

The Proper Treatment of Egophoricity in Kathmandu Newari

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1 Introduction

The variety of the Sino-Tibetan language Newari spoken in the Kathmandu Valley of Nepal has an intriguing system of verbal marking. Verbs are not marked for the person value of the subject. Instead, a special form of the verb called the *egophoric* (or *conjunct*) form is found in first person statements, in second person polar questions, and in *de se* speech reports. A different form (non-EGO, or *disjunct*) appears elsewhere. The egophoric verb form is glossed EGO in these examples (from Hargreaves 2005, ex. (51) to (56)):

- (1) a. $\text{j\ddot{i}:$ a:pwa twan- \bar{a} .
1.ERG much drink-PAST.EGO
'I drank a lot'
b. $\text{ch\ddot{a}/w\ddot{a}$ a:pwa twan-a
2.ERG/3.ERG much drink-PERF
'You/(s)he drank a lot.'
- (2) a. $\text{ch\ddot{a}$ a:pwa twan- \bar{a} $\text{l\bar{a}?$
2.ERG much drink-PAST.EGO Q
'Did you drink a lot?'
b. $\text{j\ddot{i}/w\ddot{a}$ a:pwa twan-a $\text{l\bar{a}?$
1.ERG/3.ERG much drink-PERF Q
'Did I/(s)he drink a lot?'

In speech reports, EGO-marking on the embedded verb indicates that its subject is coreferential with the reported speaker (from Hargreaves in press, ex. (8) and (11)):

- (3) a. $\text{sy\bar{a}m-\bar{a}$ $\text{w\bar{a}}$ a:pwa twan- \bar{a} $\text{dhak\bar{a}:$ $\text{dh\bar{a}l-a}$
Syam-ERG 3.ERG much drink-PAST.EGO COMP say-PERF
'Syam_i said that he_i drank too much.'
b. $\text{sy\bar{a}m-\bar{a}$ $\text{w\bar{a}}$ a:pwa twan-a $\text{dhak\bar{a}:$ $\text{dh\bar{a}l-a}$
Syam-ERG 3.ERG much drink-PERF COMP say-PERF
'Syam_i said that he_j drank too much.'

Egophoric marking also interacts with evidential markers in interesting ways, as we will see later. Such *egophoric* systems, also known as ‘conjunct-disjunct marking’ systems, are found in a variety of languages scattered about the world, including languages spoken in the Himalayas, the Caucasus, the Andes, and Highlands New Guinea (San Roque et al., 2015).¹

How can we explain the distribution of EGO-marking? What is its semantic function? In this paper we suggest, following Wechsler (in press), that EGO-marking on a verb earmarks its verb phrase as a *self-ascription*, that is, the kind of property that a person knowingly ascribes to herself (Lewis, 1979). We model this special semantic content of an EGO-marked VP as a centered worlds proposition, that is, a set of world-agent pairs. The distribution of EGO markers will then be seen to follow from the interaction of that semantic content with the illocutionary pragmatics. Since the EGO-marked VP is to be self-ascribed, it normally requires a first person subject when it serves as the predicate of a declarative main clause that expresses the content of an assertion (as shown in (1a)). When asked a polar question, the addressee is invited to self-ascribe either the question’s prejacent or its negation, hence such a question normally requires a second person subject (as shown in (2a)).

In the next section, we round out the description of the egophoric system of Newari. In light of these facts, we then discuss two previous approaches, which we label *indexical* and *evidential*, and motivate our account. Then we model the semantics of egophoric marking using a logic for self-reference that we call ‘Egophoric Logic.’ Along the way, we develop a theory of how *de se* attitudes are communicated.

2 Egophoricity in Newari

The hallmark of egophoric verb marking systems is the ‘interrogative flip’ pattern illustrated by the Newari examples (1a) and (2a) above and shown schematically in Table 1. The Newari paradigm for the verb meaning ‘to go’ is shown in Table 2. The perfective/imperfective aspect distinction is neutralized in the egophoric form.²

Polar questions take EGO only with second person subjects. But a rhetorical question expressing an assertion works like a declarative clause: EGO marking is used with a first person subject but not a second person subject:

¹Languages with egophoric marking systems include the Sino-Tibetan languages Kathmandu Newari (Hale, 1980; Hargreaves, 2005, in press; Wechsler, in press) and Lhasa Tibetan (Delancey, 1997; Garrett, 2001); the Barbacoan languages Tsafiki ((Dickinson, 2000)), Guambiano, and Cha’palaa (San Roque et al., 2015); Akhvakh (Nakh-Daghestanian; Creisels 2008), the Trans New Guinean languages Oksapmin (Loughnane, 2009), Duna and Kaluli (San Roque et al., 2015)). For surveys of these and other such languages see San Roque et al. (2015); Floyd et al. (in press).

