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Evidentiality and Narrative

Abstract: *In this paper we argue that the phenomenon of evidentiality, the grammatical marking in some languages of the source of one's knowledge, gives us a revealing window into the developmental processes in middle childhood that subserve the achievement of narrative competence. First, we argue that the mastery of evidentiality is connected to the development of an understanding of inference, and of the ability to mobilize this understanding in the construction of human narratives. Second, we examine the role that parent-child discourse plays in clarifying the contrastive uses of sources of knowledge. Finally, we discuss the difference between first person and third person narratives, and suggest that evidentials might reveal something of the sources of evidence for persistence of self as the protagonist in one's own life story.*

Introduction

Human cognitive development emerges from a complex interaction between biologically structured maturation and social interaction. In this paper, we explore the parallels and possible interactions among the developmental tracks of three distinct but related intellectual capacities. The first of these is specifically *linguistic*. As we will discuss in detail below, many of the world's languages contain grammatical devices for marking the source of evidence a speaker has for his/her assertions, a feature called 'evidentiality'. We are interested in the surprisingly difficult question: How do children who speak these languages master this system? The second question is specifically *cognitive*: How do children develop the capacities to draw inferences

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and to represent the structure of the inferences that they and others draw? The third is *cultural*. How do children develop the ability to tell narratives, whether third or first person? Despite the fact that these three capacities appear to fall into such different developmental domains, it turns out that they are mutually entangled, and the study of the development of language may yield insight into the development of narrative self-understanding.

1. Narrative and Development

There is a growing consensus that our self-understanding and many of our most important complex cognitive skills rest on our ability to construct narratives about ourselves and others. We know ourselves first and foremost as characters in an ongoing autobiography. We make sense of our own actions and mental states as well as those of our fellows by situating them in the context of stories in which they make sense. The inability to tell a good story is hence not just a minor social failing; it is a serious cognitive disability potentially issuing in dramatic self-alienation.

There is also a growing consensus that narrative competence is an acquired skill, and that it has an extended developmental track. It is significant that narrative is one of the principal forms of discourse in which the young child first has an extended turn at speaking. Narrative is not topically bound to a current discourse situation, and it both allows and requires children to refer in a coherent way to past events and to absent people and objects. In addition, narration requires the child to express connections between different utterances and involves particular 'text-making' linguistic devices that are important to later literacy and communicative skills (Perera, 1986; Engen, 1994; Snow, 1991; Snow *et al.*, 1995).

It is useful to distinguish between a narrative's *coherence* and its *cohesion*. A narrative is *coherent* to the extent that the story hangs together, has a central storyline, has characters with relatively stable dispositions, and a plot structure. The plot structure has been used as a framework for describing and analysing children's growth in narrative coherence. For example, Labov's influential scheme (Labov, 1972; Labov & Waletzky, 1967) defines the minimal characteristics of a well-formed, coherent story. It begins with an *onset* that introduces the characters and establishes an orientation or setting for the story and can also provide a preview of what the story is to be about. The central nucleus is an *unfolding* of one or more complicating actions or

events, leading to a *high point* or climax and finally a *resolution* of the story.

These are broad, open-textured qualities, and may be subject to cultural variation and to literary style. (On this dimension, William Faulkner may be faulted, and four year olds may look pretty good, depending on one's standards). A narrative is also *cohesive* to the extent that it is represented in language that cues the listener and reader to the relationships between fragments of the narrative, using such devices as appropriate pronominal reference, appropriate tense markers, conjunctions, relative clauses, and adverbial phrases. Cohesion is more regular, and more stable across cultures, and covaries more directly with age and cognitive development than does coherence. Indeed, cohesion is used as an assessment criterion in some language development instruments (de Villiers, 2004).

Until approximately the age of four, normally developing children, contrary to their grandparents' reports, do not produce discourses that qualify as narratives. Their discourse lacks both coherence and cohesion; this is not just a matter of degree, but of fundamental structure. Their discourse is either punctate or associative, and such coherence or cohesion as is represented is supplied by the listener, not by the child. This is why young children are so strikingly incompetent at talking with someone who does not share their knowledge of the topic under discussion. While children at this age are developing increasingly sophisticated skills at pretence, these skills are primarily enactive, and while they almost certainly scaffold the development of narrative skills, they precede them. It is one thing to be a character in a story; it is another to tell a story about that character.

Between approximately age four and age six, children's narrative competence develops dramatically. First, children shift from mere descriptions of observable actions to the attribution of conative states and the representations of goals and purposes. At about this time, they also begin to respect discourse representation conventions such as the introduction of nominal antecedents for pronouns, and restrictions on indefinite and definite articles. A bit later, doxastic, epistemic and indirect speech verbs enter narratives, enabling reference to participants' mental states, and inferences. Finally, devices for indicating temporal relations appear, allowing clear sequencing of multiple events, and the use of tense to distinguish figure from ground, e.g. the difference between, 'while he was eating, the train was stolen', vs. 'while the train was stolen, he was eating', each of which is much richer than 'the train was stolen and he was eating' (de Villiers, 2004).

An important distinction can be drawn between the external plot structure, consisting of action sequences and events, and the subjective evaluative component of the plot, involving the internal responses of the characters (Labov, 1972). Bruner (1986) refers to this as the distinction between the 'landscape of action' and the 'landscape of consciousness' in stories. The landscape of action refers to the sequence of events that took place — who did what to whom, and when they did it. Rich narratives have in addition, a landscape of consciousness that expresses the characters' motivations and goals for actions, their emotional reactions to events, and their interpretations of events in the light of their beliefs and knowledge or ignorance. Children's ability to handle the landscape of consciousness of stories depends on their growing 'theory of mind' in the late preschool years (Astington, 1993; Wellman, 1990).

There is a reciprocal connection between the development of Theory of Mind and the development of narrative competence. Theory of Mind, of course, is not a single, monolithic capacity that emerges in an instant. Component Theory of Mind skills emerge quite early both ontogenetically and phylogenetically. For instance, infants as young as one year demonstrate the ability to track gaze (Tomasello & Rakoczy, 2003; Onishi & Baillargeon, 2005; Southgate *et al.*, 2007), as do adult chimpanzees (Tomasello & Rakoczy, 2003). On the other hand, these basic skills hardly suffice even to solve simple false belief puzzles, though they may enable simple deception. An understanding of desire clearly precedes an understanding of belief (Perner *et al.*, 2003); understandings of the conditions of perception may precede both of these, but the connection to belief fixation is a later attainment (de Villiers, 2007).

