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The Languages of Amazonia

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Introduction

Amazonia is a linguistic treasure-trove. In this region, defined roughly as the area of the Amazon and Orinoco basins, the diversity of languages is immense, with some 300 indigenous languages corresponding to over 50 distinct 'genealogical' units (see Rodrigues 2000) – language families or language isolates for which no relationship to any other has yet been conclusively demonstrated; as distinct, for example, as Japanese and Spanish, or German and Basque (see section 12 below). Yet our knowledge of these languages has long been minimal, so much so that the region was described only a decade ago as a "linguistic black box" (Grinevald 1998:127). Despite considerable strides made in recent years, just a fraction of the region's languages have been well described, and many are spoken today by only a handful of people.

The value of these languages cannot be overestimated. To their speakers, of course, they represent part of a rich cultural heritage. For linguists, they contribute a wealth of information to shape our understanding of human language more generally. Many Amazonian languages reveal structures and categories that contradict assumptions about what is possible and impossible in language (see Dixon and Aikhenvald 1999:1, C. Everett 2010, Campbell forthcoming). A now classic example is that of basic (i.e. 'default') word order: It was assumed until a few decades ago that a basic object-before-subject order was impossible, until studies of Hixkaryana (Carib),¹ Urubu Ka'apor (Tupi-Guarani), and other Amazonian languages proved this to be false.

The study of Amazonian languages is of fundamental relevance to anthropologists. Not only is linguistic understanding a critical part of the participant-observer paradigm, but it informs our understanding of culture in profound ways, and vice versa, as captured in the Boasian model and in Hockett's dictum (1973:675) that "linguistics without anthropology is sterile, anthropology without linguistics is blind" (see also Evans and Dench 2006:16). The question of how culture, via discourse, may shape the emergence of grammatical structures over time is a fascinating one (e.g. Sapir 1949 [1933], Hill 2006, Evans 2003). Similarly, elements of grammar are the building blocks of discourse, which in turn maintain and create systems of communicative practice and verbal art. As Sherzer (1987:297-300) eloquently observes, "it is because grammatical categories are economical and efficient ways of expressing meaning... that they often have a poetic feel to them and seem to touch at the heart of the genius of a language and especially the language-culture-thought relationship." Elements of grammar are "a resource, a potential, a way of conceiving and perceiving the world which [a] language offers and which is made salient by entering into a web and network of associations actualized in discourse, especially artistic discourse... The resulting depth, thickness, and intricacy are what Clifford Geertz finds characteristic of culture."

Nevertheless, linguists and anthropologists have often had little to say to one another in the decades following Boas and Sapir. Approaches to the study of language have tended to focus on grammar, often to the explicit exclusion of cultural considerations, while many anthropologists have been content to leave language mostly to the linguists. Currently, however, as linguists refocus their attention on the world's linguistic diversity, a renewed appreciation for the cultural context in which these languages are spoken is emerging. In Amazonia and elsewhere, ethnographically grounded research is now seen as a prerequisite for rich and comprehensive linguistic documentation (e.g. Lehmann 2001, Franchetto 2006). Likewise, as many languages cease to be spoken, scholars and communities alike consider the implications of language shift for cultural and artistic practices (e.g. Hale 1992, Woodbury 1993).

There is much to be gained from a renewal of dialogue between scholars of language and scholars of culture, and this is nowhere truer than in Amazonia. We hope to contribute to this goal by presenting here a survey of some of the most intriguing topics in Amazonian linguistics, intended for a primary audience of anthropologists. We present as comprehensive a view of the Amazonian languages as possible by addressing a broad range of topics, from grammatical categories to discourse and language relationship. As we note in our conclusion, our discussion reflects the considerable advances that have been made in the field of Amazonian linguistics over the last decade.

Sound systems

We turn first to the sounds of Amazonian languages. These range from inventories of consonants and vowels, to prosodic features that color the pronunciation of entire syllables, morphemes (units of sound and meaning), or words, to systems of stress and patterns of intonation. We focus on consonants/vowels and prosodic features in the brief space available.

In several Amazonian languages, the systems of consonants and vowels contain sounds that are highly unusual, or even unknown, in other languages of the world. These include the bilabial affricate found in Shipibo (Pano; Elías-Ulloa 2009, see also C. Everett 2010) and the bilabial trills of Wari' and Pirahã (Chapakura and Mura; Everett and Ladefoged 1996). An even more unusual consonant occurs in Pirahã: a voiced linguolabial double flap, which involves the tongue tip hitting the roof of the mouth and then the bottom lip in quick succession (Everett 1982). Apparently, the very unusualness of this sound led it to develop cultural significance. As Everett (2012:316) describes, the speakers of Pirahã only began using the linguolabial in his presence after several months, because they were "sensitive to the fact that the Brazilians did not have this sound and that river traders made fun of them when they used it." A part of the language's inventory of sounds had become subject to conscious manipulation, to be avoided in moments of linguistic or cultural insecurity – and, conversely, to be used as an indicator of solidarity.

Much more than the use of existing sounds in a language's repertoire, the spread of innovations throughout a speech community is a largely social process, informed by associations drawn between particular people and particular ways of speaking. While in most cases the *quality* of the sound(s) in question probably has little to do directly with this process, at least some phonological features appear to be more prone to adoption by speakers and thus relatively easily spread. This is particularly true of prosodic phenomena, or sound patterns that affect whole words or phrases, probably because these are associated with discourse-level qualities of speech such as accent (see Matisoff 2001, Urban and Sherzer 1988). In Amazonia, the features of nasality and tone are particularly prominent prosodic features.

In a number of Amazonian languages, most notably those of the East Tukano family (e.g. Barnes 1999:211, Kaye 1971), nasal prosody may be best understood as a morpheme- or syllable-level feature, rather than as a property of either consonants or vowels specifically. In other languages, vowel nasality is inherent in the vowels themselves, rather than deriving from a following nasal consonant (as is more typical in European languages). Outcomes of

these properties of nasality typically include a lack of an underlying contrast between oral and nasal consonants (e.g. *b* vs. *m*), and oral-nasal contours. An example is seen in the Jê language Apinayé (example 1; Callow 1962; for a theoretical discussion see Anderson 1976). Analogous examples abound in Tupi, East Tukano, Nadahup (Makú), Arawak, and other families.

- (1) *Behavior of voiced stops in Apinayé*
 Before nasal vowels: *môr* 'go (pl.)'
 Before oral vowels: *^mbor*/*bor* 'cut down'
 After nasal vowels: *kôm* 'drink'
 After oral vowels: *ob^m*/*ob* 'dust, flakes'

A related feature of Amazonian nasal prosody is *nasal harmony*, where nasality spreads to several segments within a certain domain, even at a considerable distance; some morphemes receive variably oral or nasal pronunciation depending on which morphemes they combine with in the word. Nasal harmony may also be sensitive to subtle phonological and morphological distinctions within the word, as has been shown in particular for East Tukano languages (e.g. Kaye 1971, Peng 2000). We give an example of nasal harmony in Paraguayan Guaraní (from Gregores and Suárez 1968), which (though not actually spoken in Amazonia), properly typifies a process found in its many Tupi relatives and in several unrelated Amazonian languages:

- (2) *Guaraní nasal harmony*
nõ-rõ-nũpã-ĩ 'I don't beat you'
ⁿdo-ro-baibu-i 'I don't love you'

Distinctive lexical tone, defined as a difference in pitch that may constitute the sole difference between two lexical items, is a prosodic feature found in a number of Amazonian language families, including Tupi (Moore 1999, Picanço 2005), Tukano (e.g. Gómez-Imbert and Kenstowicz 2000, Gómez-Imbert 2001, Stenzel 2007), Nambiquara (Eberhard 2007), Bora (Weber & Thiesen 2000, Seifart 2005), and others. While much is still to be learned about tone in Amazonian languages, Hyman's (2010) recent survey of Amazonian tone systems indicates that most contrast high, low, and/or the absence of tone. In many cases, tone is attracted to stressed syllables, with tonal contrasts being absent in less prominent syllables; such systems have often been referred to as 'pitch-accent,' but we note that Hyman (2009, 2010) argues that a distinction between tone and pitch-accent is misleading. Hyman (2010) observes that a comparison between Amazonian tone systems and those found elsewhere in the world, as well as the correlations between tone and other features such as metrical stress, syllable structure, and laryngealization "suggest a relatively recent development of tone in at least some language families in South America." A recent emergence of tone, and its tendency to occur among geographically associated languages, points to the role of contact among speakers as a catalyst for its development.