²Following the conventions of Devanagari orthography and transliteration \bar{a} represents a low central vowel while a represents a low back vowel.

	declarative	interrogative
1st person	EGO	—
2nd person	—	EGO
3rd person	—	—

Table 1: Schematic paradigm for egophoric systems

	declarative	interrogative
1st person	<i>wan-ā</i>	<i>wā:</i> / <i>wan-a</i>
2nd person	<i>wā:</i> / <i>wan-a</i>	<i>wan-ā</i>
3rd person	<i>wā:</i> / <i>wan-a</i>	<i>wā:</i> / <i>wan-a</i>

Table 2: Finite past forms of ‘to go’ (perfective/imperfective)

- (4) Ji ana wan-ā lā?
 I.ABS there go-EGO.PST Q
 ‘Did I go there? (I most certainly did not!)’ (Hale 1980, 100)
- (5) Cha wal-a lā?
 you.ABS come-PST Q
 ‘Did you come? (You most certainly did not!)’ (Hale 1980, 100)

This shows that EGO marking is conditioned by the actual illocutionary function, not the syntax of declaratives and questions.

As noted in the introduction, EGO-marking is also found in speech reports. With EGO-marking on the embedded verb, its subject is understood as coreferential with the reported speaker (repeated from (3)):

- (6) a. syām-ā wā a:pwa twan-ā dhakā: dhāl-a
 Syam-ERG 3.ERG much drink-PAST.EGO COMP say-PERF
 ‘Syam_i said that he_i drank too much.’
- b. syām-ā wā a:pwa twan-a dhakā: dhāl-a
 Syam-ERG 3.ERG much drink-PERF COMP say-PERF
 ‘Syam_i said that he_j drank too much.’
 (from Hargreaves in press, ex. (8) and (11))

First or second person pronouns can replace the subject in (6a), in sentences meaning ‘I said that I drank too much’ or ‘You said that you drank too much.’ The embedded verb is EGO-marked as long as the embedded and matrix subjects corefer.

Actually, coreference between the embedded and matrix subjects is not quite sufficient to license EGO-marking. EGO-marking appears only in reports of true reference *de se*, where the agent knowingly self-refers. Consider the following scenario: *Syam is looking at a photo from a wild party in which someone is*

wearing a lampshade on his head. Syam points at the intoxicated partier and says to you, ‘That guy drank too much’; unbeknownst to Syam, it is himself in the picture. In that scenario, the EGO-marked sentence (6a) is false. ‘Syam’ and ‘he’ corefer, as indicated by the subscripts. But for the egophoric verb form to appear it is not sufficient that the person uttering (6a) knows that ‘Syam’ and ‘he’ corefer: Syam must know that he referred to himself in the reported speech act.³ Thus an EGO-marked predicate expresses a self-ascription: self-reference rather than just co-reference. This fact will provide crucial motivation for our analysis of egophoricity (see Section 3).

Summarizing our description of Newari so far, we may say that the subject of an EGO-marked verb refers to the *epistemic authority* for the clause (Hargreaves in press, cf. Hale 1980). The epistemic authority is the participant whose commitment to the at-issue content of the clause is projected by the speech act.⁴ Different types of speech acts typically (but see presently for exceptions due to evidentials) treat different discourse participants as the epistemic authority:

- In simple declaratives: the speaker
- In polar interrogatives: the addressee
- In *de se* speech reports: the reported source of the speech

The subject of an EGO-marked verb refers to epistemic authority, so in declaratives it tends to be a 1st person pronoun, in polar questions it tends to be a 2nd person pronoun, and in speech reports it can be 1st, 2nd, or 3rd person, matching the person of the reported speaker.

While the speaker of a declarative is normally the authority responsible for her statement, she will sometimes abdicate authority for the statement, placing the onus on a third party. This can be done with certain forms indicating the evidential source, including English phrases like *according to John*:

(7) According to John, the meeting was cancelled.

In making this statement, the at-issue proposition that the meeting was cancelled is attributed to John, rather than the speaker. Note that such evidential-marked sentences sometimes escape Moore’s Paradox:

- (8) a. #The meeting was cancelled, but I don’t believe that the meeting was cancelled.
 b. According to John the meeting was cancelled, but I don’t believe that the meeting was cancelled.

³Notice by contrast that the English sentence provided as translation for (6a) is true, or at worst a bit misleading, in the scenario: Syam did say that he drank too much even if he did not realize he was talking about himself.

⁴Other terms for equivalent or closely related notions include: *commitment holder* (Krifka, 2014), *informant* (Bickel, 2008), *epistemic source* (Hargreaves 2005), *seat of knowledge* (Speas & Tenny, 2003), *locutionary actor* (Hale, 1980), *locutor* (Aikhenvald, 2004), and *judge* (McCready, 2007).

In the present terms we can say that (8a) seems contradictory (hence the # symbol) because asserting that p also implies an assertion that the speaker believes that p — but only if the speaker is the authority for the assertion.⁵ In (8b) John, not the speaker, is the authority, so the oddness disappears.

Newari sentences with evidential markers such as *khanisā* can appear without EGO-marking even when the subject is a first person pronoun:

- (9) jī: a:pwa twan-a khaṇisā
 1.ERG much drink-PERF EVID
 ‘It appears I drank a lot.’

In this non-EGO-marked sentence, the evidential source is understood to be someone other than the speaker. Assuming this evidential source is the authority, then example (9) is consistent with the generalization that EGO-marking appears on a verb if and only if its subject refers to the authority.

