The Morphosyntax of Tense-Evidentials: An Initial Model

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1 Introduction

The goal of this paper is to survey some of the data and theory of fused tense-evidential morphs and propose a model based on a specific functional hierarchy in the TP domain. Many of the world's languages have isolable evidential morphs that refer to the speaker's source of evidence; a subset of these languages show that the evidential morph is fused with tense. Such fusion does not typically pose problems for a functionalist account of morphosyntactic phenomena; it is usually handled as a case of historical reanalysis (Harris and Campbell 1995). In a formal framework, such as the Minimalist Program (MP), the fusion of tense-evidentials may pose problems for determining the hierarchical relations between the terminal heads of the two functional categories. Formal work with evidentials has only recently been taken up (see Rooryck 2001 for a brief overview), and most of it deals with semantics or pragmatics (Chung 2005, Matthewson et al. 2006 and references therein). Morphosyntactic treatments of evidentials are not abundant (Cinque 1999, Speas 2007) and in particular work on fused tense-evidentials is hard to find. This paper briefly introduces the notion of evidentials as understood in current generative theory (§**2**), provides a brief typological overview of languages with fused tense-evidential morphs (§**3**), looks at data from three languages, Tuyuca, Estonian, Georgian, (§**4**), and proposes a model of morpho-syntactic derivation for the fusion of Tense and Evidentiality within a broadly construed Minimalist Program framework, specifically drawing on work done in the theory of Distributed Morphology (§**5**)[1]. I argue that the

[*] This article is a significant extension of what I presented at WIGL 6; I thank the organizers for letting me submit it here. It has benefited from the direct input and indirect influence of many people: Aniko Csirmaz (for detailed comments), Lyle Campbell, Mauricio Mixco, Wilson Silva, Thiago Chacon, and Soonhyuck Park. Thanks to Ed Rubin who unknowingly gave me the idea that led to this article. Thanks also to WIGL 6, WSCLA 13 – though I had to cancel, LDSC 7, the Linguistics Student Organization at the University of Wisconsin-Madison, and the Linguistics Department at the University of Utah.

model I propose is preferable to one based on Cinque (1999) on three points: (i) it is syntactically less costly as it requires less Merge operations, (ii) it exploits locality in syntactic hierarchies for forming sisterhood relations required for morphological fusion, and (iii) it provides a basis to account for synchronic *and* diachronic data on evidentials and their intimate interactions with Aspect and Tense in Tuyuca, Estonian, and Georgian.

2 The grammatical category of evidentials

Evidential morphs are inflectional morphemes that refer to the source of evidence of the speaker's proposition. Different analyses of evidentials group them under different grammatical categories. The first kind of analysis makes use of the distinction between evidentials as Mood (Cinque 1999) or Modality (Chung 2005, Matthewson et al. 2006). Other accounts, in a functional framework, analyze the evidential as either fused with or relating to the category Aspect. For example, in languages such as Georgian, Eastern Armenian, Wanano, and Svan evidential morphs have been analyzed as being fused with a perfect, perfective, or imperfective aspect (see Boeder 2000, Kozintseva 2000, Stenzel 2004, Sumbatova 1999, respectively). I adopt, though do not explicitly employ in this paper (see **2.1**), Speas' (2007) approach, which argues that evidentials are an independent category from Mood, Modality, and Aspect (see also Aikhenvald 2004, who interprets evidentials as an independent category in a functional-typological framework). Despite differing approaches to evidentials, a crucial generalization can be made: given the complex relations between Tense and Mood-Modality-Aspect systems, one can confidently assert that evidentials are intricately to Tense. If one assumes a tripartite structure of the clause as consisting of the CP-TP-VP domains (see Carnie 2008), then it is clear that evidential morphs, and Evidentiality in general, belong to either the TP or CP domain (or both; see footnote 7). In other words, they either (a) relate the predication of VP to some speech time and denote the truth-conditionality of the event relative to some specific world (the TP domain), or (b) they relate the speaker's level of confidence about the truth or reliability of the tensed proposition and denote attitude or intention beyond the truth-conditionality of the event (the CP domain). Whether evidentials group under one specific grammatical category or another, the evidence clearly shows that Tense and Evidentiality are intimately related and can, as I will show shortly, be morphologically fused because they are base-generated in the TP domain; i.e. hierarchically under TP. In **2.1** I briefly discuss the position I implicitly adopt: Speas (2004, 2007).

