RECONSIDERING THE "MAKÚ" LANGUAGE FAMILY OF NORTHWEST AMAZONIA[1]

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The so-called Makú or Makú-Puinavean language family of the Northwest Amazon has long been assumed to include the languages Hup, Yuhup, Dâw, and Nadëb (the "Naduhupan" group), the sisters Kakua and Nukak, and the language Puinave (or Wánsöjöt). Here we evaluate these putative relationships, drawing on a range of newly available lexical and grammatical data. We argue that, although there is solid linguistic evidence of genetic relationship among the four Naduhupan languages, as between Kakua and Nukak, the association between these two groups is unfounded. A distant relationship between Kakua-Nukak and Puinave is more plausible but cannot at this point be confirmed. Many of the shared lexical and grammatical features that do exist among these languages are more easily attributed to contact than genetic inheritance. We conclude with a discussion regarding the choice of names for the distinct family groupings established here and urge the abandonment of the name "Makú."

[KEYWORDS: Makú; Naduhupan; Amazonia; language classification; hunter-gatherers]

1. Introduction. The past two decades have seen dramatic progress in the documentation and description of Amazonian languages. As new information about these languages accumulates, we now find ourselves in the position to evaluate and refine earlier efforts at their classification. Although many of

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these efforts have been referenced for so long that they are effectively taken for granted, a number were based on scanty and poorly transcribed linguistic data and in some cases were heavily informed by non-linguistic considerations, particularly involving geographic proximity and cultural similarity.

The evaluation of Amazonian linguistic classifications is no small task in light of the region's tremendous linguistic diversity. Most contemporary linguists recognize more than three hundred languages associated with more than fifty distinct genetic groupings, including some two dozen isolates (see, e.g., Campbell 2012), and the overall number of language families will probably not see substantial revision, at least not without major breakthroughs in our historical methodology (cf. Hammarström 2014). While some tenable proposals for long-range connections among groups have been made in recent years (e.g., Adelaar 2000 for Harakmbet and Katukina; Ribeiro and van der Voort 2010 for Jabuti and Macro-Gêan), the reevaluation of existing classifications may also reveal spurious affiliations among languages whose genetic relationship cannot in fact be reliably demonstrated.

This paper examines one such apparently spurious linguistic grouping. Virtually all classifications of South American languages include reference to a single family labeled Makú, Makúan, or Puinavean, whose putative members are located in northwest Brazil and eastern Colombia. These include Hup, Yuhup, Dâw, Nadëb, Kakua and Nukak (Nɨkak), and according to many classifications, Puinave (also called Wa̋nsöjöt). Further suggestions have been made to link other languages to this set, most notably Hodɨ, a language spoken to the north in Venezuela. Although the name "Makú" (or variants thereof) has also been applied to a number of other Amazonian languages (see **5**), these are generally understood to be unrelated to the languages considered here.

Figure 1 shows the current locations of the seven putative "Makú" languages and Hodɨ, together with representative locations of other language families present in the same general region. The "Makú" languages have undergone only relatively minor dislocations over the past few centuries, as far as is known: The Dâw speakers once lived further south in the interfluvial region of the Marié, Uneiuxi, and Japurá rivers; linguistic and ethnohistorical evidence suggests that the speakers of Nukak once lived closer to the Vaupés (Mahecha et al. 1996–1997:99; Mahecha 2007; Politis 2007:30); and Puinave speakers may have been located somewhat to the southeast near the headwaters of the Içana River (Girón 2008:436–37).

In what follows, we retrace the history of claims associating the "Makú" or "Puinavean" languages with a single family (**2**). We evaluate the linguistic evidence for these languages' classification, drawing principally from lexicon and grammatical morphology (**3**), and address the question of contact-driven affinities among these languages in **4**. Finally, in light of our revised classification, we revisit the name of the family in **5** and propose that "Makú" be abandoned as a linguistic label.

FIG. 1—Languages associated with the "Makú" group and neighboring language families

2. Tracing the origins of the "Makú" grouping. In this section, we examine the history of the category "Makú." We turn first to its role within the sociocultural context of the Upper Rio Negro region, then to its history with respect to linguistic classification.

2.1. "Makú" as a social category: the Upper Rio Negro context. The history of the linguistic grouping often referred to as "Makú" is rooted in the sociocultural context of the Upper Rio Negro region. This area is home to four of the languages associated with this grouping (Hup, Yuhup, Dâw, and Kakua, with Nadëb, Nukak, and Puinave on the margins), the focus of the original proposal of linguistic relationship (see **2.2**).