Many have urged that Theory of Mind is fully in place when, and only when, a child can attribute a false belief to another. But even this capacity, while it postdates the simplest capacities comprised by Theory of Mind, is far from the pinnacle of this cognitive development (Hutto, 2007). Consider that the standard tasks of Theory of Mind require the child to deploy a distinction between who saw something and who did not, and therefore what that character knows or not. We describe in a later section just how limited a condition that is compared to the subtle inferences we can draw as adults about someone's state of knowledge, based in turn on the inferences that another person must have drawn.

Second order belief attribution lags about a year behind first order belief attribution (Sullivan *et al.*, 1994; Hollebrandse *et al.*, in press). Moreover, second order attribution is a crucial cognitive skill for

beings like us. For the ability to deploy this knowledge in inference and in the development of an explanatory narrative about another's behaviour develops even later, and it is not until a child can deploy this knowledge in sophisticated reasoning and narration that it makes sense to say that she understands the role of the mind in human life. So, while the *emergence* of early Theory of Mind enables narrative, narrative in turn enables the *maturation* of Theory of Mind.

Adults play a crucial role in teaching the narrative skills that enable the transition from primitive to mature Theory of Mind. In many cultures, children are surrounded by tales: fairy tales, folk tales, pretence scenarios, retellings of family dramas, all of which entail bringing together motives, reasons, misunderstanding and their resolution, and differing perspectives from different characters. These practices provide examples of the use of cognitive state attributions in the prediction, explanation and rich description of behaviour (Dunn & Brophy, 2005; Harris, 2005). But we must not overlook another crucial function that they serve: They also demonstrate the range of *linguistic* devices that enable both the attribution of these states and the narrative cohesion necessary for them to play their role in narration. While adult-child interactions clearly serve this pedagogical role, insufficient attention has been paid to cross-linguistic or cross-cultural study of the variation in such interaction, and to the range of devices that might subserve this function.

Narration serves many cognitive functions. It not only facilitates the development of important Theory of Mind skills; it also contributes to our *self*-understanding, and hence to the achievement of agency in the full sense. We know that, just as four year olds are not simply tiny adults with self-understandings comparable to our own, even adolescents do not have a mature autobiographical narrative or a complete sense of reflective agency. The fact that this skill is mastered so late in life, coupled with the complexity that often confronts adolescents can often have tragic results (Chandler & Ball, 1990).

While we are developing an increasingly rich picture of the beginnings and the end of the development of narrative competence and so of self-understanding, there is much still to be learned about the middle years of childhood. In this period, between the ages of six and ten years old, children's ability to reason about others' states of mind expands dramatically as their linguistic, narrative and inferential competence increases. With the basic ability to represent beliefs in place by four or five, and most of the syntactic devices mastered for extended discourse, it is in this period that knowledge of Theory of

Mind is expanded and consolidated through rich experience (Hutto, 2007).

Exploration of the cognitive and linguistic development during this crucial period may be facilitated by the fact that some of the world's languages incorporate an important grammatical device, the development of competence with which extends significantly into middle childhood. Moreover, that device may have important roles in the narrative self-understanding of children. These languages are those with evidential systems. By studying the acquisition of evidentials we may gain important insights into several aspects of the development of narratives in childhood. The current paper discusses three such aspects: the role of inference in explanations of action, the role of discourse in assisting reasoning about the mind, and the relation between third person and first person narrativity. First we provide some background on evidentiality. We will then turn to an examination of the Tibetan evidential system and of what we can learn about cognitive development from investigating its acquisition pattern.

2. All about Evidentiality

Evidential morphemes are grammatical devices that express the nature of the speaker's evidence for a statement. In all languages there are ways to express the source of one's evidence, but in languages with evidentials there is a specialized grammatical system for encoding what type of evidence the speaker has for her statement, and about a quarter of the world's languages (including many central Asian and indigenous languages of the Americas) have such specialized markings (Aikhenvald, 2004).

It is helpful to compare evidentials with the other linguistic devices used to convey related meanings. In many languages, attitude predicates (I saw that ... ; I infer that ...) are used to convey information about the speaker's epistemic grounds for a statement, but evidentials differ from attitude predicates in four important ways. The evidential always takes the perspective of the speaker, expressing what kind of evidence the speaker has for the statement. Second, evidentials do not have their own grammatical subjects. In contrast, attitude predicates have a subject that need not be the speaker (*I* heard that; *She* heard that; *John* heard that).

Third, evidentials convey information about *how* the speaker's epistemic state was achieved rather than the *nature* of the epistemic state itself. In particular, they do not encode the degree of certainty,

for even hearsay evidentials do not necessarily qualify the speaker's commitment to the truth of the assertion.

Fourth, as a general rule evidentials occur only in main clauses, and do not introduce a subordinate clause. Though evidentials convey the same type of information as 'I infer that', 'I saw that' or 'They say that', the possibilities of recursive embedded structures that occur with attitude verbs do not occur with evidentials.

Epistemic modals also convey information about mental states; but the kind of meaning conveyed by an evidential is also different from that conveyed by epistemic modals. Whereas epistemic modals express *how likely* the information is to be true, or how *certain* the speaker is, evidentials convey the *nature of the evidence* that the speaker has for the statement (Oswalt, 1986; de Haan, 1999; Hardman, 1986; DeLancey, 1986; Lazard, 2001; Plungian, 2001; Aikhenvald, 2004). Evidentials are used to make unqualified assertions, whereas even the stronger epistemic modals (e.g. 'must') weaken the assertoric force of utterances (Davis *et al.*, 2007).

