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Does obligatory linguistic marking of source of evidence affect source memory? A Turkish/English investigation

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ABSTRACT

This study examined the influence of obligatory linguistic marking of the source of information on source memory. Turkish grammar requires speakers to indicate if an assertion is based on first hand knowledge or non-firsthand knowledge (hearsay or inference); English grammar does not require this distinction. We hypothesized that obligatory coding of source of evidence leads to a greater weighting of first hand relative to non-firsthand accounts of events (an "evidentiality effect"), resulting in better memory for first hand sources. In support of this hypothesis, across two experiments native Turkish speaking adults showed significantly better recognition and source memory for assertions coded with first hand than non-firsthand evidential markers. Further, among Turkish speakers who also knew English, those who learned English later had less accurate recognition and source memory for non-firsthand sources presented in English than those who learned English earlier, suggesting a carryover from the first language (Turkish). English monolingual speakers showed no difference in recognition or source memory as a function of source type, but showed better memory than Turkish speakers for non-firsthand sources. These findings provide the first empirical support for an evidentiality effect, suggesting that when marking the source of evidence is required by the grammar first hand sources are privileged in memory and non-firsthand sources are discounted.

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Introduction

The notion, attributed to Whorf (1956), that language serves as a kind of filter for perceiving and internalizing the world has seen a recent resurgence of interest (Boroditsky, 2003; Gentner & Goldin-Meadow, 2003; Gleitman & Papafragou, 2005) and different formulations of the Whorfian hypothesis of linguistic relativity are being theorized (Wolff & Holmes, 2011), investigated, and contested (e.g., January & Kako, 2007). Whereas the literature on linguistic relativity has primarily sought to examine influences of particular languages on *nonlinguistic* cognition, that is, cognition examined under conditions in which language is not being used, overtly or covertly (Lucy, 1996), a different approach has been taken by investigators seeking to examine the thinking that precedes and surrounds language in use. This approach, termed "thinking for speaking" by Slobin (1996, 2003) argues that differences across languages in the semantic distinctions their users are required to make by virtue of their grammar can also affect the thinking required for *linguistic* cognition. Moreover, given that a large part of everyday cognition involves preparing, producing, understanding and remembering verbal messages, and that some events exist only in a verbal realm (e.g., reported events), a more complete investigation of linguistic relativity should also address cognitive processes that arise in the course of using language (Slobin, 2003).

According to the thinking for speaking view, structural differences in how languages codify events may affect how speakers come to attend to, talk about and represent events. Many studies conducted within this framework

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have shown differences across languages in how speakers describe motion events or spatial relations (Slobin, 2003; Wolff & Holmes, 2011). Recently, crosslinguistic studies have also investigated the role of language in perceptions of causality or agency. For example, whereas English and Spanish have available similar linguistic means for constructing agency (using the active voice, a fully specified agent, and a transitive verb, (as in *Phia broke the vase*), Spanish speakers can explicitly de-emphasize agency through the use of a polysemous clitic (*se*), for which there is no equivalent in English. This clitic is used when the agent is either unknown or considered unimportant, or when reference is made to unplanned or accidental occurrences. Studies have found that English and Spanish speakers differ in their memory of whether an agent was present in a scene they viewed involving accidental occurrences (Fausey & Boroditsky, 2011) and in their frequency of invoking agents when summarizing passages depicting such occurrences (Cunningham, Vaid, & Chen, 2010).

A number of other studies have shown that subtle differences within a language in the linguistic framing of an event, e.g., whether it is referred to with a definite or an indefinite article (Strack & Bless, 1994), whether a particular verb is used (e.g., *hit* vs. *smashed*), or a particular verb aspect – imperfective vs. perfective (e.g., *was taking hush money* vs. *took hush money;* see Fausey & Matlock, 2011) may also affect users' interpretations of and judgments in response to an event. Studies conducted within a thinking for speaking framework as well as those examining the cognitive effects of different linguistic realizations share a common goal of demonstrating that properties related to the grammar or lexicon within or across languages may shape mental activity associated with language use. What distinguishes the two approaches is that the thinking for speaking approach (like the linguistic relativity approach more generally) rests on cross-language contrasts between habitual uses of a particular language structure (typically, a structure required by the grammar) and occasional/voluntary uses of a structure (reflecting an element of speaker choice).

