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Typological and Empirical Perspectives on Evidentiality

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Abstract

This *habilitation* thesis develops a cognitive linguistic perspective of evidentiality, which is referred to as the linguistic encoding of information source and the ways speakers indicate how they acquired the knowledge conveyed in an utterance. The manuscript reviews evidential systems ranging from binary distinctions between direct and indirect information, as found in Turkish and several Eurasian languages, to highly articulated systems that distinguish visual, sensory, inferential, and reportative sources of information. A major focus of the manuscript concerns the relationship between evidentiality and other domains of grammar and cognition. Particular attention is devoted to its interaction with aspect, epistemic modality, mirativity, and egophoricity. The analyses demonstrate that many evidential systems have historically developed from perfective and resultative constructions and that evidential markers frequently overlap with meanings relating to inference, uncertainty, surprise, speaker awareness, and privileged access to information.

The work further explores the role of language contact in shaping evidential systems and examines how evidential meanings are maintained, restructured, or extended across different sociolinguistic settings. Particular emphasis is placed on the ways evidentiality interacts with discourse, epistemic authority, deception, insincerity, and speculation. By combining typological, theoretical, experimental, and psycholinguistic approaches, the manuscript argues that evidentiality is not merely a grammatical category for marking information source, but rather a communicative system through which speakers represent knowledge, negotiate epistemic relationships, and manage social interaction.

Résumé

Cette habilitation à diriger des recherches développe une perspective cognitive de l'évidentialité, le marquage linguistique de la source de l'information et des moyens par lesquels les locuteurs indiquent comment ils ont acquis les connaissances qu'ils communiquent. Le manuscrit examine des systèmes évidentiels allant de simples oppositions binaires entre information directe et indirecte, comme en turc et dans plusieurs langues eurasiatiques, à des systèmes plus élaborés distinguant des sources d'information visuelles, sensorielles, inférentielles ou rapportées. Une attention particulière est accordée aux relations entre l'évidentialité et d'autres domaines de la grammaire et de la cognition. Le travail analyse notamment ses interactions avec l'aspect, la modalité épistémique, la mirativité et l'égophoricité. Les analyses montrent que de nombreux systèmes évidentiels se sont historiquement développés à partir de constructions perfectives ou résultatives et que les marqueurs évidentiels recouvrent fréquemment des significations liées à l'inférence, à l'incertitude, à la surprise, à la conscience du locuteur et à l'accès privilégié à l'information.

Le manuscrit explore également le rôle du contact de langues dans l'évolution des systèmes évidentiels et examine la manière dont les significations évidentielles sont maintenues, restructurées ou étendues dans différents contextes sociolinguistiques. Une attention particulière est portée aux interactions entre l'évidentialité, le discours, l'autorité épistémique, le mensonge, l'insincérité et la spéculation. En combinant des approches typologiques, théoriques, expérimentales et psycholinguistiques, ce travail défend l'idée que l'évidentialité ne constitue pas seulement une catégorie grammaticale servant à marquer la source de l'information, mais qu'elle représente également un système communicationnel à travers lequel les locuteurs construisent les connaissances, négocient les relations épistémiques et organisent l'interaction sociale.

Publications which constitute the basis for this manuscript are listed here:

- Arslan, S., Bastiaanse, R., & Felser, C. (2015). Looking at the evidence in visual world: eye-movements reveal how bilingual and monolingual Turkish speakers process grammatical evidentiality. *Frontiers in psychology*, 6, 1387.
- Arslan, S., de Kok, D., & Bastiaanse, R. (2017). Processing grammatical evidentiality and time reference in Turkish heritage and monolingual speakers. *Bilingualism: Language and Cognition*, 19(5), 1003–1020. <https://doi.org/10.1017/S136672891500084X>
- Arslan, S. (2020). Processing evidentiality in bilingualism and aphasia: An overview of some recent studies on Turkish. In C. Lee & J. Park (Eds.), *Evidentials and Modals* (pp. 447–473). Brill. https://doi.org/10.1163/9789004436701_018
- Arslan, S. (2020). When the owner of information is unsure: Epistemic uncertainty influences evidentiality processing in Turkish. *Lingua*, 247, 102989. <https://doi.org/10.1016/j.lingua.2020.102989>
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- Arslan, S., Tunalı, E. T., Çetin, Y., & Aydın, Ö. (2024). Eyes do not lie but words do: Evidence from eye-movement monitoring during reading that misuse of evidentiality marking in Turkish is interpreted as deceptive. *Functions of Language*, 31(1), 90–108.
<https://doi.org/10.1075/fol.22061.ars>
- Tokaç-Scheffer, S. D., Nickels, L., & Arslan, S. (2024). One suitcase, two grammars: What can we conclude about Australian Turkish heritage speakers’ divergent processing of evidentiality? *Linguistics Vanguard*, 10(s2), 125–138. <https://doi.org/10.1515/lingvan-2023-0101>
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<https://doi.org/10.30687/BES/2785-3187/2025/01/005>
- Arslan, S., Cho, S. W., Lee, M., Balo, S. S., Lee, S.-Y., Lee, S., Yeom, H., Maviş, İ., Meunier, F., & Kim, S. Y. (2026). Older, wiser, linguistically savvy: A comparative experimental study of grammatical evidentiality across younger and older generations in Turkish and Korean speakers. *Applied Psycholinguistics*, 47, e14.
<https://doi.org/10.1017/S0142716426100502>

Chapter 1.

Introduction to Evidentiality and Related Concepts

1. Introduction

Evidentiality is referred to as the linguistic marking of information sources; that is, how a speaker knows about an event, whether through direct witnessing, or through hearsay, inference, or other means of accessing the information in proposition (Aikhenvald, 2004; Aksu-Koç, 1988; Chafe & Nichols, 1986; Jakobson, 1957; Johanson, 2006; Johanson & Utas, 2000; Lazard, 2001; Plungian, 2001; Willett, 1988). Verbally encoded information sources may reflect direct firsthand information, such as personal witnessing of the speaker, or indirect non-firsthand information, such as inference or information reported by others. Speakers of all languages can talk about information sources. Evidentiality can be expressed using lexical adverbs, verb semantics, or other lexical markers in languages like English (Mélac, 2022; Whitt, 2009). An English speaker might want to use expressions including ‘*apparently*’, ‘*allegedly*’, ‘*it seems*’, or ‘*they say*’ to indicate that the information they express in their statement is based on a secondhand source. In (1), the English example demonstrates the use of ‘*They say*’ as an optional subordination under a reporting verb to the statement ‘*Jean walked in the forest*’. A French speaker may do the same and utter a statement in which the information is based on report of others, as demonstrated in (2).

(1) They say that Jean walked in the forest

(2) On m’ a dit que Jean s’ est promené dans la forêt

one me AUX said COMP Jean REFL AUX walk.PP in DET forest

I was told that Jean went for a walk in the forest.

A French or English speaker has the liberty of not using these markers, they can utter an evidentially neutral statement ‘*Jean walked in the forest*’. Here, the absence of those optional indirect evidential markers does not lead to an opposite evidential reading. Instead, the speaker

marks no specific sources of information. This should not however be interpreted as speakers of languages, where evidentiality is not an obligatory grammatical category, may not refer to the information sources. In fact, a number of recent studies based on such languages show that they employ kinds of different lexical and/or structural strategies. Although, in for example Romance languages like French, evidentiality has traditionally been described as mainly lexical, expressed through elements such as perception verbs, modal forms, adverbials, and certain adjectival phrases (Dendale & Van Bogaert, 2012; Patrick & Van Bogaert, 2007; Squartini, 2008), it seems possible that a combination of lexical choice and subordinate construction give away kinds of information sources (see Baunaz et al., 2026), observe (3a). The speaker employs a strategy to extend the sentence meaning comparable to an indirect evidential, by combining the perception verb *voir* ‘see’ and complement clause in which the verb is conjugated with the perfective aspect marker ‘*le passé composé*’. In contrast, in (3b) the perception verb *voir* is complemented with an infinitive construction indicating the speaker’s direct witnessing.

(3) a. J’ ai vu que quelqu’un est parti. *French* (Baunaz et al., 2026, p.3)

I have seen COMP someone be PRF left

‘I saw that someone left.’ (possibly inferred information, resultative)

b. J’ ai vu quelqu’un partir.

I have seen someone leave.INF

‘I saw someone leave.’ (possibly witnessed)

In contrast, a number of languages come with an obligatory evidentiality paradigm encoded in their grammar. Speakers of such languages cannot avoid using evidential forms, and hence, must make a choice between different options for how they know the information in their statement.

- (6) a. Kemal gel-di Turkish
Kemal come PST/DIRECT EVID
'Kemal arrived' (direct experience)
- b. Kemal gel-miş
Kemal come INDIRECT EVID
'Kemal arrived' (inferred or reported) (Slobin & Aksu, 1982, p. 187)

In Turkish, the use of the direct evidential *–DI* in (6a) is associated with the speaker’s firsthand access to the event, typically implying that the speaker either witnessed or personally experienced the situation being described. By contrast, the indirect evidential *–mİş* in (6b) signals that the information is acquired indirectly, either through inference based on available evidence or through report from another source or hearsay (Aksu-Koç, 1988, 2000; Aksu-Koç & Slobin, 1986; Arslan, 2016; Erguvanlı-Taylan, 1997; Sezer, 2001; Slobin & Aksu, 1982). The direct evidential in Turkish was characterised as ‘direct experience’¹ or ‘past events known to the speaker’ (Lewis, 1967; Slobin & Aksu, 1982) and as ‘definite witnessed past’ used ‘when the speaker has personally witnessed the action that he describes’ (Underhill, 1976, p. 169).² The indirect evidential, marked

¹ One controversy in Turkish linguistics is that, unlike the volumes of studies presented above, Johanson (2003) argues that –DI, the direct evidential form as referred to here, is an evidentiality-neutral past tense. According to Johanson, the morpheme –DI does not “consistently indicate direct experience or speaker’s direct involvement in the event” (2003, p. 275). The status of the direct evidential remains a matter of debate among scholars of Turkish. According to Johanson (2003), the morpheme *-DI* does not inherently encode direct experience. This view is based on the assumption that the direct experiential meaning associated with *-DI* emerges through its opposition to the indirect evidential form rather than from the morpheme itself. However, several other studies have challenged this interpretation (Aksu-Koç, 2000; Kornfilt, 1997; Lewis, 1967).

² Although the direct evidential conveys witnessing, it may also be used in contexts of non-witnessed but well-assimilated historical events. This is also valid for Turkish. In (i) below a historical event is described, which the speaker cannot possibly witness, yet still a direct evidential is used. Plungian (2010) discusses that direct evidentials can be used for well-known historical events as such events are assumed to be witnessed by the society; and that the speaker uses a direct evidential so as to 'eliminate the epistemic load'.

- (i) Kemal Paşa Selanik'te doğdu. [(Johanson, 2006, p. 85)]
 Kemal Paşa Thessaloniki_{LOC} bore_{DIRECT EVID.3SG}
 'Kemal Paşa was born in Thessaloniki'

through the morpheme *-(Im)Is*, expresses the speaker's 'indirect experience' (Banguoğlu, 1974; Cinque, 2001; Csató, 2000b; Johanson, 1971; Slobin & Aksu, 1982), and inference (Lewis, 1967), and/or 'a piece of information is not a part of the speaker's previous knowledge' (Underhill, 1976).

Languages with three-term paradigms, as found in Quechua, and four-term systems, such as those described for Tucano and Eastern Pomo, often encode visual direct, non-visual direct, inferred and reported information. Languages with five evidential distinctions, including Wintu, additionally express assumed and/or quoted information. This classification highlights the substantial cross-linguistic variation in the size and internal organization of grammatical evidential paradigms. Consider the examples (7a)–(7c) from Cuzco Quechua, a Quechuan variety mostly spoken in Peru, where information source distinctions are expressed through three distinctive evidential forms direct, inference, and reportative (Faller, 2002; Weber, 1986).

(7) a. Para-sha-n-mi.

Quechua (Cuzco) (Faller, 2002, p. 3)

rain PROG.3RD. DIRECT EVID

'It is raining.' (Based on the speaker's witnessing)

b. Para-sha-n-ch'a.

rain PROG.3RD.INFERENTIAL

'It is raining.' (Based on the speaker's inference)

c. Para-sha-n-si.

Rain PROG.3RD.REPORTATIVE

'It is raining.' (Based on the report of another speaker)

Tucano, an Eastern Tucanoan language spoken in the Vaupés region of the northwestern Amazon basin in Brazil and neighboring areas of Colombia, is frequently cited as a canonical example of a

language with a highly elaborated grammatical evidential system. Tucano grammaticalizes four evidential categories, enabling speakers to distinguish whether information was acquired through direct visual perception, non-visual sensory evidence, inference, or report from others. As a result, speakers are required to systematically encode the source of their information within verbal morphology, as illustrated in (8).

- (8) a. diâyî wa'î-re yaha-ámi *Tucano* (Aikhenvald, 2004, p. 52)
 dog fish TOP.NON.A/S steal RECENT PAST.VISUAL EVID. 3SG
 ‘The dog stole fish’ (Based on the speaker’s visual perception / witnessing)
- b. diâyî wa'î-re yaha-ásĩ
 dog stole TOP.NON.A/S steal RECENT PAST.NONVISUAL EVID. 3SG
 ‘The dog stole fish’ (Based on the speaker’s sensory perception, i.e., she heard the dog)
- c. diâyî wa'î-re yaha-ápĩ
 dog stole TOP.NON.A/S steal RECENT PAST. INFERENTIAL. 3SG
 ‘The dog stole fish’ (Based on the speaker’s inference)
- d. diâyî wa'î-re yaha-ápi
 dog stole TOP.NON.A/S steal RECENT PAST.REPORTATIVE. 3SG
 ‘The dog stole fish’ (Based on the report of another speaker)

Evidential languages are scattered around the globe with varying degrees of evidential terms expressed in languages and information sources they refer to. Most binary evidential languages are gathered around the Eurasian line (i.e. Eurasian evidential languages) and the Baltic area. Plungian often refers to this area as the ‘Great Evidential Belt’ (Plungian, 2010, p. 19). It can be regarded as the most significant geographical locus of evidentiality, in terms of the diversity of the

languages it encompasses, including Southern Slavic, Albanian, Iranian, Indo-Aryan, Western Armenian, Kartvelian, Abkhazo-Adyghean, Nakh-Daghestanian, Turkic, and Finno-Ugric languages, see Figure 1. Most languages distributed across the Great Evidential Belt and the Baltic region encode relatively compact, typically binary evidential systems, contrasting either direct versus indirect or indirect information versus neutral option. Beyond this macro-area, other regions characterized by a comparatively high concentration of evidential systems include Northern Siberia, the Americas, and Australia/Oceania. Evidentiality in some of these linguistic areas has been extensively documented in descriptive and typological research; the Balkan area, for instance, has received particular attention (see Friedman, 1986, 2003a; Friedman, 2004; Van der Auwera, 1998), as was in the case of Turkic and neighbouring languages (Johanson, 2002, 2003; Johanson & Utas, 2000), and finally to include the studies on languages in the Amazon basin (Aikhenvald, 2002; Aikhenvald & Dixon, 1998). By contrast, most of these systems have only sporadically been investigated through empirical and experimental approaches.