For the same reason that evidentials permit first person without EGO-marking, evidentials also permit third person with EGO-marking. The following sentences containing the evidential marker *hā* illustrate this.

- (10) a. syām- a a:pwa twan-ā hā
 Syam-ERG much drink-PAST.EGO EVID
 ‘According to Syam_i, he_i drank a lot.’
- b. wā a:pwa twan-a hā
 3.ERG much drink-PERF EVID
 ‘It is said that he drank a lot.’
 (from Hargreaves in press, ex. (12) and (10))

In sentence (10a) the verb has EGO marking, and its subject *Syam* is understood as the source of the information. Without EGO-marking as in (10b), the source of this information is understood to be hearsay originating from someone other than the referent of the subject pronoun *wā* ‘he/she’. Like the earlier example, these too are consistent with the generalization that EGO-marking appears on a verb if and only if its subject refers to the authority.

Newari EGO marking is restricted to verbs describing intentional actions. This restriction to intentional action is not shared by all languages with egophoric verb marking systems, but it is attested in some others such as the Barbacoan language Tsafiki (Dickinson, 2000). Hargreaves (2005, in press) called verbs used to describe intentional actions *control verbs*. They include *wan-* ‘go’, *twan-* ‘drink’, and many others. Control verbs satisfying the conditions described above (e.g. first person declaratives) take the EGO form unless modified with an adverb such as ‘unwittingly’ that explicitly cancels the intentionality. Verbs that do not describe intentional actions never take EGO marking, even with a first person subject of a declarative. For example, the Newari non-control verb *thyan-* ‘arrive’ describes an unintentional event. To describe intentional arriv-

⁵This is a ‘paradox’ because a sentence like (8a) seems contradictory, but does not express a logical contradiction.

ing, the root *thyan-* must appear in an adverbial form modifying a control verb such as *wan-* ‘go’, as in *thyanka wan-* lit. ‘go arrive (there)’. Still other verbs are *fluid*: with EGO-marking the action is interpreted as intentional and without it the action is interpreted as unintentional (even without an adverb such as ‘unwittingly’).

Summing up the description:

- An EGO-marked sentence describes an intentional action, whose intentional agent is expressed by the grammatical subject.
- The subject of an EGO-marked sentence is the epistemic authority for the clause.
 - In simple declaratives:
 - typically the speaker (1st person uses)
 - but can be deferred with evidentials
 - In interrogatives: the addressee (2nd person uses)
 - In embedded clauses: the reported source (any person: depends on person of the matrix subject)
- The epistemic authority has a *de se* attitude towards the at-issue proposition.

3 Egophoricity as self-ascription

Most previous accounts of egophoric marking systems fall into two types: *indexical* and *evidential* accounts.⁶ In indexical accounts, an egophoric marker is seen as an indexical similar to a person marker on the verb, except that instead of indexing the speaker or addressee, it indexes the epistemic authority (Bickel & Nichols, 2007). As a verbal inflection it flags the coincidence of the epistemic authority and an argument role of the verb, usually the subject as in Newari (in some egophoric languages different arguments can trigger egophoric marking). Note that such an account would require a Kaplanian ‘monster’, since it targets the reported authority in speech reports rather than the epistemic authority of the global speech context (recall (3)). Assuming this is permissible, an indexical view of Newari would account for almost all the facts in our description, and our own account builds upon this approach. But nothing about the indexical analysis predicts the obligatory reference *de se* observed with embedded clauses. An indexical account predicts *co*-reference between the subject and the epistemic authority, but it fails to predict *self*-reference *by* the epistemic authority.

The second approach is to view egophoric forms as a kind of evidential indicating the nature of the interlocutors’ knowledge of the situation described in the utterance, namely direct personal experience of an event (Garrett 2001, *inter alia*). A participant in an event has direct personal knowledge of the event,

⁶See San Roque et al. (2015) for discussion.

so declaratives with a first person subject take egophoric marking. Evidential markers are known to undergo ‘interrogative flip’: in declarative statements, the evidential indicates the nature of the speaker’s evidence, while in a question it flips to express the addressee’s (presumed) evidence. One variant of the evidential account sees the non-egophoric forms as miratives (indicators of surprise). On that view, the egophoric forms are non-miratives, since a person is unlikely to be surprised by news of her own actions (Dickinson, 2000; Delancey, 1997).

If Newari egophoric marking indicated knowledge gained through direct personal experience, then the restriction to verbs of intentional action would be surprising. One might rather expect EGO marking for eventualities to which the subject participant has privileged access, such as experiencer verbs. But in fact Newari experiencer verbs like *gyā(t)*- ‘fear’, *ciku(l)*- ‘be.cold’, *thu(l)*- ‘understand’ and *si(l)*- ‘know’ are *non-control* verbs, which never take the EGO form.