The present research used a thinking for speaking approach to examine memory for directly vs. indirectly experienced events across languages as a function of evidential marking. Evidentiality is a semantic category present in a quarter of the world's languages and refers to the linguistic encoding of source of evidence, that is, whether the basis of an asserted proposition is first hand knowledge (e.g., knowledge based on seeing or witnessing an event) or non-firsthand knowledge (e.g., knowledge based on inference or hearsay). Evidentiality is closely related to but considered distinct from epistemic modality, the marking of a speaker's degree of confidence in the truth of an asserted statement (Aikhenvald, 2004; Palmer, 2001). In many Balkan, Turkic, East European, Middle Eastern, and Native American languages source of evidence is encoded at the level of the grammar (Aikhenvald, 2004; Johanson, 2000), whereas many western European languages do not require the marking of source of evidence. Whereas all languages allow users to indicate source of evidence they differ in whether source marking is required by the grammar, in how source may be conveyed when it *is* required, and in what types of sources are encoded linguistically (Chafe & Nichols, 1986; Lazard, 2001; Plungian, 2001). For example, among languages that require the coding of source in the grammar, a distinction is made between direct evidentials, used when the speaker has first hand, perceptual evidence for an action or event, and indirect evidentials, used when the speaker did not personally witness the event but learned of it after the fact, either on the basis of an inference from available physical evidence or on hearsay. Languages may differ in their number of direct evidentials (either containing separate markers for each sensory modality or a single marker for all sensory modalities) and in their number of indirect evidentials (containing a single indirect evidential marker for any kind of non-firsthand source or separate indirect evidentials for hearsay, inference, or quoted sources). Similarly, among languages in which source information is conveyed in the lexicon there may be differences in the number and type of lexical markers of direct and indirect sources.

Although there is clearly considerable variability across languages in how evidentiality may be marked, one may nevertheless classify languages into two types: those in which evidentiality is marked at the level of the grammar (and thus is routinely attended to) and those in which it is marked optionally, at the level of the lexicon. This raises an interesting question from a language and thought perspective: might speakers whose language requires them to encode source of evidence routinely (in the grammar) become more sensitized to source information (in linguistic or nonlinguistic contexts) as compared to those whose language does not require them to code source of evidence? This question has been posed by various scholars in the past, including Whorf himself (1956, p. 85; see Gerrig & Banaji, 1994; Robinson, 2009; Slobin, 2003) but has not so far been tested in adults. In a review of studies of language and thought, Gerrig and Banaji (1994) highlighted the case of evidentiality marking in Turkish and suggested that "If the experience of language acquisition focuses obligatory attention on a distinction that might otherwise be only voluntarily visited, we might fruitfully explore the possibility of lingering effects on cognition" (p. 254). The present study sought to test this possibility. It is, to our knowledge, the first experimental study of the "lingering effects on cognition" of evidentiality marking. The study examined the impact of evidential marking on recognition and source memory for first hand and non-firsthand sentences in Turkish and English adults. Before describing the study further we review some characteristics of the marking of source of evidence in Turkish and English and describe relevant source memory findings.

Evidentiality marking in English and Turkish

In English, source of evidence is conveyed at the lexical level. For example, to convey that an event was directly experienced or that the directness or indirectness of evidence is not relevant, a speaker would simply use the past tense of a verb in describing the event, saying, for example, that *Mary came first in the race*. To convey that an event was not directly known a qualifier may be added, e.g., *Apparently*, *Mary came first in the race*. Indeed, to express