

Evidentiality, logophoricity and the syntactic representation of pragmatic features

Margaret Speas*

*Department of Linguistics, South College, University of Massachusetts,
Amherst, MA 01003, USA*

Received 28 January 2003; accepted 28 January 2003

Abstract

Some languages have *evidential morphemes*, which mark the Speaker's source for the information being reported in the utterance. Some languages have *logophoric pronouns*, which refer to an individual whose point of view is being represented. Notions like "source of evidence" and "point of view" have generally been treated as pragmatic, with few interesting repercussions in syntax. In this paper, I examine constraints on the grammaticization of these notions. I argue that a uniform account of these constraints requires a framework in which there are syntactic projections bearing pragmatically-relevant features. In particular, the facts support the claim of Cinque (Cinque, Guglielmo, 1999. *Adverbs and Functional Heads: A Cross-linguistic Perspective*. Oxford University Press, New York) that there are projections for Speech Act Mood, Evaluative Mood, Evidential Mood and Epistemological Mode.

© 2003 Elsevier B.V. All rights reserved.

Keywords: Evidential; Logophor; Mood

1. Introduction

This paper explores the mapping between syntax and pragmatic features in the domains of evidentiality and logophoricity. Although the constraints on both of these domains have generally been thought of as pragmatic and not directly represented in the syntax, (Chafe, 1986; Chafe and Nichols, 1986; Sells, 1987; Culy, 1994), I argue that they provide interesting evidence in favor of an analysis in which syntactic projections above IP bear pragmatically-relevant features that must be

* Tel.: +1-413-545-6835; fax: +1-413-545-2792.

E-mail address: pspeas@linguist.umass.edu (M. Speas).

checked (building on (Cinque, 1999)). The resulting model is one in which the syntactic representation is still built by means of a “‘dumb’ computational system”, but syntactically-relevant pragmatic roles are configurationally represented.

2. Constraints on evidential morphemes¹

A number of languages have a set of verbal affixes or particles that express the means by which the speaker acquired the information s/he is conveying. In some languages, these *evidential* morphemes are obligatory.²

- | | | | |
|--------|---|--|---------|
| (1) a. | wiki-caxa- <u>w</u> | ‘It’s bad weather (directly exp.)’ | Makah |
| b. | wiki-caxa- <u>k’u</u> | ‘It was bad weather’ | |
| c. | wiki-caxa-k- <u>pid</u> | ‘It looks like bad weather (inference from physical evidence)’ | |
| d. | wiki-caxa-k- <u>qad’l</u> | ‘It sounds like bad weather’ | |
| e. | wiki-caxa-k- <u>wa.d</u> | ‘I’m told there’s bad weather’ | |
| f. | wiki-caxa-k-it- <u>wad</u> | ‘I’m told it was bad weather’ | |
| (2) a. | wañu-nqa-paq- <u>mi</u> | ‘It will die (I assert)’ | Quechua |
| b. | wañu-nqa-paq- <u>shi</u> | ‘It will die (I was told)’ | |
| c. | wañu-nqa-paq- <u>chi</u> | ‘It will die (perhaps)’ | |
| (3) a. | K’oŋ gis yi-ge bri-pa- <u>red</u>
s/he ERG write-Perf-EVID | ‘S/he wrote a letter (it seems)’ | Tibetan |
| b. | K’oŋ gis yi-ge bri-pa- <u>soŋ</u>
s/he ERG write-Perf-EVID | ‘S/he wrote a letter (I saw it happen)’ | |
| (4) a. | Nɔ̌-màq àj ɔ̌q-àŋ dì-é
you-PL he-OBL beat-NONSENSORIAL | ‘You(pl) will beat him’ | Akha |
| b. | Nɔ̌-màq àj ɔ̌q-àŋ dì-ŋà
you-PL he-OBL beat-VISUAL | ‘You(pl) will beat him (I see it now)’ | |
| c. | Nɔ̌-màq àj ɔ̌q-àŋ dì-nja
you-PL he-OBL beat-NONVISUAL | ‘You(pl) will beat him (I guess from sound of beating)’ | |

It is generally assumed that the features expressed by such morphemes are pragmatic in nature: they reflect an evaluation of the source of evidence, which is made by the Speaker of a given discourse. Therefore, they have not been a focus of interest among formal syntacticians. However, the fact that such morphemes are obligatory in languages like Makah raises the question of how these obligatory features are to be represented in syntax. As we will see below, evidential features interact closely with inflectional features that are syntactically projected, such as

¹ An interesting overview of Evidentiality can be found in Rooryck (2001).

² Makah data are from Jacobsen (1986); Quechua data are from Weber (1986); Tibetan data are from DeLancey (1986); Akha data are from Thurgood (1986)

person and tense. Furthermore, many languages spell out evidential features with modal auxiliaries, adverbs or propositional attitude predicates, which have highly restricted syntactic and logical form (LF) properties. Assuming that the fundamental properties of logical form are universal, we must ask to what extent evidential morphemes share syntactic and/or LF properties with these other means of expressing sources of evidence.

As a first step in an examination of the place of evidential morphemes in the computational system, consider the categories that such morphemes express. What is striking is that the set of possible evidential morphemes is much more restricted than one would expect if they simply expressed some range of pragmatically-determined sources of evidence. In a survey of 32 languages, Willett (1988) found that languages distinguish three types of evidence from personal experience. When additional distinctions are found, they seem to be sub-types of these four basic categories, or manifestations of additional distinctions that arise from the interaction of evidentiality and tense or aspect.

(5) Basic categories of evidentiality (Willett, 1988):

- personal experience
- direct (sensory) evidence
- indirect evidence
- reported evidence (hearsay)

One can imagine many possible sources of information, and ways of classifying such sources. For example, the following categories are all plausible sources of evidence for a statement, and all of them might be considered quite salient in certain cultures. Yet none of these categories ever shows up grammaticized as an evidential morpheme.

(6) Some conceivable sources of evidence that are not grammaticized:

- experience reported by loved one
- divine revelation
- legal edict
- parental advice (“Momism”)
- Heartfelt intuition (“gut feeling”)
- learned through trial and error
- Teachings of prominent elder/authority

The fact that categories like these do not show up in evidential paradigms indicates that evidentiality has to do with some restricted system rather than with the expression of pragmatically salient sources of evidence. There is no obvious conceptual or pragmatic reason why indirect inference should be universally salient in some way that parental advice is not, or why hearsay should be salient in a way that a gut feeling is not. Evidence could in principle be classified into many categories (as we see when we look at the inventory of adverbs or propositional attitude predicates). Degrees of experience with a given situation could be infinite. Yet, only four categories out of this potentially infinite set are ever grammaticized in evidential paradigms.