2.1 Evidentials as 'world arguments'

Evidential morphs are inflectional morphemes that refer to the source of evidence of the proposition of the speaker. This reference may be bound by what Speas (2004, 2007)

[1] I assume that DM can be part of the research paradigm of the Minimalist Program (MP), in the most general understanding of the goals of MP (see Epstein and Seely 2007 and http://elearning.emich.edu/media/Producer/LING/SeelyEpstein.html, for a lecture on MP goals and methods).

calls a "world argument." She says "I would like to propose that evidential morphemes spell out agreement [of] a relation between the discourse and the world(s) in which the sentence is to be interpreted..." (2004: 11). Speas' proposition is partly based on Harley and Ritter's (2002) work on pronouns and partly based on work showing structural analogies between Tense and Pronouns begun by Partee (1973). Crucially, evidential morphemes always contain an inherent person feature, (1st person–usually phonologically null) distinct from a possible subject agreement marker on the evidential. Under this treatment, evidential morphemes group together as an independent grammatical category exhibiting agreement relations through locality and binding principles for the inherent person feature of the evidential. As Speas (2007: 18) puts it: "...Evidentials are Functional heads that encode inclusion and accessibility relations between the Evaluated Situation and a Reference Situation, and between the Reference Situation and the Discourse Situation." Speas shows quite convincingly that this anatomy of evidentials results in a distinction between evidentials and epistemic modals and, most crucially, that the notion of "evidence" is not a grammatical primitive. The highlight of this approach is that the "inventory of evidential types" can be constrained by the same constraints that appear to hold for other inflectional categories *and* for argument structures.

I do not explicitly employ Speas' theory here, but I feel it is the best analysis of evidentials and will assume throughout the paper that her theory can be predicted to be correct through independent means provided in my analysis of fused tense-evidentials. My analysis, I argue, provides a functional hierarchical model that is preferable to other functional hierarchies, namely Cinque (1999), on three points: (i) it is syntactically less costly as it requires less merger to derive fused tense-evidentials, (ii) it exploits locality in syntactic hierarchies for forming sisterhood relations required for morphological fusion – i.e. Speas' notions of *inclusion* and *accessibility* relations, and (iii) it provides a basis to account for synchronic *and* diachronic data on evidentials and their interactions with Aspect and Tense in Tuyuca, Estonian, and Georgian. I remain neutral, however, about labeling the category of the evidential and will use the lowercase Greek letter Eta (η) to formally refer to the evidential morpheme.

In what follows I briefly look at the surface behavior of η-morphemes under a Distributed Morphology model in order to explain the mechanisms of overt fusion between Tense and Evidentiality in languages that have fused tense-evidential morphs (see Table 1). Specifically, I am concerned with the relationship between the hierarchical structure of the functional heads in the syntax (Speas' *inclusion* and *accessibility* relations) and the fusion of phonological and morphological features in spell-out. That is, as Halle and Marantz (1993) point out, head-to head movement and merger (i.e. Internal and External Merge within a bare phrase structure (Chomsky 2001) are syntactic operations that license environments conducive for morphological fusion; such *fusion only being allowed in a sister relationship*. Hierarchical relations in syntax can 'feed' morphological fusion (Halle and Marantz 1993: 116). Thus, the real issue here is not the label of the category but the hierarchical position (e.g. *inclusion* and *accessibility* conditions) of the category in the clause, implicating a position in either the CP or TP domain. I believe that Speas' account can be verified independently by my analysis, though I will not explicitly show this. Before working out the basic morpho-syntactic

relations of tense-evidentials, I survey some of their general characteristics in the world's languages (§**3**), looking closely at data in the three languages Tuyuca, Estonian, and Georgian, focusing mainly on Tuyuca (§**4**).