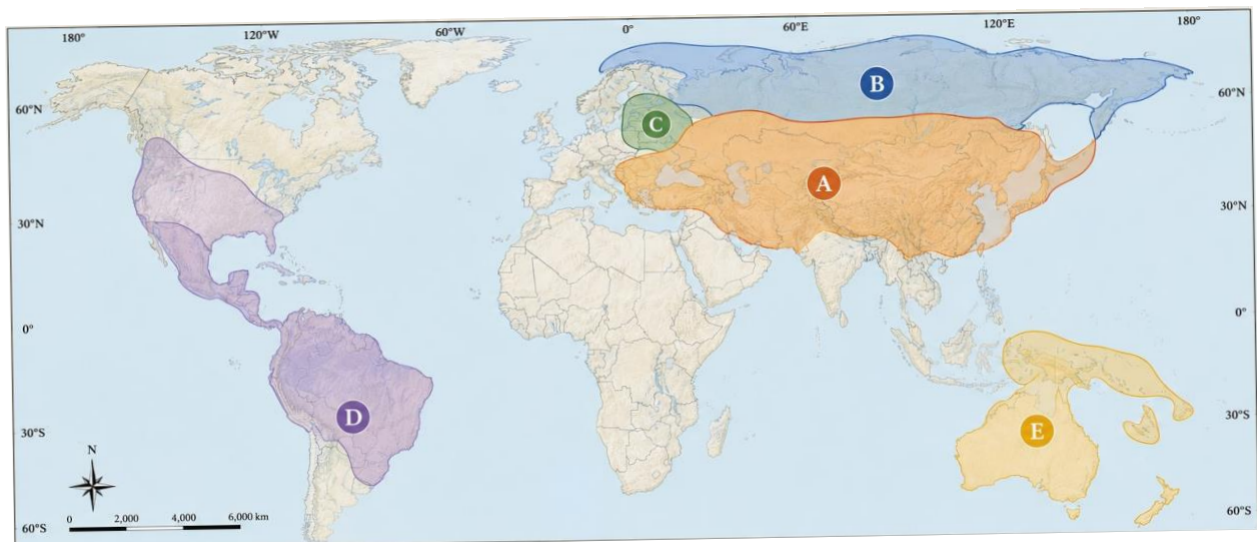


Figure 1. Five evidentiality zones visually depicted based on Plungian (2010, pp. 19-23) and continuous evidentiality zones based on Aikhenvald (2004, p. 303). (A) The Great

Evidential Belt (extended Euro-Asian area) From the Balkans and Anatolian Peninsulas across the Caucasus, Southern Asia, the Volga district and Southern Siberia to the Far East. (B) Northern Siberia and Eurasia's circumpolar zone, which includes Samoyedic languages, Ob-Ugric languages, Yukagir and others. (C) The Baltic Region, which includes Lithuanian and Latvian (Indo-European, Baltic) and Estonian (Uralic, Balto-Finnic). (D) The Americas (North, Central and South) which includes highly complex systems (e.g., Wintu, Pomo), as well as diverse systems in many other language families across the Americas. (E) Australia and New Guinea with one of the most complex systems in New Guinean Southern Nagaur languages.

In summary, many languages with grammatical evidentiality, direct evidential forms encode a broad category of firsthand experience that may encompass both visual and non-visual perception. As evidential systems increase in size and complexity, however, they tend to develop more fine-grained distinctions between information sources, with separate grammatical markers dedicated to specific evidential subtypes such as visual, sensory, inferential, or reportative access. By contrast, smaller evidential systems typically exhibit greater semantic density per category, as individual evidential markers often subsume multiple information-source meanings. Thus, while larger paradigms distribute evidential functions across a wider range of specialized forms, reduced systems rely on fewer, semantically more polyvalent categories.

In many languages with grammatical evidentiality, speakers are required to encode the source of information through obligatory verbal morphology, distinguishing whether information was directly witnessed, inferred, or reported. Cross-linguistically, evidential systems vary

considerably in complexity, ranging from compact binary paradigms to highly articulated systems with multiple evidential distinctions. Languages such as Abkhaz, Georgian, Turkish and other Balkan languages typically display binary direct–indirect oppositions, whereas languages such as Quechua, Tucano, Eastern Pomo, and Wintu grammaticalize progressively finer distinctions including visual, non-visual, inferential, reportative, assumed, and quoted information sources. In many smaller systems, evidential categories remain semantically broad, with a single marker often covering multiple information-source meanings. Larger systems, by contrast, tend to distribute these meanings across more specialized grammatical forms.

Evidentiality is such a linguistic phenomenon that has multifaceted interrelations with several other grammatical categories, which makes it extremely interesting and complicated. These other categories include aspect, epistemic modality, mirativity, and egophoricity. In the next sections, we explore these interactions.

1.1.Evidentiality and Aspect

In her typological characterisation of evidentiality, Aikhenvald (2004, pp. 38-41) extensively discussed that in several binary evidential languages, evidential forms employed to mark indirect evidence, including especially inference, are derived from perfective or resultative aspectual verb forms. As a consequence, these forms often retain aspectual semantics, leading to systematic ambiguity between a perfect reading and an indirect evidential interpretation. In other words, the same marker may indicate that a situation has a result (perfective) or that the speaker made an inference base on that result (indirect evidential), which is often called ‘*evidential perfect*’. This overlap complicates the analysis of these systems. The link between indirect evidential and

Friedman subsumes that such evidential reinterpretations the in Balkan languages are an outcome of areal contact, possibly influenced under the Turkish evidentiality system (Friedman, 2003a, 2004, 2020). In (9a) and (9b), Turkish and Bulgarian indirect evidential forms are reported to be simultaneously referring to indirect inferential readings and perfective aspect marking resultative, whereas Macedonian (9c) is assumed to have lost its perfective reading. Bulgarian indirect evidentiality marking is often analysed as having two alternate terms, where the reportative/renarrative form (10b) omitted the perfect *be*-auxiliary and kept only the past participle whereas the inferential indirect still maintains the *be*-auxiliary + past participle (10c). This distinction does not hold in Macedonian, see (11).

(10) a. Ivan padna v moreto. *Bulgarian*

Ivan fall PAST.3SG in sea DEF

‘Ivan fell into the sea.’ (Based on the speaker’s witnessing)

b. Ivan padnal v moreto.

Ivan fall PAST PARTICIPLE in sea DEF

‘Ivan fell into the sea.’ (Based on the report from another speaker)

c. Ivan e padnal v moreto.

Ivan be AUX fall PAST PARTICIPLE in sea DEF

‘Ivan fell into the sea.’ (Based on the speaker’s inference) (Vicheva et al., 2026; Vicheva, 2025, p. 8)

- (11) Taa go mesi-la lebot *Macedonian*
 She_{3SG} it._{3SG} knead _{EVID/PAST PARTICIPLE} bread _{DEF}

‘She baked the bread (reportedly / apparently).’ (Mushin, 2000, p. 930)

This issue has been extensively addressed in Friedman (2003a, p. 191) for Balkan Slavic and Balkan Romance, see also Friedman and Joseph (2025, pp. 735-771) who included all other Balkan language varieties, and in Aikhenvald (2004, pp. 112-116) for other neighbouring languages such as Georgian and Persian. These analyses indicate that a several languages employ indirect evidential forms that are used to express the speaker’s inference based on observations of resultative states of an action, emergence of which are (historically) affiliated to perfective forms. Evidentiality encoding in Balkan languages is often realized as a paradigmatic inflectional system with a binary opposition of direct versus indirect information that may cover inference and reported (Friedman, 2003a, 2004). A number of linguistic analyses underline the co-existence of such an ‘indirect evidential – perfective aspect tandem’ across Turkish *-mİş*, Balkan Slavic *l-perfective* past participles and the Albanian admirative (Friedman, 2004; Friedman, 1978; Sandfeld, 1930; Tomic, 2006). Albanian stands out from other languages as it employs a form of indirect evidential, often referred to as ‘admirative’ and/or ‘non-confirmative’ which encodes surprise, like mirative (see below), but also inference, report, doubt or disbelief depending on the context of use (Friedman, 2003a), as shown in (12) and (13).

- (12) Ti kërcye-k-e shumë mire! *Albanian*
 You dance _{ADM PRES.2SG} very well

‘You dance very well! (based on unexpected information)’ (Friedman, 2003a, p. 197)

- (13) Gjethe-t qenë-kan të pa-bëra
 Leaf DEF.PL be ADM-3PL LINK NEG made

‘The leaves are not fully formed!’ (Based on observation and inference)

Albanian admirative is assumed to have driven from inverted perfect (V PARTICIP +AUX) similar to Macedonian and Bulgarian; however, in Albanian admirative form is used in combination with existing present, perfect, and pluperfect suffixes, whereas in other Balkan languages (plu)perfective markers were reinterpreted as evidentials.

Evidentiality constitutes a well-established areal feature of the Balkan linguistic area, having emerged across multiple languages that historically lacked dedicated evidential morphology. Numerous studies have shown that evidential forms diffused across language boundaries through prolonged language contact among Balkan language varieties. From Victor Friedman’s perspective, grammatical evidentiality was first established in Turkish and subsequently spread into the Balkan languages through contact-induced processes, particularly beginning with Albanian. Several analyses further demonstrate that the development of Balkan evidential systems was closely tied to the reinterpretation of perfect and pluperfect constructions. Although the contemporary situation in the Balkans differ from the historical sociolinguistic configuration, ongoing contact effects remain visible in the domain of evidentiality, reflecting the enduring areal dynamics of the region. Frequently cited examples include Megleno-Romanian and Aromanian, Vlach Balkan Romance languages spoken in bordering regions of Albania, Greece and North Macedonia, in which the inverted perfect has been reanalysed as a non-confirmative, in Friedman’s term, comparable to an indirect evidential. Friedman (1994) reports a specific contact situation in Aromanian spoken in the Gorna Belica community in North Macedonia which borrowed the

Albanian *-ka* form, observe (14). Megleno-Romanian presents a reinterpretation of inverted perfectives as an indirect evidential, similar to other Balkan varieties, see (15).

- (14) Abe tora tini fuska avut om ! *Aromanian*
 hey now you be_{ADM} become man
 ‘Hey, now you’ve become a man! (apparently)’ (Friedman & Joseph, 2025, p. 756)

- (15) A bră, tu fost-ăi mări om ! *Megleno-Romanian*
 hey you been-have_{AUX.2SG} big man
 ‘Hey, you’re an important person! (apparently)’ (Friedman, 1994, p. 81)

Judeo-Espagnol spoken in Istanbul exhibits an interesting situation in which the pluperfect has been attested to obtain semantic extensions for unwitnessed or inferred information in contact with Turkish, see (12), (Bornes-Varol, 2001; Friedman & Joseph, 2021).

- (16) Kuando estaban en l’ Amérika, les *Istanbul Judéo-Espagnol*
 when be._{3PL} in the America them._{DAT}
 aviya entrado ladrón
 have._{3SG} enter_{PAST PARTICIPAL} thief
 ‘When they were in America, a thief (apparently) broke into their house.’ (Bornes-Varol, 2001, p. 91)

In addition to those Balkan Romance varieties, on-going language contact instances and reinterpretation of aspect as evidential seem to extend to Balkan Slavic languages. A Balkan Slavic

variety, in close proximity to Bulgarian, is Pomak, a South Slavic variety spoken in parts of Bulgaria, Greece, and Turkey (Adamou, 2008, 2013). Pomak codifies evidentiality with the *l*-participle, see (17). In this perspective Pomak patterns with Macedonian. However, it differs from Bulgarian as *be+past participle* perfective form (*ye klal* ‘be.AUX added’ i.e. has added) has lost its evidential meaning originally derived from Bulgarian, but maintained as a perfective, at least in Pomak spoken in the Greek Thrace.

- (17) Nasradin kla-l şiker faf çay-en. *Pomak*
 Nasradin add EVID/PAST PARTIC sugar in tea 3SG.POSS
 ‘Nasradin added sugar to his tea (reportedly/apparently).’

This variety of Pomak in Greece is also losing its evidential marking due to extensive contact with Greek, a language without obligatory evidential in its grammar. At present, evidential marking is restricted to traditional narratives and tales, and it is increasingly dispreferred by younger generations (Adamou, 2013; Adamou & Arslan, Forthcoming; Arslan & Adamou, 2025).

A recurrent characteristic of many binary evidential systems is the close semantic relationship between indirect evidentiality and perfect ‘resultative’ aspect. This interaction has been particularly well documented in the Balkan linguistic area, where indirect evidential forms in Albanian, Bulgarian, Megleno-Romanian, Turkish, and related languages frequently derive from perfect-based constructions, although future-based pathways are also attested in Romanian and some Bulgarian dialects. These systems often encode inference and report within multifunctional indirect forms that simultaneously express aspectual meanings. Such binary evidential systems are especially widespread across the “Great Evidential Belt,” an extensive Euro-Asian area stretching from the Balkans through Anatolia, the Caucasus, Iran, South Asia, the Volga region, and Southern

Siberia to the Far East. This macro-area encompasses diverse languages including Southern Slavic, Albanian, Iranian, Indo-Aryan, Western Armenian, Kartvelian, Abkhazo-Adyghean, Nakh-Daghestanian, Turkic, and Finno-Ugric languages. In this research, we will be focusing particularly on Turkish, and a number of selected languages located in the Great Evidentiality Belt.

1.2.Evidentiality and Epistemic Modality

A closely related category to evidentiality is epistemic modality, and the relationship between the two has long been the subject of theoretical debate. Epistemic modality refers to the linguistic encoding of a speaker's assessment of the likelihood, probability, or certainty of a given state of affairs (Halliday, 1970; Lyons, 1977; Nuyts, 2001; Palmer, 2001; Papafragou, 2006). Epistemic modality deals with the 'degree of commitment by the speaker to what he says' (Palmer, 2001, p. 51) and with non-facts (Lyons, 1977). If a speaker utters 'John might be walking in the forest' their choice of the modal verb might indicate that the speaker evaluates the likelihood of John being in the forest as relatively low or uncertain. This is a complex issue, and in the current work, we have no direct aims to characterise epistemic modality and evidentiality from a grammaticalization perspective. To highlight that use of evidential forms can expose epistemic meanings. An assortment of different opinions was proposed on this issue, including Johanson's (2000, 2003) *indirectivity* approach based on Turkic languages which posits that epistemic means can be resulted from marking of indirect evidence, but this meaning is substantially not modal. In a similar vein, Plungian (2001) states that evidential specifications may be present in epistemic modals, but evidentials are not necessarily modal, casting doubt on the idea that epistemic evaluation of the speaker and the ways of accessing the information sources is universal (see Aikhenvald, 2004; De Haan, 1999).

and were reinterpreted to convey indirect or uncertain knowledge, see (19a) and (19b). This phenomenon is often analysed as modal form referred to as the ‘probabilitative’ and/or presumptive which may fall under epistemic modality; however, complex indirect evidential meanings are exposed.

(19) a. George o fi citind mesaj-ul Romanian

George FUT be.AUX read.IMP message DEF

‘George may be reading the message (reportedly).’

b. George o fi citit mesaj-ul

George FUT be.AUX read.PRF message DEF

‘George may have read the message (reportedly/apparently).’

A similar association between indirect evidentiality and future-based forms is reported for a Bulgarian dialect spoken in Vidin, more particularly in Novo Selo village which is located in the border of Bulgaria, Romania and Serbia (Friedman, 2004). This variety has borrowed Serbian future form *-čǎ* and reinterpreted as an indirect evidential with ‘probabilitative’ meanings, very similar to Romanian presumptive, see (20).

(20) Răbotè-čǎ nìgdǎm. *Novo Selo Bulgarian*

work.PROB.3SG somewhere

‘He is apparently working somewhere.’ (Friedman & Joseph, 2025, p. 768)

In other evidential languages, due to complex semantics harboured, indirect evidential forms may also often expose epistemic readings referring to unreliable information, uncertainty or doubt. Epistemic commitment of the speaker seems to be associated with access to knowledge through inference or assumption (Aikhenvald, 2021; McCready & Ogata, 2007; Nuyts, 2017; Van der Auwera & Plungian, 1998). In Turkish, this is in fact the case, as demonstrated in (21a), indirect evidential conveys the lack of commitment or awareness of the speaker leading him/her to make a logical deduction. Thus, in such a context, the speaker gives away a low degree of certainty supported with an epistemic adverb. Aikhenvald (2004, 2014) provides an extensive number of examples cross-linguistically that indirect evidentials exposing epistemic meanings is quite common across languages with grammatical evidentiality.