Nominal classification

We turn next to some of the morphosyntactic structures that have attracted particular interest in the study of Amazonian languages. One of these is nominal classification, the grammatical categorization of nouns. Classification systems are found in many Amazonian languages, including those of the Arawak, Tupi, Macro-Jê, Tukano, Nambiquara, Yanomami, Bora, and other families. Amazonian data have played a major role in typological studies of noun classification (Grinevald 2000, Grinevald and Seifart 2004, Aikhenvald 2000, etc.).

Amazonian languages display a range of classification systems. The more grammaticalized variants are the noun class or gender systems, of which European languages like Spanish and German provide familiar examples. Such systems tend to be obligatory and to involve a small number of classes by which nouns are distinguished; the assignment of

nouns to classes has limited semantic motivation, and the system typically functions to register agreement (concord) between nouns and adjectives, numerals, and other elements (see Grinevald 2000:56-58, 62, Aikhenvald 2000, Corbett 2006). In Amazonian languages, noun class (gender) systems are encountered in a number of families, including Arawá (where all or most nouns are either masculine or feminine, Dixon 1999:298) and Chapakura, of which the Wari' language provides an excellent example of the complexity that may be apparent in a system where the assignment of nouns to classes is semantically only partly opaque: the 'feminine' category includes human females, collective nouns, and mixed groups of males and females; in the 'masculine' category we find human males, animals, and culturally significant objects; and the 'neuter' set includes most inanimates, newly introduced objects/animals/plants, etc. (Everett and Kern 1977; see also Aikhenvald and Dixon 1999:360).

Noun classifiers, on the other hand, are typically more like words than grammatical elements. Classifier systems tend to have a relatively large number of classes, to which the assignment of nouns is semantically more or less transparent; classifiers usually function to derive new words, as opposed to marking agreement; and the occurrence of classifiers may be limited to only some nouns, or to only a few nominal contexts (Grinevald 2000:62, Aikhenvald 2000). The distinction between noun class and classifier may be considered a continuum, and noun class systems may in general derive historically from the more lexical classifiers (e.g. Grinevald 2000).

In Amazonia, the variety and complexity of classifier systems is mind-boggling. Some languages of the Bora family, for example, have as many as several hundred dedicated classifiers. Other languages, such as those of the East Tukano family, allow the noun itself to fill the classifier slot (as a 'repeater') when no classifier form is available (see Aikhenvald 2000, Barnes 1999:218). Semantic bases for classification vary widely; in Nambiquaran languages, for example, humans are classified by gender, inanimates by shape, function, etc., and animals are unclassified; in East Tukano and some Nadahup (Makú) languages, animates are classified by gender, inanimates by shape, etc.; and in some Arawak languages (e.g. Baniwa do Içana) humans are classified by gender, inanimates by shape, etc., and animals by both gender and shape. Shape-based and related categories in these languages include such basic notions as 'round things' and 'flat things,' but can also include more esoteric concepts like that of loose bark on a tree, applied by extension to baggy pants and plywood (East Tukano; Barnes 1999:219).

One of the most intriguing features of noun classification systems is the fact that the membership of particular classes (as defined by the use of particular classifying morphemes) may seem at first glance to be arbitrary and hodge-podge, but is often informed by culturally significant associations among entities, as Lakoff (1987) and Dixon (1982) have famously argued for the Australian language Dyirbal. Entities may be assigned to sets – or, over time, reassigned – on the basis of culturally specific experience, including mythologically grounded belief systems. A remarkable example is given by Hill (1988), who describes the noun classes in Wakú (also known as the Curricaro dialect of Baniwa/Kurripako). These include such sets as 'large catfish species, machete fish, vines, snakes, fishing lines.' While some of these associations relate to physical qualities (e.g. vines, snakes, and fishing lines are all long, thin, and flexible), others are mythologically based; in this set, the large catfish is the namesake of a ceremonial trumpet that is bound with a vine rim, itself named 'two-snakes.' While the membership of noun classes is largely fixed for a given speaker (as is true of noun classification systems cross-linguistically), Hill shows that the same processes that are responsible for the organization of these classes over time are also observable in ritual *málikai* chants, where nouns are also grouped into classes (largely distinct from those in the everyday language), but are freely manipulated by specialists. For example, while a chant-owner may usually name the yellow curassow bird in the 'bird animal spirit' class defined by the Wakú *málikai* genre, he may choose to name it in the 'fish and aquatic animal spirit' class instead, because in myth the yellow curassow transforms itself into an anaconda.

As a final remark, it is noteworthy that many classifiers for inanimate objects in Amazonian languages are derived historically from plant-part terms, as is the case in Hup (Nadahup, Epps 2007a, 2008a), Apurinã (Arawak, Facundes 2000:183-201), and Yanomam (Yanomami, Goodwin Gomez 2000:18-20, Perri Ferreira 2009), which can be attributed to

the fact that plants in this region provide most of the raw materials for native manufactured items.

Numeral systems

The observation that Amazonian numeral systems tend to relatively low limits, when compared with numeral systems in many other parts of the world, has been a point of considerable recent interest (e.g. Everett 2005, Gordon 2004, Pica et al. 2004, and Frank et al. 2008). In fact, a number of Amazonian languages arguably have no ‘basic’ numerals at all (i.e. terms whose primary or only use is to denote an exact quantity); for example, a term used to mean ‘one’ may also mean ‘small quantity’ (as in Pirahã, Mura family; C. Everett & Madora forthcoming and references above), ‘two’ may be equivalent to ‘a few’ (as reported for Nadëb, Nadahup family; Weir 1984:103), and quantities larger than two or three may simply be referred to as ‘several’ or ‘many’. Such languages, and others whose numerals are reported not to go above ‘two’, include Krenak (Macro-Jê; Loukotka 1955:125), Matses (Pano; Fleck 2003:558), and Canela-Kraho (Macro-Jê; Green 1997:181). In some cases, on the other hand, it is possible that low system limits are the result of attrition and/or incomplete documentation (as reported for Jarawara, Arawá; C. Everett 2012, cf. Dixon 2004:179-80),

Many other Amazonian languages have somewhat larger sets of fixed numeral expressions (most often 1-3 or 1-5), but expressions for higher quantities may be variable and transparent, frequently involving terms for fingers and/or toes. In Hup (Nadahup; Epps 2006, 2008a), for example, ‘six’ may be expressed as ‘another finger standing’, ‘one finger standing’, ‘another thumb’, etc.; a similar situation is reported for languages like Emérillon (Tupi-Guarani; Rose 2003:195). Other systems display still less exact strategies, such as the tally system in Dâw (Nadahup; Martins 2004:265), in which quantities above ‘three’ are referred to only as ‘even’ (literally ‘has a brother’) and ‘odd’ (literally ‘has no brother’), supplementing a gestural system involving paired fingers.

Even where the numeral systems of Amazonian languages include fixed, ‘basic’ forms, these are in many cases etymologically transparent. For example, in Mundurukú (Tupi; Pica et al. 2004:500), ‘two’ derives from ‘arms’, ‘three’ from ‘two and one’, and ‘four’ from ‘two and one and one’. In Hup and several other members of the Nadahup (Makú) family, ‘one’ appears to derive from a demonstrative, ‘two’ from ‘eyes’, and ‘three’ from ‘rubber-tree-seed’ (which is distinctively three-lobed). A remarkable number of languages throughout Amazonia have terms for ‘four’ that involve that language’s word for ‘sibling’, ‘brother’, or ‘companion’; these include languages of the East Tukano, Arawak, Nadahup, Bora, Tupi-Guarani, Záparo, and other families (Epps 2006, Epps and Hansen in preparation), suggesting that this expression may have spread widely via contact among speakers, perhaps facilitated by trade.