3 Basic typology of tense-evidentials

A survey of the World Atlas of Language Structures – WALS (Haspelmath et al. 2005) – for languages with tense-evidentials resulted in a count of twenty-four. To this number I added five additional languages that were not in the WALS database, for which I provide the source references; results are shown in Table 1.

Table 1: Basic typology for tense-evidential languages[2,3]

	NAME	OV	VO	Φ-F	LANGUAGE FAMILY	REFERENCE
1	Abkhaz	✓			N.West Caucasian	Cinque (1999: 155)
2	Armenian	✓			Armenian	
3	Barasano	✓		YES	Tukanoan	
4	Bulgarian		☑		Slavic	
5	Carapana	NO INFO			Tukanoan	
6	Carib	✓			Cariban	
7	Chechen	✓			Nakh-Daghestanian	
8	Ekari	✓			Trans-New Guinea	
9	Estonian		☑		Finno-Ugric	Campbell (1991)
10	Evenki	✓			Altaic	
11	Gagauz	NO INFO			Altaic	
12	?Georgian	✓		YES	Kartvelian	Bejar (2001)
13	Godoberi	NO INFO			Nakh-Daghestanian	
14	Haidi	✓			Haida	
15	Hunzib	✓			Nakh-Daghestanian	
16	Ingush	✓			Nakh-Daghestanian	
17	Khowar	✓			Indic	
18	Kurmanji	NO INFO			Iranian	
19	Ladakhi	✓			Sino-Tibetan	

[2] Word order (OV and VO) is included because during the sampling I noticed that an overwhelming majority of tense-evidential languages were head-final. The results of this sample are by no means definitive, but they do suggest that there may be a correlation between tense-evidentiality and head-finality. So far, the only explanation for why head-final languages would be more likely to fuse tense and evidential morphemes is that the highly suffixal nature of head-final languages could provide the conditions under which fusion is more likely; Lyle Campbell (p.c.) and Mauricio Mixco (p.c.). This is as far as I pursue the matter here.

[3] Table 1 is not meant to be exhaustive. That is, virtually all the Tukanoan languages have tense-evidential morphemes (only 4 of the 20 are shown). The Altaic, Nakh-Daghestanian, and Kartvelian families probably have more languages that could be shown.

20	Laz	✓[4]			Kartvelian	
21	Matses	✓		YES	Panoan	Fleck (2007)
22	Persian	✓			Iranian	
23	Salar	NO INFO			Altaic	
24	Sherpa	✓			Sino-Tibetan	Woodbury (1986)
25	Tariana	✓			Arawakan	
26	Tucano	✓		YES	Tukanoan	
27	Turkish	✓			Altaic	
28	Tuyuca	✓		YES	Tukanoan	
29	Yakut	✓			Altaic	

The typological origin (i.e. grammaticalization or reanalysis) of evidentials in general appears to be verbal in nature. For example, verbs with the meaning of 'say' can be become hearsay or quotative evidentials (Campbell 2004 and references therein). The origin of tense-evidentials, on the other hand, isn't always the fusion of an evidential morpheme with a tense morpheme. For example, Fleck (2007) shows the origin of tense-evidentials in Matses to be nominalizers. Harris and Campbell (1995) and Campbell (1991) show that Estonian tense-evidentials come from reanalysis of fused tense-participle endings in subordinate clauses. Malone (1988: 139) states for Tuyuca that "Nonvisual paradigms appear to have developed from a progressive (or other) aspectual gerundial construction... [and] '+/- direct' paradigms appear to have developed at some later stage from an old perfect construction...." Finally, the Turkish resultative /mIş/ appears to have been reanalyzed as an indirect past tense-evidential with finite verbs, while nonfinite verbs still yield the resultative interpretation (Csató 2000, Johanson 2000, Shroeder 2000).

