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Part Two

## INHERITANCE, CONTACT AND CHANGE IN THE NEW GUINEA HIGHLANDS EVIDENTIALITY AREA

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### ABSTRACT

The Highlands of Papuan New Guinea is the location of an evidential *Sprachbund* that includes at least fourteen languages from six language families with grammaticized evidentiality. As with other linguistic features in New Guinea, evidentiality has spread across genealogical boundaries through repeated language contact. In this paper, we examine likely paths of development of the various subsystems and the spread of evidentiality as a whole. The evidence presented here points toward the Engan language family as the most likely source for at least some of the evidential markers and distinctions found in the region, supporting previous suggestions by other researchers.

**Key words:** evidentiality, historical linguistics, Papuan languages

### 1. INTRODUCTION

The New Guinea Highlands evidentiality area includes at least 14 languages from six language families (San Roque & Loughnane 2012). In this paper we suggest that the evidentiality area provides examples of convergence and parallel development across numerous language families that are (at most) distantly related. Such diversity of contact and inheritance situations is a hallmark of New Guinea as a linguistic area, where multilingualism and borrowing have long been the norm (Ross 1996). Relationships between the evidential systems of the area also illustrate several points of interest in regard to the transmission and development of evidential categories.

In Section 2 we introduce the linguistic and cultural groups involved, give an overview of evidentiality in the region, and outline views concerning the transmission of evidentiality as a grammatical category. In Section 3 we compare evidential markers and, where possible, propose

histories of emergence, noting that a full reconstruction of the forms and their origins would be premature. Section 4 summarizes our main findings.

## **2. EVIDENTIALITY AND THE NEW GUINEA HIGHLANDS**

### **2.1 THE LANGUAGES**

The presence of an evidentiality area centred around Enga and Southern Highlands provinces in Papua New Guinea was first pointed out by Foley (1986: 165). Beyond this group of contiguous languages, grammaticized evidential markers appear to be quite unusual in languages of New Guinea. The Highlands area under study here has been recognized as significant to developing the typology of evidentiality (Aikhenvald 2004, Plungian 2011), and recent work (San Roque and Loughnane 2012) has established that the *Sprachbund* is larger and more complex than originally assumed.

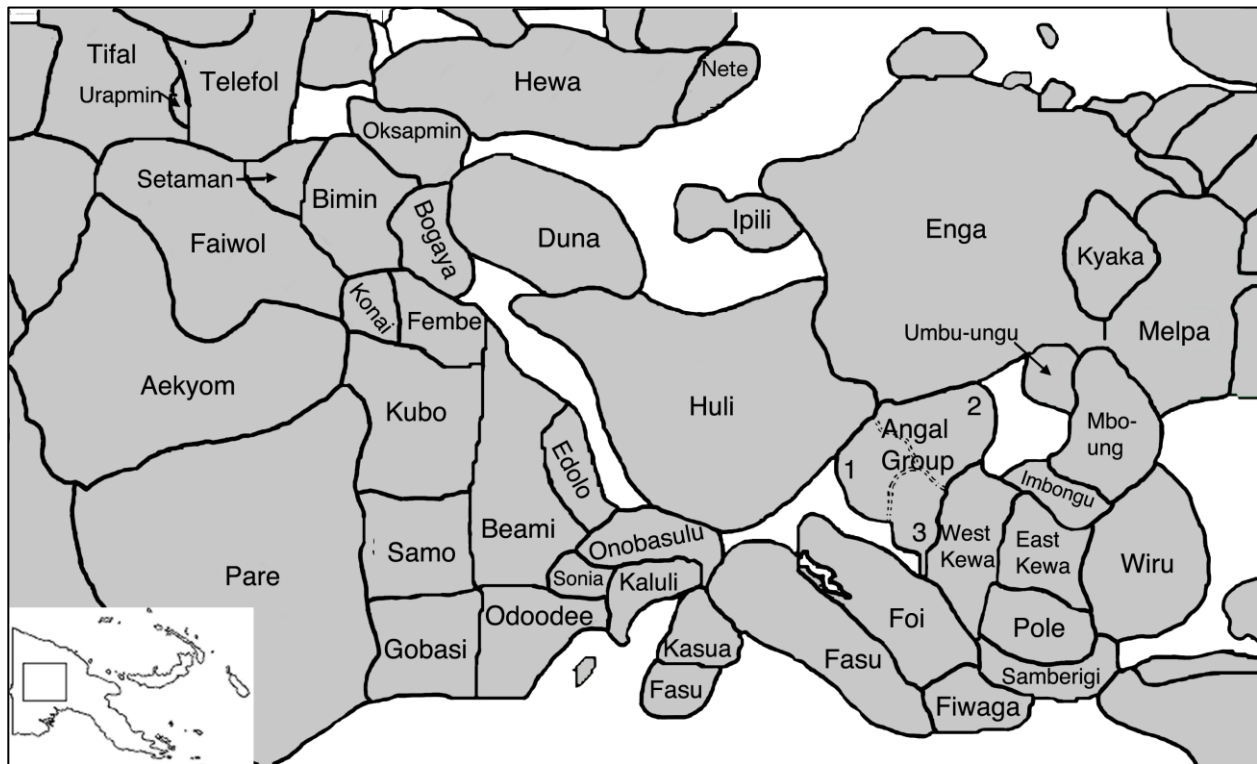
In the survey that forms the basis of the present study (see San Roque and Loughnane 2012), we focused on a narrow definition of evidentiality, looking for bound verbal morphology with source of information as its primary meaning (see §2.2). Narrow evidential markers are present in at least 14 languages (and probably more) from at least six different languages families (see Table 1).

The main speaker groups of the relevant languages are located in Sandaun (West Sepik), Hela, Southern Highlands and Enga provinces, with a small presence in Western, Gulf and East Sepik provinces. Table 1 lists the languages, their currently posited subgrouping (as per Ross 2005, unless otherwise indicated), the approximate size of speaker populations, and the main sources consulted for the survey. Map 1 shows the location of the languages. Owing to a scarcity of accessible sources, we were not able to determine with certainty the presence or absence of grammaticized evidentiality in the Engan and Bosavi languages other than those named in the table<sup>1</sup>. Available sources strongly suggest that grammaticized evidentiality is also present in the isolate Wiru (Kerr 1967: 102-103), which directly adjoins the confirmed area, possibly in Hewa (Cochran 1968: 138), and even as far afield as Samo (K. Shaw 1973: 210, 212) and Aekyom (Stewart 1989: 45). These languages are important areas for further study.

Table 1: Known languages of the Highlands New Guinea evidentiality area

<b>Family Classification</b>	<b>Language name</b>	<b>Approximate size of speaker group</b>	<b>Main sources</b>
Ok-Oksapmin (Loughnane and Fedden 2011)	Oksapmin	8,000 (Lawrence 1993)	Loughnane (2009; own fieldnotes)
Duna-Bogaia	Duna (Yuna)	25,000 (Haley 2002)	Giles (n.d.), San Roque (2008; own fieldnotes)
	Bogaia (Bogaya, Pokoi)	300 (Sillitoe 1993)	Seeland (2007a, 2007b)
Engan	Huli	70,000 (M. Lewis 2009) 250,000 (N. Lewis 2007)	Rule (1974, 1977), Lomas (1988)
	Enga	160,000 (Draper and Draper 2002) 300,000 (Gibbs 2011)	Lang (1973), Draper and Draper (2002)
	Ipili	26,000 (Borchard and Gibbs 2011)	Borchard and Gibbs (2011), Borchard (email comm.), Ingemann (2011, email comm.)
	Pole (South Kewa, Erave)	10,000 (M. Lewis 2009)	Rule (1977)
	Kewa	45,000 (West Kewa; Franklin and Kirapeasi 2009)	Franklin (1964, 1971), Franklin and Franklin (1978)
	Angal group: Angal Heneng Angal Henen Angal Enen	Angal group (80,000): 40,000 Angal Heneng 18,600 Angal Henen 22,000 Angal Enen (Lewis 2009)	Reithofer (2011, email comm.), Madden (nd), Tipton (1982)
East Kutubuan (isolate)	Foe (Foi)	3,200 (Rule 1977)	Rule (1977)
West Kutubuan (isolate)	Fasu (Námo Mē)	1,100 (Gilberthorpe 2007)	Loeweke and May (1980), May and Loeweke (1981).
Bosavi	Kaluli (Bosavi)	2,500 (Grosh and Grosh 2004)	B. Schieffelin (1985, 1990, 1996), Schieffelin and Feld (1998), (Rule (n.d.), Grosh and Grosh (2004)
	Edolo	1000 (Gossner 1994)	Gossner (1994)
	Onobasulu	800 (Dondorp and Rule 1998)	Dondorp (pers. comm.); Dondorp and Rule (1998)

All the languages listed in Table 1 are classified by Wurm (1982) as Trans-New Guinea (TNG). Ross (2005) confirms this classification, largely based on apparent reflexes of posited TNG pronominal segments (e.g., \*na ‘1SG’). Membership of TNG is somewhat tentative for Foe and Fasu (Ross 2005: 37) and careful bottom-up historical-comparative reconstruction remains to be done for the larger family as a whole. Closer relationships within languages of the evidential area remain underexplored and subject to dispute. For example, Foe and Fasu have been classified as related languages that form a Kutubuan ‘stock’, and within a subgrouping that includes Engan languages, but are now treated as isolates, and Oksapmin (previously believed to be an isolate) has recently been identified as related to the Ok languages (Loughnane and Fedden 2011). The only family with much proposed internal structure is the Engan family, which Wurm (1982) describes as comprising three sub-branches, Angal-Kewa (all Angal and Kewa varieties, including Pole, and Samberigi/Sau), Huli (as the only member of its sub-branch) and Enga (Enga, Ipili, and all other Engan languages)<sup>2</sup>. Further detailed study is needed to gain a more complete picture concerning subgrouping relationships and the extent and number of varieties among the languages of the evidentiality area.