Note that as listeners we can often *infer* the degree of certainty of a claim from the type of evidence the speaker invokes. If someone makes it clear that a claim is made based on her having witnessed the actual event, we can infer that she is quite certain that the claim is true. If someone claims that something 'must' be the case, we can infer that he or she has reasonably reliable evidence for it, less so in the case of e.g. 'might'. So epistemic modals express a speaker's *judgment* about probability or necessity, which in turn is based on the type of evidence she has for her assertion. But evidentials express the type of evidence the *speaker* has for her claim and leave the *hearer* to make estimates about the probability of the assertion being true. Evidentials hence differ markedly from the linguistic devices of attitude predicates and modal auxiliaries, despite overlap in the semantic and pragmatic roles they play.

Evidentials are *egophoric*, meaning always from the point of view of the speaker. The egophoricity of evidentials gives them a special role in autobiographical narrative construction. In a language (such as Tibetan, which we consider below) in which evidentials are mandatory in most sentences, representing one's own source of evidence for the claims one makes is a central aspect of any assertion. Inasmuch as the development of competence with evidentials reflects the development of one's own reflective knowledge of one's epistemic states, it also reflects competence in autobiographic narrative. It follows that understanding the information conveyed by others when they use evidentials hence requires projecting an epistemic biography that

makes sense of their evidential use. Thus it is impossible to understand evidentials without representing at least the skeleton of a narrative in which one's interlocutor acquires evidence of some type for the claim he has just made.

All of this gives rise to an important and fascinating acquisition puzzle. Since the felicity conditions of the use of an evidential consist in the evidence (generally in the past) that the speaker has for an assertion, those felicity conditions (or their failure for that matter) are in general not available in the conversational context in which evidentials are used. It is therefore somewhat mysterious how children project not only the correct meaning on evidential expressions, but even that those expressions are evidentials. Solving this problem will provide an interesting window into cognitive development.

3. A bit about Tibetan

Tibetan evidentials are distinctive forms of the copula or the verb of existence, which occur at the end of virtually every sentence in Tibetan, a head-final language. Therefore evidentiality is a feature of virtually every Tibetan assertion or question.

Published descriptions of the Tibetan evidential system generally distinguish three categories of evidentials — direct, ego and indirect (Garrett, 2001; Denwood, 1999). However there is also a fourth category — neutral — which is used when a speaker is noncommittal about the kind of evidence for the assertion. *Direct* evidentials are reserved for cases in which the speaker has directly witnessed a situation with her own eyes, but also to report internal states. The most common direct evidential in Tibetan is 'dug, with a form *song* used as a direct evidential for past tense. A speaker who says *Tsi tsi pha gir 'dug* (there is a mouse over there) is *asserting* that there is a mouse over there, and indicating by the use of 'dug that she *saw* it.

Indirect evidentials are used in situations where the speaker did not witness the event but has some kind of indirect evidence for the assertion. The indirect evidentials are *yod sa red* and *yod kyi red*. *Yod sa red* is used when the speaker directly experiences specific evidence that points to the truth of the utterance, but does not directly witness the situation described. For instance, a speaker could say *Tsi tsi pha gir yod sa red* (there is a mouse over there) when she directly sees mouse footprints in the dust, but not the mouse itself. The statement is an unqualified assertion that there is a mouse over there, but it reveals that her evidence is, though perceptual, indirect.

Yod kyi red is an indirect evidential used when the evidence for the assertion is non-perceptible, for instance hearsay, general knowledge, or inference from general facts. A speaker uttering *Tsi tsi pha gir yod kyi red*, asserts that there is a mouse over there, but indicates that she knows it by inference of a more general sort. It could be that the mouse is always there at this time every day, or that this is the place where mice are always to be seen, or some reliable source may have told her that there is a mouse there.

Ego evidentials are used for reporting a state of the speaker's own mind or body to which she has privileged access, for example, to talk about emotional states or hunger or pain. The ego evidential morphemes in Tibetan are *yin* and *yod* but also '*dug*, the latter being a kind of 'inner eye'. Note that in English, we often use perception verbs such as 'see' to mean something concluded with inner certainty, 'I see, I see'.

Finally, Tibetan has a neutral evidential category (*red, yod red*). These verb forms give no information about the kind of evidence on which the speaker is relying, but are generally infelicitous where the direct or ego evidential would be felicitous. In this way the neutral form resembles the indirect evidentials, but does not commit to the nature of that indirect evidence. Tibetan also has a range of epistemic modals and propositional attitude verbs, like those of English, but evidentials differ from these in the ways noted above.

One final point is worth noting. In asking a question in Tibetan, the speaker anticipates the kind of evidence the respondent will use in her reply, and uses the evidential that matches that anticipated source of evidence. In the context of a question, therefore, a point of view shift occurs, and, evidentials are anchored not to the perspective of the questioner, but to that of the respondent. From the point of view of Theory of Mind, this property of Tibetan evidentials opens up a very interesting opportunity for developmental research.

4. The Developmental Track of Evidentiality in Tibetan

Tibetan children use the evidential '*dug* early (by age 2), and well before they use any other evidentials, even the neutral evidentials which appear soon after initial uses of '*dug*. However, it appears both from the distribution of expressive uses and from the inability to make effective use of the use of '*dug* by others that these early uses do not reflect a representation of the evidential force of this particle. Instead, children appear to take '*dug* to be simply a generic form of the copula.

By age 3–4, Tibetan children discriminate 'dug from the class of indirect evidentials. At this age, they are able to determine that a speaker using 'dug is a more reliable informant than one using an indirect evidential (de Villiers *et al.*, 2005; de Villiers *et al.*, in press). However, at this age it is not clear whether children are representing these particles as evidentials or as epistemic modals. That is, they may be taking 'dug to mean *must be* and *yod kyi red/yod sa red* to mean something like *could be*.

However, by age 5–6, Tibetan children treat these particles grammatically as evidentials, as opposed to modals. For instance, they always take denial of a sentence containing an evidential to be a denial of the content of the matrix sentence, as opposed to the denial of the felicity of the evidential (Gernet-Girard, 2008; de Villiers *et al.*, in press). This contrasts with modals, whose felicity can be denied independent of the judgment regarding the truth value of the matrix sentence they govern. At this age children also begin to respect the point of view shift in questions, using evidentials in questions in a way that appropriately anticipates the felicity of the evidential to be used by their respondent (de Villiers *et al.*, 2008).