4 Tense-Evidential data

In this section I provide data from three languages: Tuyuca, Estonian, and Georgian. This data will be used for establishing a Distributed Morphology approach to fused tense-evidential morphs in §**5**. I will look at each language separately, focusing primarily on Tuyuca.

4.1 The Tuyuca system

The Tuyuca evidential paradigm is relatively large and complex and has been used by many (e.g. Faller 2001, Palmer 2001) as an exemplary case of an evidential paradigm (see also Payne 1997: 256 who says "This language [Tuyuca] has one of the most complex systems of evidentiality I have seen. It has the added complexity of having evidentiality interwoven with the verbal participant reference system and the tense system."). The Tuyuca paradigm consists of the typical distinctions between direct

[4] WALS has no information on Laz, but Harris and Campbell (1995: 216) state that "In Laz word order is relatively free... but the unmarked order is SOV."

(VISUAL) and indirect (NONVISUAL, APPARENT, SECONDHAND, and ASSUMED) with a general distinction between 3rd person and OTHER (1/2 person). The OTHER (1/2 person) makes no distinction between singular, plural, feminine, and masculine; the same morpheme encodes all features. On the other hand, the 3rd person does distinguish between plural, masculine, and feminine as can be seen in Table 2 from Barnes (1984, 1994) and Barnes and Malone (2000). I analyze the agreement markers (the final vowel) as separate from the evidential morph. In this way the variation between present and past tense can be seen in the specific morpheme that encodes both tense and evidentiality.

Table 2: Tuyuca evidential paradigm in past and present

	VIS	NVIS	APR	SCD	ASM
PAST					
OTHER(1/2)	-w-ɨ	-t-ɨ	-y-u	-yir-o	-hĩy-u
3MSG	-w-i	-t-i	-y-i	-yig-ɨ	-hĩy-i
3FSG	-w-o	-t-o	-y-o	-yig-o	-hĩy-o
3PL	-w-a	-t-a	-y-a	-yir-a	-hĩy-a
PRESENT					
OTHER(1/2)	-a	-g-a	___	___	-k-u
3MSG	-i	-g-i	-hĩ-i	___	-k-i
3FSG	-y-o	-g-o	-hĩ-o	___	-k-o
3PL	-y-a	-g-a	-hĩr-a	___	-ku-a

4.1.1 Types of evidentials in Tuyuca

Tuyuca has five evidential categories that refer to the source of information of the speaker. The morphosyntactic distribution of these types is the same: suffixed to the end of the verb stem (or auxiliary). In clauses where there is a main verb and an auxiliary the evidential morpheme attaches to the auxiliary, marking tense and agreement for the whole clause in which the main verb occurs; (1)-(3). In these cases the auxiliary is marked for agreement through the evidential morpheme and the verb is marked for agreement by a separate set of agreeing suffixes. When there is no auxiliary the evidential attaches directly to the verb stem, marking tense and agreement on the verb directly (4)-(6).

Tuyuca: Barnes (1984, 1994)

(1) apé-gɨ **tií-i**
play-MSG do-PRES.EVD.VIS.3MSG
'He is playing'

(2) wáa-rigɨ **nĩ́-w-i**
go-3MSG be-PST.EVD.VIS-3MSG

'He went'

(3) bué-go **tií-a**
study-FSG do-PRES.EVD.VIS.1/2
'I am/you are studying'

(4) tutí-**w-i**
scold-PST.EVD.VIS-3MSG
'barked'

(5) eá-**w-a**
rrive-PST.EVD.VIS-3PL
(they) arrived'

(6) sĩã-**yíg-ɨ́**
kill-PST.EVD.SCD-3MSG
'he killed'

The order of morphological affixes for the verb is given in the template in (7) and for the main verb plus auxiliary in (8). Optional elements are in parentheses and obligatory elements are not. In other words, the verb root and the tense-evidential with agreement marker are obligatory. (The '+' symbol indicates a strict surface ordering relation in which V always comes before AUX and there is no intervening material).