Map 1. Languages of the region (Boundaries as represented in Haley 2002, Rumsey & Niles 2011 and <http://www.muturzikin.com>. 1= Angal Heneng, 2 = Angal Henen, 3 = Angal Enen)

The languages shown in Table 1 share certain typical TNG features, such as unmarked SOV word order and a distinction between medial and final clauses. The verb is the only obligatory constituent of a verbal clause and is the locus of the most complex morphological operations. Bound morphology in all the languages is primarily suffixal or encliticized (i.e., attaches to the right edge of the stem), some exceptions being a negating prefix or circumfix that is present in several languages of the area, and object and transitivity prefixes in Oksapmin. Such typological features are not necessarily a result of distant genetic relatedness, but may also reflect convergence due to processes of language contact typical to New Guinea (Foley 1986: 263-68; Durie and Ross 1996: 13). One feature expected for TNG languages that is not shared across the evidentiality area is person marking on the verb: only the Engan family languages have obligatory affixes for both person and number of the subject. This lack is striking in the context of the fact that evidential marking correlates strongly with subject identity (see Aikhenvald 2004:

325-237; Curnow 2002; San Roque and Loughnane 2012 for discussion), thus to some extent bearing the functional load of verbal subject marking.

For the most part, available data suggest only a very small amount of shared vocabulary between languages of the evidentiality area that are not grouped together at a level lower than Trans–New Guinea. For example, Rule (1977: 11-28) determined that, within a 349-item word list, Foe and Huli (now classified as belonging to separate families) had only 17 lexical resemblances (4.8%), compared to 96 (27.5%) between Huli and Pole (which are both classified as Engan). Exceptions to this include pairs such as Duna and Huli, which are not classified as belonging to the same family but show many lexical resemblances, even in core vocabulary such as body parts and kin terms (for example, D. Shaw 1973 found a 27% to 32% resemblance rate in a 170-item word list). This is presumably because of borrowing from Huli into Duna (see §2.2; San Roque 2008: 7-9; Voorhoeve 1975: 395). These figures also illustrate the unreliability of assuming relatedness in New Guinea based on lexicostatistics, long recognized as providing only an indication of where to look further for genetic relationships, but not proof in itself of a relationship or degree of relationship (Meillet 1958: 97; Nichols 1996; Durie and Ross 1996: 8).

The typological similarity but limited shared vocabulary found in this group of languages is exactly what is to be expected given the linguistic situation in New Guinea, where there has been no dominant lingua franca across the island, but rather small-scale multilingualism over a long period of time. This widespread and repeated multilingualism has led to convergence across the area (through metatypy; Ross 2001: 153). Parallel to this convergence, processes of divergence due to group solidarity (esoterogeny) ensure diversity of, in particular, lexical material (Foley 1986: 283; Thurston 1987, 1989). So, despite the probable shared genetic origin of the languages in question, the effect of thousands of years of processes of convergence and divergence should not be underestimated.

## **2.2 CULTURE AND CONTACT: THE SOCIOLINGUISTIC SETTING**

The ethnolinguistic groups represented in the evidentiality area are diverse, inhabiting very different geographical environments and following quite distinct ways of life, for example in regard to subsistence, social structure, material culture, and ritual practice. The Enga are a very

large, dominant group with much internal diversity, but generally exemplify what have been seen as “classic” New Guinea highlands cultural attributes, including a focus on patrilineal descent and “big-man” society with large-scale exchange practices (see, e.g., Brown 1978; Feil 1987). The other groups match this prototype to varying degrees (see Hays 1993 for discussion of purported ‘Highlands’ characteristics). For example, although the patriline is important throughout the region, inheritance and affiliation structures differ considerably. Compare, for example, the strictly unilineal Enga (Brown 1978); the multi-generational cognatic descent system of the Duna (Haley 2002); and the shallow father-son *kepo* structure of the Fasu (Gilberthorpe 2007). The Enga, Huli, Angal, Ipili and Duna groups mostly occupy mid-to-high altitude areas, with the Engan groups in particular having high population density. Bosavi family language speakers, and the Fasu and Foe, all identified by Weiner (1988) as “highlands fringe” peoples, have smaller speaker groups and more dispersed populations, typically living in lower altitude areas spreading out on to the Papuan plateau, while the tiny Bogaia population live in rugged country along the Strickland Gorge, with a territory spanning altitudes of 200m to 3000m (Sillitoe 1993: 5). The Oksapmin are the only group within the linguistic area that live on the north-west side of the mighty Strickland River.

Much more study is needed to come to grips with the complex issue of population movements of so many speaker groups over time. The peoples involved may represent quite diverse origins, for example, it has been suggested that the Fasu and Foe migrated inland from the south (Weiner 1988, Rule 1977). Ross (2005) notes that the broad, fertile valleys in Engan language family areas have generally facilitated the expansion of these groups, in some cases quite recently. For example, the Huli have been present in the Tari area for (at least) many hundreds of years (Ballard 2002), but are likely to have expanded into and consolidated their current territory only within the last two or three centuries, since the introduction of sweet potato, and this is also true for the Enga (Feil 1987).

Relationships between the different ethnolinguistic groups are complex and varied. The larger Engan groups (Enga, Huli) tend to dominate and be feared by their smaller neighbours, such as the highlands fringe and Duna populations (see, e.g., Borchard and Gibbs 2011: 166; San Roque 2008: 8-9), while the Duna are sometimes viewed by their smaller neighbours (Bogaia, Hewa,



Fembe) as similarly domineering. Meanwhile, the Duna, Huli, and Angal have traditionally had fearful regard for their southern neighbours (speakers of Bosavi and East Strickland languages, and the Fasu and Foe), believing them to be cannibals and powerful sorcerers (Weiner 1988, Reithofer 2001, Williams 1940-1941). Old relationships of enmity are also present within the fringe groups, for example Schieffelin (2005 [1976]: 13) describes deadly past warfare between Kaluli and Edolo peoples.

Woven in with these tensions and divisions, Reithofer (2011: 210) notes a pattern of “intense intercommunication and interdependence” across cultural, linguistic and physical boundaries throughout the region. Several groups (including smaller affiliated units within the larger language groups) have been identified in the anthropological literature as “transitional”, being situated at “confluences” of major cultural and linguistic diversity (e.g., Stürzenhofecker 1994, Reithofer 2011, Sillitoe 1995). While people are generally very aware of specific differences of their neighbours’ language, dress and custom (see, e.g. the Huli aphorisms quoted in Goldman 1983), hybridity can also be seen in material culture, for example Rule (1977: 2-3) notes that Pole traditional dress is similar to that of the Huli, but includes wide bark belts like those of the Foe. Neighbours typically intermarry (e.g., the Ipili with the Enga, and to a lesser extent the Hewa, Borchard and Gibbs 2011: 166), and affiliations and relationships across such boundaries may be just as or more important than those within the same language group (see, e.g., Gilberthorpe 2007: 104; Reithofer 2011: 210). Many of the groups identify themselves as having common origins as ‘sons of Hela’, a shared mythical forbear, although precisely who is of Hela origin, and the account of where Hela first sprang to life, differs from group to group (e.g., the Duna of the Kopiago region generally include the Hewa but not the Angal, while according to Reithofer (2011) the Angal include the Duna but not the Hewa). Specific clan or tribe genealogies may also include members of other language groups, for example, social units within the Bogaia trace their ancestry to spontaneous origins in Bogaia country, or to Oksapmin, Duna or Fembe individuals (Sillitoe 1995). The Oksapmin, however, tend to be more culturally engaged with other Ok peoples, especially the Bimin and (to a lesser extent) the Telefomin, although instances of marriage between Oksapmin and groups from across the Strickland were attested during fieldwork. More research is needed to explore the extent of present and past cultural connections between Oksapmin and the highlands groups.

The literature records several (presumably longstanding) trade relationships across the area, for example, black palm bows and cosmetic oil from the Fembe and Kutubu (Fasu and Foe) region were traded for salt and axes from the higher altitude groups, often with the Bogaia and Bosavi acting as intermediaries (see, e.g., Sillitoe 1993: 22; E. Schieffelin 2005 [1976]: 13-14). Many of the ethnolinguistic groups also “trade” or borrow mythology, folklore and cults, and are connected through ritual networks (see, e.g., Strathern 1995) although these relationships may not always be reciprocal. For example, in the past the Huli apparently regarded the Kaluli as pivotal to one of their major rituals, but the Kaluli had no active involvement in (or even knowledge of) this (Clark 1995: 384).

The relationships outlined above have provided fertile ground for linguistic exchange. Multilingualism is reported to be the norm in border areas between the Huli/Duna, Huli/Angal, and Angal/Enga (Reithofer 2011), although it is not clear how balanced these situations are. For example, some Duna speakers are concerned that Huli is replacing their language throughout the Duna homelands (see San Roque 2008), suggesting that Huli is used more by Duna speakers than the other way around. There is a small amount of lexical borrowing reported for border areas between Ipili/Duna and Ipili/Hewa, but Enga remains the most dominant influence for Ipili speakers (Terence and Borchard 2011). Enga is also identified by M. Lewis (2009) as a “trade language”, although the area for which this assessment is relevant is not specified. One known Duna border community self-reports as being trilingual in Duna, Oksapmin, and Hewa, and many Bogaia people speak Duna (see San Roque 2008; Stewart and Strathern 2004) and/or Oksapmin, but the reverse is not true. Oksapmin/Bimin bilingualism may have been common in the recent past (although not so much nowadays), and Onobasulu speakers are reported to use Kaluli and Edolo in their communities (Lewis 2009, Candee 2012). All of the languages discussed, with the possible exception of Bogaia, are reported to be still vital and learnt by children. However, Tok Pisin is also widespread as a second language for adults and is gaining ground with children in many communities, adding both another layer of linguistic complexity, and (presumably) a disincentive for maintaining multilingualism in indigenous languages.