A second clue has to do with the relationships among the four categories of evidentiality. Oswalt (1986) and Willett (1988) both point out that the categories of evidentiality lie in a hierarchy, corresponding to the degree to which the evidence directly involves the speaker's own experience. At the top of the hierarchy is personal experience of the situation; next is inference from sensory evidence, which involves the speaker's experience making the inference and also of perceiving the situation, but not direct experience of the situation itself. Inference from indirect evidence is next, as it involves the speaker's experience of making the inference, but no other experience. With hearsay, the speaker has no experience at all with the reported situation, and so this category is at the bottom.³

(7) Evidentiality hierarchy:

personal experience > > **direct (eg. sensory) evidence** > > **indirect evidence** > > **hearsay**.

For Oswalt, this hierarchy constrains usage. A speaker will not use a morpheme that expresses redundant information about his/her experience (eg. that s/he perceived a situation that s/he experienced), so the morpheme used will be the highest possible on the hierarchy. It is also the case that personal experience is the most typologically unmarked category, in the sense that languages that mark any evidential distinctions will contrast those distinctions with personal experience. Also, languages may combine two adjacent categories, but not two nonadjacent ones. For example, Makah has a morpheme that marks direct evidence or personal experience, as opposed to inference or hearsay, and Jaqi has a morpheme that marks direct or indirect evidence. However, no language has a morpheme that marks for example direct evidence and hearsay vs. personal experience, or personal experience and indirect evidence vs. direct evidence.

In sum, when a language morphologically marks the source of evidence for reported information, the categories marked are constrained in both number and organization. Evidential morphemes express not just any source of information, but those that have to do with degree of Speaker experience with the relevant evidence. Although the evidential system may interact with other systems, such as tense or person, evidential paradigms appear to be restricted to no more than four “degrees” of experience. Moreover, while the hierarchy given in 0 seems intuitively to be grounded in general knowledge about people's experiences and the inferences that can be reliably made from various types of evidence, the *restrictions* on categories of evidentiality don't have any obvious correlate in general conceptualization.

³ Oswalt's terminology was specific to his analysis of Kashaya. I have substituted terms that draw attention to the crosslinguistic similarities. His hierarchy was : performative (i.e., uttered while performing action) < <factual-visual < <auditory < <inferential < <quotative. Willett classified hearsay evidence as a type of indirect evidence, and placed it on the hierarchy between direct evidence and “inferring” indirect evidence. However, he cited no data to support this positioning, and examination of his survey data shows that some languages have a portmanteau morpheme for reported and inferring evidence, while none has a portmanteau for reported and direct evidence. I therefore follow Oswalt in placing hearsay at the bottom of the hierarchy.

3. A syntactic projection for evidentiality: Cinque (1999)

In his recent study based on adverb position and morpheme order, Cinque (1999) has found that evidential morphemes show crosslinguistic regularity in their position within a word: they occur closer to the verb stem than morphemes marking speaker evaluations or speech act type, but further from the verb stem than all other aspect/mood/tense morphemes. Cinque proposes that sentences include numerous projections “above” the sentence, including a projection for *Evidential Mood*. Evidential Mood is c-commanded by Evaluative Mood and Speech Act Mood, and it locally c-commands Epistemological Mode. A rough definition of these heads is given in (9).

- (8) Cinque (1999)’s four highest projections:
 [Speech Act Mood [Evaluative Mood [Evidential Mood [Epistemological Mode]]]
- (9) Speech Act Mood: indicates the type of speech act (declarative, interrogative, etc.)
 Evaluative Mood: indicates speaker’s evaluation of the reported event or state as good, lucky, bad, surprising, etc.)
 Evidential Mood: indicates the nature of speaker’s evidence for truth of proposition
 Epistemological Mode: indicates speaker’s degree of certainty about the proposition

Cinque further argues that the pattern found in morpheme order recurs in the restrictions on adverb placement: an adverb generally may not precede another adverb that modifies a “higher” category. A few representative adverbs in English are given in (10). Cinque claims that adverbs expressing evidentiality occur between evaluative and epistemological adverbs.

- (10) Representative Adverbs:
- | | |
|----------------------|--------------------------------------|
| Speech Act Mood | frankly, confidentially |
| Evaluative Mood | unfortunately, luckily, surprisingly |
| Evidential Mood | allegedly, reportedly, |
| Epistemological Mode | obviously, apparently |

Thus, the morphological and syntactic realization of evidentiality is constrained so that the order of words and morphemes reflects scope, just as the morphological and syntactic realization of thematic structure is constrained by some version of the Mirror Principle (Baker, 1988). This fact, along with the constraints discussed above on the notional categories that are grammaticized in evidential paradigms, suggests a highly structured system. If the typology of evidential categories is purely a matter of pragmatics, it comes from a pragmatic system that shows a surprising degree of hierarchical organization. We are led to ask whether the pragmatic component is more like the syntactic component than has generally been assumed, or whether the syntactic component itself includes projections for a constrained set of pragmatically-interpreted features. Nothing that I have said so far helps us to choose between these two alternatives. The following section will explore another facet of the interface

between pragmatics and syntax, logophoric systems. I will argue that such systems provide evidence that tips the scale in favor of the view that syntactic structures include projections of certain pragmatic features.

4. Evidentiality and logophoricity

The evidential system has properties in common with another area in which syntax interfaces with the system of speaker attitudes and evaluation, namely, the logophoric system. Some languages have special *logophoric* pronouns, which are used to refer to an individual whose viewpoint, words or thoughts are being reported. For example, in Donno Sɔ the regular pronoun *wo/woò* is used for simple pronominal co-reference ((11)a), while the logophoric pronoun *inyeme/inyemè* is used to refer to the person whose speech is being reported ((11)b).

- (11) a. Oumar Anta *woñ* waa be gi Donno Sɔ, from
 Oumar Anta 3sg-ACC seen AUX said Culy (1994: 1056)
 ‘Oumar_i said that Anta_j had seen him_k’
 b. Oumar Anta *inyemēñ* waa be gi
 Oumar Anta LOG-ACC seen AUX said
 ‘Oumar_i said that Anta had seen him_i’

As we see in (12), the logophoric pronoun *inyeme* cannot be used to refer to someone who is not the person whose speech/thoughts/knowledge is being reported.