(7) $[V_{ROOT}$-(ASP)-(MODAL)-(MOOD)-T.EVD-$AGR_{SUBJ}]$

(8) $[V_{ROOT}$-$AGR_{SUBJ}]$ + [AUX -(NEG)-(REC.PST)-T.EVD-$AGR_{SUBJ}]$

The five evidential categories split typologically between one direct form and four indirect forms, as mentioned above. The [± 3rd person] forms are grouped under PST and PRES tense, as can be seen in Table 2. Barnes (1984, 1994) names two evidential categories that are not common in the literature: APPARENT and SECONDHAND. These are equivalent to the more common terms INFERRED and HEARSAY, respectively. There is no evidence that Barnes' terms refer to categories independent from the more common terms.

4.1.2 Tense and Evidentiality

Tense and Evidentiality are fused in the same morph. For example, in the NONVISUAL category (Table 2) the agreement is regular between tenses but the tense-evidential varies from PST /-t-/ to PRES /-g-/. The whole paradigm is not completely regular but the systematic variation in forms of present and past tense-evidentials is enough to conclude that the morphs are fused. In the case of the present VIS 1/2 and 3MSG, the tense, evidential, and agreement are all fused in the form of /-a/ and /-i/.

4.2 The Estonian Tense-Evidential

Campbell (1991) and Harris and Campbell (1995: 98-100) show how Estonian developed an indirect evidential from participle endings in subordinate clauses, which were then extended to main clauses. The result of this change left the participle interpretation in subordinate clauses intact, with a new reported speech evidential suffixed to finite verbs in main clauses (9)-(11) and subordinate clauses (12)-(13) in both past tense /-vat/ and present tense /-nud/.

Estonian: Harris and Campbell (1995), Campbell (1991)

(9) ta tege-**vat** töö-d
he.NOM do-PRES.INDIRECT work-PARTITIVE
'(They say) He is working.'

(10) ta tei-**nud** töö-d
he.NOM do-PAST.INDIRECT work-PARTITIVE
'(They say) He worked.'

(11) naabari peranaine ole-**vat** linna sõit-**nud**
neighbor.GEN lady.NOM is-PRES.INDIRECT town.Into travel-PAST.INDIRECT
'(They say) The neighbor lady has traveled to town.'

(12) sai kuul-da, (et) seal üks mees ela-**vat**
got hear-INF (that) there one.NOM man.NOM live.PRES.INDIRECT
'S/he came to hear (that) (they say) a man lives there.'

(13) isa ütles poja-le, (et) ta sõit-**vat** homme linna
father said boy-To (that) he travel-PRES.INDIRECT tomorrow town.into
'The father told the boy to travel to town tomorrow.'

Interestingly, the participle endings were already fused with tense. In this case the fusion of tense was already 'fed' into the reanalysis of the evidential. However, one still has to account for the fusion synchronically – and this requires an explanation for the licensing of fusion between tense and evidentiality. Knowing the historical path of development for tense-evidentials does not explain their fused morphosyntactic structure, but this knowledge may be helpful in determining the possible hierarchical relations that license sisterhood between Tense and Evidentiality, and thus, provides the right environment for morphological fusion.

4.3 Georgian

Data on Georgian evidentiality appear to show that the evidential is fused with Aspect. Tense is typically analyzed as fused with the agreement marker (Halle and Marantz 1993, Bejar 2001). The verb 'see' is fused with the evidential, (14)-(21). The tense-agreement

morphemes of the Georgian verb can be analyzed as separate from the fused evidential-verb.

Georgian: Bejar (2001)

(14) m-**inaxav**-s
1SG-EVD.see-3
'I have seen him/them.'

(15) gv-**inaxav**-s
1PL-EVD.see-3
'We have seen him/them.'

(16) g-**inaxav**-s
2SG-EVD.see-3
'You have seen him/them.'

(17) g-**inaxav**-t
2PL-EVD.see-PL
'You-all have seen him/them.'

(18) u-**naxav**-s
U-EVD.see-3
'He has seen him/them.'

(19) u-**naxav**-t
U-EVD.see.PL
'They have seen him/them.'

(20) v-u-**naxav**-var
1SG-U-EVD.see-1
'He has seen me.'