Recent history has been a time of endemic and epidemic upheaval for peoples of the Highland and Highlands fringe regions. For many language groups within the evidentiality area, it is only

within the last fifty years or so that government and mission administrative centres and activities were established (many of which have since become defunct), and that people began to be drawn into contact with larger provincial, international, and (following Papua New Guinean independence) national bodies. Mining and other large scale mineral resource extraction projects (e.g., Ok Tedi, Porgera, Kutubu Oil) have had a very high impact on the region, and in recent decades interactions between and within ethnolinguistic groups of the area have also included disputes concerning land rights and royalties.

### **2.3 EVIDENTIALITY AND ITS TRANSMISSION**

Evidentiality concerns the linguistic encoding of knowledge, in particular the evidence that someone has for a proposition. Evidentiality has both “narrow” and “broad” definitions. Under typical narrow definitions (e.g., Willett 1988, Aikhenvald 2004), evidential markers have a core meaning of “source of information”, and comprise a grammatical system, for example one morphological paradigm. Broader definitions (e.g., Chafe 1986) treat evidentiality more generally as marking features to do with knowledge (especially its reliability), and include lexical items, such as adverbs and verbs of perception or cognition, as markers of evidentiality. Evidentiality is often an areal feature, and some “hotspots” other than New Guinea are the western Amazon, western United States, Caucasus and Himalayas (see de Haan 2011). Some common types of information source that are marked with evidentials (adapted from Aikhenvald 2004, Willett 1988) are shown in Table 2, and illustrated in (1) to (5) with examples from Duna. The cross-linguistic validity of these categories remains open to dispute, and information source markers may differ considerably across languages in terms of their exact semantics and pragmatic implications. However, these categories suffice as an initial framework for exploring the languages of the New Guinea area (see San Roque and Loughnane 2012 for further discussion).

Table 2: Common types of information source marked with evidentials

Label	Description	Example
Visual	the event was seen	1
Sensory	event was perceived with non-visual senses	2
Results	speaker observed (resultative) evidence of the event	3
Reasoning	inference based on complex and creative deduction, a synthesis of several different knowledge sources.	4
Reported	speaker was told of the event	5

- (1) *Ita=na=ka no mbou ali=tia*  
 pig=SPEC-ERG 1SG garden dig.up=VIS  
 ‘The pig dug up my garden.’ (I saw)
- (2) *Ita=na=ka no mbou ali=yaritia*  
 pig=SPEC-ERG 1SG garden dig.up=SENS  
 ‘The pig dug up my garden.’ (I heard the sounds)
- (3) *Ita=na=ka no mbou ali=rei*  
 pig=SPEC-ERG 1SG garden dig.up=RESU  
 ‘The pig dug up my garden.’ (I saw the dug-up earth and pig droppings)
- (4) *Ita=na=ka no mbou ali=noi*  
 pig=SPEC-ERG 1SG garden dig.up=REAS  
 ‘The pig dug up my garden.’ (I saw some dug-up earth and someone told me their pig had escaped)
- (5) *Ita=na=ka no mbou ali=norua*  
 pig=SPEC-ERG 1SG garden dig.up=REP  
 ‘The pig dug up my garden.’ (I heard from someone who heard from someone)

As well as some or all of those evidential categories listed in Table 2, several languages of the New Guinea Highlands area mark an evidential category that has been less explored typologically. This is “participatory” evidence (term after Rule 1977), also called “performative” (Oswalt 1986) and “personal” (Loughnane 2009), where the information source for the event is the speaker’s (or a potential speaker’s) own participation in it. Participatory evidence can be understood as a special kind of “ego evidentiality” (see Garrett 2001:105). Participatory markers superficially resemble person markers in that they typically co-occur with first person subjects; however, there are several contexts (e.g., questions, conditionals, non-volitional events,

depending on the language) where this generalisation does not hold. An example from Oksapmin is shown in (6), contrasting with the visual-sensory evidential used in (7).

(6) *nox tap tit su-ti-p*  
 1s pig INDF kill-PFV-PCP.FP.SG  
 'I killed a pig.' (I did it)

(7) *ox tap tit su-n-gop*  
 3sm pig INDF kill-PFV-VIS/SENS.FP.SG  
 'He killed a pig.' (I saw)

Two other features important to several evidential systems of the New Guinea area concern (i) a distinction between evidence experienced at the time of utterance versus before the time of utterance, and (ii) the distinction between individual and shared evidence. These or similar parameters have been reported in other languages of the world, but, like participatory information source, are comparatively underexplored in the typology of evidentiality.

In discussing the Amazonian evidential area, Aikhenvald and Dixon (1998: 253-255) speculate that there are five possible motivations for why a language is synchronically organized in a particular way, and why a feature such as evidentiality might be present. These include i) genetic inheritance, ii) diffusional influence, iii) typological possibility, iv) organization of discourse and, (v) factors relating to the speakers and their environment. The fact that evidentiality is quite typically found as an areal feature suggests that factor (ii), diffusional influence, is especially likely to be important to its emergence (Aikhenvald 2004: 288-303; Epps 2005: 618; de Haan 2011). However, while contact may be an important trigger, it does not operate in isolation. Friedman (2004) begins his description of forces that have shaped the Balkan evidentiality area by discussing common descent, contact between previously isolated communities, and "the workings of natural tendencies in human languages that result in similar phenomena". He argues that both contact and typological or conceptual propensities, in combination with sociolinguistic contexts and pragmatic or discourse mores of language use, are responsible for the manifestation of evidentiality in the Balkan linguistic area. For example, a connection between perfect/resultative expressions and indirect evidentiality is attested across a range of unrelated and non-adjacent languages (see, e.g., Aikhenvald 2004: 279-281; Lohman 1937 as cited by

Friedman 2004: 118), suggesting that this could be a “natural tendency” as much as a contact phenomenon. On the other hand, development from a perfect into an evidential does seem to be most common where there is contact with a Turkic language (Friedman 2004: 123), affirming the probable importance of diffusional influence in combination with a typological propensity.

Through contact, evidentiality can be imported through direct borrowing (e.g., the evidential particle *-li* in Silven Romani is derived from the Bulgarian *-l* evidential [Kostov 1973: 108, as cited in Friedman 2004]), or through “conceptual convergence” (Fielder 1999), where native material is used to express a new distinction (e.g., where a resultative develops as a marker of indirect evidence). Aikhenvald (2004: 294) notes that direct borrowing of evidential markers is not common, conforming to a general disinclination to borrow grammatical morphemes, so that conceptual convergence of one kind or another is more likely. Larger evidential systems rarely show homogenous or parallel internal development, and even where a whole paradigm appears to be calqued, as described by Aikhenvald (2003) for Tariana, distinct evidential categories may have quite different histories. For example, Epps (2005) argues that non-visual and inferential evidentials in Hup (Vaupés-Japurá) originated from verbs, and developed as a result of relatively recent contact with Tukanoan languages. However, the Hup reportative clitic is an older form that does not have a clear lexical origin, and can be reconstructed for the Vaupés-Japurá family.

Speculation concerning the emergence of evidentiality in the New Guinea Highlands area has so far been concerned with the first two factors discussed by Aikhenvald and Dixon (1998) and Friedman (2004), that is, genetic inheritance and contact. The Engan family is identified as a key player in the evidential area (Foley 1986, Aikhenvald 2004), and Gossner (1994: 83) explicitly suggests that Engan languages are the source for this areal feature. Structural similarities between the languages (§2.1) presumably make it easier for categories like evidentiality to be calqued (although, see Harris and Campbell 1995: 123-125 for discussion of counterexamples to this assumption). One theory, then, is that an Engan language or forbear innovated evidentiality at some point in its history, and this subsequently spread through inheritance and/or contact to other languages in the region<sup>3</sup>. The overall dominance of Engan languages and culture groups in the area (see §2.2) supports this theory, for example, it is conceivable that in several contact situations (e.g., the Huli and the Duna), the Engan neighbour would have the upper hand.

However, there are also some points that might argue against an Engan origin, for example that the Engan languages do not have the most complex systems of the area, and that they may have expanded into their current central position in the area relatively recently.

In this paper, we argue that there is some evidence for genetic and contact transmission of evidentiality, but that typological propensity is also an important factor shaping the New Guinea Highlands area. As the examples mentioned above suggest, source domains for evidential markers can be heterogenous and diverse, including, for example, aspectual constructions (e.g., systems describe in Johanson and Utas 2000), verbs of perception (e.g., Maricopa, Gordon 1986), verbs of speech, demonstratives, and more (see Aikhenvald 2004: 271-287). In the context of the New Guinea area there are only a few languages for which we currently have sufficient knowledge to suggest specific pathways of development for evidential markers, and even these remain tentative. Within these limitations, we start the hunt in §3 by providing several initial hypotheses as a basis for future exploration<sup>4</sup>.

### **3. COMPARISON OF THE EVIDENTIAL MARKERS**

In this section we compare the known markers according to evidential category and, where possible, present likely historical scenarios for the emergence of the categories and forms. We do not undertake in-depth comparative-historical analysis, and this remains an area for future research. For more on the function and other features of these forms, see San Roque and Loughnane (2012) and other mentioned sources.

#### **3.1 OVERVIEW OF THE FORMS**

Table 3 shows the evidential markers and/or distinctions in each language, as identified in the sources listed in Table 1 and the analysis presented in San Roque and Loughnane (2012), with some refinements and additions. The identification of categories and forms must still be considered tentative and incomplete in some cases. An equals sign preceding the morpheme indicates that it is a clitic or particle rather than inflectional verbal morphology. For some languages, the evidential markers comprise a full verbal paradigm (e.g., with up to five tense

distinctions), and we do not include the forms in the table but discuss them in individual sections as relevant. Tone is contrastive in some languages, but in the present study we focus on segmental content only.