Mastery of the distinction between the two indirect evidentials in Tibetan, however, is not achieved until much later, around age 9–10 (de Villiers *et al.*, submitted). Until this time, while *yod kyi red* appears in children's speech as a contrast to 'dug, the form *yod sa red* never appears, and *yod kyi red* is often used when *yod sa red* would be felicitous. Indeed, when this distinction is important, and at earlier ages when even distinctions between direct and indirect evidentials are important, we find that children often avoid commitment either by using elliptical (such as one word) utterances that avoid the evidential (something permitted in casual spoken Tibetan, just as it is in English) or by retreating to neutral evidentials.

Until approximately age 9–10, Tibetan children appear to be insensitive to the distinction between the two indirect evidentials. That is, they fail to mark, or to exploit, the distinction, represented by all adult Tibetan speakers, between specific inference and general inference, between knowing that you are home because I see your bicycle on the porch and knowing that you are home because you usually get home by 6pm, and it is 6.30. Our evidence suggests that only at about age 9–10 do they come to mark reliably and to exploit this distinction.

We might ask what cognitive skills enable them to master this distinction. First, we note that this transition is developmentally much too late to depend simply on basic Theory of Mind skills, even the representation and use of false belief, as these are well in place in

normally developing children by age 4 or 5. Even higher-order false belief skills are in place by age 6 or 7 (Hollebrandse *et al.*, in press). On the other hand, we have discovered that children's ability to draw inferences based upon available signs develops more slowly. Although this kind of inference might seem to be the most elementary, it is actually very challenging. As we have learned from Tversky & Kahneman (1981), Wason (1960), and a host of their successors, even those with tenure in Philosophy departments, or who teach classes in statistics fail what appear to be elementary inferential tasks. It turns out that the ability to engage in inference from observable signs does not emerge until well into middle childhood.

5. Inference

Everyday inference is itself a complex and rich phenomenon. Indeed 'inference' denotes a broad and ill-defined range of phenomena. There is little consensus on just what constitutes inference. Many would not describe an infant watching a toy train pass behind a screen as *inferring* that it will emerge from the other side, as simple expectation based on habit does not qualify. Marr (1968) argued that even ordinary perception is inferential, since we need to reconstruct the distal layout based upon data consisting only in sensory stimulation. Other theorists, such as Recanati (2002), argue that perception is a paradigm of *immediate, non-inferential knowledge*. Even ordinary classical conditioning could be construed as a kind of inference to the unknown, but we do not generally say that Pavlov's dogs drew an inference that food would follow the bell.

For purposes relevant to the distinctions reflected in an evidential system such as Tibetan, and for purposes relevant to the development of the cognitive competences we have been investigating, we find it useful to reserve the term 'inference' for cognitive tasks requiring more explicit, deliberate, introspectable reasoning from consciously entertained premises. Recanati uses Reid (1970) for a definition of reasoning: the process by which we pass from one *judgement* to another which is the consequence of it. But even to exploit obvious, readily available information in direct, simple logical inference construed in this sense requires a host of skills whose structure and developmental trajectory is little-understood. Consider the kind of inferences drawn by a detective investigating a crime. One needs to *notice* the relevant information (the footprint in the snow), and moreover, notice *that* it is relevant to the task at hand (finding the thief who came after the snowstorm). One needs to know *that* an inference is

called for (the thief won't turn himself in), and moreover, to know what *kind* of inference is necessary (inductive, based on shoe size and criminal record) and *how* to draw inferences of that kind (the logical form of a Bayesian inference). So we see that elementary reasoning requires us to draw on a host of skills and information including metacognitive knowledge.

There is a deeper question: might the computation of the meanings and use of inferential evidentials proceed by some process internal to the linguistic system, or is it parasitic on inference skills developed more broadly outside of language proper? Such questions are central to recent debates in the pragmatics of language, for example, in Relevance Theory (Sperber & Wilson, 1986; Sperber, 1995). Recanati (2002) draws a distinction between Inferentialism and Anti-Inferentialism in the area of language comprehension. According to Inferentialists, semantic interpretation is crucially dependent on pragmatic interpretation, so that the content of the speech act provides only part of the evidence used. Inferentialists argue that the meaning has to be inferred from premises concerning what the speaker could intend by the utterance in this context. Anti-inferentialists on the other hand, argue that semantic interpretation by itself usually gives us the content of the speech act. On this view, the speaker in ordinary circumstances means what he says: to interpret an utterance one has only to figure out what the sentence says. In some circumstances (jokes, sarcasm, irony, metaphor), the interpretation involves a secondary inference process from pragmatics, which requires evidence concerning the speaker's beliefs and intentions to work out what he means on the basis of what he says.

Recanati recognizes that many more ordinary acts of semantic interpretation are bedeviled by under-determination, such as the use of indexicals (*I/you*) or deixis (*here/there*). Recanati argues that these cases are not easily constrained by limited contextual considerations, but also take into account speaker's intents, beliefs and so forth.

either semantic interpretation delivers something gappy, and pragmatic interpretation must fill the gaps until we reach a complete proposition, or we run semantic interpretation only after we have used pragmatic interpretation to pre-determine the values of semantically under-determined expressions, which values we artificially feed into the narrow context. Either way, semantic interpretation by itself is powerless to determine what is said, when the sentence contains a semantically underdetermined expression (p. 112).

Having acknowledged the influence of context in the interpretation of semantically undetermined forms, Recanati allows that both

inferentialism and anti-inferentialism are consistent with the process. In particular he argues that the use of the contextual information could be an automatic process, like seeing, in which the contents of the inferences made are not available at the personal level, but at the subpersonal, especially if there is a relatively circumscribed set of factors to be consulted, as in resolving deixis:

The determination of what is said takes place at a sub-personal level, much as the determination of what we see. But the determination of what the speaker implies takes place at the personal level, much like the determination of the consequences of what we see. (Seeing John's car, I infer that he did not leave). The crucial fact is that pragmatic, background-dependent processes may well take place at a sub-personal level in an automatic and non-reflective manner. Such processes are not 'inferential' in the strong sense in which secondary pragmatic processes are inferential (p. 114).