- (21) a. Telefonum muhtemelen evde kal-mış *Turkish*
 Phone 1SG probably home LOC stay INDIRECT EVID
 ‘My phone was probably left at home’

- b. Telefonum muhtemelen evde kal-mış-tır
 Phone 1SG probably home LOC stay INDIRECT EVID ASSUMPTION
 ‘My phone was probably left at home’

- (22) Perihan evde dinlen-iyor-dur (Arslan, 2020b, p. 4)
 Perihan home LOC rest PRES PROG ASSUMPTION
 ‘Perihan must be resting at home’

Evidential languages may also have designated epistemically modal markers, just like in non-evidential languages, that are interrelated with evidential meanings. In Turkish, the suffix *-Dir* is characterised as an epistemically modal marker which encodes degrees of the epistemic certainty of the speaker and signals that information about an event being uttered is based on the speakers' logical deduction or assumption (Aksan et al., 2020; Aksu-Koç & Alici, 2000; Arslan, 2020b; Demircioğlu, 2023; Tura, 1986). *-Dir* can be combined with an indirect evidential marker, as shown in (21b), it can also be appended together with the present progressive or future forms, evidentially neutral reference frames, as indicated in (22). In either example, assumption obtained through the speaker's uncertainty or lack of commitment inherently triggers means of accessing the knowledge and hence interfacing 'indirect information source' (see Aksu-Koç, 2016). In Tatar, a Turkic language spoken in Tatarstan/Russia but also parts of Romania, Tukey and other neighbouring areas, similar to that in Turkish, combines an indirect evidential *-GAn* with a reportative modal particle *imeš* to obtain a meaning that the speaker is doubtful (Greed, 2014) see (23).

- (23) Alsu kilgän imeš *Tatar*
 Alsu come IND.EVID REP
 'Alsu is reported to have arrived' (the speaker has doubts) (Greed, 2014, p. 86)

It is important to note here, however, earlier linguistic analyses frequently assumed evidentiality as a propositional modal category similar to epistemic modality (e.g., Aksu-Koç, 1988, 2000; Aksu-Koç & Slobin, 1986; Chafe & Nichols, 1986; Givón, 1982; Palmer, 2001; Willett, 1988), treating information source as intrinsically linked to degrees of speaker certainty or commitment. More recent accounts, however, have increasingly argued that evidentiality

constitutes a distinct grammatical category, separable from epistemic evaluation (Aikhenvald, 2004; Boye, 2010; De Haan, 1999; Plungian, 2001). The latter evidentiality perspective does not oppose that evidential marking may give rise to epistemic interpretations. The relationship between evidentiality and epistemic modality is widely assumed to involve varying degrees of semantic overlap (Cornillie, 2009; Nuyts, 2001; Smirnova, 2013; Van der Auwera & Plungian, 1998). In particular, evidential markers may convey information about the speaker's degree of certainty, reliability of knowledge, or epistemic commitment (Aksu-Koç, 2016; Arslan, 2020b; Aydin & Ceci, 2009; Dendale & Tasmowski, 2001; Fitneva, 2001; Plungian, 2001). We presented that Turkish and Tatar present such a correlation between marking of indirect evidence and epistemic modality, that is, indirect evidential may result in a particular attitude to the information provided in the assertion or indirect evidential may be used in combination with other epistemically modal marker (Aksu-Koç, 2016; Arslan, 2020b; Karaslaan et al., 2018; Tosun & Vaid, 2018).

The interaction of epistemic content and evidentiality has been analysed from different angles, particularly relating to access to knowledge, see volumes in Grzech and Bergqvist (2025) who discuss that epistemic systems revolve around the distribution of epistemic rights and responsibilities, including who possesses knowledge, who is entitled to access it, who is accountable for knowing, and who has the authority to make epistemic claims. For instance, such analyses have been done for Spanish and Italian, where some lexical evidential devices have been shown to be not only point to information sources but also indicate interactional relationships between the speaker and the interlocutors (Cornillie & Gras, 2015; Squartini, 2012). In (24), the speaker does not present 'Furlano being wise' as their own subjective judgment. Instead, they acknowledge a proposition already circulating in the discourse and accepted by others. Therefore,

proposition *Fulano may be wise* is treated as discourse-given and represent intersubjectively shared knowledge.

(24) A: Fulano è saggio. *Italian*

Fulano be.PRS.3SG wise

‘Fulano is wise.’ (speaker’s subjective judgement)

B: Lo sarà; tuttavia, qualche volta si è sbagliato.

It be.FUT.3SG however some time REFL be.PST.PTCP mistaken

‘He may be (wise), but sometimes he has been wrong.’ (speaker’s judgment is based on intersubjectively shared knowledge) (Squartini, 2012, p. 7)

Further, Grzech and Bergqvist (2025) highlight a possible trajectory from focus marking to epistemicity. This is based on Muysken (1995) who argued that Quechua evidentials are closely tied to focus marking and help identify the focused and/or ‘salient’ information. Sánchez (2010) developed this connection further by analysing evidential markers as part of the left-peripheral architecture associated with focus and information structure. Grzech (2020; 2016) subsequently reinterprets these markers in terms of epistemic authority and common-ground management, emphasizing their role in guiding interlocutors’ attention to particular pieces of information. This highlights evidential markers’ contribution to the information structure level discourse functions. This is relevant at the epistemic stance level in that the speaker calls for attention of the interlocutor to a particular information. One of the most interesting examples in this regard is the Quechua

evidential system, in which the markers may be appended on the noun phrases and the finite verb, as shown in (25).

- (25) Pidru wasi-ta-n ruwa-n. Cuzco Quechua
 Pedro house ACC DIRECT EVID build 3SG DIRECT EVID

‘It is a house that Pedro builds.’ (-n is an allomorph of -mi direct evidential marker, the speaker intends to shift focus to the house by marking it with an evidential) (Muysken, 1995, p. 380).

These studies demonstrate that evidential markers interact with epistemic modality and epistemicity by indexing speakers’ degrees of commitment, epistemic authority, rights to know, and responsibilities for knowledge claims. In Spanish, lexical markers such as *al parecer* (‘it appears’) and *por lo visto* (‘from what is seen’) are used to negotiate epistemic asymmetries, thereby presenting the proposition as tentative whose confirmation is required (Cornillie & Gras, 2020). Following this point of view, evidentiality marking thus emerges not merely as a system for indicating evidence, but as a resource for managing the organization of knowledge in interaction.

1.3. *Evidentiality and Mirativity*

Mirativity encodes new and unexpected information which often takes the speaker by surprise (Aikhenvald, 2012; DeLancey, 1997, 2001; Hengeveld & Olbertz, 2012; Hyslop, 2011). This phenomenon was initially introduced in the linguistic scholarship to describe Albanian indirect evidential form ‘admirative’ (see above, Friedman, 2003). Admirative in Albanian differs from the description of mirativity here as it may cover unexpected information but also functions to mark

inferential, reportative and dubitative readings. Here, we treat mirativity as the semantic category associated with the expression of new, unexpected, or information which the speaker was unprepared for, regardless of whether or not such meanings are accompanied evidential interpretations or exposed by an indirect evidential form. One of the earliest influential discussions of this notion is found in Aksu-Koç and Slobin (1986), who characterized certain pragmatic extensions of the Turkish indirect evidential -mİş as conveying ‘new information to the unprepared mind of the speaker’. In Turkish, indirect evidential marking in fact extends beyond source-of-information encoding and express surprise, sudden or deferred realization, or unexpected discovery. In (26), the speaker was not expecting or was not conscious of the fact that the daughter was playing the piano well until s/he witnesses it comes as a surprise.

- (26) Kızınız çok iyi piyano çal-ıyor-muş *Turkish*
 Daughter 2PL.POSS very well piano play PRES.PROG INDIRECT.EVID
 ‘Your daughter apparently plays the piano very well!’ (based on unexpected information and/or surprise) (Aksu-Koç & Slobin, 1986, p. 162)

Turkish does not distinguish between indirect information sources and mirative in grammatical ways. That is, mirative readings in Turkish indirect evidential, similar to Albanian admiratives, is context dependent. Mirative readings in Turkish indirect evidential is often found in contexts where the speaker realization of the situation is delayed (i.e., deferred realization). In (27a), the speaker talks about an unexpected information which s/he realized only after experiencing it in a ‘post-factum’ fashion.

(27) a. Çorba çok tuzlu olmuş *Turkish*

Soup very salty be INDIRECT EVID.3SG

‘The soup happens to be very salty’ (unexpected information, the speaker utters after taking a sip from the soup)

b. Bu ağaç ne çabuk büyümüş

This tree what quick grow

‘How quickly this tree has grown’ (deferred realization and ‘unprepared mind’) (Arslan, 2016, p. 11)

In (27b), an indirect evidential is used in combination with a verb that is not immediately observable or witnessable (i.e., it is rather impossible to witness per-millisecond how fast a tree grows). Again, the speaker’s access to the information conveyed by the event is deferred. Some scholars have therefore argued about the ‘resultative’ nature of the deferred realization in that the discovery of a deferred realization through an indirect evidential involves a synchrony between the time of speaking and the time at which the information becomes available to the speaker (e.g., Gül, 2009; Johanson, 2000). In such cases, the indirect evidential may additionally acquire a mirative interpretation, as the speaker encounters information that is new, unexpected, or contrary to prior assumptions. In fact, the use of indirect evidential to express semantic extensions for mirative signals that the speaker is either unprepared to receive the information or does not expect such an information to be true. Therefore, the information comes as new and surprising to the ‘premonitory awareness of the speaker’ (Aksu-Koç & Slobin, 1986, p. 160). A possible reason awareness of the speaker is deferred might be due to the nature of the verb semantics, because

some action verbs are not always ‘witnessable’, and it is shown that selection of evidentials may be modulated by event witnessability (Arslan et al., 2020).

DeLancey (1997, 2001) later described mirativity as an independent grammatical category, meaning that some languages have grammatical means to express unexpected information or surprise as their primary function, rendering the existence of a grammatical mirative independently in their morphosyntactic paradigm. DeLancey’s characterisation of grammatically ‘primary’ mirative markers commenced with Tibetan. Aikhenvald (2012, p. 437) compares about 20 different languages where miratives are grammaticalized and makes distinctions between miratives cross linguistically may mark: (i) sudden discovery or realization, (ii) surprise, (iii) unexpected information to the unprepared mind, (iv) counter-expectation, and (v) new information. Either of the five nuanced semantic categories which may be marked in mirative may be attributed to the speaker, to the addressee, or to the main character subject in the proposition. Several of these languages are found in the Tibeto-Burman language area, which are unfortunately quite understudied and under-resourced, other better-known languages include Korean, see (28), in which the suffix *-gun* codifies surprise and new information.

(28) 비-가 오-는-군

Korean

bi-ga o-neun-gun

rain NOM come PRES MIR

‘So, it’s raining!’ (based on sudden realization) (Kim & Aleksova, 2003, p. 4)

Chechen, a Nakh-Daghestanian language under its Nakh branch of the Northeast Caucasian, encodes mirative in grammatical ways, independent of evidentiality, employing the inflection

suffix *-q* appended on the verb (Molochieva, 2007). Chechen is also an evidential language, meaning that it encodes a binary opposition for indirect information sources employing the verbal auxiliary form ‘*xilla*’. Chechen indirect construction ‘Verb *-na* + *xilla*’ marks non-firsthand sources of information that is accessed through inference or report of others, and the direct evidential suffix *-ra* conveys firsthand information source relating to the witnessing of the speaker, see (29a) and (29b). Chechen mirative suffix *-q* is used to express surprise and ‘unprepared mind’ of the speaker. For instance, in (29c), Zara’s late arrival at home takes the speaker by astonishment and/or disappointment. Mirative and indirect evidential are often co-encoded within the same verbal complex (e.g., Verb *-na-q* + *xilla*: PAST + MIRATIVE + INDIRECT), allowing speakers to express that unexpected information has been obtained through a non-firsthand source and is consequently experienced as surprising by the speaker. Direct evidential and mirative morphology may also co-occur indicating that the speaker directly witnessed an event while simultaneously marking it as unexpected or ‘remarkable’. The opposition to mirative marking, that is, expected information, is unmarked.

- (29) a. Zaara tlehhe chu j-ica-**ra** *Chechen*
 Zara NOM late home LOC come.PST/DIRECT-EVID
 ‘Zara arrived home late.’ (the speaker witnessed Zara’s arrival)
- b. Zaara tlehhe chu j-ie-na **xilla**
 Zara.NOM late home.LOC come.PST INDIRECT-EVID
 ‘Zara came home late.’ (based on inference or report from others)

c. Zaara t1ehhe chu j-ie-na-**q**
 Zara.NOM late home.LOC come.PST.MIR

‘Zara has come late.’ (based on unexpected information) (Elzhurkaeva & Arslan, Forthcoming)

1.4. *Evidentiality, Person and Egophoricity*

Egophoricity refers to the linguistic encoding of a speaker’s ‘privileged access’ to knowledge grounded in personal experience, awareness, or involvement, and the lack thereof. Egophoric marking can therefore be understood as the differential linguistic expression of ‘privileged access’ to information associated with a conscious self (Curnow, 2002; Floyd et al., 2018; Hargreaves, 2005; Sun, 2018). Cross-linguistically, in languages with grammaticalized evidentiality, indirect evidentials are more appropriate when used with non-first-person contexts, since their use typically presupposes that the speaker is not the primary or firsthand source of information. As noted by Aikhenvald (2004), the use of indirect evidential marking in first-person contexts often gives rise to semantically marked or ‘counterintuitive’ interpretations. The author referred to this notion of first-person and indirect evidentiality incompatibility as the ‘first person effect’ in evidentials (Aikhenvald, 2004, p. 219).

In Turkish, for example, first-person uses of the indirect evidential may convey a lack of volitional control or diminished speaker awareness, or ‘lack of conscious involvement’ in Aksu-Koç and Slobin’s words (1986, p. 160), observe (30a) and (30b). However, when the described action inherently requires intentionality or conscious agency, the use of an indirect evidential in the first person tends to produce pragmatically odd readings in Turkish, as illustrated in (31). An

interpretation in (31) is possible only in a rhetorical or echoic context, where the speaker repeats a proposition about themselves that originates from another source rather than from their own knowledge.

(30) a. Uyu-muş-um

Turkish

Sleep INDIRECT EVID-1SG

‘I have fallen asleep.’ (the speaker lacks volitional involvement)

b. Elimi kes-miş-im

Hand 1SG.POSS-ACC cut IND.EVID-1SG

‘I have cut my hand.’ (non-volitional involvement and possible deferred realization)

(Aksu-Koç & Slobin, 1986, p. 160)

(31) ? Dün akşam kitap oku-muş-um!

Yesterday evening book read IND.EVID-2SG

‘(They say/it turns out that) I read a book last night!’ (Arslan et al., 2017, p. 3)

Tamil, a Dravidian language spoken in parts of Sri Lanka, is one such language with obligatory grammatical evidentiality. The verb suffix *-ām* indicates indirect information accessed through other’s report and strongly correlates with third person (32a), and the absence of the suffix indicate that the event is neutrally not reported. Person effects are strong in Tamil spoken in Sri Lanka as, such a sentence with a reportative in combination with a first-person is strongly dispreferred (32b).