Table 3 shows that many of the languages have multiple and complex evidential distinctions, with forms that resemble each other in some cases and are poles apart in others. In the following sections we compare the forms for the information source types in each language (with the exception of the ‘reasoning’ category, for which few comparable examples are available) and comment on the presence or absence of the temporal and shared evidence distinctions.

Table 3. Known evidential markers in languages of the area

	<b>Participatory</b>	<b>Visual</b>	<b>Sensory</b>	<b>Results</b>	<b>Reasoning</b>	<b>Reported</b>	<b>Time</b>	<b>Shared evidence</b>
Oksapmin	(paradigm)	(paradigm) =xe		sa ~ se		=li		
Duna		=tia =rua	=yarua =yaritia	=rei =rarua	=noi	=norua	yes	(paradigm)
Bogaia		=ki	=ai					
Huli			-rua -yua	=da =ya			yes	=goni (?)
Enga			-lu	=lámo/ =lyamo	=lumu	=lámi =pya		
Ipili			-lu(a)	=ya =yala		=epia	yes	=koni (?)
Pole		(?)		=na =ya			yes	=nde
Kewa		=na				=ya		
Angal Heneng/Henen	(?)	(paradigm)	(paradigm)	=sa =e ~ i			yes	(paradigm) =nda
Angal Enen	(paradigm)							(paradigm)
Foe	(paradigm)	(paradigm)	(paradigm)	(paradigm)	(paradigm)		yes	(?)
Fasu	-sa ~ -su	a--re -rakasu ~ -rakasa	=rakae	=rea		=pakae		
Kaluli			=om	=lob				
Edolo		-sio	-sabeo			=wabu		
Onobasulu		=so						



### 3.2 PARTICIPATORY EVIDENTIALS

Three languages in the Highlands evidentiality area have a participatory category, used, for example, in talking about activities that the speaker knows about through volitional agency. The participatory markers in these languages can also have factual semantics (see Loughnane 2009, San Roque and Loughnane 2012 for discussion). In all three cases, the participatory evidential is coded by a portmanteau suffix also encoding tense (and, in Oksapmin, number of the subject). In Oksapmin (8) and Fasu (9), the participatory suffixes contrast paradigmatically with visual-sensory suffixes. The latter include more phonological material than the participatory markers and are thus likely to have a more morphologically complex origin. In Foe (10), the participatory contrasts with five other evidential forms and is not clearly the morphologically unmarked of these, except in the near-past and, possibly, far-past tenses. See also Lawrence (1987) for discussion of the Oksapmin distinction as ‘viewpoint’.

(8) *nuxut gəl ml di-pa*  
 1d cut DO(TR)(.SEQ) eat.PFV-PCP.FP.PL  
 ‘We cut it up and ate it.’ (OKSAPMIN)

(9) *eto ape-a pu-sua-po*  
 we house-locative go-PST.PCP-statement  
 ‘We went home.’ (FASU Loeweke and May 1980: 69)

(10) *na mini wa-bubege*  
 [1s today come-PRS.PCP]  
 ‘I am coming today.’ (FOE Rule 1977: 74)

Transmission of the participatory evidentiality category through contact alone is not likely as Oksapmin and Foe/Fasu are located at opposite ends of the evidentiality area and the forms involved do not share any phonological material. We also note the typological similarity of the languages, in particular the presence of the visual-sensory in Fasu and Oksapmin as the only other evidential category marked through verbal affixation. It is more probable, at least for Oksapmin and Fasu, that the emergence of a participatory category was a parallel language-internal development due to typological propensity or “poise” (Enfield 2003), contingent on the presence of visual-sensory inflection.

The following general historical scenario seems plausible:

Step 1: Presence of an optional visual-sensory construction or enclitic

Step 2: Verbs without the visual-sensory marker start taking on participatory meaning

Step 3: The visual-sensory construction becomes compulsory and inflectional, contrasting with a participatory inflection

Synchronically, in the languages of the area, visual(-sensory) evidentials are typically used in describing the actions of other people, that is, things that the speaker observed rather than participated in (see San Roque and Loughnane 2012 for further references and discussion). Thus, clauses that are *not* explicitly marked as visual-sensory come to be understood, by implicature, as having participatory meaning. This is parallel to the process of an unmarked form taking on participatory-visual meaning in contrast to a marked sensory category (e.g., as in Hup, Epps 2005). It is furthermore a distinct possibility for these languages that the visual-sensory and participatory forms made person marking of the subject redundant, and may have even directly replaced such marking in one or more instances. Alternatively, the lack of subject person marking may have encouraged the development of the evidential system.

We now examine the forms involved in the emergence of a participatory/visual-sensory contrast in more detail, beginning with Oksapmin. The Oksapmin forms (Table 4) are synchronically portmanteau suffixes and a regular participatory suffix cannot be distinguished. However, there is a clear phonological pattern in the visual-sensory suffixation: in the perfective, a suffix of the form /n(V)<sup>g</sup>(w)(V)<sup>s</sup> (variously of the form *-nuŋ*, *-ngwe*, *-ngo*), with an alveolar nasal and a prenasalized velar stop or velar nasal, replaces the regular perfective suffix *-t(i)*. In the imperfective, *-pat* or *-pti* replaces the alveolar nasal of the visual-sensory perfective forms for yesterday and far past tenses.

Table 4: Oksapmin past tense verb forms for the regular verb *su-* ‘kill’

	Participatory				Visual-Sensory				
	Perfective		Imperfective		Perfective		Imperfective		
	Sg	Pl	Sg	Pl	Sg	Pl	Sg	Pl	
Today past	<i>sut</i>	<i>sutja</i>	<i>sul</i>		<i>sunuŋ</i>	<i>sungwe</i>	<i>supatnuŋ</i>	<i>suptigwe</i>	
Yesterday past	<i>sutil</i>		<i>sut</i>		<i>sungwel</i>		<i>supatgwel</i>	<i>suptigwel</i>	
Far past	<i>sutip</i>	<i>sutpa</i>	-		<i>sungop</i>	<i>sungopa</i>	<i>supatgop</i>	<i>suptigopa</i>	
			Habitual				Habitual		
				<i>susux</i>	<i>susxe</i>			<i>sunipat</i>	<i>sunipti</i>

The source of the perfective visual-sensory suffix (*-ngwe*, etc.) is unclear. One possibility is the nominalizer *-n* plus one of the verbs *xotol-* ‘see’, *x-* ‘be’ or *x-* ‘DO’, with later replacement of *-n* by the imperfective suffixes in analogy with the non-visual forms. A historical change from /x/ to /ŋg/ is attested for the Proto-Ok-Oksapmin suffix \*xVp, realized as both *-gap* and *-xap* in Oksapmin synchronically (see Loughnane and Fedden 2011: 42), so this change is not without precedent<sup>6</sup>. The synchronic example in (11) with the nominalizer *-n* shows a possible pathway of development, where the aspect-neutral nominalized form can also be used as a coverb with *x-* ‘DO’ to mean ‘want to X’ or ‘feel like X-ing’. A similar construction may have been possible with a visual meaning (see also the Oksapmin results constructions in §3.5).

- (11) *nox takin=noŋ mə-xəm na=wajo-n*  
 1s PN=TO DEM.PRX-down NEG=go.down-NOMLS

*xəx=o*

DO.PRS.SG=QUOT

‘I don’t want to go down to Tekin river...’ (OKSAPMIN)

Other possibilities are that visual-sensory marking developed from old second-person subject marking (as per the second-person singular pronoun, *go*) or that it shares a source with the visual-sensory clitic =*xə* (§3.3). Given that Oksapmin is related to the Ok languages, which have obligatory person subject marking, it is likely that Oksapmin previously had person marking of the subject on verbs. (However, the forms in Ok languages are very different in form to the visual-sensory suffixes in Oksapmin.) The alveolar nasal may share an origin with the perfective marker, which has the form *-di* [ndi] for some verbs (see Loughnane 2009).

In regard to Fasu, we suggest that the visual-sensory inflection (13) may derive from an erstwhile visual-sensory clitic =*raka(e)*, in combination with the past marker (synchronically *-su* ~ *-sua* ~ *-sia* ~ *-sa*, see 12). The clitic has survived as a sensory marker (14), while the previously non-evidential past marker is now a portmanteau tense/evidential inflection.

(12) *ano pu-sua-fa-po*  
I go-PST.PCP-NEG-statement  
'I did not go.' (FASU Loeweke and May 1980: 74)

(13) *nomo apea pe-rakasa-fa-po*  
my house come-PST.VIS/SENS-NEG-statement  
'He didn't come to my house.' (FASU Loeweke and May 1980: 67)

(14) *pe-ra=rakae*  
come-customary=SENS  
'I hear it coming.' ("This is said when hearing an aeroplane before seeing it.") (FASU Loeweke and May 1980: 71)

This hypothesis involves the following steps:

- Step 1: Existence of a single visual-sensory clitic, =*raka(e)*
- Step 2: =*raka(e)* reinterpreted as a verbal suffix and fuses with the past tense suffix
- Step 3: Old simple past tense forms take on a non-visual but direct evidential meaning, i.e., participatory
- Step 4: The now-superfluous visual-sensory clitic specializes in meaning to indicate sensory evidentiality only

The forms of the evidential inflections in Foe are given in Table 5. The path of development for these portmanteau suffixes is not clear. Murray Rule (1977: 74) notes that Joan Rule attempted further morphemic analysis and subdivision of these suffixes in her MA thesis on the Foe language, but that this necessitated an extremely complex list of rules of occurrence and did not simplify the description. However, the participatory appears to be the least complex inflection in both the near and far past paradigms, suggesting possible reinterpretation of originally evidentially neutral forms.