What, then, do we make of evidentials? If we construe them as semantically analogous to deictic terms and indexicals, their resolution may well be sub-personal, in some automatic processes unavailable to the general cognitive apparatus of inferences and reflective consideration. It might therefore turn out that however 'inferential' the figuring out of evidential meaning is, the process is beneath awareness and hence not connected to ordinary inferential skill in non-linguistic domains, like detective work. On the other hand, given the analysis that Recanati gives to the case of 'seeing John's car, I infer that he did not leave', we might surmise that at least indirect evidentials could involve the apparatus of ordinary inference, and hence await its full development.

Tibetan raises a further complexity: the correct use of the two indirect evidentials in Tibetan represent two distinct kinds of inference, and distinguishing them requires that children master and represent this distinction. In particular, to master the distinction between *yod sa red* and *yod kyi red* in Tibetan, the child must attend to the evidential base for the speaker's claim and to the kind of inference that evidence would warrant. Imagine the case of a bicycle left outside on a porch, which is a reliable sign that the bicycle's owner is at home. The child hears an evidential used in this context in a sentence asserting that the owner is at home. (*Sonam-lags nang la yod sa red*. Sonam is at home). In order to understand this sentence the child must:

- a) know the contingency between the bicycle and the presence of the owner, and be capable of drawing the deduction himself (or he cannot understand that the evidential marks this contingency);

- b) know that the speaker knows the same contingency (or he cannot represent the egophoricity of the evidential); and
- c) recognize that the speaker has used that information, and not other information, to draw the inference (or else he cannot distinguish *yod sa red* from *yod kyi red*, or even 'dug).

It follows that the child must also represent the difference between *seeing* and *seeing that*. Many narratives, including not only murder mysteries but other more mundane human dramas revolve around such differences: did his lover spot the second used wineglass by the sink? Did my mother spot the roach in the ashtray? Will the customs official see the price tag on the computer? The person who is intensely aware of the significance of the cue is often amazed that it could be overlooked by the other. The objects of perception do not always trigger inferences, and we are not always aware of what others notice, or what they infer on the basis of what they notice. It is hence hard, in a community speaking a language such as English, to tell when children are aware of this distinction. But the Tibetan evidential system requires that children draw this distinction in order to master their language. This gives us a valuable window into this developmental process so central to the achievement of narrative competence.

We have found that the development of both receptive and expressive competence in the use of Tibetan evidentials correlates not with the development of Theory of Mind skills, but with the development of inferential competence (de Villiers *et al.*, 2005). In particular, children do not master the distinction between general and specific inference evidentials until they are very good at tasks that require them to infer unseen events from visible signs even when these tasks do not require the use of any evidentials (de Villiers *et al.*, in press). This suggests that the mastery of this portion of Tibetan grammar demands not simply linguistic maturation, but the development of a broad range of non-linguistic cognitive skills. It also suggests that the kind of reflective awareness of one's own epistemic activity (and the representation of that kind of epistemic activity in one's interlocutors) that is necessary for the distinction between these evidentials matures quite late in middle childhood.

In exploring the relationship between evidential use and inference, we have been inventing or adapting inferential tasks that might parallel the demands placed on children by the comprehension and production of *indirect* evidentials. We have uncovered a range of skills that require further study, and have made some interesting errors in method along the way, and our mistakes in methodology reveal that

the kinds of inference marked by indirect evidentials are not as simple as we might have thought.

In our very first attempts to study the development of inferential ability, we asked when children could answer questions based on the use of a general rule, coupled with a specific clue. For instance, we told the children that two people shared a house, and only one could be home at one time. One of them liked to cook, and always lit a fire to cook. The other character always liked to dance, so whenever she was home, she played music. Then we showed the house, either with music blaring out, or smoke coming from the chimney. We then asked, 'who is home?'. While it is true that with four year olds we sometimes needed to point out the music or the smoke before they would respond, most children of this age could answer, if they could remember who did what! This is an inference from sign, and it goes beyond simple conditioned expectation, but we found that success in this kind of inference was insufficient to enable children to understand indirect evidentials.

In a slightly more demanding scenario, we told children a brief story about a school, and then explained that when the children went into class, they hung their coats up outside, but took their notebooks with them. We then showed them a picture with four coats hanging up, and asked them how many children were in the classroom. Note that to answer, the child has to use the coats as an indirect clue, because the children themselves are not visible (adapted from Sophian, 1988; Sophian *et al.*, 1995). We also showed a single notebook left outside, and asked them how many notebooks were in the classroom. To get this right involves inferring that one of the (inferred) children in the classroom left his or her notebook behind, and so also involves a very elementary arithmetic computation. By age four, the children we tested could count the coats and draw the inference about the number of children, but children could not reliably answer the question about notebooks until age seven. The inference here involved additional skills concerning arithmetic with hidden objects, but this skill again was insufficient to underpin successful use of indirect evidentials. Although we had discovered a more difficult inference, we had not discovered what kind of inferential ability or knowledge is necessary to enable successful use of the Tibetan evidential system.

Our most recent attempt is more revealing. The task involved a book written for children to expose them to inferential logic, by Nozaki & Anno (1993). It introduces the child to a hatter, who has a predetermined number of red or white hats. From this set, he then places a hat of unknown colour on the reader's head and visibly, on the

heads of one or two other children pictured on the page. The child reader is asked to imagine that a shadow pictured on the page is his/her own shadow, and of course therefore s/he cannot tell the colour of his/her own hat directly. Instead, the reader must use clues from what the other characters say, and as the book proceeds, also from what the characters can infer about the colours of their own hats, which of course the reader can see but they cannot. An illustration is provided in Figure 1.

The book is a *tour de force* of inferential reasoning, and the final puzzle challenges even advanced logic students. The language is very simple and direct, and does not depend on particular epistemic language. The child is asked in each case, 'what colour is your hat?'. The book explains each answer as it proceeds, so that the reader can see the reasoning in the examples after the question has been asked. We used the book by slightly shortening the explanations provided, and it was translated by our research assistants into Tibetan, using parallel language and neutral evidentials.