- (12) a. Anta *wo* wa Fransi booje go egaa be
 Anta 3sg SUBJ France go.fut-3sg COMP heard AUX
 ‘Anta_i heard that she_{i/j} will go to France’
 b. *Anta *inyeme* wa Fransi Booje go egaa be
 Anta LOG SUBJ France go.fut-3sg COMP heard AUX
 ‘Anta_i heard that she_i will go to France’

The term *logophoric* has also been used for certain types of reflexives that are not locally bound. (Reinhart and Reuland, 1993) use the term to refer to long distance anaphors in languages like Japanese, and anaphors that lack a linguistic antecedent, such as those in (13). However, Culy (1994) shows that such constructions do not have the same properties as true logophoric pronouns. Moreover, he points out that languages with true logophoric pronouns generally also have reflexive words or morphemes. Therefore, I will set aside examples like (13).

- (13) The paper was written by Ann and *myself*.

Languages vary in the type of referent that a logophoric pronoun may have. Sells (1987) argues that the referent of a logophoric pronoun may bear one of the three different pragmatic roles shown in (14).

- (14) SOURCE: the one who makes the report
 SELF: the one whose “mind” is being reported
 PIVOT: the one from whose physical point of view the report is made

We can see all three of these roles illustrated in an English sentence like (15). In this sentence, the speaker of the sentence is the SOURCE, Mary is the SELF, because it is her desires that are being reported, and John (or whoever is the party-giver) is the PIVOT, since the use of the verb *come* indicates that the point of view of the party-giver is being taken.

- (15) Mary wants me to come to John’s party.

According to Sells, these roles fall into the hierarchy shown in (16). Sells’ hierarchy represents the fact that some languages allow logophoric pronouns to refer only to a SOURCE, others allow them to refer to SOURCE or SELF, and others allow them to refer to SOURCE, SELF or PIVOT. Languages seem not to allow logophoric pronouns to refer to SOURCE and PIVOT but not SELF, or SELF and PIVOT but not SOURCE, etc.

- (16) SOURCE > > SELF > > PIVOT

A similar hierarchy governs the predicates whose complement can contain a logophoric pronoun. According to Culy (1994), there are some languages in which a logophoric pronoun can occur only in the complement of a verb of speech, and the antecedent of the logophoric pronoun must be the Subject of the verb of speech. Other languages allow logophoric pronouns to occur in the complements of verbs of knowledge, thought or perception. Culy uses the term “logophoric context” to refer to a clause in which a logophoric pronoun may occur. His study of 32 languages reveals that the typology of logophoric contexts is constrained by the hierarchy shown in (1). If a language treats the complements of direct perception predicates as logophoric contexts, then complements of all of the other categories will be logophoric contexts as well. If the complements of knowledge predicates are logophoric contexts, then those of thought and speech must be as well. In other words, if the complement of a given category of predicate is a logophoric context, the complements of all “higher” categories are also logophoric contexts. We call those categories whose complements may host a logophoric context *logophoric predicates*.

- (17) logophoric predicate hierarchy: (Culy, 1994: 1062)
speech > > thought > > knowledge > > direct perception.

Culy considers this hierarchy to reflect the interaction of three variables of “reliability”: whether the speaker directly perceived the event or state denoted by the matrix predicate (=reliability of SITUATION), whether the truth of the report is presupposed, i.e. whether the matrix predicate is FACTIVE (=reliability of REPORT 1) and whether the Subject has direct evidence about the report (=reliability of REPORT2). The chart in (18) illustrates how these properties interact.

(18)

	Reliability of Situation: Perceivable	Reliability of Report 1: Factive	Reliability of Report 2: Mary's direct evidence
Mary said that p	+	–	–
Mary thinks that p	–	–	–
Mary knows that p	–	+	–
Mary saw/heard that p	–	+	+

A statement with a predicate of **speech** expresses a reliable situation, because a report of someone's speech is a report of something that the reporter may have heard directly. For example, if I tell you that Mary said that her cat is intelligent, it is possible for me to have actually heard Mary say it. On the other hand, the *report* corresponding (roughly) to the embedded sentence is not reliable, because I do not know whether Mary's statement was true and there is nothing in my report indicating whether Mary has any direct evidence for her claim.

A statement with a predicate of **thought** is not a reliable *situation*, because the speaker can not directly perceive someone else's thoughts. It also does not express a reliable *report*, because it entails no claim that the Subject's thoughts are true and it entails nothing about whether the Subject has direct evidence for the thought.

Predicates of **knowledge** and **direct experience** do not introduce reliable *situations*, because the Speaker cannot directly perceive another's knowledge or experience. They both introduce reliable *reports*, in that the matrix sentence presupposes the truth of the complement sentence. Reports introduced by predicates of knowledge are unreliable, since they entail nothing about whether the Subject has direct evidence for the knowledge. Reports introduced by predicates of direct perception are reliable, because they do entail that the Subject has direct evidence for the truth of the embedded sentence. Culy claims that logophoric contexts arise when the situation is maximally reliable and the report is minimally reliable. The further a predicate deviates from this, the less likely it is to induce a logophoric context.

The first thing to observe is that the factors determining logophoric domains involve reliability of evidence and degree of personal experience, which are apparently the same factors constraining categories of evidentiality. Secondly, although logophoric pronouns are generally said to refer to the individual whose point of view is being taken in the embedded sentence, Culy's study makes it clear that this is not quite right. We should expect that a report of someone's direct perception is a report of that person's point of view, yet direct perception predicates are the least likely to be logophoric. Third, Culy's study suggests that the logophoric system should instead be stated in terms of a *relation* between the Speaker and person who has evidence for the reported information. Reliability of situation has to do with the

Speaker's personal experience, while reliability of report has to do with the Subject's experience.