(32) a. அவள் தனது தாய்க்கு ஒரு பரிசு கொடுத்தாளாம் *Tamil*

aval thanatu thāy-kku oru parisu koduth-āḷ-ām

she.3SG.F own mother DAT DET gift give-PST-3SG.F-HEARSAY

‘She reportedly gave a gift to her mother’

b. நான் எனது தாய்க்கு ஒரு பரிசு கொடுத்தேனாம்

nān enatu tāy-kku oru parisu koṭutt-ēn-ām

I my mother DAT DET gift give PST-1SG-HEARSAY

?? ‘I reportedly gave a gift to my mother.’ (Rasanayakam et al., forthcoming)

These instances found in Turkish and Tamil can be considered as (non-)egophoric extensions of indirect evidential marking, neither of the markers across the two languages have a designated egophoricity marker. Egophoricity has in fact been characterised as a grammatical form, in only few studied languages, with egophoric reference as its primary meaning (Floyd et al., 2018). One such grammatically egophoric language is Newari, a Sino-Tibetan language spoken in Kathmandu, which uses *-ā* suffix to indicate the first-person character’s involvement in declarative sentences (33a), and it also marks second-person’s involvement in interrogatives (33b).

(33) a. jí: a:pwa twan-ā *Newari*

1ST.ERG a.lot drink PST.EGO

‘I drank a lot.’ (Speaker is involved in the action, and is the only source)

b. chá	a:pwa	twan-ā	lā ?
2ERG	a.lot	drink PST.EGO	Q.PARTIC

‘Did you drink a lot?’ (Coppock & Wechsler, 2018, p. 40; from Hargreaves, 2005)

As can be clearly understood from the examples above, egophoricity interacts very closely with person-marking, particularly to that of first-person subjects, volitional conscious involvement of the first-person. The ‘binary-termed’ evidential languages we analysed so far in the Euro-Asian evidential belt do not directly map a designated egophoricity marker or have attested evidential forms leading to egophoric extensions: the trend is more intertwined such that indirect evidentiality marking often extends to non-egophoric meanings, even slightly overlapping with mirative interpretations in which the speaker realizes that s/he participates in an event without volition. An evidential marking extending to egophoric meanings are possibly those with more complex evidentiality grammatical terms, especially with nonvisual ‘direct’ evidential. A very well-articulated example is Tariana, an Arawak language spoken in the Amazon Basin, whose nonvisual evidential marking firsthand non-visual information, may have readings that the ways to access to the information are only available to the speaker, and hence, rendering this interpretation as a ‘privileged access’, see (34).

(34)	Yali- <i>mha</i> -niki	nu-na	<i>Tariana</i>
	be.dizzy	PRES.NONVIS-COMPL	1SG-OBJ

‘I am dizzy’ (only the speaker can feel this) (Aikhenvald, 2014, p. 42)

In languages with binary evidential systems, one of the best correspondences to such an egophoric extension would be the use of ‘first-person’ + ‘direct evidential’ to indicate that the speaker has access to the information or has conscious control over it. We will consider Turkish as a showcase for the purposes of this analysis. In Turkish, direct evidential form is marked with the morpheme –DI. The direct evidential denotes that asserted information is based on the speaker’s firsthand access to its source, which can be the speaker’s eye-witnessing, participation or direct perception. Consider (35a), the speaker has conscious control over the action he performed and uttered. In Turkish, the natural focus position is immediate pre-verbal area, and the use of an overt first-person pronoun in the focus position magnifies the egophoric meaning that the speaker was actively and consciously involved in the action. On the contrary, in (35b), the speaker’s volitional intent and the indirect evidential are incompatible together; however, this may imply that the speaker had lost consciousness, was too drunk or sleepwalking and had no control, and hence recollects no memory traces of her own action, but were reported by another speaker what she had done.

- (35) a. Kapıyı ben açtım.
 Door ACC SUBJPRO.1SG open.DIR.PST.1SG
 ‘I opened the door.’ (It was me who opened the door)
- b. Kapıyı ben açmışım.
 Door ACC SUBJPRO.1SG open INDIRECT 1SG
 ‘I opened the door.’ (I opened the door - as they tell me?)

An important point here should be the use of perception verbs in reference to the ‘internal experience’ of the speaker which the speaker can only have privilege access to (e.g., *Üşüdüm.* feel.cold.DIR.PST.1SG ‘I felt cold.’, *Korktum.* fear DIR.PST.1SG ‘I got scared.’). Such verbs expressing

the speaker's internal experience used with an indirect evidential is thus inherently egophoric and have a preference for direct evidential forms.

1.5. Evidentiality, Lying, Insincerity and Speculation

Lying can be defined as assertions which are intending to make the listener believe what the speaker says is true (Meibauer, 2018). When lying, the speaker attempts to make the listener believe a false content. Usually, the act of lying is assumed to have an intention for deceit, an act of leading someone away from the truth. However, several works have indicated that lying can occur without an intention to deceive (see e.g., Stokke, 2018). Lying is an insincere act, and insincerity can be broadly described as mismatch between what a speaker consciously assents to and what they communicate. From the point of view of Stokke, insincerity can occur with or without lying, as in the example of a colleague who utters 'your presentation was excellent' but consciously believes that it was very poor. Alternatively in an example of 'fake' enthusiasm where another colleague says, 'yes great, absolutely!' to encourage an idea which they probably did not like at all. What constitutes the semantic and pragmatic contents of lying is subject to debate amongst philosophers, linguists and psychologists (see volumes in Meibauer, 2019). Here we are not intending to analyse lying behaviour itself, but rather characterising how the linguistic coding of evidentiality and other relevant linguistic structures interacts with lying and insincerity. Notwithstanding the theoretical debate, there is one thing that all standpoints of the scientific domains working on lying literature would agree: human beings are very unsuccessful lie detectors (Levine et al., 1999). As described in Levine et al., there exist a 'veracity bias' which means that we have a much higher tendency to believe what has been asserted is true than it is false. In classical Gricean pragmatics, lying is often analysed as a violation of the Maxim of Quality (Grice, 1975;

Grice, 1978). Grice (1975, p. 46) formulated this maxim as a supermaxim accompanied by two more specific submaxims: (1) Do not say what you believe to be false and (2) Do not say that for which you lack adequate evidence. Fifty years later, Grice's formulation remains highly relevant to the study of evidentiality, since evidential markers explicitly encode the speaker's source of information. Consequently, if a speaker uses an inappropriate evidential in relation to their evidence base or the type of evidence available to them, they risk violating the second Submaxim of Quality, namely "Do not say that for which you lack adequate evidence." He illustrates this with examples such as: "'A: Where does C live?' 'B: Somewhere in the south of France' (*B implicates that he does not know in which town C lives.*)" (Grice, 1975, p. 51).

While lying and deception have traditionally been studied from psychological and philosophical perspectives, a growing body of research suggests that which grammar structures are used may play an important role in how lies are produced and detected. Research on the linguistics of lying, on languages without grammatical evidentiality, has shown that deception is reflected in grammatical choices, including missing past tense markers, pronouns and demonstratives or their inconsistent use (e.g., "She was amazing. She is amazing..." (Porter & ten Brinke, 2010, p. 68)), increased use of negation and modal or conditional forms (Hauch et al., 2015; Meibauer, 2018) filler elements (Arciuli et al., 2010). In languages with grammatical evidentiality, however, the relationship between grammar and deception extends beyond these general cues because speakers are required to encode how they obtained the information they report. Although empirical research on evidentiality and deception remains limited, Aikhenvald (2004) suggested that evidential markers may be manipulated with an intention to lie, and the author gives several observations from Tariana on how to tell lies to cheat by manipulating

evidential usages, for instance as in (36), one can deliver a truthful statement with a deliberately misused evidential.

- (36) i-kesini pune ka-kari-ka-pida *Tariana*
 2PL-REL caraná REL.GO-PAST.MASC-DECL-PRES.REPORTATIVE
 ‘Your friend is the one who had gone for caraná leaves’ (It is true that the person had gone for caraná leaves, but the speakers utters as if the information was reported to her which is not true) (Aikhenvald, 2004, p. 98).

Following Stokke’s (2018) account of insincerity, this example can be interpreted as a case where the communicated source of information does not align with the speaker’s actual source of access to the event. Although the speaker directly witnessed the event in question, the use of a reportative evidential presents the information as if it had been acquired through a non-firsthand source. In this sense, the speaker misrepresents how they know the information. However, such manipulation of evidential marking does not necessarily imply an intention to deceive. Let us consider a more complex scenario of a mirative language. Chechen sentence provided in (37) features an indirect/reportative evidential used with a mirative form, which means that the information is reported, and the speaker was not expecting it, hence was surprised.

- (37) Karina c1elha chu j-ets-na-q xilla *Chechen*
 Karina exam COMP fail PST MIRATIVE INDIRECT EVID
 ‘Oh, Karina passed the exam (apparently)!’ (The speaker shows ‘fake’ enthusiasm or disappointment)

In addition to being able to deliberately misuse an evidential form, Chechen speakers might deliberately misuse miratives to express the information was unexpected, surprising or disappointing. Again, this fits in well with the insincerity framework where there is a mismatch between what is asserted and the speaker's conscious state of affairs. In other words, the speakers use *-q* mirative to express surprise or disappointment while they are not surprised or disappointed.

Arslan et al. (2024) made a group of Turkish speakers read sentences marked for direct and indirect evidentials matched to appropriate and inappropriate sources, as shown in (38), and the participants' task was to end-of-sentence judgement whether the sentence was deceptive or truthful.

(38)	Başkaları	gördüğünü	söylüyor,	<i>Turkish</i>
	Others	see	say. PRES.PROG	
	Seda	kendi işyerini	soy muş / soy du	
	Seda	own workplace ACC	rob. INDIRECT/DIRECT	

'Others say they have seen, Seda robbed her own workplace' (Arslan et al., 2024, p. 94)

In Arslan et al. (2024), we showed that Turkish readers are more likely to judge statements as deceptive when evidential markers are incompatible with the stated source of information, and indirect evidential forms tend to be judged more often as lies than direct evidential forms. Of course, the indirect evidential is being judged as untruthful more often than direct evidential is clearly because of the epistemic connotations and it is interpreted as unbelievable information. However, the question is whether liars would deliberately use indirect evidentials or evidential strategies to fabricate lies. We conducted a production experiment, initially across an evidential language, Turkish (Aydin et al., 2024), and a non-evidential language with different strategies,

French (Badoc et al., 2025). The experiments were then run on English and Japanese speakers (see Tanış Şapcı, 2025). In the experiment, the participants were presented with a story line and then were asked to change some details of these events mentioned and retell an untruthful version (or a truthful version). We will turn to the experiment later, but here it is possible to characterise some strategies using which the speakers lied: a very unified case was to claim that the speaker had been the eyewitness of the event being retold, which we refer to as “*false direct witness claim*” see (39).

(39) I saw Luke at the airport *English*

1SG see PST Luke at DEF airport

‘I saw Luke at the airport.’ (a false direct eyewitness claim, the speaker did not see him)

In the French data, respondents instructed to produce deceptive versions of the stories also employed a ‘false direct witness claim’ strategy, frequently presenting themselves as eyewitnesses to the event in proposition. In contrast to participants who produced truthful accounts in rather short and conscience statements (40a), some deceptive responses incorporated positioned themselves as the eyewitness of the event, thereby increasing the speaker’s epistemic authority and enhancing the credibility of the fabricated narrative. Deliberate lies often involved an affirmation strategy, whereby the speaker, using lexical adverbs, supported their claim that they have personally witnessed the event. Example (40b) demonstrates the use of *voir* + *infinitive*, a construction that has been argued to express a form of direct evidential meaning in French (Baunaz et al., 2026).

(40) a. J'ai vu Louna ouvrir le colis. *French*

I=AUX.PRF.1SG see.PST.PART Louna open DET.MASC parcel

‘I saw Louna open the parcel.’ (this is a real ‘truthful’ response)

b. J'ai complètement vu Louna ramasser le carton.

I=AUX.PRF.1SG completely see.PST.PART Louna pick INF DET.MASC box

‘I definitely saw Louna pick up the box.’ (this is a real ‘untruthful’ response, Voir + infinitive: False direct witness claim + Affirmation strategy)

It is not entirely surprising that in English and French, two languages without obligatory evidentials in grammar, speakers who insincerely convey deceptive messages utilise kinds of strategies in which they falsely claim to have witnessed events by using first-person perception verbs such as ‘I saw that...’. In evidential languages, however, speakers are not required to use an explicit ‘I saw that’ strategy only, because the grammar itself provides the possibility of encoding whether an event was witnessed or not. In other words, similar to what was shown for Tariana in (36), speakers of evidential languages may intentionally misuse evidential markers to imply that they directly witnessed an event, even when they did not. Consequently, false witness claims in Japanese tended to employ past tense form, which is a neutral opposition to indirect evidentiality inherently exposing direct evidential meanings, despite not having witnessed the event, see (41). Nonetheless, Japanese speakers also utilized explicit ‘I saw that’ strategy in which the direct evidential meaning was reinforced with perception verbs including ‘to witness’, see (42).

(41) *Japanese: Past form is used instead of an indirect evidential*

Ryōko-wa nekkuresu-o mitsuke-te sore-o hako-no naka-ni ire-ta
 Ryoko TOP necklace ACC find CVB it-ACC box GEN inside LOC put PST
 ‘Ryoko found the necklace and put it in the box.’ (this was in fact a reported information)

(42) *Japanese: explicit ‘I saw that’ strategy with the verb ‘witness’*

Ryōko-wa mishiranu otoko-ga genkan-no mae-ni
 Ryoko TOP unknown man NOM entrance GEN front LOC
 chiisa-na hako-o oku tokoro-o mokugeteki shi-mashi-ta
 small ATTR box ACC place place NMLZ-ACC witness do POL-PST
 ‘Ryoko witnessed an unknown man placing a small box in front of the entrance.’

Turkish speakers commonly employ a strategy of evidential strengthening using direct evidential forms (-DI) in place of an indirect evidential in insincere messages conveyed where they have not actually witnessed those events. By presenting fabricated information as directly known and highly reliable, speakers often aim to increase their apparent epistemic authority without overtly claiming eyewitness status, as exemplified in (43). Further similar to Japanese, Turkish speakers also use ‘I saw that’ strategy in which the false witness claim is strengthened, see (44).

(43) *Turkish: Direct evidential is used instead of an indirect evidential*

Rüzgar vazo-yu devir-ip o-nu kır-dı
 Wind vase ACC knock it 3SG-ACC break-DIRECT EVID
 ‘The wind had knocked over the vase and broken it.’ (the speaker lies about her source to sound more reliable)

(44) *Turkish: explicit ‘I saw that’ strategy with the verb ‘see’*

Bir	kuş-un	masa-da-ki	vazo-yu	it-ip
One	bird GEN	table LOC REL	vase ACC	push CVB
	kır-dığ-ı-nı		gör-dü	
	break PAST.PARTIC.3SG.POSS-ACC		see DIRECT EVID	

‘(She) saw that a bird had pushed over and broken the vase on the table.’

Another strategy frequently employed by deceptive speakers often involve the use of first-person constructions, a pattern that may be characterized as an ‘egophoric credibility strategy’. By presenting themselves as the primary participant in or the source of an event, speakers exploit the assumption that individuals possess privileged access to their own actions, intentions, perceptions, and internal states. Such first-person formulations enhance the speaker’s epistemic authority and can therefore increase the perceived credibility of a deceptive account. Rather than relying solely on grammatical evidential marking alone, these deceptive narratives draw on broader egophoric principles by portraying the speaker as uniquely positioned to know the truth of the events being described. In (45), a French speaker produces an untruthful account of the event in question by using a first-person point-of-view and conditional verb, even though no such event had actually occurred. By doing so, the speaker creates the impression of possessing direct, firsthand knowledge of the event. The content of the sentence is marked for uncertain information as a conditional was used (Dendale, 1993).