These features of Amazonian numeral systems are of considerable theoretical interest from several viewpoints. From the cognitive perspective of several recent studies (Gordon 2004, Pica et al. 2004, Frank et al. 2008), low numeral systems have been shown to correlate with a limited facility for exact calculation and enumeration of quantities, inviting questions of Whorfian causality. From a linguistic perspective, the low limits of many Amazonian systems and the etymological transparency of their low-level numerals are unusually relative to many other parts of the world, and Amazonian languages thus provide insights into how numeral systems may develop over time (Epps 2006, Epps et al. 2012). Moreover, the fact that numerals are not a universal property of human language suggests that, as Andersen (2005:22) observes, “where numeral systems exist, they are a cultural attainment, that is, they have developed (or been borrowed from other languages) because they were culturally motivated.” Many authors have noted that the limits of numeral systems appear to correlate roughly with social structure and subsistence patterns, such that low-level systems are more typical of smaller, more egalitarian, hunting/gathering-oriented groups (e.g. Winter 1999:43, Heine 1997:24); there is some evidence for this correlation among Amazonian groups (Epps et al. 2012). Finally, it is worth noting that many Amazonian languages have supplemented

or replaced their indigenous numeral systems with borrowed Portuguese or Spanish terms. While such borrowing has undoubtedly been a part of numeracy for millennia, the result is that numeral systems are among the most endangered features of native languages in Amazonia and worldwide (Comrie 2005c), and are thus a priority for documentation.

Tense and tenselessness

Tense systems have been a centerpiece in the comparative study of human languages and the universals of human cognition. It was a contrast between the organization of the tense systems of Hopi and English that led Whorf (1950) to advance his hypothesis of linguistic relativism. Tense systems are once again being actively investigated by linguists in connection with the question of how much of linguistic structure is universal, and how much is language-specific.

Relatively little is known about tense systems in the Amazon region, as existing descriptions seldom give details of the semantics of verbal inflectional categories. Dixon and Aikhenvald (1999:9) list as an areal trait the fact that verbal categories such as tense are expressed by *optional* suffixes, or, one would have to add, through optional particles that cluster in various parts of the clause. Though it is impossible to determine the pervasiveness of this trait from the available descriptions, it does indeed seem to be the case that many Amazonian languages are *weakly tensed* languages, i.e., languages where tense may be left unexpressed, and the temporal anchoring of a particular proposition left to context or inference from properties of the event described by the predicate. This might contrast in a given language with the obligatoriness of evidentiality (see section 8 below) or aspectual marking.¹

In Mebengokre (or Kayapó; Jê), for instance, the primary notions expressed with action verbs are iterativity, that is, whether an action took place once or multiple times, or affected one or many objects, and 'stativity,' which refers to whether the predicate is a long-lasting characterization of the subject, or refers to a dynamic or momentary event. In addition to these two categories, enclitics (loose optional suffixes) to the verb encode certain other aspectual distinctions ('be about to', 'finish', 'begin'), and optional 'particles' near the beginning of the clause encode future versus nonfuture tense, as well as other categories such as the hearsay evidential, the conditional or the hortative. Tense in particular is often omitted in non-future clauses, and there is no grammatical distinction between present and past.

Given the lack of a morphological distinction between present and past, whether an event is complete or ongoing is often determined by the narrative context. By default, however, properties of the event described by the main predicate determine the temporal interpretation of the clause:

- (3) a. *ba nẽ* *ba* *ku-by*
 I NONFUTURE I it-grab
 'I grabbed it'
 b. *ba nẽ* *ba* *i-ngryk*
 I NONFUTURE I I-angry
 'I'm angry'

In both of these clauses, the tense indication is identical (nonfuture), yet whether the interpretation should be past or present depends on the choice of predicate. When a predicate describes a relatively unchanging situation, the interpretation is that it is ongoing in the present, while if the predicate denotes a dynamic and momentary event, the interpretation is that it was completed in the past.

Systems of tense not unlike what we have described here for Mẽbengokre are quite common in the Americas; they have been studied in greater detail in certain languages of North America, such as Mohawk (Baker & Travis 1997) and Navajo (Smith et al. 2007), among others. We predict that this is an area of research where many interesting findings will

be made as Amazonian languages are considered more closely.

A few Amazonian languages (to our knowledge, at least some members of the Arawak, Carib, Nambiquara, and Tupi-Guarani families; cf. Nordlinger and Sadler 2004) have morphological markers of temporality that occur on noun phrases. These are typically termed 'nominal tense' (although Tonhauser 2006 argues that they are primarily aspectual and modal), and they function to indicate that the referent exists in the future or in the past. Out of context, this typically seems to work much like English 'former' and 'future,' as in this example from Guarani (Tupi-Guarani family; from Tonhauser 2006: 159):

- (4) a. *che-roga-kue*
my-house-FORMER
'my former house'
b. *che-roga-rã*
my-house-FUTURE
'my future house'

In this case, *rã* and *kue* match their English translation equivalents, even with respect to the ambiguity as to whether they apply to the object itself or to the possessive relation (i.e., ‘my former house’ can mean one that used to belong to me, but it may also refer to a pile of smoldering embers that still belongs to me, and that used to be a house). They indicate a tense that is completely independent of the tense of the clause, as can be seen also in the following Guarani examples from Nordlinger and Sadler (2004:781):

- (5) a. *o-va-ta* *che-róga-kue-pe*
 3-move-FUT 1-house-FORMER-in
 'He will move into my former house.'
- b. *a-va-va'ekue* *hoga-rã-pe*
 1-move-PAST 3.house-FUTURE-in
 'I have moved into his future house.'

Nominal tense systems may also encode other categories. In Nambiquara languages, nominal tense is fused with evidentiality (see section 8), as illustrated in the following examples (from Lowe 1999, apud Nordlinger and Sadler, *op. cit.*):

- (6) a. *wa³lin³-su³-n³tɪ²*
 manioc-CL-TENSE+EVID
 ‘this manioc root that both you and I saw recently’
 b. *wa³lin³-su³-nũ¹tã²*
 manioc-CL-TENSE+EVID
 ‘the manioc root that must have been at some time past, as inferred by me
 (‘but not by you)’

While the translations of these examples are relative clauses, for lack of an equivalent resource in English, the Nambiquara utterances are in fact structurally simple noun phrases with markers that encode the evidence surrounding the epistemic status of the entity's existence.

It is likely that in languages where tense is not obligatorily marked in the clause, nominal tense marking would interact with the temporal anchoring of the whole predicate. Such an interaction would be analogous to the way that, in some languages of the Chaco (Manni 2007) and of the Pacific Northwest (Matthewson 1998), a distinction encoded in the determiners between visible and invisible or absent entities has consequences for the temporal interpretation of the whole clause (i.e., where participants are marked as ‘invisible’ or ‘absent,’ the default interpretation is one of a past event). Some of the examples given for nominal tense hint at this possibility, but descriptions are still too incomplete to allow a full account.

Verbal number

Number is relatively familiar as a nominal category, that is, as singular or plural (or sometimes also dual or paucal) marking on nouns. Less common cross-linguistically is the marking of number primarily or exclusively on verbs. Verbal number seems quite widespread in Amazonian languages, though it is not always easy to glean the details of how it functions in each language family from the available language descriptions. In the Jê family, in particular, some authors claim that verbal number constitutes agreement with the absolutive argument (Urban 1985), while others claim that it is exclusively a marker of repeated action (D'Angelis 2004), i.e., the 'iterativity' which we mentioned in the previous section. Queixalós (1998), describing a language from the Guahibo family, interprets what we would call verbal number as a category of its own, 'distensivité,' which is fuzzily related to aspect, agentivity, effectiveness of the action, and so on. A particularly noteworthy example of verbal number is found in Itonama (a language isolate spoken in Bolivia; Crevels 2006), which stands out for the extremely intricate nature of the system, coupled with a lack of any number marking on the nominals themselves.