In that respect, Newari egophoric verbs contrast with the behavior of ‘private’ experiencer predicates in Japanese, Korean, and other languages (see Tenny 2006). Like the Newari egophoric verbs, these experiencer predicates are also known to undergo an interrogative flip, as illustrated here with Korean (from Chun & Zubin 1990):

- (11) a. Na-nun/*Ne-nun Changho-ka coh-ass-e.
 I-TOP/you-TOP Changho-NOM like-PST-DC
 ‘I/You liked Changho.’
 b. Ne-nun/*Na-nun Changho-ka coh-yess-ni?
 you-TOP/I-TOP Changho-NOM like-PST-QU
 ‘Did you/I like Changho?’

With such experiencer predicates interrogative flip is plausibly motivated by the fact that the experiencer has privileged access to her subjective experiences and feelings. In contrast the interrogative flip observed with Newari egophoric morphology lacks this motivation, since it is found with intentional acts like drinking, which is directly observable by people other than the drinker.

In sum, the indexical account fails to explain the obligatory self-ascriptive interpretation of Newari egophoricity (reference *de se*), and the evidential account receives counterevidence from the lack of egophoric marking on stative experiencer predicates, following from the restriction to intentional action. Zu (to appear) observes that both of these properties – reference *de se* and restriction to intentional action – are also found with some obligatory control constructions in many languages. The restriction to intentional action is illustrated by this English example (from Farkas 1988, ex. 22a):

- (12) a. Mary convinced John to leave/ #to be tall/blue eyed.
 b. Mary convinced John that he is tall/blue eyed.

The infinitival VP complement of *convince* must denote an intentional action, a restriction not shared by non-controlled complement clauses as in (12b).

Obligatory reference *de se*, i.e. self-ascription, is a well-known property of

many control constructions (Morgan, 1970; Chierchia, 1990):

- (13) a. Syam claimed [to have drunk too much]. (self-ascriptive only)
 b. Syam_{*i*} claimed [that he_{*i*} drank too much]. (self-ascriptive or not)

Sentence (13a) reports on Syam’s self-ascription of the property of having drunk too much. In contrast, (13b), even on the coreferential interpretation indicated by the subscripts, does not necessarily report a self-ascription, since that sentence can be true even if Syam is not aware that it is himself he refers to. For example, recall the scenario above: Syam points at a picture of a drunken man wearing a lampshade, without realizing it is himself, and says to you, ‘That guy drank too much!’ In this scenario (13a) is false while (13b) is true.

So the semantic content of the infinitival VP [*to have drunk too much*] in (13a) is a self-ascription. Self-ascriptive semantic content has been modeled using *centered worlds* (Lewis, 1979). These are worlds augmented with a ‘You are here’ pointer, as it were, designating the *center* of the world. If we let centers be agents then a centered world is a pair consisting of a designated agent and a world. A *centered worlds proposition* is a set of centered worlds. (As Lewis points out, a centered worlds proposition can also be seen as a *property* that holds of an individual: in (13), the property of being in a world where one drank too much.)

The content of [*to have drunk too much*] in (13a), then, is the set of pairs $\langle a, w \rangle$ such that agent *a* drank too much in *w*. The subordinate clause in (13b) expresses an ordinary uncentered proposition.⁷

- (14) a. Content of the bracketed infinitival VP in (13a):
 $\{ \langle a, w \rangle : a \text{ drank too much in } w \}$
 b. Content of the bracketed complement clause in (13b):
 $\{ w : \text{Syam drank too much in } w \}$

We propose that the Newari finite EGO-marked VPs in (15) (repeated from (1a) and (3) above) have exactly the same semantic content as the infinitival VP in (13a), namely the centered proposition given in (14a).⁸

- (15) a. jī: [a:pwa twan-ā]
 1.ERG much drink-PAST.EGO
 ‘I drank too much.’
 b. syām-ā wā [a:pwa twan-ā] dhakā: dhāl-a
 Syam-ERG 3.ERG much drink-PAST.EGO COMP say-PERF
 ‘Syam_{*i*} said that he_{*i*} drank too much.’

Such a centered proposition is *ipso facto* self-ascribed by whoever commits to it.

⁷Alternatively the subordinate clause in (13b) can be modeled as a centered proposition in which the truth function does not depend on the agent:

$$\{ \langle a, w \rangle : \text{Syam drank too much in } w \}$$

⁸This proposal is made informally in Wechsler (in press).

One immediate consequence is that any declarative assertion made with such a finite VP as its predicate must normally be predicated of the speaker, hence in a main clause assertion the VP’s subject must normally be a first person pronoun. The other facts described above will also be shown to follow from this analysis, once we put in place a proper theory of the discourse pragmatics.

4 Analysis

4.1 Indexicals vs. egophors

Our analysis builds upon McCready’s (2007) analysis of certain Japanese indexicals that show an interrogative flip pattern similar to conjunct/disjunct marking. In the Kansai dialect of Japanese, *zibun* as the subject of a private experiencer predicate can be used to pick out the speaker, as in (16), but can also be used to pick out the addressee in an interrogative as in (17).

(16) zibun-wa horensoo-ga kirai ya
 ZIBUN-TOP spinach-NOM dislike COP
 ‘I don’t like spinach.’

(17) zibun-wa horensoo kirai-nan?
 ZIBUN-TOP spinach dislike-COP.Q
 ‘Don’t you like spinach?’