The categories of evidentiality are thus parallel to the logophoric categories; the difference is that with evidentiality all of the degrees of evidence pertain to the *Speaker's* experience, while with logophoricity the degrees have to do with a relation between the experience of the speaker and that of the subject. Suppose that we express the primitives of logophoricity in terms of the primitives of personal experience and inference from the domain of evidentiality. If we add the distinction between speaker and subject, we can re-word Culy's classification in the following way:

(19) Categories of Logophoricity, revisited

	Speaker has personal experience evidence for matrix pred.	Subject infers embedded proposition from indirect evidence	Subject infers embedded proposition from direct evidence	Subject has personal experience with embedded proposition
Mary said that p	+	–	–	–
Mary thinks that p	–	+	–	–
Mary knows that p	–	–	+	–
Mary saw/heard that p	–	–	–	+

(20) Categories of Evidentiality

	Speaker has evidence only for some speech act	Speaker infers embedded proposition from indirect evidence	Speaker infers embedded proposition from direct evidence	Speaker has personal experience with embedded proposition
hearsay	+	–	–	–
indirect evidence	–	+	–	–
direct evidence	–	–	+	–
personal experience	–	–	–	+

Looking at these two charts, we see that the two hierarchies are inversely correlated: the more likely a predicate is to induce a logophoric context, the less likely it is to be a category in the evidential paradigm: *say* is the predicate that is most likely to be

logophoric; hearsay is the category that is least likely to be a part of an evidential paradigm. Thus, we might think of evidential morphemes as syntactically reduced logophoric (propositional attitude) predicates, or of logophoric predicates as fully verbal evidential markers. But to stop there would beg various questions, including why evidential morphemes interact with other inflections in the ways to be described below, why special properties of pronouns arise with the fully verbal predicates, and why the typological hierarchies are inversely correlated.

5. Pragmatic projections

As mentioned in [Section 3](#), [Cinque \(1999\)](#) proposed that there are a number of abstract functional projections above the level of IP. In fact, he proposes up to 32 functional projections in the sentence. In his theory, adverbs occupy the specifiers of these functional projections, which are invariantly ordered. As diagrammed in (8) above, the highest four projections are Speech Act Mood, Evaluative Mood, Evidential Mood and Epistemological Mode. The distinction between Mood and Mode has to do with the fact that Mood marks the discourse-related notions of speech act, speaker attitude, and evidence, while Mode marks modal notions such as possibility and necessity. It is not obvious that a clear line can be drawn between these two categories, but I will retain Cinque's terminology.

We have seen above that parallel hierarchies seem to govern categories of evidentiality and categories of logophoric predicates. Looking at Cinque's projections, we also note a parallel between the logophoric and evidentiality hierarchies and the four highest projections:

(21)	<u>Cinque's projection</u>	<u>evidential hierarchy</u>	<u>logophoric hierarchy</u>
	speech act	say	hearsay
	evaluative	think	indirect/less valuable evidence
	evidential	know	direct evidence
	epistemological	perceive	experiential/unquestionable evidence

Cinque's topmost projection has to do with speech acts, as do the hearsay and speech-verb categories of the other two hierarchies. Evaluative Mood has to do with an assessment of the value of the event or situation, just as inferences from indirect evidence have to do with an assessment of data relating to the event or situation, and verbs of thought predicate of the subject an assessment that there is convincing but not conclusive evidence for the embedded proposition. Evidential Mood is clearly parallel to the direct evidence category, and verbs of knowledge predicate a view of the Subject that is based on apparently incontrovertible evidence. Finally, Epistemological Mode has to do with the speaker's degree of certainty, and personal experience and direct perception are the most reliable types of evidence.

The presence of such parallels suggests that the evidential and logophoric hierarchies should be accounted for in terms of the same primitives. Looking first at the typology of evidential morphemes, our first impulse might be to say that the four

head positions of Cinque correspond to the four types of evidential morphemes. However, in some languages evidential morphemes co-occur with morphemes marking Speech Act Mood, Evaluative Mood and/or Epistemological Mode. Furthermore, we do not find languages that allow sequences of evidential morphemes. Thus, it seems clear that evidential morphemes occupy just the head of Evidential Phrase.

Given the central role of the speaker or subject in defining the categories of logophoricity and evidentiality, I suggest that each functional category is associated with an implicit argument, which is in effect the Subject of that phrase. Following (Hale and Keyser, 1993) treatment of thematic roles as configurationally-defined rather than primitive, these implicit Subjects bear pragmatic roles defined in terms of the phrase with which they are associated. I will represent these subjects as *pro*, although the precise similarities between these implicit arguments and case-marked null pronouns remain to be seen. I will also place these arguments in the specifier of the relevant functional projection, although if Cinque is right, it may be more accurate to place them in a locally c-commanding “DP-related” projection.

(22)

POSITION	MNEMONIC ROLE NAME	ROLE DESCRIPTION
Spec, Speech Act Phrase	SPEAKER	the utterer of the sentence
Spec, Evaluative Phrase	EVALUATOR	the one responsible for judgements of quality or value of the situation
Spec, Evidential Phrase	WITNESS	the one who has the evidence regarding the truth of the proposition
Spec, Epistemological Phrase	PERCEIVER	the one whose degree of experience with the event determines how likely proposition is to be true

Now, assume that these implicit arguments are subject to binding. By general principles, binding must be local. This means that there are only four possible binding configurations:

- (23)
- a. Witness is bound by Evaluator, and binds Perceiver:
(Speaker is Evaluator, Witness and Perceiver)
[*pro*_i SAP [*pro*_i EvalP [*pro*_i EvidP [*pro*_i EpisP ...]]]]
personal experience
 - b. Witness is bound by Evaluator, but does not bind Perceiver:
(Speaker is Evaluator and Witness, but someone else is Perceiver)
[*pro*_i SAP [*pro*_i EvalP [*pro*_i EvidP [*pro*_j EpisP ...]]]]
direct evidence

- c. Witness is not bound by Evaluator, but binds Perceiver:
(Speaker is Evaluator but someone else is Witness and Perceiver
[*pro*_i SAP [*pro*_i EvalP [*pro*_j EvidP [*pro*_j EpisP ...]]]
indirect evidence
- b. Witness is bound by Evaluator and controls Perceiver, but
Evaluator is not bound by Speaker
(Someone other than Speaker is Evaluator, Witness and Perceiver)⁴
[*pro*_i SAP [*pro*_j EvalP [*pro*_j EvidP [*pro*_j EpisP ...]]]
no evidence (hearsay)

Hearsay would be distinguished from a quote in the identification of the Subject of Speech Act Phrase. If the Subject is disjoint from the Speaker of the sentence, then the sentence is a quote.

- (24) Quote: [*pro*_j SAP [*pro*_j EvalP [*pro*_j EvidP [*pro*_j EpisP ...]]]

Thus, by considering evidential morphemes to involve not just the type of evidence but the relation of the witness to the speaker and other roles, we predict just four basic types of evidentiality. Furthermore, we predict the evidentiality hierarchy if we assume that consistent indexing is the unmarked case; each indexing disjoint from speaker has an additional cost.

Turning now to logophoric contexts, I would follow (Koopman and Sportiche, 1989) in taking a logophoric pronoun to be a variable that must be bound by a pragmatic point of view operator, which, if embedded, is controlled by the matrix subject.