(45) j'=aurais su si quelque chose

French

I=AUX.COND.1SG know.PST.PTCP if something

s'=était mal passé

REFL=AUX.IMPF badly happen.PST.PTCP

‘I would have known if something had gone wrong’ (the speaker uses a fake ‘egophoric credibility strategy’ to inductate s/he is the only source to the information)

Example (46) illustrates an egophoric credibility strategy in Turkish, whereby the speaker enhances the plausibility of a deceptive account by referring to information that is assumed to be uniquely accessible to them. Rather than claiming direct perceptual access through a verb such as *görmek* ‘see’, the speaker appeals to personal memory (*hatırladığım kadarıyla* ‘as far as I remember’) and private intention (*kapıyı kilitlemek istedim* ‘I wanted to lock the door’). Both expressions invoke internal states that are difficult for interlocutors to verify independently, thereby granting the speaker a privileged egophoric ownership of information. By embedding the explanation within references to their own memories and intentions, the speaker presents the account as subjectively authentic and therefore more credible, despite the possibility that the information itself may be deceptive. Such uses align closely with broader notions of egophoricity, which concern the linguistic encoding of privileged access arising from personal involvement in an event.

- (46) hatırla-dığ-ım kadar-ı-yla kapı gevşek-ti *Turkish*
 remember PST.PRTC-1SG extent INSTR door loose DIRECT EVID
 ben kapı-yı kilitle-mek iste-di-m ama kol yer-in-den çık-tı
 1SG door ACC lock INF want-DIRECT EVID-1SG but handle place ABL come DIRECT EVID
 ‘As far as I remember, the door was already loose. I wanted to lock the door, but the handle came off.’

Not all deceptive contexts required that the knowledge on an event belong to self and acquired through direct information, some speakers used a reversed strategy. They distanced themselves from the epistemic responsibility of knowing this event, which we may perhaps call as ‘distancing from epistemic responsibility’. What is remarkable here was that speakers attribute emotions, beliefs, intentions, or psychological states to a third party while avoiding full epistemic commitment to the truth of those attributions. In other words, there were an augmented use of mental state verbs used with variations of indirect evidentiality in deceptive messages in which the speaker followed a strategy where they avoided the responsibility of veracity of the event, see (47) for example from the Turkish data.

- (47) *Distancing from epistemic responsibility strategy in Turkish*
 Kumdan kale yapmayı becer-eme-diğ-i için üzül-müş
 sand castle make ACC manage NEG-PASTPART-3SG.POSS because sadden IND.EVID
 ‘(She) became upset because she could not manage to build a sandcastle.’ (The speaker lies about whether and why the subject of the sentence was upset)

(48) *Distancing from epistemic responsibility strategy in Japanese*

Rūku-wa odoroi-ta rashii

Luke TOP surprise PST INDIRECT EVID

‘Apparently Luke was surprised.’ (the speaker lies about Luke being surprised).

Since internal states are not directly observable, speakers typically rely on indirect evidential or inferential expressions, thereby presenting the information as an interpretation rather than a directly verifiable fact. For example, in (47), a Turkish speaker used indirect evidential forms such as *üzülmüş* ‘apparently became upset’. See (48), a similar pattern was found in Japanese with forms such as *odoroi-ta rashii* (‘apparently was surprised’). This is again an interesting example that the speaker lies about the internal state of the subject, which is not directly observable to the interlocutor. Nonetheless, for such epistemic distancing strategies, mental state verbs are not exclusive, yet they constitute a safe ground for the speaker that they are almost sure that the subject’s internal emotional state cannot be directly verified by the interlocutor. On many occasions the distancing strategy was used with indirect evidentials or modal forms that may inherently mark indirect evidential meanings. Consider the English speaker in (49a), who proposes a possible explanation for what happened to his friend at the airport. Rather than presenting the event as an established fact, the speaker employs the modal form ‘must have’ to infer a plausible cause, thereby reducing commitment to the truth of the proposition and distancing themselves from epistemic responsibility for whether the event actually occurred. The same speaker also used a descriptor to illustrate his friend’s mental state, see (49b). The use of ‘seemed’ in combination with ‘Luke being worried’ strengthens the speakers’ distancing from responsibility whereby the speaker talks about an internal state of the subject which is again not observable to the interlocutor.

The verb ‘seem’ not only in English but all four languages, perhaps deserves its own particular attention because it was very frequently used in deceptive discourse.

(49) a. His passport must have fallen *English*

3SG.POSS passport INFER AUX fall PAST.PART

‘His passport must have fallen.’

b. Luke seemed worried.

Luke seem.PAST worry.PAST.PARTICIP

‘Luke seemed worried’

(50) Julie a donc dû déplacer le canapé *French*

Julie AUX therefore must.PTCP move.INF DET.MASSOFA

‘Julie must have moved the sofa.’

Consider the French speaker in (50), who offers a possible explanation for Julie's actions. Rather than asserting that Julie moved the sofa as a matter of fact, the speaker employs the inferential construction *devoir* + *infinitive* (*a dû déplacer* ‘must have moved’) to present the event as a plausible deduction based on available evidence. By framing the proposition as an inference rather than direct knowledge, the speaker reduces their epistemic commitment to its truth and distances themselves from responsibility for the accuracy of the claim. By attributing internal states through indirect evidential or inferential means, speakers construct coherent motivations for the actions of story protagonists while simultaneously reducing epistemic responsibility for the accuracy of those claims. This strategy is particularly useful in deceptive discourse because the inferred mental states are difficult for interlocutors to independently verify.

In deceptive discourse, speculative expressions are particularly useful because they allow speakers to construct coherent explanations and alternative narratives while simultaneously distancing themselves from epistemic responsibility for the truth of those claims. Speculation can be broadly defined as the presentation of a proposition whose truth is uncertain and cannot be established through direct knowledge at the time of speaking. Unlike direct assertions, speculative statements are based on incomplete information, inference, assumptions, or conjecture, and therefore express a reduced level of speaker commitment to the truth of the proposition. In linguistic terms, speculation is commonly associated with epistemic modality because it reflects the speaker's assessment of the likelihood of an event or state of affairs. However, speculation frequently overlaps with evidentiality, particularly in the domain of inferential evidentials, where speakers formulate hypotheses on the basis of indirect evidence. Expressions such as English *must have used* in combination with speculative structures including ‘I guess’, see for an example in (51) and Turkish *-miş* used in combination with epistemic adverbs ‘galiba’ see (52), often combine evidential and speculative meanings by indicating both the source of information and the speaker's inferential reasoning.

(51) I guess this delay caused him to miss his plane *English*

(52) Galiba pasaportunu düşürmüş. *Turkish*

Apparently/guess passport 3SG.POSS.ACC drop INDIRECT.EVID

‘I guess he dropped his passport.’

Consequently, speculation may be understood as a discourse strategy through which speakers advance a plausible interpretation of events while avoiding full epistemic commitment to the proposition being expressed.

Taken together, we suggest that deceptive speakers do not merely manipulate the truth value of propositions, but also strategically manipulate the evidential markers and epistemic stance through which those propositions are presented. Across Turkish, Japanese, English, and French, speakers employed a range of linguistic devices to manage their apparent access to information, including false direct witness claims, evidential strengthening, egophoric credibility strategies, and distancing from epistemic responsibility. Some speakers enhanced credibility by presenting themselves as eyewitnesses or by exploiting forms associated with direct evidential meanings, while others reduced commitment through indirect evidentials, inferential markers, modal expressions, and appearance-based constructions such as *seem*, *avoir l'air* (*lit. has the look: looked*). Particularly noteworthy is the recurrent use of references to mental states, domains that are inherently difficult for interlocutors to verify independently. From this perspective, deception emerges not only as a matter of saying something false, but also as a process of strategically managing how knowledge is represented, attributed, and evaluated by interlocutors. Building on the findings from Turkish, English, French, and Japanese, lying can be viewed as a strategic manipulation of linguistic resources that signal knowledge, certainty, and credibility. In all four languages, speakers appear to exploit grammatical or lexical markers associated with stronger epistemic authority when attempting to make a false statement sound more convincing. The broader conclusion is that deception is not only about producing false content. Speakers also manipulate markers of epistemic authority; that is, linguistic cues indicating how they know something. In languages such as Turkish and Japanese, these cues are built directly into the grammar. In English and French, they are largely lexical and pragmatic. Yet across all four languages, the same underlying principle emerges: when people lie, they often attempt to make

their statements appear as though they originate from a more reliable or firsthand source than they actually do.

1.6. *Evidentiality, Time Reference, Tense and Aspect*

Aikhenvald (2004, pp. 99-103) proposes that ‘time reference of an evidential does not have to coincide with that of the event’ suggesting that: (i) evidentials may make reference to time, and (ii) evidential forms may make reference to a different time frame than when the actual event happened. Aikhenvald proposes this based on the material from Tariana, a language with complex evidential forms, where tense and evidentiality marking are morphologically distinct. Applying this analysis to languages in the Evidential Belt, where evidentials are often found to be binary distinctions and often marked with so-called Tense/Aspect/Mood systems with multifunctional forms, especially when it comes to marking indirect evidentiality, aspect and tense.

Above in Section 1.2 we reviewed the well-established connection between indirect evidentiality and perfect/resultative aspect, particularly in the Balkan linguistic area. We argued that many indirect evidential markers historically derive from perfective or resultative constructions, creating an ambiguity between indicating a completed result and indicating an inference based on that result (the so-called *evidential perfect*). We reviewed how Balkan evidential systems emerged through language contact and areal diffusion with mostly re-interpretation of perfect or pluperfect constructions as markers of indirect evidence (Friedman, 1986, 2003a; Friedman, 1978). This pattern is not restricted to the Balkans but forms part of the broader Great Evidentiality Belt, extending from Southeastern Europe through Anatolia, the Caucasus, Iran, South Asia, and into Siberia and East Asia.

In classical tense theory, an event can be seen during ‘speech time’, and hence is non-past, or before ‘speech time’ rendering the interpretation past (Reichenbach, 1947). However, following the classical tense theory, there appears some challenges for evidential markers. Tense, and hence, time reference is also often intermixed into evidentiality marking. A direct evidential (or visual evidential in larger systems) implies that the speaker was within the same temporal *deixis* where the event happened (De Haan, 2001a). Evidential forms in Turkish, similar to many other evidential languages in the Evidential Belt Eurasian area, evidential forms typically refer to past events. Traditional accounts generally treat these markers as ‘past tenses’ (e.g., Banguoğlu, 1974; Underhill, 1976). When temporally analysed, it is conceivable that they mark past time reference and perfective aspect when attached to simple verb stems (e.g., Erguvanlı-Taylan, 1997; Johanson, 2003; Kornfilt, 1997). Arslan et al. (2014) and Arslan (2020a) characterised time reference and evidential marking in Turkish. According to this characterisation, evidential markers encode temporal reference through the relationship between event time and evaluation time. Direct evidentials in Turkish locate both event time and evaluation time in the past, whereas indirect evidentials are anchored to a later evaluation time at which evidence becomes available to the speaker. As a result, indirect evidentials often display present relevance despite referring to past events. In other words, indirect evidential temporal reference is anchored to the ‘receipt time of information’ as the relevant argument, see Figure 2. An evidential may simultaneously evoke a past event and the moment at which the speaker acquired evidence for that event. Consequently, the relevant temporal anchor may be not only the event time but also ‘receipt time of information’, which can occur later than the event itself.

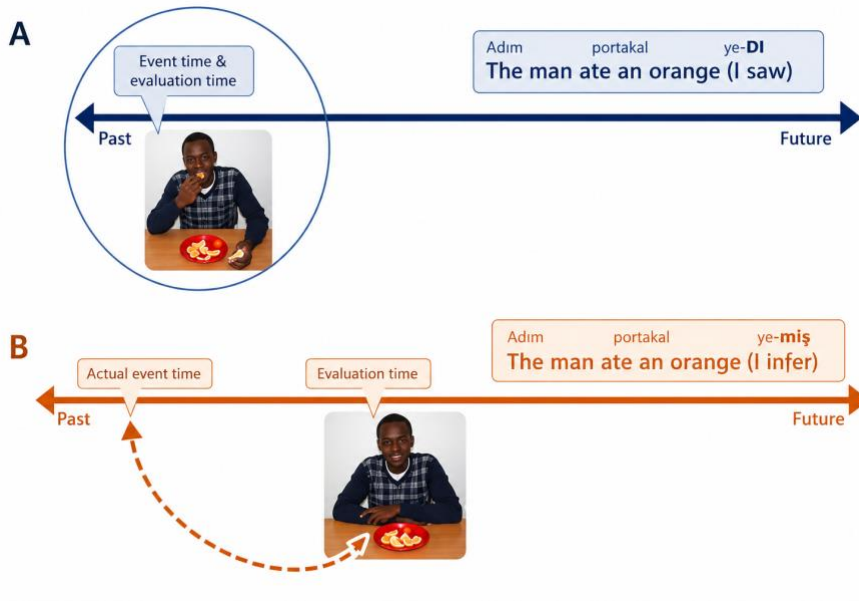


Figure 2. Time reference in indirect evidential: characterisation based on event time and evaluation time. Adapted from Arslan et al. (2014, p. 169).

This line of reasoning was based on Sezer (2001), who discussed that in Turkish both evidential forms, temporal readings can in fact shift to present readings, and on Enç (2004) who discussed that the indirect evidential form may be ambiguous between past and non-past readings. First, Sezer (2001) argued that direct evidential, he referred to as the ‘definite past’, marks present perfect in (53a) and makes reference to an unmarked present time when appended on psychological states verbs, as shown in (53b). Therefore, it is possible that -DI behaves flexibly between past tense, perfect aspect and present tense readings depending on the verb semantics and temporal adverbs it is complemented with. However, Sezer (2001) distinguishes that this shift to present is only possible when the direct evidential form is appended on lexical verb stems, but not when they are appended on non-verbal predicates, see (53c). A present reading of (53c) is impermissible.

Following these accounts, Arslan et al. (2014) and Arslan (2016, 2020a) argued that the direct evidential -DI is anchored to a past evaluation time, while inferential -mİş and reportative -(I)mİş are anchored to a non-past evaluation time, making evaluation time, but not necessarily the event time, the anchoring temporal reference point. In indirect evidential, an actual event happens in the past, the speaker's information on which is not necessary in the past. This is taken to suggest that the indirect evidential makes non-past reference through its 'evaluation time' although the event itself is in the past.

We assume that time-denoting arguments are referential (Enç, 2004; Partee, 1984; Stowell, 2007; Zagana, 2003). For instance, Zagana (2003) proposes that tense is associated with both an internal argument (event time) and an external argument (reference time) corresponding to speech time (see Figure 3A). This analysis assumes that event time in present tense is bound by speech time. However, in past tense, an externally referring argument is selected. Thus, event time is not bound by speech time. Following the above theoretical accounts, we assert that an evidential specifies 'receipt time of information' as the relevant argument (Figure 3B), and thus, when receipt time of information is in the past, it requires discourse linking. This is, however, true for finite verb inflection, recall that evidentiality is only a matrix clause phenomenon in Turkish. Non-finite past/future participles (in relative clauses) are bound by the matrix clause event time when they are simultaneously in the same time frame; however, past participle in complement clause has the "lexical equivalent semantics of past tense", see (Enç, 1987; Stowell, 2007) for arguments.