Table 5: Foe (indicative statement) verbal inflections (from Rule 1977: 74)

Rule's term	Evidential category	Present	Near Past	Far Past	Future
“Participatory or Factual”	Participatory, Factual	<i>-bubege</i>	<i>-ge</i>	<i>-bi'ae</i>	<i>-'anebege</i> <i>-'agerege</i>
“Seen”	Visual	<i>-boba'ae</i>	<i>-bo'oge</i>	<i>-bo'owa'ae</i>	<i>-'anege</i>
“Unseen (sense perception)”	Sensory	<i>-bida'ae</i>	<i>-bidobo'oge</i>	<i>-bidobo'owa'ae</i>	NIL
“Mental deduction”	?Reasoning	<i>-ada'ae</i>	<i>-adobo'oge</i>	<i>-adobowa'ae</i>	NIL
“Visible Evidence”	Results current	<i>-boba'ae</i>	<i>-iba'ae</i>	<i>-biba'ae</i>	<i>-'aiba'ae</i> <i>-'oiba'ae</i>
“Previous Evidence”	Results previous	<i>-bubege</i>	<i>-iyo'oge</i>	<i>-iyo'owa'ae</i>	<i>-'abege</i>

In sum, it seems likely that, in both Oksapmin and Fasu, the presence of visual-sensory marking led independently to the development of a participatory meaning of the erstwhile unmarked forms. This is plausible for some, but not all, of the Foe suffixes.

### 3.3 VISUAL EVIDENTIALS

Visual information source is marked as either a verbal suffix (Oksapmin, Angal, Foe, Fasu, Edolo) or a sentence-final clitic (Oksapmin, Duna, Bogaia, Kewa). In Oksapmin, visual and sensory evidence is combined as a single category (inflectional for past tenses, a clitic, =*xe*, for non-past and non-verbal clauses), and this is also the case with past tense in Fasu. The evidentials prototypically mark events that were seen (or heard, etc.), usually by the speaker. As mentioned in the previous section, they are associated with non-first-person subjects, as visual(-sensory) observation is construed as something quite distinct to volitional participation; one does not talk about “seeing” one’s own actions. Of the Engan languages, only members of the Kewa-Angal sub-branch are described as marking visual evidentiality. The relevant forms in Oksapmin, Duna, Angal, Foe and Fasu encode temporal information as well as visual evidence. Examples are shown in (15) to (23); see also (1), (13).

- (15) *tom xulu jox oksapmin mə-xəm pt-nipat*  
 water pond DEF PN DEM.PRX-down be-VIS/SENS.FP.SG.HAB  
 ‘There was a pool down at Oksapmin station (I saw).’ (OKSAPMIN)

- (16) *gin tom tisix=xe*  
 now water cold=VIS  
 ‘The water is cold now (I see/feel).’ (OKSAPMIN)
- (17) *guapa rowa ndu ka=rua*  
 guava tree one be/stand.STAT.VIS  
 ‘There is a guava tree (I saw).’ (DUNA)
- (18) *kolo ta yugu-si-ki*  
 [PN taro plant-PRS.ACTIVE-VIS]  
 ‘Kolo is planting taro. (I see him)’ (BOGAIA Seeland 2007a)
- (19) *púa-a-ná*  
 go-3SG.PST-VIS  
 ‘He went (observed)’ (KEWA Franklin 1964: 120)
- (20) *ep-eyep*  
 [come-PRS.CONT.VIS.2/3DU]  
 ‘They/you two are coming (seen)’ (ANGAL HENENG Reithofer p.c.)
- (21) *diame davi to wa-bo owa’ae*  
 [PN two.days.ago this come-FP.VIS]  
 ‘Diame came here two days ago.’ (FOE Rule 1977: 37)
- (22) *a-pe-re*  
 VIS-come-VIS  
 ‘I see it coming.’ (“This is said when actually seeing the airplane on the horizon.”) (FASU Loeweke and May 1980: 71)
- (23) *amalahilä ilia gähö siabulu amolä gia-sio*  
 pro.verb.SEQ 3p.ERG pandanus sweet.potato that.COMIT cook-VIS  
 ‘So then they cooked pandanus and sweet potato together (I saw).’ (EDOLO Gossner 1994: 53)

With the exception of Edolo and Onobasulu forms, discussed below, the visual (or combined visual and sensory) evidentials are phonetically diverse, suggesting language-internal origins and conceptual convergence rather than direct borrowing or inheritance. As described in §3.2, the source of the Fasu form is likely a clitic of the form =*raka(e)* with a visual-sensory meaning. The source of the Oksapmin clitic is likely the verb *x-* ‘be’, for which the singular present form is *xe*; this verb also features synchronically in complex clause constructions with an evidential meaning (see Loughnane 2009 and §3.5). The verb *xətol* ‘see’ is another possible source.

Verbs of perception have been suggested as one obvious source for visual and sensory evidential markers (see, e.g., Anderson 1986; Aikhenvald 2004: 273), although de Haan (MS) maintains that development from vision verb to visual evidential is extremely rare. Where possible, we located basic verbs of vision in the languages (as well as ‘hear/perceive’ and ‘say/speak’ verbs) in dictionaries and other grammatical materials (see Table 6), but found no straightforward resemblances to the visual evidentials, with the possible exception of Oksapmin (§3.2). Two other, perhaps more promising, domains to examine as possible sources for visual evidentials are erstwhile temporal inflections (given that time specifications are also involved in lots of the forms) and pronominal items (given the strong correlation between visual evidentials and third person).

Table 6: Basic verbs of perception and speech in the languages of the area (sources as in Table 1)

	‘see’	‘hear’	‘say/speak’
Oksapmin	<i>xətol</i>	<i>amla</i>	<i>li</i>
Duna	<i>ke</i>	<i>waki</i>	<i>ri, ruwa</i>
Bogaia	<i>haga</i>	<i>wagi</i>	<i>?ti<sup>‡</sup></i>
Huli	<i>handa</i>	<i>haleha</i>	<i>la</i>
Enga	<i>kandengé</i>	<i>síngi</i>	<i>lengé</i> <i>pií</i> ‘speech, language’
Ipili	<i>?ande</i>	<i>ale ya</i> ‘he heard’	?
Pole	<i>anda</i>	<i>panga</i>	<i>la</i>
Kewa	<i>ada</i>	<i>paga</i>	<i>la</i>
Angal Heneng/Henen	<i>?ondô</i>	<i>?pongô</i>	<i>la</i>
Angal Enen	<i>aonda</i>	?	?
Foe	<i>ere</i>	<i>nisi</i>	<i>de</i>
Fasu	<i>?ase</i>	<i>?kai</i>	<i>?aiy</i>
Kaluli	<i>ba:d</i>	<i>dabu</i>	<i>sa:l</i>
Edolo	<i>mele</i>	<i>naba</i>	<i>sä</i>
Onobasulu	<i>bama</i> ‘look at!’	?	<i>sayo</i>

<sup>‡</sup> Items marked with a question mark were extracted from unparsed examples, and require confirmation.

Onobasulu has a visual or visual-sensory marker, =*so* (we do not know the exact semantics), that follows tense inflection (Anne Dondorp p.c., July 2009), apparently cognate with the Edolo form, -*sio* (23). Interestingly, for the language Samo, K. Shaw (1973) lists a verbal marker, -*siyo*, that appears from her brief description to have sensory evidential meaning. Samo is classified as

an East Strickland language, and is adjacent to the Bosavi language Beami (about which little is known), which in turn neighbours Edolo. It thus seems likely that there is a relationship between the Samo and the Edolo/Onobasulu forms, with a possibility that an original ‘visual-sensory’ meaning has narrowed to visual (in the case of Edolo) and non-visual sensory (in the case of Samo (cf. also the hypothesis concerning the Fasu visual-sensory forms in §3.2); or, alternatively, that there has been a change between visual and sensory meaning, for example through bridging contexts where both interpretations would be possible. A similar apparent cross-category correspondence is found between the Duna stative visual form, =*rua* and the Huli sensory form, -*rua*, discussed in the following section.

Duna and Angal Heneng/Henen can both indicate a contrast of individual versus shared visual evidence (and similarly, individual or shared sensory and results evidence). In Duna this is accomplished with the alternation between the related forms =*rua* (individual) versus =*nua* (shared), and in Angal Heneng/Henen either paradigmatically or with the addition of the form =*nda* following evidential inflection. Rule (1977) briefly describes (but does not exemplify) a probably related morpheme in Pole, =*nde*, that marks events seen by both speaker and addressee<sup>7</sup>. Ipili (Borchard, email comm.) and Huli (Rule 1974: 62) also have resemblant forms (= *koni* and = *goni*, respectively) that indicate common knowledge between speaker and hearer, and Foe (Rule 1977: 97) has distinct ways of forming nominalised clauses depending on whether only the speaker or both speaker and addressee have seen the activity. While it is not clear that all these markers are narrow evidentials, it is intriguing that sensitivity to individual/shared knowledge is morphologically encoded in at least four Engan languages and in Duna and Foe, making it a candidate for an originally Engan distinction that has been incorporated in some wise into neighbouring languages.

### 3.4 SENSORY EVIDENTIALS

A non-visual sensory evidence distinction is one of the most common categories in the area. Huli, Enga, Ipili, Foe and Edolo all have dedicated sensory suffixal inflection and Duna, Bogaia, Fasu and Kaluli have sensory enclitics. (Oksapmin can mark specifically non-visual sensory information through complex clause constructions not exemplified here; see Loughnane 2009.) In most cases, the sensory evidential is prototypically used for describing heard events, but can



also express smelt, tasted or felt evidence, as well as bodily sensation such as pain or sickness (see San Roque and Loughnane 2012 concerning possible exceptions). As for verbs of vision in relation to visual evidentials, we found no clear relationships between verbs of hearing and sensory evidentials (see Table 6, above).