- (25) A logophoric pronoun must be A' bound by a POV operator.
(Koopman and Sportiche, 1989)

I propose that the typology of logophoric predicates can be derived from general subcategorization and a parametric difference having to do with which pragmatically-related functional head bears the features that check (or attract) the features of the POV operator. The first part of the proposal is that the differences among the potentially logophoric predicates are due to differences in their subcategorization requirements: *say* takes a Speech Act Phrase complement, *think* takes an Evaluative Phrase complement, *know* takes an Evidential Phrase complement and *hear/see* etc. take an Epistemological Phrase complement.

- (26) *say* [___ Speech Act Phrase]
think [___ EvalP]
know [___ EvidP]
see [___ EpisP]

In other words, the complement of *say* is something that the subject said; the complement of *think* is a proposition that the subject can evaluate, but isn't something that someone said; the complement of *know* is a proposition for which the

⁴ There is a fifth possibility—where all four subjects are disjoint from speaker—this would be where the speaker is quoting someone else.

subject has evidence of some sort, and the complement of *see/hear* is a proposition that the Subject knows about due to personal sensory experience.

The second part of my proposal is that Koopman and Sportiche's point of view feature can occur on any of the above four heads, which I will call *POV heads*. This POV feature must be checked by a POV operator. Just as strong person features within IP serve to identify *pro*, strong POV features can identify the implicit argument in the specifier of the projection that it occupies. Languages with logophoric pronouns are those languages in which the POV feature is strong. Such languages differ from each other in which of the heads bears the strong POV feature.

Consider first a language in which *SA* is the head that bears the POV feature. In such a language, only Speech Act Phrase can contain the operator that binds a logophoric pronoun. Since the complements of *say* predicates contain the head *SA* but the complements of *think*, *know*, or *hear/see* predicates do not, only *say* predicates can trigger logophoric contexts.

- (27) a. $[_{VP} \textit{say} [_{SAP} \textbf{OP}_i [\textbf{SA}_{[+POV]_i} [_{EvalP} [Eval [_{EvidP} [Evid [_{EpisP} [Epis [\textbf{LOG}_i \dots]]]]]]]]]]]$
 b. $*[_{VP} \textit{think} [_{EvalP} [Eval [_{EvidP} [Evid [_{EpisP} [Epis [\textbf{LOG}_i \dots]]]]]]]]]$
 c. $*[_{VP} \textit{know} [_{EvidP} [Evid [_{EpisP} [Epis [\textbf{LOG}_i \dots]]]]]]]$
 d. $*[_{VP} \textit{perceive} [_{EpisP} [Epis [\textbf{LOG}_i \dots]]]]]$

In a language in which *Eval* bears the strong POV feature, the complements of both *say* and *think* predicates can contain the logophoric operator, so only these two types of predicates will trigger a logophoric context.

- (28) a. $[_{VP} \textit{say} [_{SAP} [\textbf{SA} [_{EvalP} \textbf{OP}_i [\textbf{Eval}_{[+POV]_i} [_{EvidP} [Evid [_{EpisP} [Epis [\textbf{LOG}_i \dots]]]]]]]]]]]$
 b. $[_{VP} \textit{think} [_{EvalP} \textbf{OP}_i [\textbf{Eval}_{[+POV]_i} [_{EvidP} [Evid [_{EpisP} [Epis [\textbf{LOG}_i \dots]]]]]]]]]$
 c. $*[_{VP} \textit{know} [_{EvidP} [Evid [_{EpisP} [Epis [\textbf{LOG}_i \dots]]]]]]]$
 d. $*[_{VP} \textit{perceive} [_{EpisP} [Epis [\textbf{LOG}_i \dots]]]]]$

In a language in which *Evid* bears a strong POV feature, the complements of *say*, *think* and *know* predicates can contain the POV operator, so these three will trigger a logophoric context:

- (29) a. $[_{VP} \textit{say} [_{SAP} [\textbf{SA} [_{EvalP} [Eval [_{EvidP} \textbf{OP}_i [\textbf{Evid}_{[+POV]_i} [_{EpisP} [Epis [\textbf{LOG}_i \dots]]]]]]]]]]]$
 b. $[_{VP} \textit{think} [_{EvalP} \textbf{OP}_i [\textbf{Eval} [_{EvidP} \textbf{OP}_i [\textbf{Evid}_{[+POV]_i} [_{EpisP} [Epis [\textbf{LOG}_i \dots]]]]]]]]]$
 c. $[_{VP} \textit{know} [_{EvidP} \textbf{OP}_i [\textbf{Evid}_{[+POV]_i} [_{EpisP} [Epis [\textbf{LOG}_i \dots]]]]]]]$
 d. $*[_{VP} \textit{perceive} [_{EpisP} [\textbf{Epis} [\textbf{LOG}_i \dots]]]]]$

Finally, in a language in which *Epis* bears the strong POV feature, the complements of *say*, *think*, *know* and *perceive* can contain the POV operator, so all of these types can trigger a logophoric context:

- (30) a. [*say* [SAP [SA [EvalP [Eval [EvidP [Evid [EpisP **OP**_i [Epis_i [+POV]_j [**LOG**_i . . .]]]]]]]]]]
 b. [*think* [EvalP [Eval [EvidP [Evid [EpisP **OP**_i [Epis_i [+POV]_j [**LOG**_i . . .]]]]]]]]
 c. [*know* [EvidP [Evid [EpisP **OP**_i [Epis_i [+POV]_j [**LOG**_i . . .]]]]]]
 d. [*perceive* [EpisP **OP**_i [**Epis**_i [+POV]_j [**LOG**_i . . .]]]]

Thus, the typology of logophoric predicates follows from quite plausible differences in subcategorization. If this approach is on the right track, it provides evidence that the pragmatic features relevant to logophoricity and evidentiality can head projections in syntactic structure. Further, the hierarchies for both logophoricity and evidentiality follow from the assumption that Cinque is right about the inventory of pragmatically-relevant functional heads, along with general principles of co-indexing and subcategorization. The reason that the hierarchies are inversely correlated is that the predicates most likely to trigger logophoric contexts are those that select complements with the most projections, while the morphemes most likely to encode evidentiality are those that impose the fewest constraints on co-indexing. The logophoric predicates have their own subjects, which can control a POV operator. Evidential morphemes attach to predicates/sentences, inducing certain indexing relations among implicit pragmatic arguments, but they do not take their own overt subject.