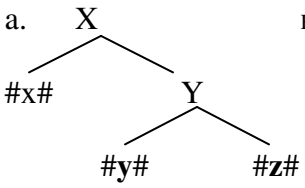
(21) v-u-**naxav**-var-t
1-U-EVD.see-1-PL
'He has seen us.'

The evidential set (14)-(21) represents part of the inverse paradigm of agreement in Georgian (see Georgian data in Bejar (2001) for descriptions of inverse agreement; see also Halle and Marantz (1993: 117-120) for a non-inverse set of fused tense-agreement forms that parallels the set here – where my (14), (15) correspond to their (2g,h) and my (20), (21) correspond to their (2a,b)).

5 Fusion, Distributed Morphology, and tense-evidential morphemes

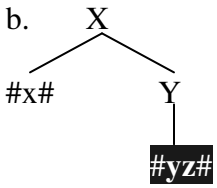
Fusion is the combination of morpho-syntactic and morpho-phonological features of two *terminal sister nodes into one terminal node* in which only one vocabulary item can be inserted (Halle and Marantz 1993). As the latter note, fusion is different from head-to-head movement or merger because these latter syntactic processes do not combine terminal nodes. At least two terminal nodes remain when head-to-head movement and merger have applied, whereas *fusion results in one terminal node*. A general structure for fusion is shown in (22), taken from Kandybowicz (2006).

(22) a.



FUSION OF **y** AND **z**

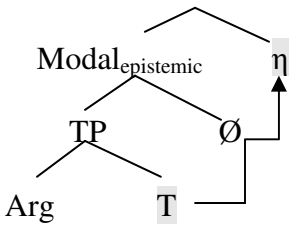
b.



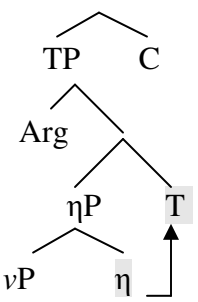
The standard syntactic definition for sisterhood follows: **y** *is a sister of* **z** *if there is a* Y*, such that* Y *immediately dominates both* **y** *and* **z** (Carnie 2008: 35). In (22a) **y** and **z** are sisters; they can also be the product of head-to-head movement or merger, which 'feeds' fusion, according to Halle and Marantz (1993).

The syntactic position of evidentials is typically regarded as above TP (Cinque 1999).[5] In (23a) I show the structure that results from adopting Cinque's hierarchy in a Spec-Comp-Head order, while (23b) represents an alternate model in which the Evidential Phrase (ηP) is the complement of TP in a Spec-Comp-Head order; where Arg = argument is in spec,TP.[6]

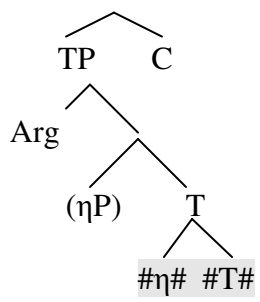
(23) a



b.



b′.



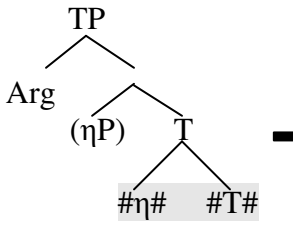
In (23a) the Cinque hierarchy is kept intact and shows that a sisterhood relation between Tense and Evidential can only occur when T moves to Mood$_{evidential}$ – given the restriction on lowering of elements in the antisymmetric (Kayne 1994) framework that

[5] Cinque's (1999) functional hierarchy is one of the first generative works to take the syntax of evidential morphemes serious. It is based on a large set of cross-linguistic data and is not intended to provide in-depth analyses of each language in the data set. See Kaye 1976 for the first generative, pre X-bar theory, analysis of evidentials.

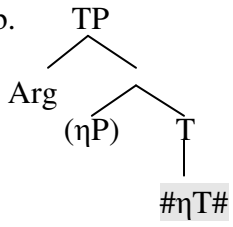
[6] I leave open for now the issues and consequences resulting from adopting a strict LCA – in which the orders of (23) would be derived from a Spec-Head-Comp order. See Li (2005: 160) for a modified version of the LCA, the MLCA, in which the universal order is Spec-Comp-Head.