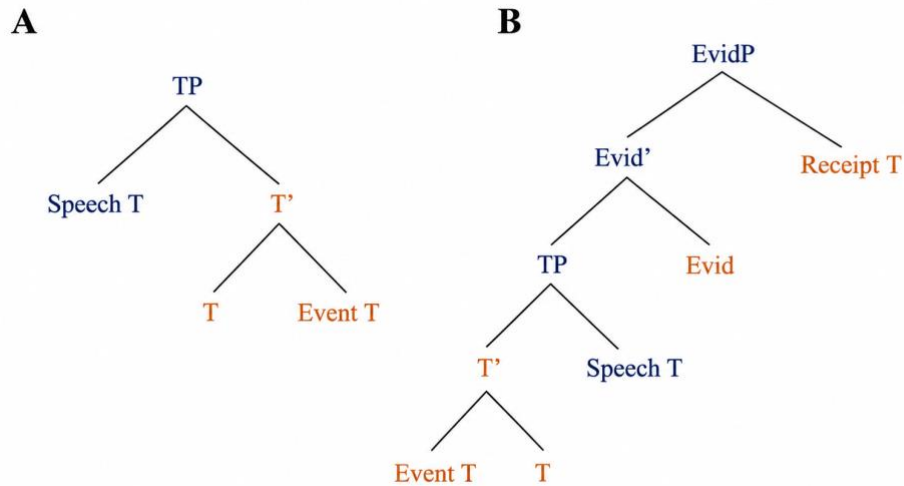


Figure 3 Zagona (2003)’s hierarchical illustration of ‘temporal arguments’ for tense (A), see also (Stowell, 2007); and illustration of temporal arguments adapted to evidentiality in Turkish (B).

Temporal shifts in direct evidential markers are also attested in other analyses on evidentiality. For instance, Plungian (2010) proposed that well known events in the history may be marked with direct evidential. This is in conflict with the idea that direct evidentiality implies that the speaker witnessed the event at the time it occurred. Because the event belongs to the speaker’s own experience or well-assimilated general knowledge, the speaker does not necessarily have to have witnessed it while it was happening, see (54). Uses of direct evidentials are often preferred in written genres, such as in scientific articles or journalism, to describe past events even though they are not witnessed by the reported or the readers, in order to augment the epistemic credibility, see (Makartsev, 2014).

- (54) İkinci Dünya Savaşı 1945’te sona erdi
 Second World War 1945_{LOC} end_{ABL} reach DIRECT EVID / HISTORICAL PAST
 ‘In 1945, the Second World War came to an end.’

Nevertheless, this still refers to the status of knowledge; the sentence presents that the end of the Second World War is very well assimilated fact; otherwise, the statement may have also been inflected for indirect evidential in Turkish. Bulgarian is an interesting example, similar other Balkan Slavic languages, such well-attested historical events are marked with ‘historical’ present form (Simeonova & Arslan, 2025), see (55). This can clearly be considered as a temporal shift to past.

- (55) Vtorata svetovna vojna završ-va prez 1945 r. *Bulgarian*
 second.DEF world war end PRES.3SG in 1945 year
 ‘The Second World War ends in 1945.’
- (56) İkinci Dünya Savaşı 1945’te sona er.mis.tir *Turkish*
 Second World War 1945 LOC end ABL reach PAST + HABITUAL/EPISTEMIC
 ‘In 1945, the Second World War comes to an end.’

Simeonova and Arslan (2025) draw parallels between the Balkan historic present and the habitual/epistemic assumption marker -DIR in Turkish, since the general knowledge contexts in Turkish were mostly used with the marker -DIR (around 49%) or direct evidential marker -DI (around 31%). Observe (56), where the -mİş + DIR assumption marker, has developed into a marker of general knowledge rather than a pure evidential. In contemporary written Turkish, especially in encyclopaedic and academic genres -mİş + DIR frequently presents information as established fact. Recall that, above this particular form was characterised as an epistemic form, marking assumption and different levels of certainty. As an epistemic marker, it is in fact not surprising that it may mark ‘authority on knowledge’. Again, here we are observing a habitual form being shifted to a past reading similar to the Bulgarian historical present.

Chapter 2.

*A psycholinguistic perspective on a decade
of experimental studies in evidentiality*

2. Introduction

I published my first experimental article on evidentiality in 2014 in the *Journal of Pragmatics*, which investigated the production of evidential morphology and source identification in Turkish agrammatic aphasia (Arslan et al., 2014). As presented in Chapter 1 above, Turkish is among the best-studied evidential languages which possesses a two-term evidential system that requires speakers to distinguish between direct and indirect access to information. This study investigated the production of Turkish direct and indirect evidential morphology and the identification of information sources in individuals with agrammatic Broca's aphasia. Turkish provides a particularly informative testing ground because past events can be expressed through different evidential categories. Speakers must choose between the direct evidential *-DI*, used for information acquired through direct experience/perception, and the indirect evidential *-mİş*, used for inferential or reportative information. While both forms can refer to past events, they differ in the type of information source they encode. This makes Turkish evidentiality an ideal domain for examining whether language deficits in aphasia are sensitive not only to temporal reference but also to source-of-information distinctions, see Figure 4.

To address this question, Turkish-speaking individuals with agrammatic aphasia, an acquired language disorder which is characterised with non-fluent output and reduced syntactic ability, completed two tasks. The first was a sentence-completion task requiring the production of appropriate evidential verb forms in contexts depicting direct perception, inference, or report. The second was a source-identification task in which participants were asked to determine the information source associated with a given evidential form. Performance was compared with that of neurologically healthy control participants.

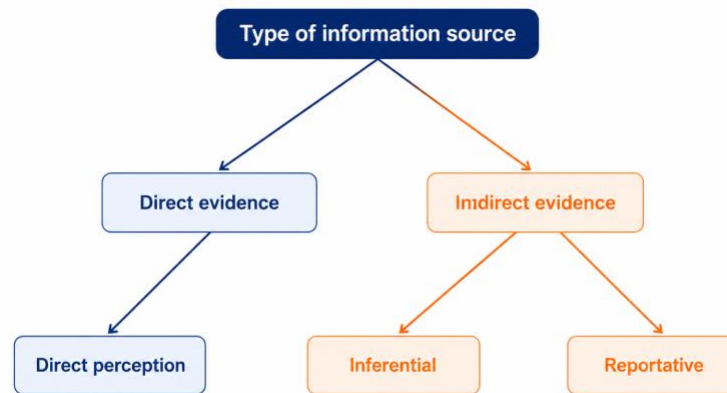


Figure 4. Evidential categories mapping onto information sources in Turkish, taken from Arslan et al. (2014, p. 167)

The results revealed an asymmetry. Agrammatic speakers with aphasia experienced significant difficulties producing evidential morphology, but these difficulties were not distributed equally across evidential categories. The direct evidential -DI was considerably more impaired than the inferential and reportative indirect evidentials. In contrast, participants remained relatively successful in identifying the information-source meanings associated with the evidential forms. Thus, although they often failed to produce the appropriate morphology, they retained knowledge of the evidential distinctions encoded by these forms, see Figure 5.

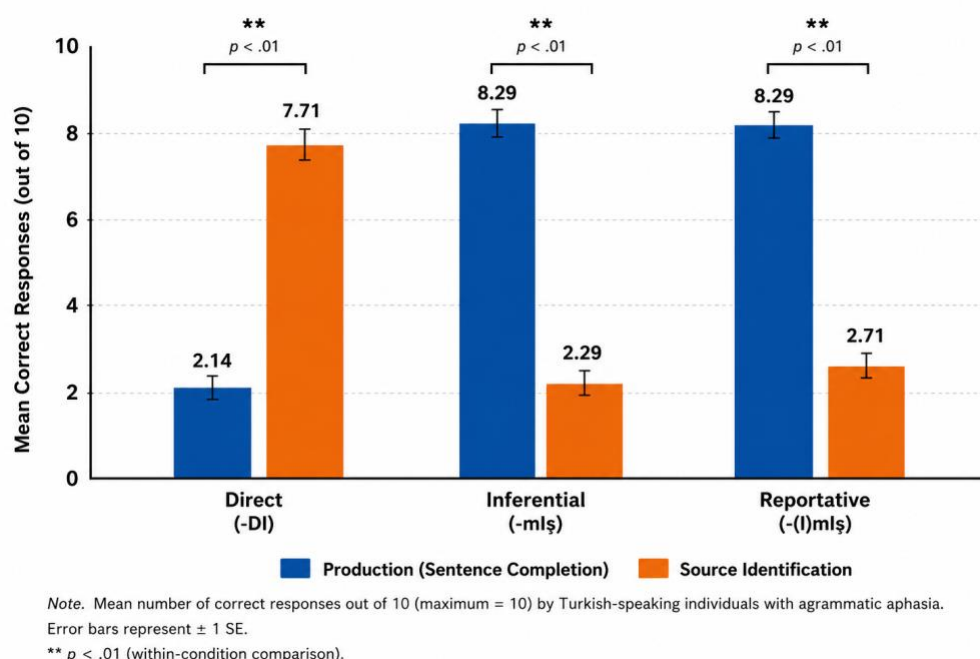


Figure 5. Mean performance of Turkish-speaking individuals with agrammatic aphasia on the production and source-identification tasks on evidential categories. Adapted from Arslan et al. (2014).

These findings were important for several reasons. First, they demonstrated that grammatically encoded evidentiality can be selectively affected in aphasia and therefore constitutes an interesting subject to psycho- and neurolinguistic investigation. Second, the greater impairment of the direct evidential suggested that deficits could not be explained solely by ‘tense’ morphology. Because the direct evidential is strongly associated with firsthand experience and past-time reference, its vulnerability supported the view that past temporal anchoring contribute to impairments. Third, the dissociation between production and source identification indicated that linguistic encoding of evidentiality and conceptual knowledge of information sources rely on partially distinct cognitive mechanisms. More broadly, this study provided the first experimental evidence on the cognitive representation of grammatical evidentiality. Following this study, I spent more than a decade

investigating the fascinating grammatical opposition between direct and indirect evidentiality in Turkish, first in the domains of heritage languages and language contact and later extending this research to evidential systems in a wider range of languages. In the next sections, I will introduce some relevant concepts and provide a perspective on cognitive mechanisms on evidentiality.

Arslan (2020a)³ reviewed some recent experimental psycholinguistic and neurolinguistic studies conducted on Turkish evidentials, and to that date there were only a handful. In more specific, Arslan (2020a) outlines the evidentiality system in Turkish and summarizes recent neurolinguistic and psycholinguistic findings that use time-sensitive methods including sentence verification tasks, eye-tracking, and behavioural response times experiments to exhibit how monolingual and bilingual Turkish speakers, as well as individuals with aphasia, processed evidentiality distinctions in Turkish. Our current understanding of the cognitive underpinnings of evidentiality, at least in Turkish, is largely derived from research on its acquisition in monolingual children, most notably the pioneering work of Aksu-Koç (1988). This body of research has demonstrated that the direct evidential is acquired earlier than the indirect evidential and that young Turkish-speaking children, particularly between the ages of three and six, experience difficulties in reliably identifying and interpreting the information-source distinctions encoded by evidential morphology (Aksu-Koç et al., 2009; Ozturk & Papafragou, 2016). Similar developmental patterns have been reported for Korean, another language with grammaticalized evidentiality, where children as young as three to four years of age are able to produce evidential forms appropriately, yet their comprehension of the evidential meanings associated with these forms remains unstable (Papafragou et al., 2007).

³ Arslan, S. (2020). *Processing evidentiality in bilingualism and aphasia: An overview of some recent studies on Turkish*. In C. Lee & J. Park (Eds.), *Evidentials and modals* (pp. 447–459). Brill.
https://doi.org/10.1163/9789004436701_018

Taken together, these findings suggest an asymmetry between the production and comprehension of evidentiality during language development. While children acquire the morphosyntactic expression of evidential distinctions relatively early, mastery of the underlying source-of-information meanings develops more gradually. This developmental lag has often been attributed to broader cognitive constraints, particularly children's limited ability to evaluate, compare, and differentiate information sources and to reason about the epistemic basis of knowledge claims. Consequently, the acquisition literature points to a close relationship between evidentiality and the development of source-monitoring and epistemic reasoning abilities, children's full master over which take long time during early development. Traditionally, psycholinguistic work on evidentiality commenced in many languages including Turkish, Bulgarian, Tibetan and Korean, with young children's language acquisition (Aksu-Koç, 1988; de Villiers et al., 2009; Fitneva, 2008; Papafragou et al., 2007; Öztürk & Papafragou, 2007, 2008), which has provided us with important insights into how evidentiality comes into a speaker's mental spare and the language system. The current work, however, further unearths how evidentiality is processed in the 'adult' speaker, particularly under language contact situations.

2.1.Evidentiality in Language Contact: A Perspective from Turkish Heritage Speakers

Evidentiality and language contact has many different facades. As we briefly mentioned above in the Chapter 1, evidentiality is a highly borrowable grammatical element. Victor Friedman on several occasions detailed out how historically and synchronously language contact outcomes on emerging evidential interpretations of perfect and/or pluperfect aspectual markers in Balkan languages (Friedman, 1986, 2003a, 2003b; Friedman, 1978; Friedman & Joseph, 2025). Scholars often attribute such close relationship between perfective aspect and indirect evidentials to a

semantic similarity since “both categories present an event not in itself, but via its results” as noted by Comrie (1976, p. 110). Evidentiality is considered as an ‘areal feature’ in Balkan language area and beyond, meaning that evidential forms are diffused into multiple languages as a result of long-term contact and structural convergence (Aikhenvald, 2003; Friedman & Joseph, 2017; Johanson & Utas, 2000). Similar contact-induced language change outcomes have been reported for varieties of Spanish spoken in South America. In particular, both La Paz Spanish in contact with Aymara (Martin, 1981) and Spanish spoken in Quechua-speaking communities (Sánchez, 2004) exhibit reinterpretations of pluperfect forms that extend beyond tense–aspect functions toward evidential meanings (see also Aikhenvald, (2018) for an overview). A comparable phenomenon has been documented for Judeo-Espagnol spoken in Istanbul, where prolonged contact with Turkish seems to have enhanced evidential extensions of pluperfect constructions (Bornes-Varol, 2001). One can clearly see that evidentiality has been a very attractive subject of research studies showing diffusion and borrowing.

In contrast, processes of evidential attrition, simplification, and loss resulting from prolonged contact with non-evidential languages have been reported only in a limited number of studies. A frequently cited example is Karaim, a Turkic language spoken in parts of Lithuania and Poland, which has been reported to have lost its evidential function as a result of prolonged contact with Slavic language where evidentiality is not grammaticalized (Csató, 2000a). Csató’s description of North-Western Karaim characterises *-gan* as a perfective marker, which would be the indirect evidential in other Turkic languages. Instead, information source is typically expressed lexically through perception or reporting verbs such as *tuy-* ‘hear’ and *ayt-* ‘say’. Karaim is an endangered language facing obsolescence with only few hundreds of speakers, therefore, the evidential system is possibly rather shifting.

A similar situation is also happening in Pomak spoken in Greek Thrace, a South Slavic language which originally has a binary evidential system similar to that in Macedonian where indirect evidential is marked with *-l* participle form, see (17) above in Chapter 1. In Adamou and Arslan (Forthcoming; 2025)⁴, we conducted a self-paced reading experiment and an acceptability judgment task on groups of older and younger generations of Pomak community in the Greek Thrace, during which the participants read sentences with and without evidential forms (i.e., *Nasradin kla-l şiker* ‘Nasraddin add.EVID sugar’). Younger speakers were significantly less likely to accept sentences marked with the traditional evidential form, whereas older speakers judged evidential and perfect forms as similarly acceptable, indicating a generational shift away from evidential marking, see Figure 6. Despite this decline in acceptability, evidential forms still elicited longer processing times at the critical verb region across both age groups, suggesting that evidentiality remains cognitively represented even as its functional status weakens in the language. Again, an important consideration here is that, like Karaim, Pomak is an endangered variety which is facing strong generational language shift (Adamou, 2012, 2013; Adamou & Fanciullo, 2018). As mentioned above, the evidential meanings of the current *-l* participle is rather restricted to folk tales, therefore, the loss of evidential meanings has already occurred in other contexts.