The Upper Rio Negro is a strikingly multilingual region, well known in the ethnographic and linguistic literature for the intense contact among speakers of many of these languages (see, e.g., Sorensen 1967; Jackson 1983; Gomez-Imbert 1996; Aikhenvald 2002; Epps and Stenzel 2013). Certain distinctions are locally highly salient, most notably those involving language affiliation, marriage practices, and subsistence patterns.[2] These correspond to a major

[2] Our discussion here focuses on historically documented (i.e., "traditional") patterns, but we note that the region's peoples are experiencing profound social, cultural, and linguistic changes

two-way division: The "River Peoples" are speakers of East Tukanoan and Arawakan languages, tend to live along larger rivers in settled villages, depend heavily on fishing and horticulture, and (within the Vaupés) practice obligatory linguistic exogamy, or marriage across language groups. The "Forest Peoples" are speakers of the so-called Makú languages of the region (Hup, Yuhup, Dâw, and Kakua, and more peripherally Nadëb and Nukak); with some variations, they generally occupy the interfluvial zones, engage in frequent trekking, rely heavily on hunting and gathering, and do not participate in the linguistic exogamy system. The Forest Peoples are nonetheless fully integrated within the wider regional system through their relations with the River groups, with whom they exchange meat, forest products, and labor for agricultural produce, European goods, and other commodities (Silverwood-Cope 1972; Reid 1979; Milton 1984; Fisser 1988; Pozzobon 1991). The relationship is socially imbalanced in favor of the River Peoples, who describe the Forest People as "animal-like" or "childlike," with reference to their "incestuous" marriage practices (since they do not marry across linguistic/ethnic lines), their forest orientation, and their languages, which are often characterized as not fully human and impossible to learn (see, e.g., Reid 1979; Jackson 1983; Epps 2008*a*).

In the vicinity of the Vaupés region in particular, these categories of River and Forest Peoples are reflected in local terminology. Contemporary speakers of Hup along the Rio Tiquié, for example, refer to themselves as "Forest People" and "People of the Headwaters," and to their Tukanoan neighbors as "Big-River People"; the term *wɔh, cognate across Hup, Yuhup, and Dâw, also refers to River Indians in general. The River Peoples likewise have their own terms to refer to their Forest neighbors. One of these is the denomination "Makú"—a term of probable Arawakan origin (see Koch-Grünberg 1906*a*:877) with the etymology of 'do not speak' (e.g., Baniwa-Curripaco *maaku* 'NEGATIVE-speak'; see **5**),[3] which is widely used and recognized throughout the region. For the local indigenous peoples of the region, "Makú" is used—with strong pejorative overtones—to refer to the category of the "wild forest Indian," irrespective of any perception of ethnic, linguistic, or political unity (see, e.g., Jackson 1983:149).

For most non-Indian visitors to the region, contact with the Forest Peoples has been largely mediated by the River groups, who have had direct relations with the national society for a much longer period; in consequence, early explorers', ethnographers', and others' understanding of the Forest Peoples was informed by a River Peoples' perspective, often reinforced by European

as interaction with the national society increases (see, e.g., Stenzel 2005). Our generalizations are informed by our own fieldwork in the Brazilian and Colombian sides of the region, as well as by the literature cited here.

[3] But see Ospina (2002:16) for several alternative etymological suggestions.

views of the "civilized" and the "savage" (Silverwood-Cope 1972:30; Reid 1979; Pozzobon 1997; see also Goldman 1963:106; Jackson 1983; Reichel-Dolmatoff 1986; Mahecha et al. 1996–1997:102–3). Koch-Grünberg, one of the first explorers in the region to leave extensive documentation of its peoples and languages, refers to mentions of "Makú" peoples in earlier explorers' narratives (Wallace 1853; Martius 1867; Coudreau 1887; Stradelli 1890; Ehrenreich 1904) and quotes Martius (1867) as observing that the "Makú" groups are treated as a category in opposition to the settled groups, although "in fact one has put under this same name a large number of groups with their very different languages" (Koch-Grünberg 1906*a*:878, our translation; see also Nimuendajú 1950:164).

Accordingly, the category of "Makú," as used by the indigenous peoples of the Upper Rio Negro region, is defined primarily in *contrast* to the region's other peoples. It refers to a particular sociocultural categorization that has little or no direct connection to language or ethnicity, as recognized both locally and by some of the earliest European visitors to the region. In this region, it is regularly applied to speakers of Hup, Yuhup, Dâw, and Kakua; speakers of Nadëb and Nukak are likewise generally considered members of this category, as are more distant forest-oriented peoples such as the Yanomami, when encountered. The category is not known to have ever been applied to Puinave speakers, on the other hand, whose subsistence practices are similar to those of the Tukanoans and Arawakans.

2.2. "Makú" as a linguistic category: history of the classification. The first indication of a relationship between "Makú" languages is given in the work of Koch-Grünberg (1906*a*).[4] In this paper, the explorer describes the sociocultural category of "Makú" (see **2.1**) and offers word lists and some grammatical notes collected among three different groups during his travels in the region. He labels these three varieties "Makú of Rio Curicuriarý" (corresponding to Dâw, encountered on this river in 1903), "Makú of Rio Tiquié" (corresponding to Yuhup,[5] encountered in the Tukano village of Pari-Cachoeira in 1904), and "Makú of Rio Papurý" (corresponding to Kakua, encountered on the Maku-Igarapé, a tributary of the Papuri River, in 1904). These word lists (consisting of approximately 300 words for Yuhup

[4] A briefer discussion and presentation of the Makú word lists is also provided in Koch-Grünberg (1906*b*); a more detailed description of his travels and encounters with the groups of the region can be found in Koch-Grünberg (1909).