Cinque adopts. I do not pursue the (23a) model here. In (23b), where the evidential is base-generated below Tense, the sisterhood relation arises from the evidential head moving to the tense head. In terms of movement and merger, (23b) requires less syntactic (Merge) operations than (23a). For example, in (23a) TP merges with Modal which then merges with Mood. Then, T must internally merge with Modal (in the case where the modal head is phonologically null such as Tuyuca) and then must internally merge again with Mood. At this point fusion can happen. (23b) shows that the ηP (Eta Phrase) complement merges with TP and then the η head internally merges with the T head. It is here that fusion can occur. In other words, the *inclusion* and *accessibility* conditions that license *sisterhood* in (23b) are more local than (23a). Another benefit of (23b) is that any Aspect Phrase that may interact with Tense and Evidentiality is "closer" to the evidential morpheme (assuming AspP is under TP universally; see Cinque 1999). In languages where there is complex interaction of tense, evidential, and aspect morphemes the structure in (23b) is more accommodating. Additionally, the option of (23b) has been argued for by Chung (2005: 162), who amends Cinque's (1999) analysis of the Korean evidential and proposes a structure in which Tense has scope over the evidential morpheme.[7] Additionally, the derived (23b′) is assumed in Ince's (2006) analysis of Turkish sluicing, where he allows an $Evid^0/T^0$ that projects the EvdP/TP. This is easily derived from (23b′), renumbered (24a), leading to the fused tense-evidential in (24d); Arg is in spec,TP and (ηP) is the complement of TP in a Spec-Comp-Head order (see footnote 6).

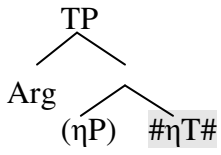
(24) a.



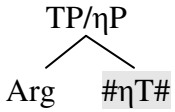
b.



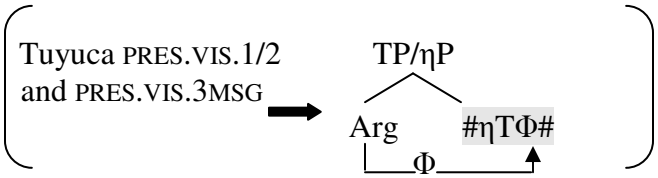
c.



d.



e.



The derivations in (24), I argue, explain the Tuyuca morphology of tense-evidentials in a straightforward way. (24d) is the final, derived, form and (24e) represents

[7] Aniko Csirmaz (p.c.) and a participant at WIGL 6 have questioned whether it is semantically feasible for Evidential to be under Tense. I have no adequate answer why, semantically, T should scope over E. However, it seems possible that there may in fact be two E positions in the functional hierarchy – one for the CP domain and one for the TP domain. In this case, a higher speech act E_1 has scope over T_1 (conforming to Cinque's 1999 hierarchy), while T_1 can also scope over a lower predicational E_2 (conforming to my hierarchy for fused tense-evidentials). But this needs to be verified empirically (see Bowles 2007 for some initial arguments about two Evidential positions in Tuyuca).

the special case where tense, evidential, and agreement morphology are all fused. As for Estonian, tense is fused with the participle ending from which the evidential interpretation was derived. If one assumes, for simplicity, that participle features are base-generated in an $AspP_{participle}$ (or some other Aspect Phrase) which is fused with the Tense head in Estonian, then under the analysis here it seems natural for a process of morphological reanalysis to apply to the fused $T^0/Asp_{participle}{}^0$ head, resulting in a new maximal projection TP/ηP which is above Aspect and under Tense. Assuming a general theory of morphological reanalysis in the Minimalist Program, (, Lightfoot 1991, Roberts 2007; but also Nowak et al. 2002, Niyogi 2006, and see Kemenade 2007 for an overview), Estonian children could have reanalyzed the tense-participle as a tense-evidential if the universal functional hierarchy has ηP above Aspect and below Tense. The origin of Tuyuca evidentials has also been claimed to be aspectual (Malone 1988, and §**2**). An explanation for the origin of Tuyuca evidentials follows from the Estonian explanation here. That is, parametric differences in a functional hierarchy in which an Evidential Phrase ηP is located under TP and above AspP. Both Tuyuca and Estonian provide initial support for the derivational model of (23b), (23b′), and (24).