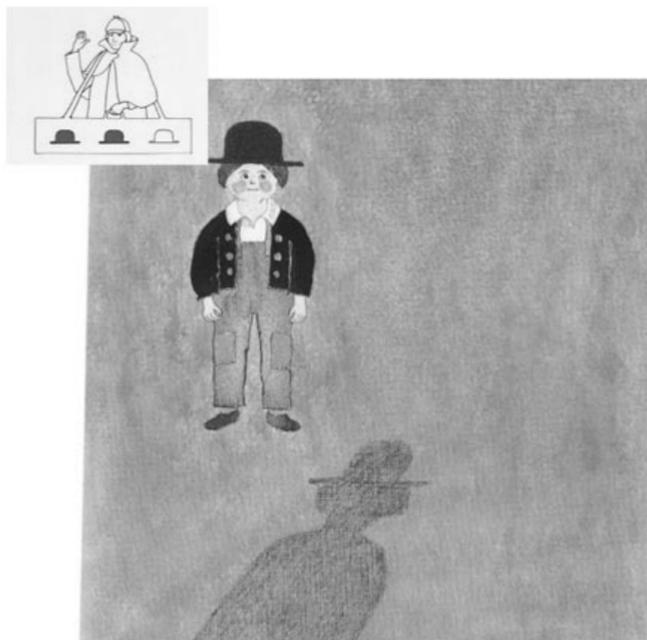


Figure 1

Sample item from Shadowchild task. The hatter shows the hats he has available on that turn. You, the reader, project the shadow. Tom, your friend, says he can see your hat, and so he knows that his hat is red.
What colour is your hat?

We continued through the book excluding the most difficult item, and we counted the number of questions that the children got correct. The 23 Tibetan children were tested at a Tibetan refugee community in Mungod, India, and the 17 English speakers were volunteers from a local school in a Western Massachusetts city that draws on a primarily working class, racially mixed community (Gernet-Girard, 2008). There is of course no way to ensure that the groups were equivalent in other measures of intellect, but we tried to ensure they were both from relatively low-income environments, without professional or highly educated parents. Despite this, the material wealth, environmental and educational resources of the Tibetan children was judged to be considerably lower than the American children. In addition, the Tibetan children had no experience of being ‘tested’, i.e. subject to questioning by a relative stranger, although a native Tibetan speaker, outside of their classrooms.

For all these reasons, we were surprised by the strong inferential ability of the Tibetan speaking children relative to the English-speaking sample. An analysis of variance comparing the two groups on the Shadowchild task reveals a highly significant effect of language ($F(1,32)=23.7, p<.001$). The mean score was 7.9 out of 11 for the Tibetan children, and only 4.2 for the English speakers. Furthermore, while competence steadily increased with age for the Tibetans, it remained stagnant for the English speakers.

It appears to be the case that Tibetan children are significantly advantaged at this task, but it is too early to tell whether it is because of the parallel to the demands of evidential use in their linguistic experience, or some other factor in their culture or education that promotes such reasoning more than for this sample of American children.

This result at least raises the possibility that because Tibetan evidentiality demands attention to the direct and indirect sources of knowledge to which others have access, mastering this language might not only depend on but also *promote* inferential reasoning. We are pursuing the idea that success on the Shadowchild task is predictive of success on indirect evidentials, as these tasks were used with different subjects to date. If we do find a significant correlation, not attributable to age or intelligence per se, then it would provide evidence that at least indirect evidentials may involve the secondary pragmatic processes of which Recanati writes, suggesting that the semantic processing of evidentials is carried out at a personal, rather than a sub-personal, level.

This led us to ask how young children get exposed to inferential reasoning in ordinary discourse, a topic that has been neglected to date. Like Hutto (2007), Harris (2005), Dunn & Brophy (2005) and others have argued, language provides important information to the child acquiring Theory of Mind that goes beyond the learning of linguistic devices for representing belief, such as the semantics and syntax of propositional attitude verbs. So, we now ask: what role can discourse play in making the felicity conditions for their use more transparent to the language learning child?

6. Teaching Evidentials

Reflection on the task confronting a young native speaker of Tibetan as she masters the evidential system of her native language suggests some significant obstacles. Reflection on these obstacles in turn suggests the broad role of narratives and of didactic parent-child discourse in language learning. The principal obstacle is this: the information encoded by evidentials is almost never present in the conversational context in which Tibetan evidentials are used. That is because the felicity conditions for evidentials comprise states of affairs in the past of the speaker that are not explicitly represented in typical discourses. For instance, consider two speakers in the living room each reporting the presence of yaks in the kitchen (in an out-house). Dolma says, *gyag thab tshang nang la 'dug* (there is [direct] a yak in the kitchen); Tashi says, *gyag than tshang nang la yod sa red* (there is [specific inference] a yak in the kitchen). Dolma conveys, but does not state, that she saw the yak. Tashi conveys, but does not state, that he saw something (perhaps a trail of yak footprints going into the kitchen) that warrants his confident assertion.

Now, consider poor little Yangzom's task, as she tries to figure out what the difference in meaning is between '*dug* and *yod sa red* given data like this. *Nothing* in the discourse situation as it stands provides information regarding the difference in meaning. Although evidentials are egophoric, to learn their meaning requires attending to others' sources of knowledge. The distinction between who saw and who did not see is elementary compared to the inferences required of the indirect evidential contrast.

Evidentials present a classic problem of negative evidence in language learning: since the morphemes cannot themselves be denied, there is no way that caregivers can subject the evidentials to correction. Recall that evidentials and epistemic modals differ in a crucial respect: if I utter a sentence containing an evidential, and you deny the

truth of the sentence, that denial *cannot* be taken as a denial of the felicity of the evidential, but only as a denial of the truth of the sentence. If you say, ‘Rogers *must be* the thief’, and I say ‘No!’ I could either be denying that Rogers is the thief *or* leaving open the possibility that she is, but denying that current evidence supports the *must be* locution. If, on the other hand, you say in Tibetan, using a direct evidential, that Rogers is the thief, and I deny that sentence in Tibetan, I can *only* be denying that Rogers is a thief, not challenging the felicity of the evidential. To do the latter requires a great deal of circumlocution and metalinguistic discourse.