6. Some consequences of pragmatic projections

6.1. Interaction between POV features and other inflectional features

If the pragmatic features under discussion project syntactic phrases, then they ought to interact with other syntactically projected features. In this section, I report on some ways in which the pragmatic features interact with person, tense and negation.

6.1.1. POV features and person

DeLancey (1986) shows that evidentiality interacts with person in interesting ways in Tibetan.⁵ Tibetan has two copular verbs, one predicative and one existential. The existential form is used for assertion of existence as well as for possession. Each of these copular verbs has two distinct forms, which, according to DeLancey, are described in Tibetan textbooks as reflecting person agreement.

- (31) Tibetan (DeLancey, 1986)
- | | |
|--|---|
| <p>“first person” predicative = <i>yin</i></p> <p>a. <i>ŋa</i> slab-gra-ba <i>yin</i>
 I student am
 ‘I am a student’</p> | <p>“non-first person” predicative = <i>red</i></p> <p>b. <i>k’oŋ</i> slab-gra-ba <i>red</i>
 S/he student is
 ‘S/he is a student’</p> |
|--|---|

⁵ DeLancey proposes a functional explanation for these facts.

“first person” existential = *yod*

- c. η a la sa-mo yod
 I LOC hat exist
 ‘I have a hat’

“non-first person” existential = ‘*dug*

- d. Dorje la sa-mo ‘dug
 D LOC hat exist
 ‘Dorje has a hat’

DeLancey shows that *yin* and *yod* cannot really be first person, because they can occur with non-first person Subjects, as in (32), and they may be absent when the Subject is first person, as in (33).

- (32) a. Bod la gyag yod b. Bod la gyag ‘dug
 Tibet LOC yak exist Tibet LOC yak exist
 ‘There are yaks in Tibet’ ‘There are yaks in Tibet’
 (spoken only by a non-Tibetan)
- (33) a. η a las-ka byed-gi-yod b. η a na-gi-‘dug
 I work do-IMPERF-yod I sick-IMPERF-‘dug
 ‘I am working’ ‘I am sick’

DeLancey claims that the difference between *yid/yod* and ‘*dug/red*’ has to do with evidentiality: *yin/yod* express personal experience, while ‘*dug/red*’ encode inferential evidentiality. In a sense, evidentiality is being used as a substitute for person agreement; a verb encoding personal experience can only be used when the speaker is the one who had the experience. DeLancey explains that the psychological predicate in (33) is used with the inferential copula because using the personal experience copula would be redundant, like saying “My personal experience is that I am sick.”

Tibetan illustrates that first person agreement is in some sense the same as personal experience evidentiality marking. In Akha, we find another kind of interaction between person marking and pragmatic projections. According to [Thurgood \(1986\)](#), person marking in Akha depends upon whether the sentence is a statement or a question.

- (34) Akha: ([Thurgood, 1986](#))
- a. η a nc- $\acute{a}\eta$ dì-è b. Nc-màq $\acute{a}\eta$ cq- $\acute{a}\eta$ dì-mÉ
 I you-OBJ hit-è you-PL he-OBJ hit- mÉ
 ‘I hit you’ ‘You hit him’
- c. η c nà- $\acute{a}\eta$ dì-è-ló
 you me-OBJ hit-è-Q
 ‘Will you beat me?’

The morpheme-è on the verb marks first person Subject in statements, but second person subject in questions. Discussion of some other languages with this type of person marking can be found in ([Maxwell, 1999](#)). Dick Hudson commented in the discussion that these morphemes could be described as agreement with the source of information or authority, which is the speaker in a statement and the hearer in a question. In the framework I have adopted above, Akha agreement would be marking features of the evaluator, while English agreement marks features of the

speaker. Without a syntactic representation of the evaluator, we must impose a rather convoluted condition on the morphological realization of agreement. With such a representation, the conditions on agreement are simple and straightforward.

6.1.2. Evidentiality and tense

(Woodbury, 1986) shows that the previously mysterious evidential paradigm in Sherpa can be explained in terms of the way in which evidentiality interacts with tense. Sherpa has been analyzed as marking the four categories of evidentiality shown in (35). What is mysterious is the morphological paradigm marking these distinctions. Under traditional descriptions, the fact that the Habitual Experiential uses the same evidential morpheme as the Past Inferential and Future Inferential is treated as accidental homophony. The paradigm is given in (35) and definitions for the various categories are given in (36).

(35) Sherpa (Woodbury 1986)

a.	‘ <u>duŋ-gi-nok</u> (someone) hits/is hitting (I perceive/have perceived)’	HABITUAL EXPERIENTIAL
b.	‘ <u>du-nok</u> (someone) hit (I infer)’	PAST INFERENTIAL
c.	‘ <u>duŋ-gum-nok</u> (I) will hit (I can tell you)’	FUTURE INFERENTIAL
d.	‘ <u>duŋ-gu-wi</u> (someone) hits/is hitting (It is known)’	GNOMIC
e.	‘ <u>du-suŋ</u> (someone) hit/was hitting (I experienced)’	PAST EXPERIENTIAL
f.	‘ <u>duŋ-in</u> (I) will hit (I think)’	FUTURE FIRST PERSON

(36) HABITUAL	speaker purports to see or have seen or otherwise perceived
EXPERIENTIAL:	present tense narrated event taking place
GNOMIC:	speaker does not purport to have seen/perceived event
PAST EXPERIENTIAL:	speaker purports to have seen or otherwise perceived the narrated event taking place
PAST INFERENTIAL:	speaker purports to base the truth of the narrated event on indirect evidence obtained after the event was completed.

Woodbury points out that the forms marked with *-nok* all have to do with the Speaker’s *current* experience. One cannot currently be experiencing something that happened in the past or has not yet happened. Therefore, the combination of *-nok* and past tense must be inferential. Woodbury states the following generalization: context.

- (37) When the time reference of an evidential category is different from that of the proposition with which it occurs, the resulting evidential value will be nonexperiential.

Apparently in Sherpa the evidential category of personal experience incorporates tense in some way. The Habitual Experiential, Past Inferential and Future Inferential all involve *current* personal experience. Habitual Experiential expresses either something the speaker is experiencing now, or something about which the speaker now infers based on personal observation. The Past Inferential expresses an inference that is currently being made, and the Future Inferential expresses the speaker's current view of what will happen in the future. On the other hand, the Gnostic expresses someone else's experience, the Past Experiential expresses something experienced in the past but not currently experienced, and the Future First Person expresses the speaker's prediction about the future, which is not based on straightforward current experience. Thus, *-nok* is an evidential morpheme which incorporates some sort of present tense (examples from Woodbury, 1986).