Much of the interest in verbal number resides in the multiple uses to which it may be put, even when its primary use is clearly to indicate the plurality of a participant of the clause. The following examples show how in Mẽbengokre the meaning of number shifts from quantifying the direct object in (7) to a primarily aspectual sense when clauses use the stative (or nominal) form of the verb, in (8) (see Salanova 2007a):

- (7) a. *krwỳj jã nẽ móp krẽ*
 parakeet this NFUT malanga eat.V.SG
 'This parakeet ate the malanga.'
 b. *krwỳj jã nẽ móp ku*
 parakeet this NFUT malanga eat.V.PL
 'This parakeet ate the malangas.'
- (8) a. *krwỳj jã nẽ kute móp krẽn*
 parakeet this NFUT 3ERG malanga eat.N.SG
 'This parakeet has eaten malanga (at least once in his life).'
- b. *krwỳj jã nẽ kute móp kur*
 parakeet this NFUT 3ERG malanga eat.N.PL
 'This parakeet eats malanga (often).'

The meaning shifts in another direction – from indicating a definite to an indefinite set of nominal entities – when a particular quantifier (which we have loosely glossed as 'all') is added:

- (9) a. *arým nẽ ba i-nhõ pur kam móp kuni kaba*
 already NFUT 1NOM 1-POSS garden in malanga all
 uproot.V.SG
 'I already uprooted all of the malanga from my garden.'
- b. *arým nẽ ba i-nhõ pur kam móp kuni krwỳ*
 already NFUT 1NOM 1-POSS garden in malanga all
 uproot.V.PL
 'I already uprooted a lot of the malanga from my garden (but there might still be some left).'

Further intricacies exist, which make this topic an area for interesting comparative research. It should be noted that marking of plurality of action is a trait also found in certain language families of North America, notably Muskogean (Mithun 1999:83ff) and Tsimshian, where its morphological expression is strikingly similar to that found in some Jê languages (cf. Cavalcante 1987).

Evidentiality

Another intriguing grammatical feature found in many Amazonian languages is evidentiality. Evidentiality is defined as the grammaticalized expression of information source: while languages such as English must rely on periphrastic forms such as ‘I heard the boat go by,’ languages with evidentiality (as understood in most contemporary work; see e.g. Aikhenvald 2004) instead use a suffix or particle which may be expected or even required in every utterance. Such grammaticalized evidentials are encountered in languages of the Arawak, Nambiquara, Tupi, Pano, and Nadahup (Makú) families, among many others.

Amazonian languages distinguish a variety of evidential categories. Some of the more common are nonvisual (for information that is heard, and sometimes tasted, felt, or otherwise nonvisually experienced), quotative (for a direct quotation), reported (for information repeated second-hand but not necessarily directly quoted), and inferred (often on the basis of tangible evidence). A visual information source may also be marked directly, but in many cases this is the default interpretation of a lack of marking. Amazonian evidentiality is commonly a verbal category, realized as an affix, clitic, or associated particle.

Some of the most complex systems of evidentiality in the world are encountered in languages of the East Tukano family of the northwest Amazon. In these languages, paradigms of obligatory verbal suffixes fuse evidential distinctions with person, number, and tense. In Tuyuca, for example, the evidential categories are visual, nonvisual, apparent (inferred), secondhand (reported), and assumed (Barnes 1984, Malone 1988):

- (10) *yai wede-gi tii-gi*
 jaguar speak-MSG AUX-NONVISUAL:PRESENT:3MSG
 ‘A jaguar is crying’. (Speaker hears but does not see the animal.) (Malone 1988: 130)

It is not uncommon for Amazonian languages to have evidentials that are grammaticalized (i.e. expressed morphologically), but not grammatically obligatory. That is, an utterance that lacks an evidential may be judged pragmatically odd or inappropriate, but not grammatically incorrect, in the way that leaving off the past tense *-ed* would be incorrect in a typical English sentence beginning with ‘yesterday’. In such languages, evidentiality may only be ‘obligatory’ in the sense that it must be marked somewhere in the preceding discourse and understood by the listeners (see Valenzuela 2003:57-58, Michael 2008:102); examples include Nanti (Arawak), Shipibo-Konibo (Pano), Hup (Nadahup), and Karo (Tupi). Evidentiality is thus a particularly clear example of a linguistic category that straddles grammar and discourse.

In many cases, evidentials – particularly those that are not so grammatically entrenched – show traces of earlier, more periphrastic origins. For example, Nanti (Arawak) evidentials are *-ka* (quotative), *-ke* (reportive), and *ka* (inferential); of these, only inferential *ka* can be reconstructed in Proto-Kampa (an Arawak subgroup), whereas the quotative and reportive are related to the verb roots *kaNt* ‘say’ and *kem* ‘hear,’ respectively (Michael 2008). Similarly, in Hup (Nadahup), *mab* (reportive) reconstructs to Proto-Nadahup, but *hō* (nonvisual) and *cud* (inferred) derive historically from the verbs ‘make noise’ and ‘be inside’ (Epps 2005).

Evidentials may form a paradigm unto themselves (i.e. exhibit identical morphosyntactic behavior), and may combine with a variety of other markers, such as markers of tense (e.g. East Tukano languages), mood (e.g. Karo, Tupi; Gabas 1999) or even negation (M̃yky, isolate; Montserrat and Dixon 2003). Evidentials may also be ‘scattered,’ filling multiple morphosyntactic slots and thus not forming a single paradigm; this is the case in Hup (Nadahup), for example, where different morphosyntactic behaviors stem from the different historical origins of the evidential markers.

Evidentiality has at least two major discursive functions. It allows speakers to convey their commitment to the facticity of an utterance, i.e. their responsibility for its accuracy (e.g. Hill and Irvine 1993, Aikhenvald 2004; see Michael 2008). In addition, as argued by Michael (2008), evidentials may also help to mitigate the speaker’s responsibility for an event; that is,

the speaker can use an evidential to indicate whether he/she was present when the event occurred. These functions underscore the close link between evidentiality in grammar and the cultural expectations and conventions relating to communicative competence. The strong discursive relevance of evidentiality makes languages particularly prone to adopt it in situations of contact, and the fact that evidentials are so widespread in Amazonia (e.g. Aikhenvald and Dixon 1998, Epps 2005) may also indicate that "a prominent concern with epistemological matters is an areal cultural feature" in the region (Beier et al. 2002:133).

Alignment

Alignment refers to the strategies languages use to mark clausal participants, i.e., subject of an intransitive verb, subject of a transitive verb, and direct object, to distinguish them from each other.

Subjects or objects of transitive verbs and subjects of intransitives may not occur in the same clause if there is only one predicate.¹ For this reason, it is possible for a language to save up on different grammatical forms by using the same form for the intransitive subject and either the transitive subject or the object. Indeed, languages having a different form for each grammatical function (i.e., *tripartite alignment*) are quite rare.

Among the more economical possibilities, English illustrates the most commonly found pattern, the 'nominative-accusative' (or simply 'accusative') pattern, according to which subjects of both transitive and intransitive verbs are treated identically, and objects are morphologically distinct. This can be seen in the different forms certain pronouns take depending on the function that they have in the clause (e.g., *they* vs. *them*), and in the fact that verbs always agree with the subject, regardless of the verb's transitivity.

Conversely, one often finds systems in which there is a morphological identity between objects of transitive verbs and subjects of intransitive verbs, as in the following Kuikuro example (from Franchetto 2008):

- (11) a. *u-te-lü*
 1-go-PUNCT
 'I go.'
 b. *u-äpi-lü* *i-beke*
 1-hit-PUNCT 3-ERG
 'He hit me.'

It can be observed here that the first person pronoun maintains the same form in the two utterances, even though it is the (intransitive) subject in the first sentence and the object in the second. The subject of the transitive sentence, on the other hand, takes a special mark (*-beke*) to distinguish it from the other participants. This is a typical 'ergative-absolutive' (or 'ergative') system. Ergative alignment is found in many Amazonian families and language isolates, including Carib, Arawak, Tupi, Macro-Jê, Nadahup, Pano, Záparo, Yagua, Yanomami, Trumai, Tacana, and Guahibo.

