-chah-nulth. One evidential in Nuu-chah-nulth, *naʔaat* 'auditory evidence' has a restriction on it requiring its origo to be the speaker in a main clause, or the speaker of an embedded speech act. It thus behaves like a shifted indexical when it is embedded under a verb of saying.

I follow Schlenker (2003) in analyzing verbs of saying as introducing operators which bind a context variable in their complement clause, though I use a slightly different notation. The Nuu-chah-nulth verb *wawaa* 'say' will be translated as follows:

(18) wawaa $\Rightarrow \lambda P \lambda x \lambda s \lambda o[\text{say}(s)(o)(x)(\lambda c[P(sp(c))])]$

The auditory evidential *naʔaat* is felicitous in an embedded speech clause regardless of the identity of the origo. In (19) the verb *wawaa* 'say' introduces a complement clause which represents a speech act performed by the subject Linda. The speaker of the entire sentence is Kay, but she is not the one who has auditory perceptual grounding for the proposition that Ken is home.

(19) *Scenario:* Linda lives next door to Ken, and was going to let Kay know when he got home. She heard noises from his apartment, and called Kay to tell her. Then Kay said this to Bill.

wawaamitʔiš	Linda ʔin	wałyaqpiʔaƛ	naʔaat	Ken
wawaː-(m)it-ʔiˑš	Linda ʔin	wal-yaq-pi(ƛ)-ʼaƛ	naʔaːt	Ken
say-PAST-3.IND	Linda COMP	be.home.MOM-now	AUD.EVID	Ken

‘Linda said she heard Ken is home now.’
p= ‘Ken is home now.’
ORIGO = matrix subject (Linda)

The auditory evidential *naʔaat* cannot be embedded under a propositional attitude verb like *ʔuqłaap* ‘think’, as we see in (20), with one exception which I turn to shortly. Here the origo of the complement clause will be Linda, the attitude holder. Since she is not a speaker in any utterance context in the discourse, *naʔaat* cannot be used to indicate that she has auditory evidence for Ken being home.

(20) ∗ʔuqłaamitʔiš Linda wałyuuq Ken naʔaat
ʔuqłaːp-(m)it-ʔiˑš Linda wałyuː-q Ken naʔaːt
think-PAST-3.IND Linda be.home-3.SUB Ken AUD.EVID

But what happens when the attitude holder happens to be the speaker? If *naʔaat* only requires that its origo be the speaker of an utterance context, we would expect it to be felicitous in such a case. This prediction is borne out by the data. In (21) we have an example where the attitude holder is the speaker, indicated by first-person singular agreement. Because of this, the origo of the complement clause is also the speaker, and *naʔaat* ‘auditory evidence’ is felicitous. The speaker Kay is saying that she herself thinks Ken is home, and *naʔaat* is indicating that the speaker has auditory perceptual grounding for this.

(21) *Scenario:* Kay lives in the apartment next to Ken. He had been out of town for a while when she heard cupboard doors being closed in his apartment. Later she said this to Bill.

ʔuqłaamitsiš	wałyuuq	Ken	naʔaat
ʔuqłaːp-(m)it-siˑš	wałyuː-q	Ken	naʔaːt
think-PAST-1SG.IND	be.home-3.SUB	Ken	AUD.EVID

‘I thought Ken was home.’
p= ‘Ken was home.’
ORIGO = speaker (Kay)

To summarize, the auditory evidential *na?aat* can only be used when the origo is a speaker. A verb of saying introduces embedded utterance context, thus allowing *na?aat* to occur in an embedded speech clause. This differs from propositional attitude verbs, where *na?aat* is only felicitous if the attitude holder is also the speaker. In order to capture the difference in behaviour between propositional attitude verbs and verbs of saying, we need to treat the former as introducing an operator over origo variables, and treat the latter as introducing an operator over context variables.

7 The Origo and "Direct Evidence"

The term "direct evidential" or "direct evidence" is vague (Matthewson 2010), and I need to be specific. By a direct evidential I mean an evidential which is used only when the origo is certain that the prejacent proposition is true. This contrasts with an indirect evidential, which is used only when the origo is uncertain about the truth of the prejacent proposition. This use of "direct evidential" is distinct from any sense in which the origo has observed the situation of the prejacent proposition itself, as opposed to inferring the prejacent proposition or hearing a report stating the prejacent proposition. My claim is that by treating the origo as an argument, direct evidence in the sense of origo certainty falls out from the pragmatics of assertion.

The indicative mood in Nuu-chah-nulth is used when the speaker is certain about a proposition, as in (22) below, yet this does not mean it is a direct evidential. In fact, it cannot be one, since it also occurs in clauses which also contain an indirect evidential, as we saw in (4) above.

(22) *Scenario:* Kay walks in from outside, shaking the rain off her jacket, and says this to Bill, who had the curtain closed.

ɯ̓iƛaaʔiš
ɯ̓iƛaˑ-ʔiˑš
rain.DUR-3.IND

'It's raining.'

The lack of a direct evidential in Nuu-chah-nulth follows from the fact that when there is no indirect evidential, the indicative mood suffix saturates the origo of the proposition directly, and identifies it with the speaker. Because the indicative mood also specifies that the proposition is asserted, and because an assertion is only felicitous if the speaker believes it to be true, it follows that the speaker is certain about the truth of the proposition. There is thus no need for a dedicated direct evidential.

8 Conclusion

In this paper I argued that the origo should be treated as an argument. By doing so we can account for the different assignments it gets in declaratives, interrogatives, and complement

clauses. I also describe the assignments in adjunct and relative clauses, but as of yet I lack a way to model this assignment.

I also argued that propositional attitude verbs introduce an operator over origo variables, while verbs of saying introduce an operator over context variables. The behaviour of the auditory evidential *na?aat* supports this, as it is only felicitous when its origo is the speaker of some utterance context.

Finally, I discussed how direct evidentials, in the sense of indicating the origo's certainty, are unnecessary. The lack of an indirect evidential and the felicity conditions on assertion conspire to entail the origo's certainty in main clause declaratives.

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