So, without fairly explicit conversational intervention by adults or access to an oracle, Yangzom is doomed. This is more than normal stimulus poverty — it is abject stimulus destitution! But Tibetan children do eventually master the system. How? The answer seems to be that adults come to the rescue, and that they do so using extended, contrastive elucidations of the distinct felicity conditions of the evidentials.

A further property of Tibetan helps here; the demonstrative ‘*dug ga*, used almost always with a demonstrative gesture to elicit shared attention on a focal object (like the English *look!*). This draws a child’s attention over time not only to the object of shared attention, but to the fact that ‘*dug* is being used to reflect the fact that something can be seen by the speaker. This demonstrative construction probably plays a crucial role in scaffolding the direct evidential meaning. When the time comes to master the distinction between *yod sa red* and *yod kyi red*, the fact that ‘*dug* is in hand is a real facilitator. For when *yod sa red* is felicitous, there is always some *other* state of affairs — the relevant evidence — for which a ‘*dug* statement is felicitous, unlike in the case of *yod kyi red*:

gyag gi rjes pha gir ‘dug!

yak (possessive) footprints over there (direct evidential)

‘There are yak footprints over there!’.

Consider now the spontaneous dialogues between Tibetan mothers and their children that we have recently collected (see Table 1 for illustrations). These dialogues contain cases of indirect evidentials used in statements in close conjunction with direct evidentials to justify the inference being drawn. That is, the mother uses a specific inferential evidential for a broad claim, and backs it up with a statement about visible ‘signs’ justifying the inference, this being marked by the direct evidential, just as in the fanciful example of the yak and the footprints. Hearing conjunctions of claims like these provides good

Table 1
Examples of Tibetan mother's use of indirect (inferential)
evidentials in natural samples

Example 1:

kyod rang gyi cho cho coolie rgyugs ga phyin *yod sa red* gzugs po la nag po
god 'dug

you <genitive> brother labourer became is (*specific inference evidential*) body
<locative> black dirt is (*direct evidential*)

'Your brother looks like a coolie; he has black dirt on his body'.

Example 2:

phun tsok yang so rus 'dug co yang so rus 'dug Youngling slob gra la cong tso
mngar mo kyang kyang bza' sdad kyi *yod sa red*

Phuntsok <possessive> tooth rotten is (*direct evidential*) he <possessive> tooth
rotten is (*direct evidential*). Youngling school <locative> kid <plural> sweet
over and over eat <present continuous> is (*specific inference evidential*)

'Phuntsok's teeth are rotten and his teeth are also rotten. Youngling school kids
are always eating sweets'.

information for the child about the warrants for inferences, as well as helping to fix the meaning of the different indirect evidentials. These dialogues thus draw attention to the particular felicity conditions for specific indirect evidentials versus direct evidentials.

Attention to these pedagogical strategies and to the role of this kind of conversation, in which the contrast in use is apparent, provides further evidence that adults not only understand the felicity conditions of these evidentials but may also be sensitive to the need for justification/clarification of their use with small children. This suggests that the use of these evidentials is not determined purely by processes internal to the language module, but is sensitive to explicitly represented information and skills, information and skills that parents transmit to their children through discourse. It may even be that this kind of explicit transmission in natural discourse facilitates the development of inferential ability and understanding in children who speak languages incorporating these evidentials. It will be informative to compare these conversations with uses of say, epistemic modals in English mother-child conversations, though we stress that these are not the same category. Does the use of say, epistemic 'must' occasion similar statements about the grounds for using a strong assertion marker?

7. Development of Narrative Competence in Tibetan and English

Slobin (1991) drew attention to the influence of different linguistic resources in story telling, a process he calls 'learning to think for

speaking'. We have some preliminary evidence about narrative competence in young Tibetan speakers, collected from 20 children aged four to nine years. Our interest was motivated by the comparative properties of the two languages with respect to epistemic language. English speaking children have available propositional attitude verbs to describe the epistemic states of characters in a story, as do Tibetan speaking children. But Tibetan speaking children also have a rich evidential system: how does this influence the stories they tell?

The stories we have collected from young speakers of Tibetan and English reveal some parallel developments. Both groups begin with behavioural, event descriptions and gradually with age, incorporate descriptions of the characters' motives, desires, beliefs and knowledge. That is, both groups move from a landscape of action to a landscape of consciousness (Bruner, 1986), and at a similar age. Both groups were tested on picture sequences depicting wordless narratives from the field testing of the DELV language assessment instrument (Seymour *et al.*, 2003). Children are told to look at the sequence of pictures in turn, then to start at the beginning and tell the examiner the story. The stories are depictions of unseen displacement Theory of Mind stories, complete with a final picture in which the deceived protagonist looks in the wrong place for an object that has been moved. After that, the examiner points to the penultimate picture and asks the child to describe what is happening in the picture, which shows a character with a thought balloon entering a room to retrieve an object.

If the child fails to mention the mental state at all, no points are given. One point is given if the characters' motive or desire is mentioned, and two if a thought or cognitive state is attributed. The last question is about why a character is looking in the wrong place for an object. Zero points are given if there is no appropriate explanation, one point is given for a motivational explanation (e.g. for why the character is looking), and two points for a Theory of Mind explanation for why the character is looking in the wrong place (e.g. 'because that's where he left it' or 'he doesn't know it was moved').

If we consider only those answers, the developmental paths look quite similar despite a massive difference between the Tibetan and American English speakers in language, education and culture. Figure 2 shows the composite graph, and there are no statistical differences between the Tibetans and a very large normative sample of American English speakers (719 children aged 4 to 9 years).