In addition, several Amazonian languages, notably those of the Tupi-Guarani family, exhibit a special type of mixed system, commonly termed 'active-stative' alignment (also 'split intransitive' or 'split/fluid-S'; e.g. Klimov 1974, Dixon 1994; for Tupi-Guarani, see Seki 1976, 1990, 2000; Leite 1990). In systems of this type, the subjects of intransitive verbs are marked like direct objects when the verb has 'stative' semantics, and like subjects of transitive verbs when the verb has 'active' semantics. We note, however, that – as observed for some Tupi languages (Meira 2006) – stative predicates may exhibit nominal properties much like those found with possessive predicates, thus casting doubt on whether the language should be understood as having active-stative alignment at all.

In some instances, as in the following Guaraní data from Velázquez-Castillo (1996), particular verbs can be construed with both stative and active interpretations. As statives, these take pronominal prefixes identical to those occurring on direct objects (e.g. first person singular *che-*); as actives, they take prefixes that correspond to those found with the subjects

of transitive verbs (e.g. first person singular *a-*).

(12)

Stative		Active
I can swim	a-yta	I swim
I'm a thief	a-monda	I steal
I'm a big eater	a-karu	I eat
I'm a drunkard	a-k'au	I get drunk
I'm a fast walker	a-guata	I walk
I'm a quiet person	a-kiriri	I stop talking

The treatment of particular predicates varies across active-stative languages (cf. Mithun 1991 for discussion and some North American examples), and often reveals something about how certain events are conceptualized in particular languages. For instance, 'subjects' of verbs denoting psychological processes might resist patterning with subjects of active verbs, as happens even in English (e.g. *it occurred to me*), or might behave exactly like subjects of active verbs, as in *I deduced*, possibly revealing a contrast in control or volition.

Ergativity is by no means exclusive to the South American lowlands, being found in at least a fifth of the languages of the world (see Comrie 2005a, 2005b, Siewierska 2005), in all continents. Consideration of alignment systems here is worthwhile, however, in view of the statement made in the introduction to Dixon (1994), and echoed in Dixon and Aikhenvald (1999:1), that the patterns of ergativity found in Amazonian languages contradict many of the previously held beliefs about ergativity. In what follows, we will outline some of the cross-linguistic tendencies that have been observed in connection with ergativity, and point out some places where Amazonian languages display patterns that run counter to those tendencies. For a detailed treatment of this topic, see Gildea (2004) and Gildea and Queixalós (2010).

A robust generalization about ergative languages is that these are normally only *partially* ergative. In most languages that have ergative features, these coexist with nominative-accusative constructions or traits. In some cases, the choice between ergative and nominative constructions appears to rest on semantic or discourse-related factors, just as an English speaker's choice between an active and a passive construction depends on how vague he/she wishes to be about the participants involved. More often, however, 'splits' in ergativity are hardwired into the language's grammar, such that the choice of alignment pattern is tied to differences of tense, particular grammatical traits of the subject, or other factors. These associations show certain widespread tendencies in the world's languages. For instance, a language might use ergative alignment for past tense clauses and accusative for nonpast tenses, or it might use ergative or accusative alignment across the board, but there is an overwhelming absence of languages pairing past tense with accusative alignment and nonpast with ergative alignment. Similarly, in the domain of noun phrases, expressions that refer to entities closer to the speaker (i.e., first or second person pronouns), or those that denote human participants, are typically the ones that tend to follow an accusative alignment in split systems. The rationale proposed by Dixon (1994) and other authors for these splits is that ergative constructions are associated with situations in which the subject has less control or agency in the event; i.e., events completed in the past may no longer be affected, and actions performed by non-human participants are less likely to be portrayed as volitional.

Strikingly, however, Amazonian languages present several *prima-facie* exceptions to these tendencies. In the examples offered below, from Santos (1997), Suyá-Kĩsêdjê pronouns follow ergative alignment, while non-pronominal noun phrases follow nominative-accusative alignment, contradicting the generalization about person/nominal reference:

- (13) a. *rotxi* *ra* *mĩtxi* *pĩrĩ kere*
 anaconda NOMINATIVE alligator kill no
 ‘The anaconda didn’t kill the alligator.’
 b. *mẽ* *ra* *ngere* *mã*
 people NOMINATIVE dance about.to
 ‘The people are about to dance.’
 c. *i-ngere mã*
 I-dance about.to
 ‘I’m about to dance.’
 d. *i-re* *a-kaken* *kere*
 I-ERGATIVE you-scratch no
 ‘I didn’t scratch you.’

Likewise exceptionally, ergative alignment is used for generic or habitual clauses in Mẽbengokre, which are normally interpreted as present, while simple past clauses display nominative-accusative alignment:

- (14) a. *ba nẽ* *ba kɛrwa* *nɛimrô*
 I NONFUTURE I arrow sharpen.PUNCTUAL
 ‘I sharpened the arrow.’
 b. *ba nẽ ba* *mɛã*
 I NONFUTURE I walk.PUNCTUAL
 ‘I walked.’
 (15) a. *i-je* *kɛrwa* *nɛimrônɔ*
 I-ERGATIVE arrow sharpen.GENERIC
 ‘I sharpen arrows.’
 b. *i-rwỳk*
 I-walk.GENERIC
 ‘I’m able to walk.’

In Mẽbengokre, at least, the unusual distribution of ergative constructions has a transparent source. In this language, as in many other Amazonian languages, nominalization is among the most frequently used strategies for clause subordination, and subordination has a wide range of functions (relating to aspectual values, negation, etc.)³. Given that nominalizations frequently display some type of ergative alignment cross-linguistically (Koptjevskaja-Tamm 1993), these factors result in the occurrence of ergativity in diverse and unexpected contexts.

The question of whether ergativity might have extralinguistic correlates grounded in social or cultural factors has been the subject of a long-standing yet now largely outdated debate, summarized in Dixon (1994). We have very little to add to this discussion; despite an uneven geographical distribution, ergativity and accusativity are present in languages spoken by widely different societies, and it is often the case that languages where ergativity is dominant are spoken side by side with accusative languages.

The Pirahã debate and the scarcity of recursive structures

A considerable amount of popular attention has recently been focused on Amazonian languages – or, more precisely, one Amazonian language, Pirahã – particularly as represented in the work of Daniel Everett. In a widely cited article published in *Current Anthropology* (2005), followed by other publications (including two works intended for a primarily non-linguist audience; Everett 2008, 2012) Everett argues that the Pirahã language lacks, among a variety of other features common to most languages, any recursive structures.⁴ In this section, we first examine some of the implications that Everett has drawn from his observations, and the arguments that have been raised in the ensuing debate (for further details of the debate, see Everett 2009, 2012 and Nevins et al. 2009a, b). We then turn to the

question of Pirahã's place within the greater Amazonian context, in light of the relative scarcity of recursive clause embedding in many languages of the region.

The debate centers on Everett's (e.g. 2005, 2009, 2012) claim that the Pirahã facts challenge the influential proposal, advanced by Hauser et al. (2002), that the ability for recursion is the one (innate) feature that characterizes the human language faculty, as narrowly defined.⁵ Even more controversially, Everett links the ability to embed clauses recursively to the property of *displacement*, which refers to the possibility, apparently absent in animal systems of communication, to relativize truths to situations other than the here/now and the point of view of the speaker.⁵ That is, we can relativize the truth of *there are good fish upriver* to some other individual's point of view because we can say *John thinks that there are good fish upriver*, and so on as many times as desired. Accordingly, Everett suggests that a culturally determined lack of interest in anything but the here and now (which he terms the 'Immediacy of Experience Principle') has constrained Pirahã speakers' development (or facilitated the loss) of constructions involving recursion in their language.

Critics of Everett's claims, most notably Nevins, Pesetsky, and Rodrigues (2009a, b), have stressed a number of key points. They argue that Everett's current interpretations of the Pirahã data are flawed, and that they are inconsistent with his earlier interpretations of the same material (Everett 1986, 1987), which *do* assume – and appear to provide evidence for – the existence of recursion. They also point out that recursion, or 'embedding,' may take a variety of forms, which would not all seem to be equally associated with displacement (e.g. recursion may involve a clause within a clause, as in 'the apple [that I am now looking at] is rotten;' a noun phrase within a noun phrase, as in '[Mary's brother]'s canoe has a hole;' or nouns within a noun phrase, as in 'old [men and women] arrive'; Nevins et al. 2009a:364). Finally, Everett's critics argue that the absence of recursion in a given language does not entail its absence from the language faculty in general; in other words, just because one language has not developed a particular trait does not mean that it *could* not do so, or that its speakers are incapable of learning it. In other words, speakers would always have the underlying 'hardware' on which such a trait is based.