McCready assumes that there is a ‘judge’ parameter in the spirit of Lasnik (2005) in the Kaplanian context, and that the question operator is a Kaplanian ‘monster’ that fixes the judge parameter to the addressee. Then *zibun* is an indexical referring to the judge. This corresponds to the indexical analysis of egophoric marking as described in Section 3. It is close to what we need in order to capture the distribution of conjunct/disjunct marking in Newari. But if we were to use the same kind of analysis, we would not be able to capture the *de se* implications.

On our proposal, we do use an additional element of the Kaplanian context as McCready does. Instead of ‘judge’ we call it ‘authority’, and it is meant to capture the notion of evidential source. But we also introduce another agent parameter as a refinement on *content*, so that our propositions denote centered worlds; the agent parameter represents the center of the centered world. This gives us a level of content that can serve as the object of an attitude *de se*. Our claim is that egophoric marking picks out this latter agent parameter, corresponding to the perspectival center. We then capture the generalization that the subject of the sentence is the authority indirectly, through a constraint on assertion.

To do this, we use a logical representation language that we call *Egophoric Logic* (EL). EL is similar to Kaplan’s (1977) logic of indexicals in that the extension of an expression is relative to a model M , an assignment g , a context of utterance c , and a world w . What differs is that the extension also depends on an agent a , which serves as the perspectival center. This idea derives from

Lewis’s (1979) idea of centered worlds, and has been implemented similarly for the analysis of obligatory control by Anand & Nevins (2004) and Stephenson (2007), among others. It is also formally identical to Lasersohn’s (2005) implementation of relativism for predicates of personal taste, although here, in contrast to Lasersohn’s system, the agent parameter is not intended as a judge for matters of opinion.

We define the *extension* of an EL expression ϕ relative to model M , context c , variable assignment g , world w , and agent a , and write it as follows:

$$\llbracket \phi \rrbracket^{M,g,c,w,a}$$

(We ignore time throughout.) The agent parameter allows us to distinguish between two types of intension: centered intension, and ordinary (or ‘uncentered’) intension. The *centered intension* of ϕ is defined relative to a specified model, assignment, and context. With respect to model M , assignment g , and context c , the centered intension of ϕ , $\llbracket \phi \rrbracket_c^{M,g,c}$, is a function from centered worlds $\langle a, w \rangle$ to the corresponding extension:

(18) **Definition: centered intension**
 $\llbracket \phi \rrbracket_c^{M,g,c} = f : f(\langle a, w \rangle) = \llbracket \phi \rrbracket^{M,g,c,w,a}$

To get an *ordinary intension*, one must in addition specify an agent. With respect to model M , assignment g , context c , and agent a , the ordinary intension of ϕ , $\llbracket \phi \rrbracket_s^{M,g,c,a}$, is a function from ordinary possible worlds to the corresponding extensions:

(19) **Definition: ordinary intension**
 $\llbracket \phi \rrbracket_s^{M,g,c,a} = f : f(w) = \llbracket \phi \rrbracket^{M,g,c,w,a}$

So the centered intension of a sentence (wrt. a given M , g and c) will be a centered worlds proposition, and the ordinary/uncentered intension of a sentence (wrt. a given M , g , c and a) will be an ordinary possible worlds proposition.

With these tools, we can distinguish between three types of phenomena: (i) first person indexicals, (ii) authority indexicals, and (iii) egophors. For our logical language EL, we stipulate that the constant I denotes the speaker of the context $sp(c)$, and that the constant AUTH denotes the authority of the context $au(c)$.

(20) **Semantics of the first person indexical in EL**
 $\llbracket I \rrbracket^{M,g,c,w,a} = sp(c)$

(21) **Semantics of the authority indexical in EL**
 $\llbracket AUTH \rrbracket^{M,g,c,w,a} = au(c)$

These are both indexicals in the sense that their meaning depends on the current speech *context*. An egophor, on the other hand, is not an indexical; an egophor picks out the perspectival center, which is a *content* parameter. We designate the constant SELF as an egophor in EL. The extension of this expression with respect to agent a is a .

- (22) **Semantics of the egophor in EL**
 $\llbracket \text{SELF} \rrbracket^{M,g,c,w,a} = a$

This opens up two possible analyses of conjunct/disjunct marking: either as an authority indexical, as McCready proposes for Japanese *zibun*, or as an egophor. For Newari, we advocate an egophoric analysis.