- (38) a. 'ti 'gi-nok
 he comes-HE
 'He comes/is coming' (according to my current experience)
 b. 'ti 'gi-wi
 he comes-GN
 'He comes/is coming/will come' (it is known)
 c. daa saa-p mi ti yembur-laa deki-nok
 Rice eat-noun man he Katmandu-DAT say-HE
 'The man who is eating rice lives in Katmandu' (I see, have seen)
 d. daa saa-p mi ti yembur-laa deki-wi
 rice eat-noun man he Katmandu-DAT say-GN
 'The man who is eating rice lives in Katmandu' (It is known)
- (39) a. e 'ti-laa salaa 'sir-um-nok
 I-erg he-DAT tomorrow say-FI
 'I will say (it) to him tomorrow' (I can tell you right now...)
 b. e 'ti-laa salaa 'sir-in
 I-erg he-DAT tomorrow say-FF
 'I will say (it) to him tomorrow' (I think...)

6.1.3. Evidentiality and switch reference

Gordon (1986) shows that the system of switch-reference marking in Maricopa is intertwined with the system of evidential marking in a way that is difficult to explain if pragmatic roles are not represented syntactically. I will suggest in this section that the Maricopa data can receive a unified explanation if co-indexing involving pragmatic roles is treated as part of the same system as co-indexing among grammatical functions.

According to Gordon, the Maricopa suffix *-k* has one use as a marker of Same Subject. In (40), we see the Same Subject use: the verb in (40) is marked with *-k*, and the Subjects of the two clauses are the same. In (40), the first verb is marked with *-m*, and the Subjects of the two clauses are different.

- (40) a. Kafe ‘-sish-k pastel ‘-mash-k
 coffee 1-drink + dual-SS 1-eat + dual-ASP⁶
 ‘We drank coffee and ate pie’
 b. Kafe ‘-sish-m pastel mash-k
 coffee 1-drink + dual-SS pie eat + dual-ASP
 ‘We drank coffee and they ate pie’ (Gordon 1986: 80)

The suffix *-k* also shows up in conjunction with evidential markers. Gordon reports that the sensory evidential markers have two forms, one with *-k* and one without *-k*. The forms with *-k* are used when the Subject is first person,⁷ as shown in (41), where the morpheme glossed as ‘SEE = EV’ is the sight evidential morpheme.

- (41) a. M-iima-‘yuu
 2-dance-SEE = EV
 ‘You danced (I know because I saw it)’
 b. Iima-‘yuu
 dance-SEE = EV
 ‘He danced (I know because I saw it)’
 c. ‘-iima-**k**’yuu
 1-dance-1-SEE = EV
 ‘I danced (for sure, in the past)’

Gordon argues that this *-k* morpheme is in fact the Same Subject morpheme. In (41), the subject and the witness are the same. Thus, the same morpheme is used when the subjects of two clauses are the same, and when the witness and subject are the same. It appears that Maricopa morphology marks coreference between a pragmatic role and a grammatical function in the same way that it marks coreference between two grammatical functions.⁸

Based on the data shown so far, one might say either that *-k* is a first person agreement marker, which is homophonous with the same subject marker and which happens to show up in the evidential paradigm. Alternatively, one might say that *-k* indicates deixis to a prominent discourse referent. Sentences like those in (42) show that neither of these hypotheses is correct. These sentences contain only one predicate, yet *-k* shows up, despite the fact that the Subject is neither markedly prominent nor first person. In such cases, *-k* indicates that “the speaker presents the information as fact, not as possibility, inference or preference, and with no hint as to its source or any doubt as to its veracity.” (Gordon, 1986: 78)

- (42) a. Mhay-ny-sh ny-ashham-**k**
 boy-DEM-SJ 3/1-beat-ASP
 ‘The boy beat me up’ or ‘The boy is beating me up’

⁶ Gordon glosses this sentence final *k* as Aspect, but below I will suggest a unified account of these various *-k* morphemes.

⁷ There are two classes of verbs, so in addition to being first person, the verb must be a ‘*-k*-verb’.

⁸ Similarly, (Stirling, 1993) shows the importance of the “Validator” pragmatic role in switch-reference.

- b. 'iipaa-ny-sh puy-k
 man-DEM-SJ die-ASP
 'The man died'

Gordon glosses this $-k$ as a kind of aspect, but her description makes it sound like an evidential morpheme. It cannot be an evidential morpheme though, because it co-occurs with other evidential morphemes, as we saw in (41). However, it is possible that the sentences in (42) include a phonologically null evidential marker. If [Oswalt \(1986\)](#) and [Willett \(1988\)](#) are right, any language with an evidential paradigm must have a personal experience evidential. Given that it is not unusual for personal experience to be the unmarked form, I would speculate that Maricopa has a null personal experience evidential morpheme. This is certainly consistent with the glosses of the sentences in (42). If this is true, then the function of $-k$ is to mark coreference between grammatical and pragmatic roles, and it can occur with any of the evidential morphemes. When it co-occurs with the phonologically null morpheme, it may seem to be marking personal experience. But in fact, in sentences like those in (42), $-k$ marks the fact that speaker, evaluator, witness and perceiver are the same person.

Gordon points out that Maricopa evidential morphemes are transparently related to full verbs of sensory perception and saying. She shows that the grammaticization process by which full verbs became evidential morphemes affected a whole class of verbs rather than just individual verbs. Especially interesting in the present context is the fact that the complements of verbs of saying bear the $-k$ morpheme even when the Subjects of the matrix and embedded clauses are clearly different, as shown in (43).

- (43) Bonnie-sh chuy-k uu'ish-k
 Bonnie-SJ marry-k say = PL-ASP
 'They say Bonnie got married'

Although the Subjects of *chuy* ('marry') and *uu'ish* ('they-say') are not the same, the presence of the verb of saying entails that the speech act roles associated with the embedded predicate are assigned to the higher Subject. That is, the Subject of 'say' is linked to the speaker and evaluator⁹ of the embedded proposition.

If there are no syntactic representations of pragmatic roles, then the distribution of $-k$ would seem to be a matter of accidental homophony, and the generalization that it occurs when two roles are assigned to the same referent cannot be captured. If pragmatic roles are explicitly represented in syntax, then the distribution of $-k$ may receive a unified treatment as a marker of role co-indexing.