Within two sub-branches of the Engan family, there is some evidence of a shared origin for sensory markers. Enga (24) and Ipili (25), from within the same posited sub-branch, have identical suffixes, *-lu*, to indicate sensory evidence<sup>8</sup>. Huli has two sensory evidential inflections, *-rua* (26) and *-yua* (27).

(24) *Baa-mé mená dóko pyá-lu-py-a.*  
 he-ERG pig DET hit-SENS-PST-3SG  
 ‘I sensed that he killed the pig (yesterday).’ (ENGA Lang 1973: xliii)

(25) *Akali mindi-mane yia mindi pe-ya-lu-a.*  
 man a-by pig a kill-PRS-SENS-3s  
 ‘A pig is being killed by someone.’ (I hear it) (IPILI: All examples from Terence Borchard, email communication)

(26) *mbisigati da pia-rua*  
 [biscuit(Eng) ?DEF burn-PRS.SENS.3]  
 ‘The biscuits are burning (can smell them).’ (HULI Rule 1974: 59)

(27) *abe gununu pi-ayua*  
 yesterday aeroplane go-[PST.SENS.3]  
 ‘The aeroplane left yesterday (but I didn’t see it).’ (HULI Lomas 1988: 124) [Spelling changed to Rule’s orthography LSR and RL]

The question arises as to whether the Huli forms are related to the Enga/Ipili markers. We could find no evidence for a regular sound correspondence between Enga or Ipili /l/ and Huli /r/ or /y/. However, the Huli verbal paradigm suggests that the sensory inflections are (or were) compositional, following the template tense-evidence-subject, e.g., *-r-u-a* ‘-PRES-SENS-3’. This would be the same morphological template as seen in Ipili, with apparently cognate third person marking (*-a*) across all three languages. Under this scenario, it is very likely that the Huli *u* is a

reflex of an inherited or borrowed suffix, *-lu*. Regarding a possible history of this suffix, Lang's (1978: 59) Engan dictionary also lists a particle (not an inflection) *luú* with the meaning 'reported (sensed)'. The particle is not exemplified in the grammatical sketch and its status and meaning in relation to the suffix *-lu* and other evidential particles (see Table 3) are not clear. However, it seems possible that the suffix *-lu* could have developed as a more tightly grammaticized instantiation of *luú*. Intriguingly, the East Strickland language Samo, geographically several languages removed from the Engan family, is noted to have a resemblant reported particle, *lu* (K. Shaw 1973).

The posited Angal-Kewa sub-branch of Engan does not appear to share the Engan/Ipili sensory form. We have been unable to confidently identify the Angal sensory inflection (available sources supply paradigms for irregular verbs which are difficult to segment), but there is no obvious association of sensory evidence with the form *lu* or similar, and Kewa and Pole are not described as having a sensory distinction. Angal sensory evidentials can be used not only for heard events (28) and bodily sensations, but also for inference concerning (near-)present events (29) and for reported information (30). This range of "firsthand" to "non-firsthand" meanings within a single category is not clearly attested elsewhere in the area, and again suggests that, over time and distance, evidential categories can either expand to include more varied kinds of evidence, or narrow or split to become more specific.

- (28) *bul ipil*  
 [plane **come.PRS.STATE.SENS.3SG**]  
 'A plane is coming (heard)' (ANGAL HENENG Reithofer p.c.)
- (29) *ssei ipil*  
 [rain **come.PRS.STATE.SENS.3SG**]  
 'Rain is coming (deduced from visual evidence: sun, clouds)' (ANGAL HENENG Reithofer p.c.)
- (30) *ten inlap teil pilim*  
 [woman ?bridewealth ?distribute **do.PRS.STATE.SENS.3PL**]  
 '(somebody told me that) they are distributing bridewealth' (ANGAL HENENG Reithofer p.c.)

Examples of sensory evidentials in some non-Engan languages are shown in (31) to (37), (see also 2, 14).

- (31) *mbaluti ndu wa=yarua*  
 plane one come-SENS.CURRENT  
 ‘A plane is coming’ (e.g. on hearing the sound of the engine) (DUNA)
- (32) *no rakare=yarua*  
 1s cold-SENS.CURRENT  
 ‘I am cold (I feel).’ (DUNA)
- (33) *mabaro moga-s-ai*  
 [pig go-PRS.ACTIVE-SENS]  
 ‘The pig is running away. (I hear it)’ (BOGAIA Seeland 2007a)
- (34) *to o:doway-o:m*  
 [speech ?be.?PRS-SENS]  
 ‘There’s talk around I’m hearing.’ (KALULI Schieffelin 1996: 441)
- (35) *no mun o:doway-o:m*  
 [animal smell ?be.?PRS-SENSE]  
 ‘There is the smell of cooked meat I’m smelling.’ (KALULI Schieffelin 1996: 441)
- (36) *aiya bare wa-bida’ae*  
 [? canoe come-PRS.SENS]  
 ‘An airplane is coming (can only hear it)’ (FOE Rule1977: 74)
- (37) *waibo amo widaea sale-lo galö-wabeo*  
 black.palm that cassowary.ERG fill.up-IRR narrate-SENS  
 ‘Cassowaries eat that black palm, he said.’ (EDOLO Gossner 1994: 52)

A final point to make concerning the present sensory inflection *-rua* in Huli (26) is that it is segmentally identical to the stative visual marker in Duna (17). There is intensive interaction between these two language groups, with much lexical borrowing from Huli into Duna (§2). The Duna evidential may have arisen through contact with Huli speakers, either through direct borrowing, or through “grammatical accommodation” (Aikhenvald and Dixon 2001), whereby a native form is reanalysed on the basis of phonetic similarity. In the latter case, two likely Duna-internal candidates for source morphemes are the medial continuative verbal inflection *-rua* (which has similar aspectual semantics to the evidential), and the complement-talking predicate

*ruwa* ‘say’ (see San Roque 2008: 404-408). In either case, we must also account for the mismatch of information source types, as for the resemblant Edolo visual and Samo sensory forms discussed in §3.3. An added twist in the Duna case is that *rua* appears to be an element used repeatedly in the composition of evidential markers throughout the paradigm. A likely explanation for this is that *rua* was an early evidential in a simpler system and was employed in diverse complex constructions that have now conventionalized as distinct information source markers, much as described by Malone (1988) for Tuyuca.

### 3.5 RESULTS EVIDENTIALS

Morphological marking of results evidence is found in nearly all the languages of the region. With the exception of Oksapmin, which employs a preverbal particle, this category is marked with a sentence-final clitic. Usually, these evidentials indicate that the event or state of affairs is deduced following the observation of some kind of evidence (prototypically, physical evidence that is a result of the event in question). Given the same or similar semantics and near-uniform syntax, it is highly likely that results markers have emerged due to inheritance (in the case of at least some Engan languages) and to diffusional influence in other families. A striking, typologically unusual feature of results evidentials in the area is the distinction between current (visible) and previous evidence, discussed at the end of this section.

Huli, Ipili and Pole, each from a different Engan sub-branch, all have a results marker =*ya* (38-40). Given the similarity of form and meaning, the most likely hypothesis is that these forms are inherited, implying that some kind of evidentiality was present in Proto-Engan.

(38) *Yòle màbu nògo-me nāi hā-ya=ya*  
 [Yole garden pig-ERG eat ?- 3PST =RESU.PREVIOUS]  
 ‘A pig had eaten up Yole’s garden’ ([said] after getting home from seeing it [i.e., the garden]) (HULI Rule 1974: 61)

(39) *Akali mindi-mane yia mindi pe-yal-a=ya.*  
 man a-by pig a kill-NRP-3s=RESU.CURRENT  
 ‘A pig has been killed by someone.’ (I infer from visible evidence) (IPILI Terence Borchard, email communication)

- (40) *mongo pora andalu=ya*  
 [that track long=**RESU.PREVIOUS**]  
 ‘That track was long.’ (POLE Rule 1977: 53)

Results markers in other Engan languages share some phonetic content with this posited proto-form in the case of Kyaka Enga (41) and Angal Heneng/Henen (42) but this must be investigated further through reconstruction of regular sound changes. Kewa is not described as having a results distinction. However, the form =*ya* does occur to mark reportative evidence (§3.6), suggesting another potential example of “category crossover”. Similarly, the visual form in Kewa is segmentally the same as one of the Pole results markers (=na). The Oksapmin construction (47) discussed below suggests a possible scenario for this transition of meaning.

- (41) *ip-ja=lyamo*  
 come-?.3SG-**RESU**  
 ‘He has just come. (i.e. it is evident, though I didn’t notice his arrival)’ (KYAKA ENGA Draper and Draper 2002: 46)

- (42) *tas and-a pena=i*  
 [? house-? go.NRP.3SG-**RESU**]  
 ‘One can see from the footprints that the pig has gone home.’ (ANGAL HENENG Reithofer p.c.)

Examples of results markers in non-Engan languages Oksapmin and Fasu are shown in (43) and (44). The Duna results marker on regular verbs, =*rei* (3), is probably derived from a resultative serial verb construction with a form of the irregular existential verb *erei* ‘be/lie’. (The ‘previous’ results form in Duna, =*raru*, also fits this hypothesis, as it is likely derived from *era=rua* ‘be/lie=STAT.VIS.P’.) The Fasu form =*rea* (44) is tantalizingly similar to the Duna current form. Due to the small amount of phonetic material involved it is not possible, at this stage of research, to claim a shared origin. However, it is noticeable that Duna and Fasu do have other resemblant forms in their broader evidential inventories, including a particle =*pi* that marks thoughts or opinions (May & Loeweke 1980: 73; San Roque 2008: 392-397), and quotative constructions using *ri*, see §3.6.