In his responses to these criticisms (e.g. Everett 2009), Everett argues that his more recent interpretations of the Pirahã data are in fact better informed than his earlier ones, and represent a maturation of his analyses over the intervening twenty years. He revisits many of the grammatical structures questioned by Nevins et al., such as quotative constructions and negative scope, and argues that they do indeed show evidence for a lack of recursion. Finally, Everett and other scholars (see, e.g., Evans and Levinson 2009:443) have questioned the argument that a characteristic of human language may be universal even while absent from particular languages, observing that such a caveat renders the generalization of universality both essentially untestable (i.e. it makes no empirical predictions), and irreparably weak, in that any other feature found in particular languages could be an equally valid candidate for universality.

In their turn, the rationalist camp maintains that the universality of a 'latent' trait is indeed testable, though the methodologies that are needed go beyond the usual field research techniques. A series of experiments conducted with Pirahã speakers attempt to fill this gap (see, e.g., Sauerland 2010), though, predictably, experimental design in the Pirahã context poses important challenges, which have made progress quite slowly.

Whatever the implications of Pirahã grammar for linguistic theory, we observe that a scarcity of clause-level recursion is in fact a noteworthy feature of many Amazonian languages, as can be seen in many of the traits discussed in the preceding sections. For example, instead of combining a subordinate clause with a verb of perception (e.g. *he sees that the tapir has been eating here*), many Amazonian languages encode the source of information by means of evidential morphology. Moreover, as Beier et al. (2002:134) note, speakers of Amazonian languages tend to express the mental states of others by directly quoting what people say (rather than by embedding a proposition under an attitude verb such as 'think' or 'believe'). Finally, many languages express such notions as *X wants to do Y* – commonly encoded via bi-clausal constructions in European languages – by means of bound verbal morphology (e.g., in this case, a 'desiderative' affixed to the verb '*do*'), rather than via a subordinate clause.

It is also important to recognize that a scarcity of clausal recursion does not entail an inability to express displacement. In fact, it often means that the displacement is obligatorily coded in a sentence, as in the case of evidentiality. However, it is true that embedding under attitude verbs, as compared to evidential marking, is more versatile in that it permits the subject of the perception to be specified and allows multiple levels of recursion. Moreover, Everett (2012:290) maintains that in Pirahã, evidentials are limited strictly to main clauses and their constituents, and that this feature is the crucial limiting factor on recursion in the language more generally.

Regardless of what can occur on the sentence level in a language, multiple displaced meanings also arise at the level of discourse via the combination of syntactically simple sentences. Particular expressions of recursive meaning without recursive syntax appear to be systematic in some languages (see also Evans and Levinson 2009:442). Mẽbengokre, for instance, possesses a ‘twin clause’ construction in which a structure involving juxtaposed sentences necessarily encodes a relation of purpose.⁶

- (11) [Kajti imã kàx ngã] [ba o kɛruwa nbimrɔ]
 Kajti to.me knife gave I with.it arrow sharpen
 ‘Kajti gave me a knife to sharpen arrows with it’ (literally, ‘Kajti gave me a
 knife; I sharpen arrows with it’)

Something similar may be said about the Wayampi (Tupian, French Guyana and Brazil; Copin 2012) ‘serial verb construction’:

- (12) apota elejo tele ije
 I.want you.come you.say I
 ‘I want you to come in order to tell me.’ (literally, ‘I want, you come, you
 say’)

In recent work, Everett is clear that Pirahã discourse shows evidence of recursive reasoning, situating ideas within ideas (Everett 2012:295-297); it is only Pirahã syntax that apparently does not. We remain unclear as to how a culturally driven focus on concrete, immediate experience – i.e. the ‘Immediacy of Experience Principle’ – could constrain recursion in syntax while allowing it free rein in discourse; however, Everett’s (2012) recent discussion highlighting of the role of evidentiality in this process may be a step toward an answer.

On grammar, discourse, and culture

As Sherzer (1987) observes, discourse is the nexus of language and culture, the locus of both their continuity and creation. Grammar “provides a set of potentials... actualized in discourse,” which is in turn “an embodiment, a filter, a creator and recreator, and a transmitter of culture” (Sherzer 1987:306; see also Urban 1991). At the same time, the set of cultural practices that constitute discourse guides both the transmission of grammatical structures and the emergence of new ones over time.

Beier et al. (2002) list a number of discursive practices that are widely shared among Amazonian peoples, including the extensive use of dialog (ranging from highly routinized dialogic performance to more backgrounded ‘echo speech’), ritual wailing, and special or ritual forms of language. Many of these practices draw cultural meaning and artistic effect from specific lexical, grammatical, and discursive resources of the languages in which they occur.

Ideophones are one example of a linguistic resource that is frequently encountered in Amazonian narratives. In most cases, these sound-symbolic forms make up a distinct lexical category within the language; they differ from other word types in that they typically do not take bound morphology, involve sounds and syllable structures that are not part of the regular phonological inventory, and may vary in their degree of conventionalization. Ideophones commonly represent sounds, but may also refer to motions or sensations. As

“the closest linguistic substitute for a non-verbal, physical act” (Kunene 2001:183), ideophones contribute an emotive, experiential tangibility to a narrative, as in this Hup (Nadahup) example:

- (13) *widididí, pótʔah-an, kək-dʔh-hám-āp, widididí*
 IDEO upriver-DIR pull-send-go-DEP IDEO
 ‘*Widididí*, upriver, (he) pulled them along, *widididí*...’

Some Amazonian discursive practices rely crucially on deviations from other or everyday forms of speech. This is a particularly noteworthy feature of many ritual and shamanic language varieties. In addition to differences in channel, such as singing, chanting, or blowing, and in discursive resources, such as the heavy use of metaphor and parallelism, ritual and shamanic speech often involves lexical and even morphosyntactic deviations. Lexical differences include the use of archaisms, words borrowed from other languages, or metaphorical substitutions; in Yagua ritual speech, for example, ‘tapir’ is substituted for ‘drum’ (based on the sound of the tapir’s footsteps) and ‘peccary’ for ‘palm species’ (because the peccary eats this palm’s fruit; see Chaumeil 1993). Morphological deviations can involve simplification, such as the dropping of otherwise obligatory verbal inflection in Bribri (Chibchan, Cervantes 2003), and elaboration, such as the insertion of semantically empty affixes and non-semantic vocables in Warao (isolate, Briggs 1996). Examples of syntactic changes include changes in word order (Warao) and the omission of a copula or postpositions (Bribri; see Finley 2008 for further discussion). A fine-grained understanding of ritual speech and other discourse practices must take into account the linguistic features that make them special.

Linguistic structures are the building blocks of discourse, and are thus integral to the transmission and creation of culture. Yet, on the other hand, the idea that culture may be directly implicated in the development of linguistic structure has received little serious attention. This is undoubtedly due in part to the difficulty of proving that an apparent correlation between the two is more than chance, as the debates surrounding Pirahã attest. Yet there are at least two mechanisms of language change by which culturally specific patterns may influence grammar, as discussed by Evans (2003). The first involves frequency: patterns that are more frequently repeated may become conventionalized, leading in turn to routinization and reduction of form; as Du Bois (1987) puts it, “grammars do best what speakers do most” (see also Bybee 2000). The second involves pragmatic inference: particular uses of ellipsis (leaving parts of a message unsaid) and figurative language are guided by shared understanding, which may be culturally specific; these inferences may lead to the reinterpretation of expressions and their extension to new contexts.