⁴ Adamou, E., & Arslan, S. (Forthcoming). Losing evidentiality in Pomak: A reading experiment and a judgment task. Submitted to Sociolinguistica.

Arslan, S., & Adamou, E. (2025). Mapping the gradual loss of evidentiality in Pomak using a self-paced reading experiment. 12th Novi Sad workshop on Psycholinguistic, neurolinguistic and clinical linguistic research. <https://hal.science/hal-05419869v1>

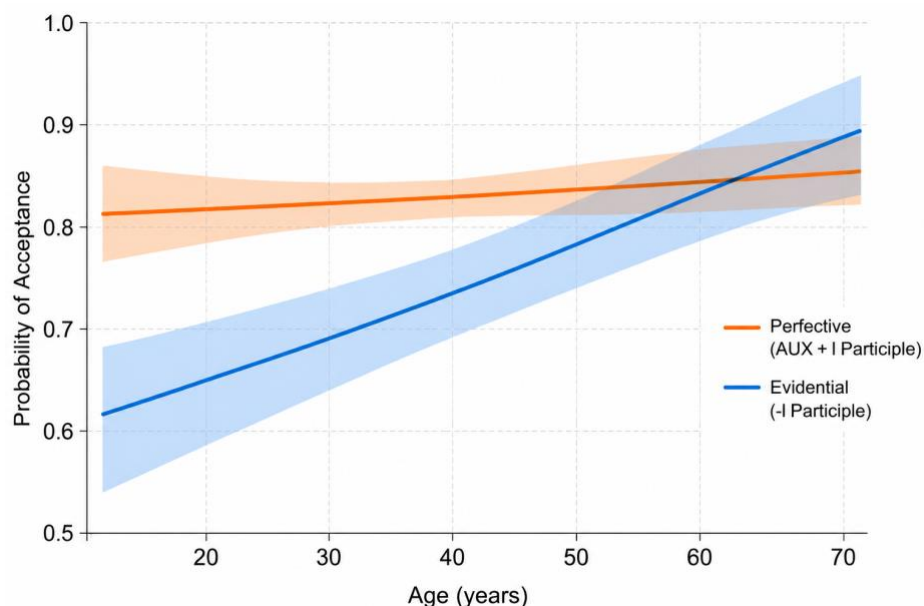


Figure 6. Age-Related Differences in the Acceptability of Perfective and Evidential Forms in Pomak speakers in Greek Thrace. Adapted from Arslan and Adamou (2025).

From a language contact point of view, loss of grammatical evidentials in languages where endangerment is not an issue was rather not much reported until the beginning of the last two decades, until Lars Johnason (2002, p. 101) wrote based on some anecdotal observations of Turkish speakers in Germany:

“Many observers concur that the second generation of Turks living in Germany show signs of a reduction (‘impoverishment’) of the rich Turkish aspect-tense system. For example, use of the postterminal-indirect finite form *-mİş* has diminished, a form lacking an equivalent in the German verbal system.”

Following the large-scale labor migration movements that began in the 1960s, Turkish-speaking communities became established across Western Europe. As a consequence, Turkish came to be spoken in sustained contact with a range of majority languages, including German, Dutch, and

English, giving rise to new generations of bilingual speakers for whom Turkish functions as a ‘heritage’ language.⁵ Heritage languages are typically acquired in the home and family environment and are maintained alongside a societally dominant language that is used in education, social life and professional environment (Aalberse et al., 2019; Montrul, 2015; Polinsky & Scontras, 2020). Such heritage language settings often create conditions for linguistic restructuring, as reduced input, limited literacy practices, and the dominance of the majority language may affect the transmission and maintenance of specific grammatical categories across generations. Turkish heritage varieties have therefore attracted considerable attention in heritage language research, with studies documenting changes morphosyntactic level.

Research on evidentiality in Turkish heritage language speakers has developed gradually over the last decades. Early investigations were largely confined to analyses of narrative speech and spontaneous language production, focusing primarily on the extent to which heritage speakers maintain the evidential distinctions that are obligatory in Turkish. Studies of Turkish-speaking children growing up in immigrant communities in Germany and the Netherlands, consistently reported non-target-like uses of evidential morphology in narrative discourse (Aarssen, 2001; Karakoç, 2007; Pfaff, 1991, 1993). Compared with monolingual peers in Turkey, heritage speakers showed greater variability in their use of direct and indirect evidential markers, suggesting that the acquisition and stabilization of evidential distinctions may be prolonged under heritage language conditions. Although these early studies did not directly address the cognitive mechanisms underlying such patterns, they provided the first indication that evidentiality may constitute a vulnerable domain in heritage grammars, see also chapters in Verhoeven and Strömqvist (2001).

⁵ The term “heritage speaker” here is referred to as early or simultaneous bilinguals who typically acquire a minority language in family settings and a dominant majority language spoken by the society.

A growing body of research using psycholinguistic approaches have extended this line of inquiry by examining not only how heritage speakers produce evidential forms but also how they process and interpret evidential meanings in real time. Taken together, studies on Turkish heritage speakers point to a number of recurring patterns, suggesting that evidentiality constitutes one of the grammatical domains most susceptible to restructuring under heritage language conditions. Aksu-Koç and Arslan (2021)⁶ synthesized the available psycholinguistic evidence for how evidentiality undergone language change, and the authors reported four major findings emerge regarding the processing and representation of evidentiality in Turkish as a heritage language: (i) Divergence from Turkish spoken in Turkey, (ii) Inappropriate choices of evidentials, (iii) Reduced sensitivity to information source categories, (iv) Heritage language characteristics remain in returnees.

2.2.Divergence from Turkish spoken in Turkey

One of the most robust findings emerging from research on evidentiality in Turkish as a heritage language is that heritage speakers consistently diverge from monolingual Turkish speakers in both the production and comprehension of evidential forms (Arslan et al., 2015; Arslan et al., 2017; Coşkun Kunduz & Montrul, 2023; Karaca, 2018; Karayayla, 2020; Schmid & Karayayla, 2020; Tokaç-Scheffer et al., 2023; Tokaç-Scheffer et al., 2024; Tosun & Filipović, 2022). These differences have been documented across a range of experimental paradigms, including elicited production, acceptability judgments, eye-tracking, and online sentence processing tasks. Evidence for this divergence was reported in psycholinguistic studies investigating the real-time processing

⁶ Aksu-Koç, A., & Arslan, S. (2021). Tense, Aspect, Modality and Evidentiality. In L. Johanson (Ed.), *The Encyclopedia of Turkic Languages and Linguistics Online, Section Psycholinguistics and Turkish* (pp. 1-12). Brill.

of evidential forms. Arslan et al. (2015)⁷, using a visual-world eye-tracking paradigm, compared Turkish monolingual speakers with early and late Turkish-German bilingual who grew up under heritage language conditions in Berlin. Participants listened to sentences containing either direct or indirect evidential morphology while viewing visual scenes that corresponded to different information sources. The results revealed that both groups of heritage speakers performed significantly less accurately than monolingual speakers and showed reduced proportions of target fixations during the processing of evidential forms. Most notably, the bilingual participants exhibited difficulties in the interpretation of the direct evidential marker. In contrast, monolingual speakers demonstrated sensitivity to the ‘evidential requirements’ encoded by the form and actively searched for contextual evidence that would license a direct evidential interpretation. In this work, we discussed that eye-movement pattern indicated that the monolingual speakers needed to ‘verify that the action could indeed be *witnessed* directly’ (Arslan et al., 2015, p. 12). This eye-movement pattern was absent in participants who speak Turkish as a heritage language.

Subsequent studies have replicated and extended these findings. Arslan et al. (2017)⁸ showed that Turkish heritage speakers in the Netherlands were considerably less successful than monolingual speakers in detecting mismatches between information-source contexts and evidential morphology. The authors used a sentence verification task to examine a group of adult Turkish heritage speakers living in the Netherlands as compared to a group of monolingual Turkish speakers. The participants listened to sentences including an information source context followed by critical sentences marked with direct or indirect evidentiality (i.e. *Yerken gör-dü-m, az önce*

⁷ Arslan, S., Bastiaanse, R., & Felser, C. (2015). Looking at the evidence in visual world: eye-movements reveal how bilingual and monolingual Turkish speakers process grammatical evidentiality. *Frontiers in psychology*, 6, 1387.

⁸ Arslan, S., De Kok, D., & Bastiaanse, R. (2017). Processing grammatical evidentiality and time reference in Turkish heritage and monolingual speakers. *Bilingualism: Language and Cognition*, 20(3), 457-472.

adam yemeği ye-miş/di ‘I saw the man eating; he ate the meal *direct* vs. *indirect**’). While monolingual speakers rapidly identified violations in which a direct evidential appeared in a non-firsthand context or an indirect evidential appeared in a firsthand context, heritage speakers often failed to recognize such mismatches altogether. Figure 7 illustrates the accuracy with which Turkish monolingual and heritage speakers of Turkish in the Netherlands detected violations of evidentiality marking in Turkish. While monolingual speakers identified evidential mismatches with near-ceiling performance (88–92%), heritage speakers performed substantially less accurately (31–32%), indicating a markedly reduced sensitivity to the information-source distinctions encoded by Turkish evidential morphology. Similar patterns have been reported in studies of Turkish heritage speakers in Germany, the Netherlands, and North America (Coşkun Kunduz & Montrul, 2023; Karayayla, 2020).

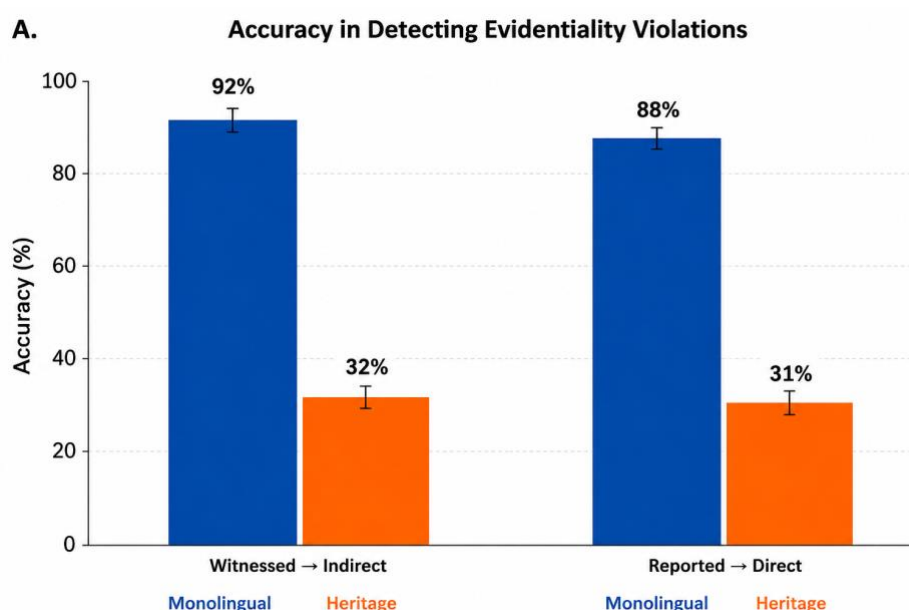


Figure 7. Accuracy in Detecting Evidentiality Violations by Monolingual and Heritage Speakers in the Netherlands. Recreated and adapted from Arslan et al. (2017, p. 8).

In Tokaç-Scheffer et al., (2024)⁹ study, we replicated the same experimental paradigm with the identical design and materials with a group of late bilinguals of Turkish-English and heritage speakers of Turkish who resided in Sydney, Australia. This Australian study largely replicated the findings previously reported for Turkish heritage speakers in the Netherlands, showing that heritage speakers were significantly less accurate and slower than a comparison group in detecting mismatches between evidential morphology and information source. However, unlike the Dutch study, the Australian heritage speakers achieved higher accuracy rates (around 50–57% rather than approximately 31–32%), a difference we attributed to greater access to community-based Turkish language education in Australia. In addition, we demonstrated that the amount of Turkish exposure across different stages of development strongly predicted loss of sensitivity to evidentiality violations in the heritage speakers. The regression analyses revealed a selective effect of language experience on evidentiality attainment. Among heritage speakers, greater Turkish exposure during early childhood (ages 3–6) was associated with higher accuracy, whereas exposure during late childhood (ages 6–12) had no measurable effect. Exposure during adolescence (ages 12–18) predicted performance only for late bilinguals, as evidenced by a significant interaction between exposure and group. This is a very logical explanation as exposure to Turkish in the heritage language group was the highest during early childhood and it diminished across the development, see Figure 8 for an illustration.

⁹ Tokaç-Scheffer, S. D., Nickels, L., & Arslan, S. (2024). One suitcase, two grammars: what can we conclude about Australian Turkish heritage speakers' divergent processing of evidentiality?. *Linguistics Vanguard*, 10(s2), 125-138.

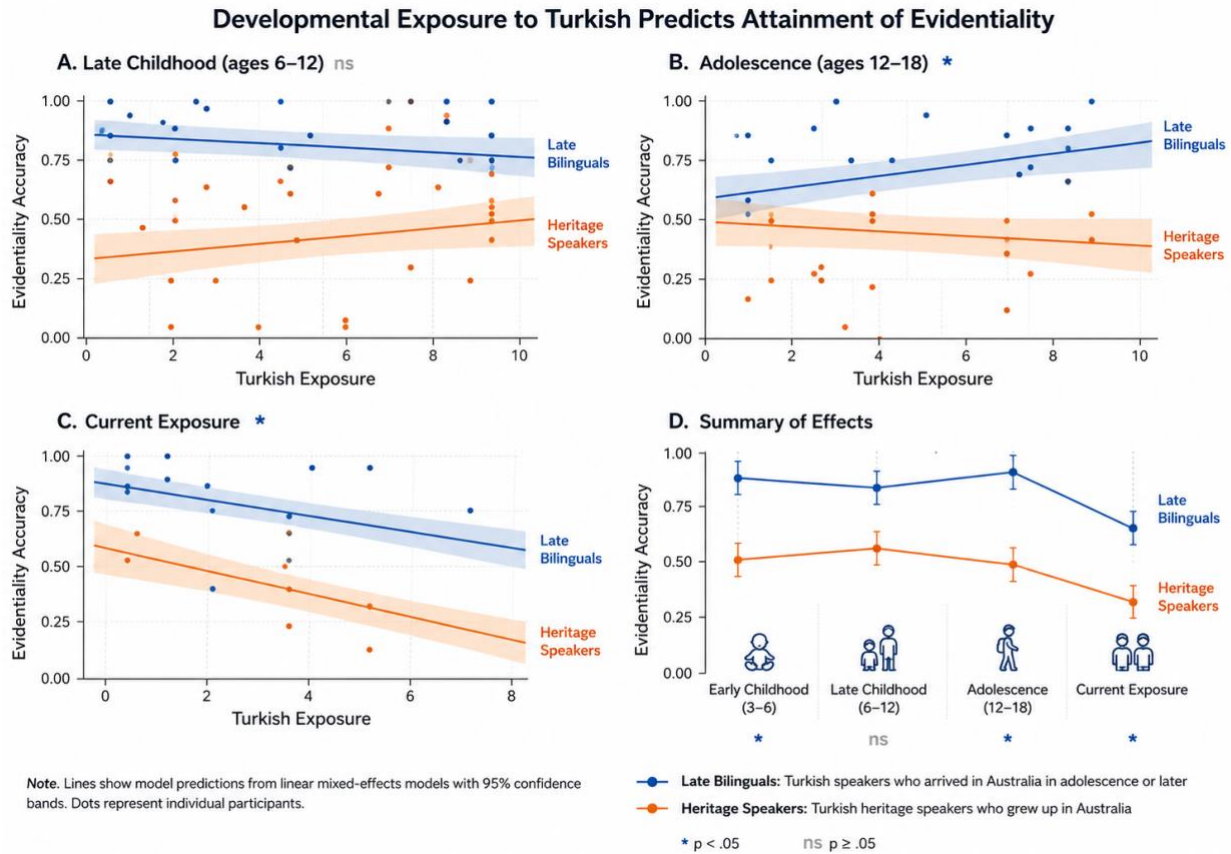


Figure 8. Effects of Exposure to Turkish on Evidentiality Processing in Heritage Speakers and Late Bilinguals. Illustrated and adapted from Tokaç-Scheffer et al., (2024, p. 132).