- (43) *se*                    *su-m m-di-p=li*                    *tupun jox*  
**RESU.REAS**    kill-SS ANPH.O-eat.PFV-PCP.FP.SG=REP                    thumb DEF  
 ‘She killed and ate him, the first one (he inferred, I was told).’ (OKSAPMIN)
- (44) *saro pu=rea-po*  
 pig    go-RESU-statement  
 ‘The pig went.’ (“The speaker knew the pig went because he saw the evidence, that is he saw the footprints.”) (FASU Loeweke and May 1980: 102)

Foe examples (45) and (46) illustrate the distinction of ‘current’ (visible) versus ‘previous’ results evidence. The specification of a temporal/visibility distinction in the results category essentially supports the expression of two different temporal reference points in the clause: the time of the event described, *and* the time the results of this event were observed (see San Roque and Loughnane 2012 for further exemplification and discussion; see also Fleck 2007).

- (45) *faso amenara u-biba’ae*  
 [PN men go-FP.RESU.CURRENT]  
 The Faso men have gone (going on the evidence of an empty house). (FOE Rule 1977: 75)
- (46) *Faso amenara v-iyowa’ae*  
 [PN men go-FP.RESU.PREVIOUS]  
 The Faso men have gone (going on the above evidence [in example (46)], but on telling the story sometime later when the evidence is no longer visible). (FOE Rule 1977: 75)

The current/previous results distinction is found in at least four Engan languages (Huli, Ipili, Pole, Angal Heneng/Henen) and also in Duna and Foe. Like the individual/shared distinction (§3.3), it seems a good candidate for an originally Engan distinction that has diffused into neighbouring languages. Further to this, we note that although Oksapmin does not distinguish current and previous evidence with narrow evidential marking, these can be distinguished constructionally. Present evidence of a past event is marked using the clitic =*xe* ‘VIS’ (47). A similar construction is found in Bogaia (San Roque and Loughnane 2012: 127-128) and in Duna (San Roque 2008: 379-380), representing a strategy for marking results information source using a visual evidential; note also the resemblant visual and results evidentials in Kewa and Pole.

- (47) *gin=w=o*                      *bap*    *sli-l=xe=d=o*  
 now=RESP=QUOT    small    put-IPFV.PCP.TODP=VIS=PQ=QUOT  
 ‘Has (your) pig given birth?’ (OKSAPMIN)

Past evidence of a past event (48) is marked using the visual-evidence-marked form of the verb ‘be’ and a complement clause (see Loughnane 2009: 428-430 for details). The tense of the complement clause is calculated relative to the tense of the main clause.

- (48) [*wanxe=si*    *wanxe=si=a*                      *awat*                      *x-t-ja*]  
 a.lot=WITH    a.lot=WITH=EMPH                      decorate.self    DO-PFV-PCP.TODP.PL
- x-n-gopa=li=o*  
 be-PFV-VIS.FP.PL=REP=EMPH  
 ‘(It is said they saw that) lots and lots (of people) had decorated themselves.’ (OKSAPMIN)

The Oksapmin data illustrate a situation where a morphological distinction in some languages is reproduced using constructional means in another, and suggest one possible grammaticalization pathway for the current/previous evidence distinction.

### 3.6 REPORTED EVIDENTIALS

At least seven of the languages surveyed have reported markers, (49) to (56). For most languages, the reported evidential simply indicates that the information is known via a verbal report. In Fasu and Duna, this is more specifically a distant verbal report (e.g., third-hand or of unknown origin; in the Duna case the same form can also be used for reasoning evidence). The Enga forms appear to be specifically for tales and legends (51) and historical reports (52); Lang (1973) hints that the ‘results’ marker in Enga can also be used for hearsay reports, but this is not exemplified, and this issue needs to be examined further. In all languages the reported marker is a sentence-final clitic, but the phonological forms differ radically.

- (49) *jəxe*                      *uxe*                      *iŋ*                      *tit*                      *tabubil*                      *jə-xət*  
 so                      3sf.POSS                      string.bag                      INDF                      PN                      DEM.DST-up
- wə=m-ti-p=li*  
 leave=DO(TR)-PFV-PCP.FP.SG=REP  
 ‘So she has left her bag up at Tabubil (I was told she did it).’ (OKSAPMIN)

- (50) *antia-na-ka*                      *muni phane*                      *yapa ndola*  
 mother-SPEC-CS                      money double.unit                      two                      single.unit  
*ngu=narua*  
 give=REAS/REP.PREVIOUS  
 ‘The mother gave him five kina (I was told).’ (DUNA T/PK:080605ii)
- (51) *Yána-pa*                      *sáa-pa*                      *ly-i-ámbí-lámi*  
 dog-CNJ                      possum-CNJ                      dance-PST-2DU-REP  
 ‘Dog and possum danced, they say.’ (ENGA Lang 1973: xliii)
- (52) *Kóne dúpa*                      *náima-nya*                      *yuú*                      *ep-e-amí-no*                      *gú*  
 white DET-PL                      we-POSS                      land                      come-PST-3PL-AUG                      time  
*ongó-pá*                      *kóne*                      *Yálya teé*                      *pya-ó*                      *ep-éná-pyáa*  
 DET-TEMP                      white                      Taylor time                      hit-O                      come-PST-3SG-HIST  
 ‘When the whites first came to our country, Taylor was the first.’ (ENGA Lang 1973: xliii)
- (53) *Jone-to*                      *Pita*                      *pe-le-a=epia.*  
 John-ERG                      Peter                      kill-FP-3s=REP  
 ‘John killed Peter’ (someone told me) (IPILI)
- (54) *ira-a=ya*  
 cook-3SG.PST=REP  
 ‘He is said to have cooked it’ (KEWA Franklin and Franklin 1978: 64)
- (55) *aikrakano*                      *pokoa he*                      *atura pu-sua=pakae*  
 saying                      fish                      water below went-PST.PCP=REP  
 ‘Having spoken, the fish went down into the water, I’ve heard.’ (FASU Loeweke and May 1980: 92)
- (56) *siba fi*                      *ili-da dolö*                      *boboga*                      *hü-fi*                      *fi-i=wabu*  
 before clan                      3p-DEF male                      fat                      mean-clan                      sit-PST=REP  
 ‘The old clan were a bunch of big fat people.’ (EDOLO Gossner 1994: 53)

Although no two forms of the reported markers are unequivocally resemblant, identical syntax and related meaning are most probably attributable to diffusional influence, suggesting the category is an example of conceptual convergence. However, it is surprising that Huli, which is geographically central to the area (and presumably a key player in transmission), is not described as having a reported evidential. It is also unexpected that Foe, which otherwise has one of the most complex evidential systems of the area, does not mark reported information source.



The Kewa reported =*ya* is possibly related to results markers of the same form in Huli, Epili and Pole (§3.4). This is hard to confirm, given the small amount of phonological matter involved, but the jump in meaning from one indirect evidential to another is plausible. The Ipili reported marker =*epia* is probably cognate with Enga -*pyáa*, which is used for historical events and “indicates that the event took place in the past and that the speaker did not witness it. Usually the events are so far in the past that there can be no living witness” (Lang 1973: xliii). The Fasu quotative (which we do not class as a narrow reportative evidential) has the form =*ripo*, resembling a relevant Duna form, *ri-* ‘say’ (note that *po* is a ‘statement suffix’ in Fasu). In Duna, *ri-* ‘say’ is used as part of a reportative evidential strategy, as in (57); see San Roque 2008: 399-402 for further details.

- (57) *ayu ho ri=tia*  
 today come.PFV say-PFV.VIS.P  
 ‘[He] came today, it was said.’ (DUNA)

One source for reported markers cross-linguistically is, indeed, verbs of speech (see, e.g., Jäger 2010, de Vries 1990, Aikhenvald 2004). Perhaps surprisingly, there are only a few cases where this appears to be unequivocally relevant to the evidential systems of the Highlands area (see Table 6). The Ipili and Enga forms mentioned above possibly relate to the Enga word *pii* ‘speech, language’, and the source of the Oksapmin reported marker, =*li* (49), is undoubtedly the Oksapmin verb *li-* ‘say’. Indeed, it is identical to the present perfective singular form of the verb, *li* ‘(I/you/he/she) just said’ (58). Synchronically, the reported marker is distinguishable from the present perfective singular form in that it cannot be inflected and must be phonologically attached to the preceding word.

- (58) *jaxe ux lotu xən s-ol=o li=xə*  
 then 3sf church(TP) across go-IPFV.PER.TODP=QUOT say(.PRS.SG)=VIS  
 ‘Then she said that she had gone across to church.’ (I saw.) (OKSAPMIN)

At least in Oksapmin, the form, if not the category itself, is quite new in that the recent development from a verb is apparent. Duna likewise seems to have an emerging reported evidential, as exemplified above. Given how entrenched evidentiality is in the area in general and

the opaqueness (and thus probable older age) of many of the other forms, the status of these reported markers and strategies as new or peripheral is of note, perhaps reflecting a fundamental difference in nature between reported evidentiality (which quite typically represents a separate, potentially co-occurring evidential system) and other evidential categories (cf. also Epps 2005). Many Papuan languages, like Golin (Loughnane 2003), Hua (Haiman 1980), Usan (Reesink 1987) and Dani (Bromley 1981), use reported speech in a particularly wide array of contexts, and this kind of tendency may encourage the constructional, rather than inflectional, expression of this kind of evidentiality.

#### 4. SUMMARY AND CONCLUSION

In this section we summarize the main findings for each category and discuss them in regard to the three most salient “motivations” for evidentiality outlined in §2.3: inheritance, diffusional influence, and typological propensity. We conclude with comments on the likelihood of an Engan origin for evidentiality in the region.