Georgian is more complex. I Follow Bejar's (2001) analysis of Georgian agreement, which employs McGinnis' (1997) hypothesis that Georgian evidentials have the same structure of psych-verbs (25). I now make appeal to what has been called "situation aspect " or "inner aspect" (Travis to appear – cited in Carnie 2008) that is generated within *v*P and occurs where AgrO used to be (26). I assume that (25), (26) represent the same overall structure.

(25) a. evidential: T…*v*…[DAT …*v* **EVID**… [V …OBJ]
b. psych-verbs: T…*v*…[DAT …*v* PSYCH… [V …OBJ]
(Bejar 2001: 46)

(26) [*v*P *v* [$_{AspP}$ Asp [$_{vp}$ ...V…]]]
(Carnie 2008: 241)

Carnie (2008: 241) says that "inner aspect" is roughly equivalent with Aktionsart and is also the locus of marking case on the object. This is generally consistent with Georgian evidential verbs. In Georgian, the verb 'see' is fused with the evidential, (14)-(21). The morphology of Georgian evidential verbs does not suggest that the evidential is fused with Tense. And in fact, Halle and Marantz (1993) represent the agreement features of Georgian as having fused Tns-Agr (tense-agreement). These Tns-Agr morphemes of the Georgian verb, whether in the regular or inverse paradigm, are analyzed as separate from the fused evidential-verb. Furthermore, evidentiality in modern Georgian and related languages, such as Svan (Sumbatova 1999), is usually interpreted as perfective or imperfective aspect and plays a crucial role in case marking the object. I believe this suggests that Georgian evidentiality does not fit the derivational model of (23b)-(24), but instead is fused with some "inner" aspect – along the lines of (25), (26). Fusion of an evidential morpheme with Aspect is more natural under the model of (23b)-(24) because of the locality of the ηP to a possible AspP, i.e. *inclusion* and *accessibility* are more local

in (23b)-(24) than in (23a) if the ηP is located under TP and above AspP in a functional hierarchy. The case of Georgian evidentiality is beyond the scope of this paper; however, it appears to provide circumstantial support for the model of (23b)-(24).

6 Conclusion

I have provided a brief sketch of the phenomenon of tense-evidentiality through a basic typological profile with accompanying data from three languages: Tuyuca, Estonian, and Georgian. I briefly described the general understanding of evidentials in current generative theory, giving a brief description of the analysis that I implicitly adopt, Speas (2004, 2007), claiming that it could be predicted to be correct independently by the analysis given here. Assuming Speas' general theory to be correct, I adopted the Distributed Morphology framework of Halle and Marantz (1993), employing their concept of morphological fusion to the general structure of tense-evidentiality. I provided two models, one based on Cinque (1999) and the other my own, and briefly argued that my model is preferable on three points: (i) it is syntactically less costly as it requires less Merge operations, (ii) it exploits locality in syntactic hierarchies (*inclusion* and *accessibility*) for forming sisterhood relations required for morphological fusion, and (iii) it provides a basis to account for synchronic *and* diachronic data of evidentials and their intimate interactions with the aspectual and tense domains in Tuyuca, Estonian, and Georgian.

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Abbreviations

1/2 = first/second person, singular or plural, 3 = third person, APR = apparent evidential, ASM = assumed evidential, AUX = auxiliary, DAT = dative, EVD = evidential, F = feminine, M = masculine, NVIS = nonvisual evidential, OBJ = object, PL = plural, PST = past, REC.PST = recent past, SCD = secondhand evidential, SUBJ = subject, VIS = visual evidential