A number of the features encountered in Amazonian languages may have arisen in conjunction with culturally specific patterns of discourse. As noted above, evidentials and numeral systems are two examples. Another possibility is the ‘sociative causative,’ a distinct grammatical form that indicates that one participant not only causes another to do something, but participates in the activity him/herself as well (Guillaume and Rose 2010), as illustrated in the following example from Tupinambá (Tupi, Rodrigues 1953:136, cited in Guillaume and Rose 2010):

- (14) *xe-r-ykeyr-a* *xe-r-eno-sém*
 1SG.II-RELN-older.brother-ARG 1SG.II-RELN-CAUS.SOC-go.out
 ‘My older brother took me out.’

The authors observe that a dedicated sociative causative construction is common among Amazonian languages, but appears to be rare elsewhere in the world. Whether or not its grammaticalization in particular Amazonian languages was modeled directly on other languages of the region, widespread cultural norms relating to social interaction – as anchored in discourse – may have been a factor.

Another example of a grammatical category that is widely found in Amazonia, but appears to be relatively rare elsewhere, is that of ‘ontological operators’ (so termed by

Franchetto and Meira 2007; see, e.g. Viveiros de Castro 2002 for Yawalapiti [Arawak], Deshayes and Keifenheim 1994 for Cashinahua [Pano]). These constitute a system of nominal suffixes or modifiers that indicate how the referent deviates from or conforms to categorial prototypes. They tend to express four values, roughly ‘hyper, exaggerated,’ ‘exact, true,’ ‘similar to,’ and ‘different from.’ In Yawalapiti, for example, the word *úí* ‘snake’ can occur with any of the four ontological operators, producing the following meanings: *úí-tyumã* ‘snake-spirits’ (*-tyumã/kumã* ‘supernatural, hyper-, exaggerated’), *úí-rúru* ‘true/venomous snakes’ (*-rúru* ‘true, genuine, best’), *úí-mína* ‘animals similar to snakes’ (*-mína* ‘similar to, having the properties of’), *úí-malú* ‘failed/non-venomous snakes’ (*-malú* ‘bad, worthless, unsatisfying’; Viveiros de Castro 2002:28-29). Again, the recurrence of similar systems of ontological operators across a variety of Amazonian languages and language families cannot be accidental, but is undoubtedly associated with the sharing of discourse norms and cultural perspectives as well as grammatical forms.

Language relationship and language history

Languages change and diversify over time, such that a single language will split into dialects, which in turn will gradually develop into mutually unintelligible languages. On the model of biological organisms, languages are classified into families descended from a common ‘ancestor’ (a proto-language) – just as French, Spanish, and Portuguese are descended from Latin. Amazonia is remarkable for the enormous diversity of its languages, and the task of working out the relationships among these is still far from complete.

Historical linguists rely on a carefully defined methodology, known as the Comparative Method, to establish the ‘genealogical’ or ‘genetic’ relationships among languages (a metaphor referring to descent from a common proto-language), and to identify the changes in words, sounds, meanings, and grammatical structures that have occurred over time (see, for example, Campbell 2004, Hock 1991). This methodology focuses on identifying regular correspondences, particularly of sounds (such as English *d* and German *t* in *deep* and *tief*, *deer* and *Tier*, etc.); these make it possible to establish cognates, or words that derive from a common parent language. The most likely candidates for true cognates are pronouns, bound morphology, and ‘basic vocabulary’ – words that represent concepts common to speakers regardless of their history or time period, and thus tend to be less prone to borrowing across languages (e.g. body parts, natural entities like ‘sun’ and ‘rain’, etc.). Because changes accumulate over time, these eventually obscure regularities across cognates, such that reliable evidence of relationship tends to fade out beyond approximately 8,000 years of time-depth. While new methodologies for discerning deeper relationships among languages have been attempted, none of these have yet proved reliable. The best known of these efforts is that of Greenberg (1987), who proposed a single macro-family (‘Amerind’) for the languages of South, Central, and most of North America, itself composed of various large-scale subgroups. Few linguists today accept Greenberg’s proposal; although there is little doubt that some or perhaps all of Amazonia’s language families are themselves distantly related, we can only guess at these relationships in the absence of solid evidence.

One of the greatest challenges in understanding the classification of the Amazonian languages has been the widespread lack of reliable descriptive data. As the number of quality studies of these languages builds, however, our knowledge of their relationships does as well. In some cases, previously unclassified or supposedly isolate languages can be assigned to larger families, such as Harakmbut (a language of Peru) to the small Katukina family in western Brazil (Adelaar 2000). In other cases, however, new data leads instead to the splitting of ‘families’ whose membership was based on spurious classifications. For example, the ‘Makú’ or ‘Makú-Puinave’ family lumped together six to seven languages of the northwest Amazon: Hup, Yuhup, Dâw, Nadëb, Kakua, Nukak, and (according to some classifications) Puinave (e.g. Martins and Martins 1999, Loukotka 1968, Campbell 1997). These classifications relied primarily on a few sketchy word lists noted down by early visitors to the region (Koch-Grünberg 1906, Rivet and Tastevin 1920), and were methodologically unsound (based on impressionistic judgments of similarities among words, with no attempt

to focus on ‘basic’ vocabulary or to identify regular sound correspondences). Work on the four ‘Nadahup’ languages (Hup, Yuhup, Dâw, and Nadëb), most of which has emerged within the past ten years, has clearly established their relationship (see Martins 2005, Epps 2008a), but recent investigation into Kakua and Nukak indicates that these two languages – while related to each other – bear no demonstrable relationship to the Nadahup family (although they have acquired structural similarities via language contact; see Bolaños and Epps 2009). The relationship of Puinave to Kakua and Nukak is currently under investigation.

For the majority of Amazonian language families, the overall membership is still less mysterious than are the internal relationships among the languages (see Campbell 1997, Epps 2009). Here again we find methodological challenges and pitfalls. In particular, many proposals for subgrouping are based on percentages of shared vocabulary (purportedly cognates, retained from the proto-language; e.g. Martins and Martins 1999 for Nadahup/Makú), such that languages with less common vocabulary are assumed to be less closely related. However, historical linguistic methodology accepts only shared *innovations* as reliable evidence for subgrouping, since there is no guarantee that languages lose vocabulary at a constant rate. Subgrouping proposals based on cognate percentages, as well as on geographic proximity and other indicators, should be viewed as constituting no more than a first guess. Yet because the identification of shared innovations requires a careful reconstruction of the proto-language, such guesswork is still the only option available for the majority of Amazonian language families. Most of the existing proposals for their subgrouping should therefore be understood as highly tentative. For example, the classification of Macro-Jê by Rodrigues (1999:167-168) is informed principally by the languages’ geographic distribution (see Ribeiro and van der Voort 2010). Similarly, Facundes (2002:83-84) points out the considerable differences between Aikhenvald’s (1999a:67-71) and Payne’s (1991) classifications of Arawak languages; there is as yet no consensus as to which (if either) is more accurate (compare also a third, even more different classification by Ramirez 2001; cf. Michael 2009). Given the lack of data on many of the languages in question, and the tremendous diversity of the Amazon region, it may be some time before solid internal classifications for most of these families are available.

As languages diverge, they become more distinct. Sound changes accumulate and meanings shift, obscuring similarities among related words; grammatical distinctions like evidentiality and tense emerge or are abandoned. However, languages may also converge: interaction among speakers may lead to the borrowing of words and morphemes, and even to the adoption of new grammatical structures and categories. Long-term, pervasive multilingualism, in particular, may lead to the restructuring of one language’s grammar to fit the model presented by the other, even while each maintains much of its original vocabulary.

Because similarities among languages may derive from either contact or shared inheritance, determining which type of relationship pertains among languages may be a challenge. Nevertheless, the methodological tools of comparative historical linguistics are usually adequate for distinguishing between these, except in the case of truly ‘mixed’ languages or at very great time-depth (see, e.g., Campbell and Poser 2008; cf. Dixon 1997). Whereas regular sound correspondences within basic vocabulary are indicative of descent from a common linguistic ancestor, similarities that are confined to non-basic vocabulary (e.g. culturally or environmentally specific terms) and to grammatical categories and structures are more likely the result of language contact.