In summary, research conducted across several heritage Turkish communities, including those in Germany, the Netherlands and Australia, consistently demonstrates that heritage speakers diverge from monolingual speakers of Turkish in their processing and interpretation of evidentiality. Across eye-tracking, sentence verification, and acceptability judgment studies, heritage speakers show reduced sensitivity to the information-source distinctions encoded by evidential morphology and are less successful in detecting mismatches between evidential markers and contextual information source.

2.3. *Inappropriate choices of evidentials*

A second recurrent finding in evidentiality processing in heritage speakers under language contact situations concerns the contextually inappropriate selection of evidential forms during narrative and sentence production tasks. Across elicited narrative, picture-description, and spontaneous speech tasks, Turkish heritage speakers were frequently attested to over-produce the direct evidential -DI in contexts where an indirect evidential -mİş would be more appropriate (Arslan & Bastiaanse, 2020; Karayayla, 2020). Importantly, these substitutions are not random. Heritage speakers overwhelmingly replace indirect evidential forms with direct ones, whereas the reverse pattern is comparatively rare. In Arslan and Bastiaanse (2020)¹⁰ we conducted a narrative production study of Turkish heritage speakers in the Netherlands, for example, over 90% of evidential substitution errors involved the use of a direct evidential in contexts requiring indirect evidential marking. A possible interpretation is that the direct evidential -DI undergoes functional reduction in Turkish heritage language and operates as a temporal/aspectual marker. Such a negative or ‘reverse transfer’ effect is not at all unprecedented. Comparable processes have been reported in other contact settings, including Karaim, where the evidential marker -GAn has lost its evidential meaning and has been reanalysed as a perfect marker, and in Pomak, where the Balkan-type reported evidential construction *be + participle* shifted toward a perfective or resultative interpretation. The tendency observed among Turkish heritage speakers may therefore reflect a similar process whereby evidential distinctions are weakened and replaced by a more general tense–aspect opposition. Under heritage language conditions, the form may gradually lose part of its evidential content and become reanalysed as the default exponent of past tense. Arslan and

¹⁰ Arslan, S., & Bastiaanse, R. (2020). First language exposure predicts attrition patterns in Turkish heritage speakers’ use of grammatical evidentiality. In F. Bayram (Ed). *Studies in Turkish as a Heritage Language* (pp. 105-126). John Benjamins Publishing Company.

Bastiaanse's (2020) production data does not suggest a full disappearance of evidential system itself. Heritage speakers retain the categorical opposition between -DI and -mİş, yet the pragmatic constraints that regulate their use have possibly become weakened. This pattern, in which heritage speakers used non-target-like evidential forms, was largely predicted by daily receptive exposure to Turkish. Heritage speakers who reported more than 2.88 hours of daily exposure (listening and reading) produced target-like evidential forms, whereas those with lower exposure were more likely to produce contextually inappropriate evidential choices, see Figure 9.

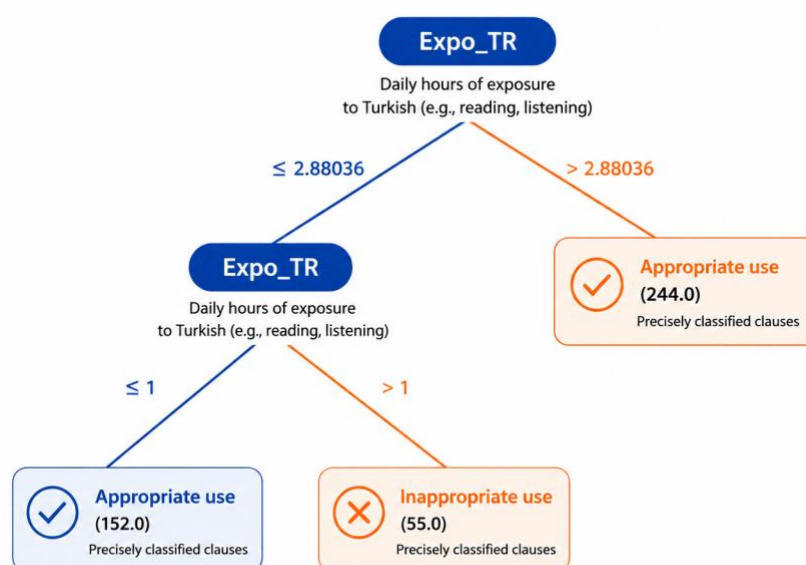


Figure 9. Daily Exposure to Turkish Predicts Appropriate Use of Evidential Morphology in Heritage Speakers (Arslan & Bastiaanse, 2020, p. 118).

Taken together, these findings reveal parallels between the evidentiality production in ‘adult’ Turkish heritage speakers and patterns previously reported in child heritage speakers in Germany and the Netherlands (Aarssen, 2001; Karakoç, 2007; Pfaff, 1991, 1993). It seems that the unstable acquisition of evidentiality in children remained during the adulthood under heritage language

conditions. Crucially, both production and processing studies demonstrate that greater exposure to Turkish predicts more target-like evidential behavior, suggesting that many of the apparent simplifications in the evidential system arise from reduced input conditions.

2.4. Reduced sensitivity to information source categories

A third recurring finding concerns heritage speakers' reduced sensitivity to the information-source distinctions encoded by evidential morphology, an effect that strongly overlaps with the first patterns of findings; namely, divergence from the baseline grammar. Insensitivity to ungrammatical or unacceptable sentences often indicate reduced 'intuitions' to heritage language grammar. In sentence acceptability and verification tasks, Turkish heritage speakers often show substantial difficulty detecting mismatches between evidential markers and the contextual information source that licenses them (Arslan et al., 2017; Coşkun Kunduz & Montrul, 2023; Tokaç-Scheffer et al., 2023). This difficulty has often been linked to individual differences in bilingual experience, including amount of heritage-language exposure. Kunduz and Montrul (2023) argue that reduced and inconsistent input during childhood, combined with attrition-like processes throughout adulthood, may prevent the maintenance of the evidential distinctions encoded in Turkish heritage grammar. More recently, Tokaç-Scheffer et al. (2023)¹¹ extended this line of research by examining the real-time processing of evidentiality in Turkish-English bilinguals living in Australia using a self-paced reading paradigm. The study compared Turkish heritage speakers, who acquired English between birth and five years of age, with a reference

¹¹ Tokaç-Scheffer, S. D., Arslan, S., & Nickels, L. (2023). Insights into the time course of evidentiality processing in Turkish heritage speakers using a self-paced reading task. *Frontiers in Communication*, 8, 1070510.

group of late bilingual Turkish speakers who had emigrated from Turkey after childhood. Participants read sentences in which evidential verb form either matched or mismatched a preceding information-source context and subsequently judged their acceptability (*Ben gördüğüme eminim/ Baskaları gördüğünü söylüyor. Mehmet ceketinin düğmesini kopardı/koparmıs* ‘I am sure that I saw it / The other say that they saw it. Mehmet pulled off the button of his jacket -DIRECT vs. INDIRECT’). The participants read sentences per-word segments, and their reading times were recorded. The results revealed a complex picture. Consistent with previous offline studies, heritage speakers were less accurate than the late bilingual group in their acceptability judgments. Sentence judgment accuracy for match and mismatch sentences with verb forms across heritage speakers and late bilinguals are demonstrated in Figure 10.

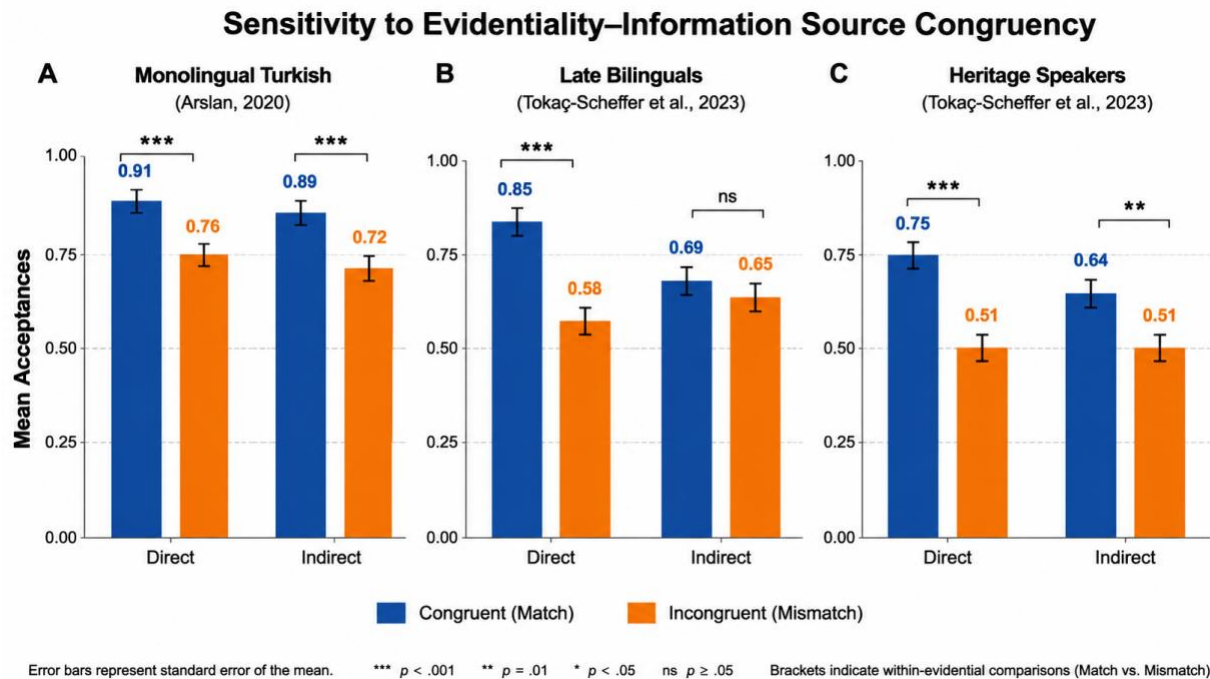


Figure 10. Sensitivity to Evidentiality–Information Source Mismatches in Heritage Speakers and Late Bilinguals. Adapted from Arslan (2020b) Tokaç-Scheffer et al. (2023).

The data showed that groups were significantly more accurate in the direct evidential condition when the evidential marker matched the information source than when it mismatched it, indicating robust sensitivity to direct evidentiality. In the indirect evidential condition, however, only heritage speakers showed a significant match–mismatch contrast, whereas late bilinguals responded similarly to grammatical and ungrammatical sentences, suggesting reduced sensitivity to information-source violations involving indirect evidential forms. Furthermore, both groups were more accurate overall in grammatical direct evidential sentences than in grammatical indirect evidential sentences. Comparing the bilingual data to monolingual norms reported in Arslan (2020b),¹² the two studies reveal a consistent pattern. Monolingual Turkish speakers showed robust sensitivity to evidentiality–information source congruency, readily distinguishing direct and indirect evidential conditions mapped on their appropriate information sources. In contrast, both heritage speakers and late bilinguals exhibited reduced sensitivity to evidentiality violations. As seen in Figure 10, especially sensitivity pattern is very clear in the direct evidential condition without any incongruency, while the monolinguals were at 91% acceptance rate, this dropped to 85% in late bilinguals and to 75% heritage speakers. A similar pattern is also visible for mismatch conditions. Further, Tokaç-Scheffer et al.’s (2023) reading-time data suggested that heritage speakers retained some sensitivity to evidential distinctions during sentence processing. Both groups eventually showed disruption effects when encountering evidential-information source mismatches, although these effects emerged later and less robustly in the heritage speakers.

¹² Arslan, S. (2020). When the owner of information is unsure: Epistemic uncertainty influences evidentiality processing in Turkish. *Lingua*, 247, 102989.

2.5. Heritage language characteristics remain in returnees

A final pattern of findings emerging from recent research is that the restructuring of evidentiality observed in Turkish heritage speakers does not necessarily disappear when speakers return to a predominantly Turkish-speaking environment (Kaya-Soykan et al., 2023). Using both elicited production tasks and sentence acceptability judgment paradigms, Kaya-Soykan et al. (2023) demonstrated that returnees continued to exhibit reduced sensitivity to evidential distinctions and produced non-target-like evidential forms at rates higher than monolingual speakers raised in Turkey. Antonova-Unlu and Bayram (2023) showed that Turkish-German returnees who had lived back in Turkey for an average of 19 years still performed significantly worse than monolingual controls on the evidentiality items of the error-correction task. Therefore, it seems evidentiality is a ‘fragile’ category and highly susceptible in negative transfer effects under heritage language conditions in contact with languages where evidentiality is not marked, and once restructured, it does not fully reactivate. However, on the other side of the medallion, heritage language speakers have been studied with much attention to the attrition patterns in their heritage languages but not much has been understood whether evidentiality forms are transferred in their dominant languages. This is not at all unheard of. Recall that Aymara speakers transferred evidentials into La Paz Spanish (Martin, 1981) and Quechua speakers did so into the societally dominant Spanish (Sánchez, 2004). We will finish this discussion with two anecdotal observations about Turkish evidential system with this respect. First, Aalberse et al. (2019, p. 158) note on a personal communication from Jeanine Treffers-Daller:

“Turkish returnees use evidential marking in their German. She said that evidentiality became such an important part of conceptualization while using Turkish that the speakers retained the category even though German does not encode evidentiality grammatically.”

The authors highlight this in an example shown in (57), where a Turkish heritage speaker copies Turkish *-miş* indirect evidential form into German.

- (57) Michael hat den Brief losgeschickt-*miş* *German*
Michael AUX.3SG DEF.ACC.MASC.SG letter send.PTCP-EVID

‘Michael sent the letter - as I was told.’ (Aalberse et al., 2019, p. 158)

Second, Brendemoen (1997) mentions that the Turkish dialects of Trabzon on the Black Sea coast have lost evidential marking under the impact of Greek, and a number of reports later echoed this statement (Aikhenvald, 2018; Johanson, 2003; Slobin, 2016). This transfer effect is particularly noteworthy because the direction of influence runs counter to what is typically observed in language contact situations: the reduction of evidentials appears to originate from the minority language and extend into the societally dominant variety. However, we currently seem to lack empirical support to this claim.

In conclusions, taken together, the available evidence suggests that evidentiality is one of the grammatical domains most susceptible to restructuring under heritage language conditions. Across production, acceptability judgment, eye-tracking, and online processing studies, Turkish heritage speakers consistently show reduced sensitivity to information-source distinctions and greater variability in the use of evidential morphology relative to monolingual speakers. Importantly, the degree of restructuring is strongly modulated by language experience, with greater exposure to Turkish predicting more target-like performance across both production and comprehension tasks. Finally, findings from returnee populations indicate that once evidential distinctions have been reorganized under heritage language conditions, subsequent re-exposure to

a Turkish-dominant environment may only partially reverse these changes, highlighting the long-term consequences of reduced input during development.

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