There is nothing in these data so far that would suggest that the obligatory attention to knowledge states required by evidentials has an impact on third party narrative description. Papafragou *et al.*

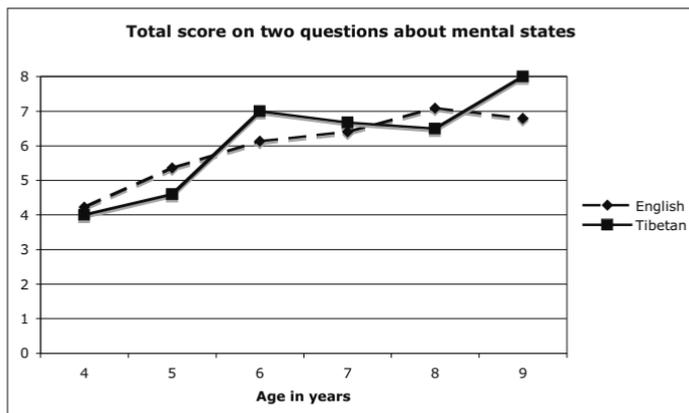


Figure 2

Competence with mental state descriptions in English and Tibetan in third person narratives

(2007) and Aksu-Koç *et al.* (2005) studying evidentials in Korean and Turkish, and our data on Tibetan (de Villiers *et al.*, 2005), show similarly negative results about the impact of speaking an evidential language on passing elementary Theory of Mind tasks.

8. Third party vs First person Narrative and the Significance of the Narrative Self

Consider, however, the potential impact of evidentiality on first person narrative. If a personal narrative is the basis for a coherent self, what might be the implications of speaking a language that demands attention to sources of knowledge?

Chandler and Lalonde have done pioneering research on how children and adolescents understand their self-continuity, that is, that there is something constant over time in their personhood (Chandler *et al.*, 2003). This is a central aspect of self-knowledge, the recognition that the self has a passage through time, a past, a present and a future. Chandler has asked children and adolescents, 'How do you know that you are the same (boy/girl) that you were when you were 5?'. American children begin by answering this question in terms of physical continuity: 'See this scar? I got it when fell off my bike', or 'I have this birthmark'. But older children, and adolescents, reject physical evidence and adopt one of two general strategies for dealing with the conflicting facts of persistence and change in one's self.

One strategy is 'Essentialist', of varying degrees of sophistication, locating some enduring property of self that is present despite apparent change, for example of character, or values, or attitudes. A second strategy is 'Narrative', which varies in sophistication from a recounting of the time line of simple life events, to a coherent story that makes a causally sensible and believable autobiography. Interestingly these two strategies are quite differently represented in the white mainstream youth that they interview compared with Inuit youth in Canada. Mainstream youth prefer Essentialist accounts of persistence, while Inuit youth prefer Narrative accounts (Chandler *et al.*, 2004).

Chandler and Ball (1990) have a powerful story to tell about those Inuit youth who are in mental health clinics as suicide risks. Inuit youth have the highest suicide rate in the world, and the causes are most likely the centuries of neglect and destruction of their land, their culture and their hopes. In interviews with these youth the researchers find evidence of a disproportionate disintegration of the idea of a persistent self, a lack of a sense of a past mental continuity, a lack of self-coherence. The research suggests that there is a developmental process of working through transitional stages in maturing ideas of self-continuity, and the risks are high when a youth is stranded between rejecting old conceptions and not yet able to mobilize new warrants for self-continuity. The consequences of this are disturbing: a youth with no coherent past, has no coherent future. As they put it,

... for most of us, most of the time, there is a 'rub' — some future possibility that death would put an end to, or some future prospect that we are not prepared to forego. For these reasons, then, adolescents, for whom transformations of identity often come thick and fast, are, we propose, at special risk of at least temporarily losing the continuity preserving thread that guarantees them a sufficient personal stake in the future, a stake capable of insulating them against self-harm (p. 32).

Chandler and Lalonde attribute the staggeringly high suicide rate among Inuit youth to this breakdown. Many historical, political and social factors have created the disastrous climate for Inuit young people, as for aboriginal people around the world in varying ways, but the proximate cause of suicide is argued to be the disintegration of the personal narrative of self-continuity.

In this paper we have pointed to the linguistic demands of Tibetan for attention to the sources of our knowledge. A speaker must attend to whether she saw or inferred, whether the information was private or public, and whether the basis of the inference was specific sensory clues or more general knowledge. These demands do not imply that third person narratives should be different, but what of first person

narration? What are the consequences for the inner story of the self? If narrative consciousness is couched in terms of language, that is, it is construed as personal story told, updated, rehearsed and revised that takes place under conscious reflection, then it should reflect at least partially the linguistic sophistication in oral narrative that people can tell. It may be less linguistically sophisticated, in that the audience is the self, so skills such as reference specification, care with pronoun use and so forth become irrelevant. It may be more conceptually sophisticated, given that the release from these audience demands may allow complexity elsewhere, perhaps in the chains of reasoning or recursion. To the extent that it is expressed orally, it should reflect the style, vocabulary and grammar of any other narrative from the individual.

However, in a language like Tibetan with evidentials, a story of the self would have to contain different varieties of evidentials than a story about other persons. The child learning Tibetan has enhanced opportunities to hear adults justify their expressed knowledge by marking its source, richly extending the kinds of data available for a complex self-narrative. A comparative exploration of the self-narratives of Tibetan and English children may be very revealing about the different paths to a continuous and persistent self, made possible by different cultural and linguistic experiences. To date, relation between the structure and development of first-person narratives and the acquisition of evidentiality in languages containing evidentials has not been studied. There is evidence that at least some Inuit languages represent evidentiality (Bybee *et al.*, 1994) and the detailed study of the acquisition of this aspect of the grammar of these languages might generate interesting insights into the development of narrative self-consciousness in these cultures.

9. Conclusion

The grammatical marking of evidentiality hence gives us a revealing window into the developmental processes in middle childhood that subserve the achievement of narrative competence. First, evidentiality enables us to study the development of an understanding of inference, and of the ability to mobilize this understanding in the construction of human narratives. Second, it allows us to examine the role that parent-child discourse plays in clarifying the contrastive uses of sources of knowledge. Finally, it permits us to investigate the difference between first person and third person narratives, and so potentially allows the investigation of the development of a distinctive sense of oneself as the protagonist in one's own life story. We concur with the

importance of the development of narrative skills to the development of a coherent sense of self, and to mental health. There is a dearth of understanding of the processes that enable this development in middle childhood, the very point at which evidentiality is mastered. Further attention to the mastery of evidentiality promises to be revealing for understanding human maturation.

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