The possibility that the Amazon region might generally constitute a linguistic area, a region where similarities among languages may be attributed to contact among their speakers, has received some attention; for example, Dixon and Aikhenvald (1999:8-9) list a number of widely encountered features (see also Derbyshire and Pullum 1986, Klein 1992). However, a great deal more work is needed to determine whether these or other features are in fact indicative of some kind of relationship among these languages (contact or otherwise), and whether their distribution is contiguous with the Amazon basin (see Constenla Umaña 1991:135, Payne 1990:3, Campbell 1997:348-351, Epps 2009 for further discussion).

Language contact is more easily demonstrated within narrowly defined regions of Amazonia. A well established case is that of the Vaupés region, a highly multilingual area in the northwest Amazon, where the practice of linguistic exogamy – marriage across language

groups (see Jackson 1983, Sorensen 1967, *inter alia*) – has led to an avoidance of lexical borrowing (as speakers resist language mixing), but has fostered profound changes in grammatical structures and categories. Among the contact-induced changes in this region, East Tukano languages have influenced Tariana (Arawak; e.g. Aikhenvald 1999b, 2002), Hup and Yuhup (Nadahup; e.g. Epps 2007b, 2008b), and Kakua (Bolaños and Epps 2009); and Baniwa (Arawak) has influenced Cubeo (East Tukano; Gomez-Imbert 1996). Another area of Amazonia in which contact may have led to grammatical restructuring is the Guaporé-Mamoré region of Bolivia and Brazil (Crevels and van der Voort 2008). On the other hand, Seki (1999) shows that contact-driven changes in the languages of the Xingu region appear to be relatively few, apparently because multilingualism among speakers has been of relatively low intensity and short duration. In multilingual zones like the Vaupés and the Xingu, the linguistic outcome of contact among speakers of different languages owes much to particular socio-cultural norms – such as linguistic exogamy – and to the discursive practices that enable the diffusion of grammatical structures (see Beier et al. 2002).

Studies of language contact and change can tell us much about indigenous pasts, particularly in places like Amazonia where the textual and archaeological records are relatively limited (see Epps 2009). Relationships among languages entail past relationships among groups (but note that, despite terminology, ‘genealogical’ or ‘genetic’ linguistic relationships most certainly do *not* entail corresponding genetic relationships among peoples, as evidenced by Portuguese-speaking Brazilians of indigenous descent, for example). Patterns of linguistic similarity and diversity raise numerous questions: Why is linguistic diversity highest along the Amazonian periphery? Might these patterns hold clues to the peopling of the New World, the spread of innovations such as agriculture (Clement et al. 2005), or the origins of widespread language families (e.g. Aikhenvald 1999a:75)? Additionally, the histories of particular words can reveal clues about the histories of the concepts to which they correspond. For example, Payne’s (1991) reconstruction of Proto-Arawak suggests that early Arawak speakers cultivated manioc and other crops, made hammocks and ceramics, and observed particular ritual practices (see Heckenberger 2002:106-115). Linguistic evidence indicates that the Tupi-Guaraní-speaking Guajá people are former agriculturalists who took up a hunting and gathering lifestyle in the relatively recent past, probably due to pressures of the European conquest (Balée 1999); in contrast, comparison of the Nadahup languages suggests that these speakers’ current hunting/gathering focus is representative of a past in which agriculture has never played a primary role (Epps forthcoming).

Conclusion

The last ten years have seen enormous strides in our understanding of Amazonian languages. One important development has been the publication of several comprehensive overviews of these languages, including Dixon and Aikhenvald (1999), Queixalós and Renault-Lescure (2000), Solís Fonseca (2003) for Peru, González and Rodríguez (2000) for Colombia, and the recent surveys by Campbell and Grondona (2012) and Aikhenvald (2012). Many new quality studies of particular Amazonian languages have also emerged, a large number authored by Latin American scholars.⁷ In addition, the number and regularity of academic forums devoted to Amazonian linguistics have grown exponentially, ranging from major international conferences to online discussion groups (www.etnolinguistica.org) to new periodicals (such as LIAMES [South American Indigenous Languages]), suggesting that the field has begun to come of age. As we point out in Salanova (2007b), documentation of the most endangered languages of the region proceeded slowly in the past because, on the one hand, carrying out fieldwork in the more remote parts of the Amazon was too costly for linguists working from within South America, and, on the other hand, linguistic work carried out by missionaries has generally targeted the more widely or vigorously spoken languages, as these offer access to more souls. The first factor has been partly reversed by new international sources of funding that, in relative terms at least, have been more accessible to the scholarly community outside the more developed countries. It is nevertheless important

to note that many of the region's languages are even more critically endangered now than they were a decade ago.⁸ Documentation work on many of these languages is still insufficient, and, as we hope to have made clear above, our knowledge of even some of the better-documented languages is still not complete enough to answer some of the theoretical questions that have arisen in the analysis of the better-known North American languages, among others. We can only hope that the current pace of the documentation of Amazonian languages will continue.

Contemporary advances in the study of Amazonian languages reflect a maturation of the field of language documentation more generally. This process has seen a developing methodological emphasis on naturally occurring discourse from a variety of genres and settings, informed by a rich and nuanced ethnographic context. As we point out here, elements of grammar can both shape and be shaped by discursive practices. Likewise, a linguistic perspective can contribute critical insights into speakers' cultures and histories. As our knowledge of Amazonian languages continues to advance, we hope that the dialogue between linguists and anthropologists working in this region will grow as well.

Notes

The present article began as an extended review of work on Amazonian languages in the ten years that followed the publication of Dixon and Aikhenvald's *The Amazonian languages* (1999). While we believe that we have identified some of the major lines of theoretical research that have been shaping the field in the last decade, we do not claim to be comprehensive in our bibliography or in enumerating currently active researchers, nor do we attempt to provide an assessment of the current situation of the languages and their speakers, or of the extent to which they are documented and described. For such ends, the reader should consult Moore (2007) and the overviews cited in the last section. We wish to thank the numerous colleagues that have contributed bibliographical references and materials in pre-publication stage; these are cited in the bibliography. Epps' contribution was partially funded by NSF grant HSD-902114. Salanova's contribution was partially funded by Social Sciences and Humanities Research Council of Canada grant 410-2010-2040. A modified version of this article appears in Portuguese in the Brazilian journal *LLAMES*. The authors' names are in alphabetical order. This article is dedicated to Steven Rubenstein, *in memoriam*, who initially requested it, and who strove to promote interaction between linguists and anthropologists working in lowland South America. We hope that our contribution may continue his initiative.

1 One should note, however, that at least in the East Tukano languages tense is both obligatory and morphologically integrated to the verbal word.

2 Denny Moore (p.c.) points out that in languages with processes of verb serialization, among which he cites Tupari, Mondé and Djeoromitxi, it is possible to have intransitive subjects and objects in the same clause. For reasons of space, we do not discuss verb serialization in this article.

3 On subordination strategies in Amazonian languages, see van Gijn et al. (2011). For further discussion of the Mëbengokre case, see Salanova (2007a, 2008).

4 Recursion in linguistics refers to the ability to indefinitely embed constituents within others of the same type (i.e., a clause within a clause, or a noun phrase within a noun phrase). It is this feature which would be primarily responsible for the fact that human language makes "infinite use of finite means" (Chomsky 1995: 14, where the quote is attributed to Wilhelm von Humboldt), according to the assumption that there are no a priori limits to the amount of times this recursion can take place in a single utterance: *I know that you know that the paper claimed that...*

5 It might seem surprising that, after all that has been argued in the generative tradition to justify complex innate structures, our genetic endowment for language is reduced to just a recursive engine in Hauser et al.'s 2002 article. It would take us too far afield to go into this issue here, but the contentions of that article are consistent with the drive of Chomsky's (1995) minimalist program, where the aim is to explain as many of the design features of

language as possible by 'interface conditions' (i.e., functional motivations) rather than by the design of an exclusively linguistic module.

6 This would be similar to how, in colloquial English, the coordinated structure 'try and do this' encodes a meaning that involves subordination

7 A comprehensive bibliography may be found in Fabre (2005+).

8 For a recent appraisal of the situation, see Moore (2007).

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