Participatory evidentials are found at opposite ends of the evidentiality area. We suggest that participatory semantics of unmarked verb forms has developed independently in Oksapmin and Fasu, and perhaps some verb forms of Foe, in contrast to overt visual-sensory marking. A specifically visual category (as opposed to a combined visual-sensory) is marked in at least eight languages, but is not the norm among the Engan family systems. With the exception of a related visual form in two Bosavi languages, there is no apparent resemblance of the markers, and their origins remain obscure in most cases; verbs of sight rarely appear to be involved. Sensory evidentials are widespread in the area, and provide likely candidates for an inherited form (*-lu*) in several Engan family languages; it is possible that this inflectional suffix derived from a ‘reported/(?sensory)’ particle extant in Enga. Sensory forms in other languages do not look similar. However, in two unrelated language pairs (Onobasulu–Samo, Duna–Huli) we see cross-category resemblance between visual and sensory evidentials. The Angal Heneng/Henen marker indicates results and reported as well as sensory information source, showing another example of “misaligned” category distinctions in the area.

Results evidentials are also widespread, occurring in at least 10 of the languages. An association of the form  $\Rightarrow ya$  with results evidence is found in all three Engan sub-branches. A distinction between current and previous results evidence is also found in each Engan sub-branch, as well as in Foe and Duna. There is evidence that Oksapmin, Duna, Bogaia and Pole use (or have used) visual markers in a constructional strategy for marking results evidence. Results markers in Duna are probably derived from a resultative/perfect serial verb construction. Sentence-final reportative clitics occur in at least seven of the languages surveyed, but the forms are generally disparate. The Oksapmin form is clearly derived from the verb ‘say’ and a similar history may also be true for Enga/Ipili. The Kewa reported clitic is segmentally identical to a results clitic in other Engan languages.

As discussed in §2, we expect inheritance to play a role in the transmission of evidentiality. In the New Guinea area this issue is moot in some cases, as Foe and Fasu are isolates, and Oksapmin is genetically affiliated outside the area. However, the data presented in §3 and summarized above include three examples of what may be inherited evidential forms, two from the Engan language family (sensory *lu*, results *ya*) and one from a subset of Bosavi languages (visual(-sensory) *s(i)o* in Edolo and Onobasulu). The Engan correspondences do not align precisely with previously suggested subfamily groupings (Huli versus Angal/Kewa/Pole versus Enga/Ipili et al.), suggesting they are older than those branchings. Alternatively, these forms and distinctions may have been borrowed within the family. Bogaia and Duna (of the posited Duna-Bogaia family) do not appear to share any evidential markers.

Diffusion has been suggested as a particularly significant force in the transmission of evidentiality, and is highly visible in the New Guinea case. Although many of the language families under study are probably genetically related only at the level of Trans-New Guinea, even pairs that share little inherited vocabulary appear to share semantic concepts (e.g., the current/previous results evidence distinction) and syntax due to repeated language contact. The importance of contact and conceptual convergence is apparent, for example, for Oksapmin, for which the presence of evidentiality is highly likely due to areal influence, given its lower-level genetic relation to the Ok languages, which do not have evidentiality.

Although the evidential categories across different languages are similar, there are no clear form-meaning matches that cross language family boundaries, and, perhaps surprisingly, no clear examples of parallel etymologies (e.g., with a reported evidential originating in ‘say’ verbs across all the languages), although these may come to light in the future. However, there are two examples of possible borrowing with semantic shift (between the neighbouring Huli–Duna and Samo–Bosavi languages), as well as some unexpected resemblances between the more distant languages Samo and Enga, and Duna and Fasu. Whether these resemblances are entirely coincidental or represent related forms is unclear, and this question requires further work to examine possible sound correspondences, as well as to gain a better understanding of social history and population movements in the region.

The data surveyed raise several issues of interest concerning the development of evidential systems cross-linguistically. The hypothesis presented concerning the parallel emergence of participatory evidentials (§3.2) illustrates the significance of typological poise, “the role of the existing grammatical and semantic structure of a language in providing a ‘launching pad’ for pragmatic implicature” (Enfield 2003: 359), in the emergence of specific evidential categories. In this case, we suggest that the uninvolved, observer status implied by the use of visual-sensory marking triggers an understanding of unmarked forms as expressing the close involvement of the speaker (or other evidential origo). The New Guinea evidentiality area shows several examples of apparent cross-category resemblances (e.g., Huli/Ipili/Pole results and Kewa reported forms; Duna visual and Huli sensory forms). This suggests that the semantics of certain evidential forms and the structure of evidential systems may be relatively unstable, subject to quite substantial meaning shifts and paradigmatic rearrangements. Instances where evidentials from one information source category (visual) are used in a strategy to express another kind of information source (results) further hint at how evidential systems can complexify through incorporating extant evidentials into new constructions.

As per early indications by various researchers, our data support positing an Engan origin for evidentiality in the area. All Engan languages have evidentiality as far as we know; evidential categories and forms cross Engan sub-branch boundaries; there is some evidence for diffusion of certain Engan categories to other language families; most (but not all) languages of the area are

adjacent to an Engan language group; and the Engan family groups (especially the Enga and Huli) are dominant social forces in the region. At this stage, however, the suggested Engan origin of this areal feature remains a hypothesis that requires further research to confirm. Certain elements, such as the apparent lack of visual evidential marking in two of the posited Engan sub-branches, do not accord well with a straightforward Engan origin hypothesis.

Overall, the Highlands evidentiality area is remarkable in the similarity of the semantic structure of the systems but the relatively small amount of shared phonetic material, which makes positing plausible historical scenarios for many of the forms difficult. The synchronic situation suggests an old and tangled web of inherited features, borrowed forms, and echoed categories spread throughout the families of the area, interacting with typological propensities and language-internal constraints. The current social setting provides evidence of conditions of multilingualism and long-term contact, but the importance of factors such as discourse organization, cultural attitudes, and social history on the emergence and spread of evidentiality in the region remains to be explored. We have presented here a first parse of the available data, positing some hypotheses which may be confirmed upon availability of more data and historical-comparative work in the future.

## ABBREVIATIONS

AUG augment, CNCL Concealed/inner location, CNJ Conjunction, COMIT Comitative, CONT Continuous, CS Contrasted subject, d/DU Dual, DEF Definite, DEM Demonstrative, DET Determiner, DST Distal (demonstrative), EMPH Emphatic, ERG Ergative, f Feminine, FP Far past, HAB Habitual, HIST historical, INDF Indefinite, IPFV Imperfective, m Masculine, NEG Negative, NOMLS Nominalizer, NRP Near past, O Object, p/PL Plural, PCP Participatory evidential, PFV Perfective, PN Proper name, PNG Papua New Guinea, POSS Possessive, PQ Polar question, PRS Present, PRX Proximal, PST Past, QUOT Quotative, REAS Reason evidential, REDUP Reduplication, REP Reported evidential, RESP Response, RESU Results evidential, s/SG Singular, SENS Non-visual sensory evidential, SEQ Sequential, SF Stem formative, SPEC specific, TEMP temporal, TODP Today's past, TP Tok Pisin, TR Transitive, VIS Visual, 1 First person, 2 Second person, 3 Third person. Square brackets in the interlinear gloss line indicate that the gloss has been posited by Loughnane and San Roque rather than supplied by the cited author. Labels for evidential morphemes have been standardised across the languages and may not reflect the terminology used by the original source.

## FOOTNOTES

1 Heineman's (1998) description of Lembena grammar includes a clitic glossed as 'evidential' that is clearly cognate with the Enga *lámo* (see §6). However, he does not discuss the meaning of this form or the possibility of other evidential marking. A distinct language, Yeru, is reported to have been present within the current Bogaia area (Haley 2002), but it is unclear whether any speakers are still living. It seems possible that this was a variety closely related to Bogaia. Overall, the dialect situation within the languages of the area is complex. The available sources report that (with the possible exceptions of Bogaia and Onobasulu), all of the languages have at least two major varieties, and most of them three or more (see Franklin 2012, Gilberthorpe 2007, Gossner 1994, Lawrence 1993, Lewis 2009, San Roque 2008), with up to 13 dialects for Enga (Franklin 2012). We focus on the varieties as described by the sources specified in Table 1, treating Angal Henen and Angal Heneng (for which our data comes from the Aklal Heneng variety) together as one language. Franklin (2012) identifies Pole as a southern dialect of Kewa but, as its evidential system appears to be rather different, we deal with it separately in this paper.

2 Running somewhat counter to Wurm's proposed subgrouping, Franklin (2012: 53) notes that Huli and Ipili are "closely related".

3 Rule (1977: 108) also entertained the possibility that the presence of evidential morphology in certain Engan languages and the non-Engan language Foe "suggest a possible link [...] in the remote past" (cf also Franklin 2001). However, he concluded that more study was needed to adequately assess whether "like grammatical concepts such as these" should be treated as evidence of inheritance.

4 Sociolinguistic, cultural, and discourse pressures are of course likely to be driving change in individual languages. However, establishing, for example, a causal relationship between cultural elements and grammatical structures is a complex task requiring detailed study of each individual language and cultural context (see Simpson 2003), and is beyond the scope of this paper.

5 In Oksapmin, [ŋ] and [ŋg], represented in the orthography as *ŋ* and *g* respectively are both allophones of /ŋg/, at least in the lower dialect presented here.

6 The exact environment differs, but nonetheless the change is attested and possible, although irregular.

7 It is not clear how this morpheme fits within the Pole system, which does not otherwise appear to mark visual evidence (although see San Roque and Loughnane 2012: 136-137).

8 Ipili also has a free, sentence final form, *yalua*, which expresses dubitative meaning (Borchard email communication 2011). We note that this may originate from a construction involving the sensory evidential, illustrating the much-discussed connection between evidentiality and epistemic modality.

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