If we were to give a fragment of Newari in the style of Montague’s (1974) ‘Proper Treatment of Quantification in Ordinary English’, mapping expressions of Newari to expressions of EL, we would specify that the first person pronoun *jĩ*: translates into EL as the first person indexical constant I:

- (23) **EL translation for Newari first person singular pronoun**
 $jĩ: \rightsquigarrow \text{I}$

The egophoric marker on the other hand invokes SELF. More specifically, it is a partial identity function on predicates that takes a predicate P and returns a predicate that holds of x if P holds of x and is defined if x is SELF, the perspectival center.⁹

- (24) **EL translation for Newari conjunct marker**
 $\bar{a} \rightsquigarrow \lambda P_{et} . \lambda x . P(x) \wedge \partial(x = \text{SELF})$

Assuming an appropriate translation for ‘drank a lot’, and appropriate composition rules (Function Application, etc.), the translation for *jĩ*: *a:pwa twan- \bar{a}* ‘I drank-EGO a lot’ will then be as follows:

- (25) $jĩ: a:pwa twan-\bar{a}$
 $\rightsquigarrow \text{DRANK-ALOT}(\text{I}) \wedge \partial(\text{SELF} = \text{I})$

The centered intension of the formula in (25) with respect to context c is a function that picks out the set of centered worlds $\langle a, w \rangle$ such that $a = sp(c)$ and a drank a lot in w . This proposition is something that can serve as the object of an attitude *de se*, following Lewis (1979).

4.2 Assertion

Following much recent work, we treat speech acts, including assertions and questions, as updates on discourse contexts. In an assertion, the centered intension of the clause corresponding to the at-issue content will be what the *authority of the context* becomes committed to. So upon asserting ϕ , the authority becomes committed to the centered intension of ϕ . If participant x is committed to a set of centered worlds P , then for all centered worlds $\langle a, w \rangle$ in P , x publicly commits to the belief that he or she may be a in w .

However, this does not mean that centered worlds propositions are in the common ground, because *de se* attitudes of this kind are not generally shared. This point is made colorfully by Egan (2010, p. 279), who points out: “Then

⁹ ∂ can be read ‘partial’; it implements presupposition by yielding undefinedness when the formula in its scope is not true (Beaver, 2001; Beaver & Krahmer, 2001).

COMPONENT	TYPE
Participants x_1, \dots, x_n	list of individuals
Discourse commitments $DC_{x_1}, \dots, DC_{x_n}$	each a set of centered worlds
Table T	stack of centered questions
QUD (top of the Table stack)	set of centered propositions
Common ground CG	set of non-centered worlds
Projected Set PS	set of common grounds (one for each in the QUD)

Table 3: Discourse model

introductions would be disastrous. The effect of Mr. Malkovich’s assertion of ‘I am John Malkovich’ (if it were accepted) would be to add *being John Malkovich* to the conversation’s presuppositions.” To believe a centered proposition is believe that one is at the center of each of the centered worlds in that set. So it cannot be the *de se* belief that the addressee acquires in communication; if Syam expresses his *de se* attitude by saying to Mary, ‘I drank a lot’, then Mary does not come to believe that she (Mary) drank a lot. (See Pagin 2015 for a clear and thorough review of the problem of *de se* communication.)

So our discourse model, which borrows heavily from Farkas & Bruce (2010), is as follows (summarized in Table 3). We have a set of *Participants* x_1, \dots, x_n , and each one is associated with a set of *Discourse commitments* $DC_{x_1}, \dots, DC_{x_n}$. The discourse commitments of a participant are represented as a set of centered worlds, so these are propositions that one can have a *de se* attitude to. We also have a *Table T*, following Farkas and Bruce, which is a stack of questions under discussion. We will assume that these questions under discussion are centered, in the sense that they are sets of centered worlds propositions. So in particular the *QUD*, which is the top of the Table stack, is a set of centered worlds propositions. The *Common Ground CG* on the other hand is a set of non-centered, ordinary possible worlds. We also adopt from Farkas and Bruce a notion of a *Projected Set PS*, which is a set of projected future common grounds corresponding to different ways of resolving the issue on the table.

Speech acts are operations that update such contexts. If ϕ is *asserted* in context c , the following actions take place:

- The centered intension of ϕ is added to $au(c)$ ’s discourse commitments.
- The singleton set containing the centered intension of ϕ , $\{\llbracket \phi \rrbracket_c^{M,g,c}\}$, is pushed on the Table.
- A common ground is projected in the Projected Set which integrates the authority-uncentered intension of ϕ , $\llbracket \phi \rrbracket_s^{M,g,c,au(c)}$.

Note that the authority of the context $au(c)$ is not always the speaker, as Faller 2006 and Murray 2010, i.a., have emphasized in connection with evidentials, so

it is not always the speaker that becomes committed to the centered intension of ϕ . The centered intension of ϕ is also pushed on the Table, in the case of an assertion. But it is not a centered intension that goes in the Projected Set, and the common ground, if the proposal is accepted; rather it is the result of uncentering p with $au(c)$ goes in the common ground: the *authority-uncentered intension* of ϕ , $\llbracket \phi \rrbracket_{\S}^{M,g,c,au(c)}$. This is an ordinary possible worlds proposition that is obtained by saturating the perspectival center parameter with the authority of the context. So when the proposal is accepted, the other discourse participants need not acquire a *de se* attitude to the centered worlds proposition.

Let us consider some examples of assertions. In (26), repeated from (1a) above, we have a sentence whose centered intension is centered around the speaker, in the sense that all pairs $\langle a, w \rangle$ in the centered intension are such that $a = sp(c)$. Since the speaker is the authority, the authority can unproblematically take on a discourse commitment to this centered intension, and no problems will arise when we put the authority-uncentered version in the common ground.