6.2. Logophoricity and control

[Culy \(1994\)](#) pointed out that logophoric domains and control domains are mutually exclusive. It would be tempting to treat this as a pragmatic fact, since both

⁹ The subject is also possibly witness and perceiver of the embedded clause.

control and logophoricity involve coreference of embedded subject and some higher argument. However, Culy shows that the restriction holds even in languages that have both control and logophoric pronouns. In such languages, a predicate can never take both control and logophoric complements; it must always take one or the other. This is unlike the situation in English, where coreference between subjects with verbs like *want* can be expressed with either a controlled null pronoun or an overt reflexive.

- (44) a. Mary_i wants PRO_i to win the race.
 b. Mary_i wants herself_i to win the race.

Since coreference between subjects can be expressed with any of these complement types, it is not clear why pragmatics would rule out a verb whose complement could have either a null subject or a logophoric pronoun.

I suggest that the reason a given predicate can never take both control and logophoric complements has to do with the subcategorization properties of the predicate, as proposed above. In order to select a control complement, a predicate must select a nonfinite clause with or without a case-assigning complementizer. In order to select a logophoric domain, a predicate must select a higher pragmatic projection, and would not be in a position to select for finiteness.

7. Conclusion

The constructions that I have discussed in this paper provide evidence that there are syntactic projections that bear pragmatic features. In particular, they support the claim of Cinque (1999) that there are projections for Speech Act Mood, Evaluative Mood, Evidential Mood and Epistemological Mode at the “top” of the sentence. I have argued that if such a view is right, we get a uniform account of evidential paradigms and logophoricity. In that account, nothing new needs to be proposed, other than the four pragmatic projections. The typology of evidential paradigms and of logophoric predicates follows from general principles of binding and complement selection.

Some of the data that I have presented show that the four pragmatic categories are hierarchically organized with respect to each other, but do not necessarily provide evidence of projections in syntax. For example, my observation that evidentiality and logophoricity are constrained by the same hierarchies might be considered a fact about semantic scope and the organization of a distinct pragmatic component. However, I have shown that the typology of logophoric predicates appears to involve subcategorization for these four pragmatic projections, and variation in the syntactic position of an operator that binds the logophoric pronouns. It is hard to see how this result could be reproduced in a framework in which the relevant features are not syntactically represented. Further, I have shown that evidentiality interacts closely with syntactically-represented features, including person, tense and switch-reference, and that previously mysterious facts about the

mutual exclusivity of control and logophoricity follow immediately if we posit pragmatic projections. If there are no such projections, then we must find an alternative explanation of the observed interactions with standard syntactic features, and we must posit a pragmatic component whose principles mimic those of the syntactic component to a surprising extent.

Acknowledgements

This paper is part of a larger research project on the grammar of Point of View that is being carried out jointly with Carol Tenny. I am grateful to Carol for opening up this topic for me, and for other discussions and encouragement. I am also grateful for comments and encouragement to Chisato Kitagawa, Angelika Kratzer and Tom Roeper in the spring of 2000, the audience at the spring 2000 Rutgers Syntaxfest and the participants in the UC London Conference.

References

- Baker, Mark C., 1988. *Incorporation: A Theory of Grammatical Function Changing*. University of Chicago Press, Chicago.
- Chafe, Wallace L., 1986. Evidentiality in English conversation and academic writing. In: Chafe, W.L., Nichols, J. (Eds.), *Evidentiality: The Linguistic Encoding of Epistemology*. Ablex Publishing Corp, Norwood, NJ.
- Chafe, Wallace L., Nichols, Johanna, 1986. *Evidentiality: the Linguistic Coding of Epistemology*. Ablex Pub Corp, Norwood, NJ.
- Cinque, Guglielmo, 1999. *Adverbs and Functional Heads: A Cross-linguistic Perspective*. Oxford University Press, New York.
- Culy, Christopher, 1994. Aspects of logophoric marking. *Linguistics* 32, 1055–1094.
- DeLancey, Scott, 1986. Evidentiality and volitionality in Tibetan. In: Chafe, W.L., Nichols, J. (Eds.), *Evidentiality: The Linguistic Encoding of Epistemology*. Ablex Publishing Corp, Norwood, NJ.
- Gordon, Lynn, 1986. The development of evidentials in Maricopa. In: Chafe, W.L., Nichols, J. (Eds.), *Evidentiality: The Linguistic Encoding of Epistemology*. Ablex Publishing Corp, Norwood, NJ.
- Hale, Kenneth L., Samuel Jay Keyser, 1993. *On Argument Structure and the Lexical Expression of Syntactic Relations*. Ms. (MIT).
- Jacobsen, William H., 1986. The heterogeneity of evidentials in Makah. In: Chafe, W.L., Nichols, J. (Eds.), *Evidentiality: The Linguistic Encoding of Epistemology*. Ablex, Norwood, NJ.
- Koopman, Hilda, Sportiche, Dominique, 1989. Pronouns, logical variables and logophoricity in Abe. *Linguistic Inquiry* 20 (4), 555–588.
- Maxwell, Mike, 1999. Person marking. *linglist.org*, 10, 856.
- Oswalt, Robert L., 1986. The evidential system of Kashaya. In: Chafe, W.L., Nichols, J. (Eds.), *Evidentiality: The Linguistic Encoding of Epistemology*. Ablex, Norwood, NJ.
- Reinhart, Tanya, Reuland, Eric, 1993. Reflexivity. *Linguistic Inquiry* 24, 657–720.
- Rooryck, Johan, 2001. Evidentiality: State of the Article. *GLOT International*, 5.
- Sells, Peter, 1987. Aspects of logophoricity. *Linguistic Inquiry* 18 (3), 445–479.
- Stirling, Lesley, 1993. *Switch-reference and Discourse Representation*. Cambridge University Press, Cambridge, UK, New York.
- Thurgood, Graham, 1986. The nature and origins of the Akah evidential system. In: Chafe, W.L., Nichols, J. (Eds.), *Evidentiality: The Linguistic Encoding of Epistemology*. Ablex Publishing Corp, Norwood, NJ.

- Weber, David J., 1986. Information perspective, profile and patterns in Quechua. In: Chafe, W.L., Nichols, J. (Eds.), *Evidentiality: The Linguistic Encoding of Epistemology*. Ablex Publishing Corp, Norwood, NJ.
- Willett, Thomas, 1988. A cross-linguistic survey of the grammaticization of evidentiality. *Studies in Language* 12, 51–97.
- Woodbury, Tony, 1986. Interactions of tense and evidentiality: a study of Sherpa and English. In: Chafe, W.L., Nichols, J. (Eds.), *Evidentiality: The Linguistic Encoding of Epistemology*. Ablex, Norwood, NJ.