- (26) jĩ: a:pwa twan-ā
 1.ERG much drink-PAST.EGO
 ‘I drank-EGO a lot’

In (27), repeated from (1b) above, the centered intension is centered around the addressee, but the authority is still the speaker.

- (27) *chã a:pwa twan-ā
 2.ERG much drink-PAST.EGO
 ‘You drank-EGO a lot.’

This is problematic, as it should be. The speaker probably does not want to self-ascribe being the addressee, and furthermore, the authority-uncentered version will be a contradictory proposition, the empty set.

In the case of reportative evidential marking, we propose that the source of the information being reported be considered the authority of the context $au(c)$. This individual, rather than the speaker, is committed to the content of the clause. Everything else is the same; the singleton set containing the centered intension of ϕ , $\{\llbracket \phi \rrbracket_c^{M,g,c}\}$, is pushed on the Table, and a common ground is projected in the Projected Set which integrates the authority-uncentered intension of ϕ , $\llbracket \phi \rrbracket_{\S}^{M,g,c,au(c)}$. Thus in the presence of an evidential, if the verb has egophoric marking, and the subject is third person, the subject should be the source of the evidential report. Since evidential marking is used to indicate that the authority is someone other than the speaker, we predict that there should not be egophoric marking on the verb in the presence of evidential marking with a first person subject.

Now let us consider embedded cases like (3), repeated here as (28).

- (28) syām-ā wā a:pwa twan-ā dhakā: dhāl-a
 Syam-ERG 3.ERG much drink-PAST.EGO COMP say-PERF
 ‘Syam_i said that he_i drank too much.’

To account for such cases, we adopt the generalized Hintikka semantics for embedding verbs posited to account for *de se* in obligatory control (Pearson, submitted), and formalize it using our formal representation language EL. Like ordinary models, a model for EL will determine a domain of individuals D_e , a set of worlds W , and an interpretation function I determining the extensions of all of the non-logical constants in all the worlds; in addition, it will distinguish a subset of the individuals corresponding to the agents A which can be at the center of a centered world, and determine a set of modal accessibility relations, one for each of the n modalities covered by the modal. These include R_{dox} , the doxastic accessibility relation and R_{say} , which captures the relation between agents and the propositions they express. Following Stalnaker (2014), we model modal accessibility relations as relations among centered worlds. So $\langle a, w \rangle$ stands in \mathcal{R}_{dox} to $\langle a', w' \rangle$ if and only if a believes herself in w to be a' in w' . Similarly, $\langle a, w \rangle$ stands in \mathcal{R}_{say} to $\langle a', w' \rangle$ if and only if it is compatible with what a says in w for a to be a' in w' .

We can then say that an agent a says \mathcal{P} in world w according to M iff for all $\langle a, w \rangle$ and $\langle a', w' \rangle$:

$$\text{If } \langle a, w \rangle \mathcal{R}_{say} \langle a', w' \rangle \text{ then } \mathcal{P}(\langle a', w' \rangle) = \text{T.}$$

Let us then define the logical constant **says** in EL as follows:

$$(29) \quad \llbracket \mathbf{says} \rrbracket^{M,g,c,w,a} = f : f(x, \mathcal{P}) = \text{T iff } x \text{ says } \mathcal{P} \text{ in } w \text{ according to } M.$$

This is how we represent the Newari correlate of the verb *says*.

To complete the analysis, we also need to assume that an embedded finite clause of the form [CP ϕ] is translated into EL as $\hat{\phi}'$, where ϕ' is the ordinary translation of ϕ , and $\hat{}$ is a Montagovian ‘hat’ operator giving the centered intension, so $\llbracket \hat{\phi} \rrbracket^{M,g,c,w,a} = \llbracket \phi \rrbracket_{\mathfrak{c}}^{M,c,g}$. (Recall that the centered intension of ϕ wrt to M , g , and c , written $\llbracket \phi \rrbracket_{\mathfrak{c}}^{M,g,c}$, is that function f such that $f(\langle a, w \rangle) = \llbracket \phi \rrbracket^{M,g,c,w,a}$). Thus for *Syam says that he drank-EGO a lot*, we obtain the following EL formula as a representation of its meaning:

$$(30) \quad \mathbf{says}(\mathbf{siam}, \hat{[\mathbf{drank-alot}(x) \wedge x = \mathbf{self}]})$$

This correctly predicts that the sentence entails that Syam self-ascribes having drunk a lot.

This analysis also correctly predicts that in multiple embedding, EGO is triggered only by the closest reported speaker (Zu, 2016).

- (31) Thanedara dhāl-a ki [Syam-a swikareyat-a ki [wa daa policeman.ERG say-PST that Syam-ERG admit-PST that s/he money kuy-ā]]
steal-PST.EGO.
'The policeman₁ said that Syam₂ admitted that he_{*1/2/*3} stole the money.'
- (32) Thanedara dhāl-a ki [Syam-a swikareyat-a ki [wa daa policeman.ERG say-PST that Syam-ERG admit-PST that s/he money kut-a]]
steal-PST
'The policeman₁ said that Syam₂ admitted that he_{1/*2/3} stole the money.'

In this case, only Syam (not the policeman) commits to the centered intension of the proposition 'he stole. EGO the money'. EGO-marking on 'stole' identifies its subject 'he' as the perspectival center; thus 'he' must be interpreted as Syam. An indexical account would require additional stipulations in order to derive this result.

4.3 Questions

Now let us consider questions. Recall from (2) above that *Did I drink a lot?* does not carry ego-marking, and *Did you drink a lot?* does.

- (33) a. *jī: a:pwa twan-ā lā
1.ERG much drink-PAST.EGO Q
'Did I drink-EGO a lot?'
- b. jī: a:pwa twan-a lā
1.ERG much drink-PERF Q
'Did I drink a lot?'
- (34) a. chā a:pwa twan-ā lā
2.ERG much drink-PAST.EGO Q
'Did you drink-EGO a lot?'
- b. *chā a:pwa twan-a lā
2.ERG much drink-PERF Q
'Did you drink a lot?'

Let's assume that the meaning of a polar question is a set containing two centered propositions, one for the 'yes' answer and one for the 'no' answer.¹⁰

$$\llbracket ?\phi \rrbracket_c^{M,g,c} = \{ \llbracket \phi \rrbracket_c^{M,g,c}, \llbracket \neg\phi \rrbracket_c^{M,g,c} \}$$

Both propositions are functions that can yield T, F, or #; so the question may contain presuppositions. This set of two answers gets pushed on the Table when the question is asked, and then common grounds integrating uncentered

¹⁰We will not give a compositional account of questions and their presuppositions here, but one viable option would be to follow in the style suggested by Champollion et al. (2015).

versions of both answers are projected in the Projected Set, both uncentered via the authority. Now, the speech act of asking a question can be defined as follows. If $?\phi$ is asked in context c :

- $\{\llbracket\phi\rrbracket_c^{M,g,c}, \llbracket-\phi\rrbracket_c^{M,g,c}\}$ is pushed on the Table
- Common grounds integrating $\llbracket\phi\rrbracket_s^{M,g,c,au(c)}$ and $\llbracket-\phi\rrbracket_s^{M,g,c,au(c)}$ are projected.

The intuition behind our explanation for the distribution of ego-marking in question is that the addressee, who is the authority in the case of a question, should in principle be able to commit to the centered propositions corresponding to any given answer. This echoes an intuition that has been expressed previously that the ego form in a question *anticipates the form to be used by the addressee in her answer* (Hale 1980; Woodbury (1986, p. 192, fn. 3)).

Formally, we say that a projected set is *viable* iff it contains at least one non-empty common ground. If the propositions at the top of the Table stack are centered around a , and the authority is $b \neq a$, then empty common grounds will be projected.

For example, take example (33b), *Did I drink a lot?* The meaning of the question is a set with two elements; call them p and \bar{p} . Both p and \bar{p} are centered around the speaker.¹¹

- $\{ \langle a, w \rangle : a = sp(c) \text{ and } a \text{ drank a lot in } w \}$ = p
- $\{ \langle a, w \rangle : a = sp(c) \text{ and } a \text{ didn't drink a lot in } w \}$ = \bar{p}

If we uncenter these with the authority $au(c) = ad(c)$, then we get the empty set in both cases.

- $\{ w : \langle ad(c), w \rangle \in p \}$ = \emptyset
- $\{ w : \langle ad(c), w \rangle \in \bar{p} \}$ = \emptyset

This means that the projected set is not viable, so the example is correctly predicted to be infelicitous. On the other hand, there would be no problem if the subject was the addressee, given that the propositions in question are both centered around the addressee.

Let us summarize very briefly. We assume that an assertion, question, or answer (i) pushes a set of centered worlds propositions on the Table, and (ii) projects a set of common grounds obtained by updating the current common ground with authority-uncentered intensions, one for each element of the QUD. But there is a key constraint, namely that the Projected Set must be *viable*, so there must be at least one element of the Table whose authority-uncentered version is not a contradiction. With this constraint, we can account for the distribution of egophoric marking in questions.

¹¹Here we are playing a bit fast and loose, not distinguishing between sets and their characteristic functions.

5 Conclusion

Prima facie, conjunct/disjunct marking in Newari could be analyzed either as a form of indexicality, tracking the authority of the current speech context, as a form of evidentiality, or as a form of egophoricity. We have argued in favor of an egophoric analysis, and sketched one that captures the basic properties of conjunct/disjunct marking in assertions and questions.

A possible *explanation* for the Kathmandu Newari EGO markers' being this way comes from their historical origin. According to David Hargreaves (p.c.), the EGO forms are not derived from person morphemes. Rather, they were historically non-finite forms that assumed finite tense-aspect functions; evidence for this comes from the fact that they are cognate with non-finite forms in Dolakha Newar, which, unlike Kathmandu Newar, has a full person/subject agreement system. Recall that Newari EGO-marking is restricted to verbs of intentional action, and that obligatory control verbs often impose a similar restriction (Zu, 2016). This leads us to speculate: Could Newari egophoricity have arisen through the de-subordination of control constructions?

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