[5] Koch-Grünberg's transcriptions are very imprecise, which is not surprising given that he spent a very limited amount of time with each group; he also notes the difficulty in eliciting audible data from the extremely shy speakers. Since the principal differences between many Hup and Yuhup lexical items are limited to their tonal values, which Koch-Grünberg does not mark, identifying these data as Yuhup relies on the limited number of other lexical differences (e.g., 'two' *(m)b(e)ẹ́* in Koch-Grünberg's transcription; cf. Yuhup *b'ə̆ʔ*, Hup *kaʔăp*).

and Kakua, some fewer for Dâw) represent the earliest documentation of any of the languages (aside from Puinave) associated with the "Makú" grouping, with the exception of two word lists collected by Johann Natterer in 1831 (representing Dâw and Nadëb); Natterer's word lists were lost (as noted by Koch-Grünberg 1906*a*:881) and thus played no role in the classification of the family, although they eventually resurfaced in the 1980s (see Adelaar and Brijnen 2013–2014).

Koch-Grünberg's characterization of the potential relationship among these three varieties is remarkably perceptive. Regarding Dâw and Yuhup, he observes that "many words are identical in both languages or show only minor dialectal differences, some of which are probably also attributable to the difficulty in recording" (1906*a*:881–82),[6] and he notes also that many of these similar words involve basic or core vocabulary, further supporting the possibility of a genetic relationship. With respect to the relationship between these two languages and Kakua, on the other hand, he is far more tentative. He provides a list of nine pairs of lexical resemblances between Yuhup and Kakua in a footnote (1906*a*:882; see **3.2**) but notes that Kakua "is in most words very different" from Yuhup and even more so from Dâw, such that "only a few expressions suggest a distant relationship" (1906*a*:882). He goes on to observe that "all three languages have a quantity of nasal and guttural sounds," as well as a preference for final consonants (1906*a*:883)—a perceptually salient feature that distinguishes these languages from the Tukanoan and Arawakan languages of the region (see **4**). Koch-Grünberg concludes that "above all, the general sound of the language and structure of the words is so similar in all three languages, including the Makú of Papurý [Kakua], that it can, with great reserve, be counted as a member of the same group" (1906*a*:882). However, he further suggests that the languages might represent linguistically diverse groups that were brought together by the influx of Tukanoan and Arawakan groups into the region and thus "blended," a statement that seems to imply the possibility of a relationship based in contact as opposed to common inheritance, a consideration discussed in **4**.

The next—and probably the most influential—steps toward a classification involving "Makú" languages were made by Paul Rivet, a French ethnologist who published dozens of articles concerning possible relationships among languages all over South America. Despite making significant contributions to the study of South American languages, Rivet's methodology was highly flawed and many of his suggested associations have not withstood more careful investigation.[7] Rivet and Tastevin (1920) provided the first published data

[6] All translations provided in this paper are our own.

[7] Rowe (1974:46–47, with reference to Nimuendajú and Mansur Guérios 1948:233–34) offers an extensive critique of Rivet's methods, which involved comparing a given language to a whole set of languages belonging to a particular family, and basing claims of relationship on

on the Nadëb language (collected by Tastevin, a priest working in the region) and compared them with Koch-Grünberg's (1906*a*) data on Dâw, Yuhup, and Kakua, pointing out the likelihood of a relationship. However, and crucially for the future of the "Makú" classification, Rivet and Tastevin ignored Koch-Grünberg's own highly tentative assessment of Kakua's ties to the other languages, and they treated the relationship between Dâw, Yuhup, and Kakua as firmly established by Koch-Grünberg's work. A subsequent publication (Rivet et al. 1925) contributed the first data on Hup (collected by Kok, a priest working on the Papuri River), as well as additional Nadëb data collected by Tastevin; however, the authors assumed that Hup (their "Makú du Papuri") is the same language as Kakua (Koch-Grünberg's "Makú vom Papurý"; both languages are spoken along the Papuri River), while noting that "one observes notable divergences between the notations of the different travelers, even where these involve the same dialect, which is rather troubling" (1925:134).

Rivet and Tastevin (1920) also offered the first proposal of a genetic relationship between these languages and Puinave, drawing on several previously published Puinave word lists (Crevaux et al. 1882; Ernst 1895; Tavera-Acosta 1907; Oramas 1912–1913; Koch-Grünberg 1913).[8] Again, they attributed the original observation of a relationship to Koch-Grünberg (1913:471): With reference to the four languages under consideration as representing varieties or dialects of a single "Makú" language, they observed that Koch-Grünberg "was struck by the general similarity presented by this language with Puinave" (Rivet and Tastevin 1920:69). However, they neglected to note that—while Koch-Grünberg (1913:471) did state that the sound of Puinave reminded him of the "Makú" languages—he went on to say that "lexically it has nothing in common with them."

Rivet and Tastevin's conclusion "that Makú and Puinave are in reality merely two profoundly distinct dialects of one and the same language" (1920:69) rests principally on similarities between Puinave personal pronouns and those of individual members of the other "set"—which do not in fact necessarily have any relationship to each other. While it is possible that the

similarities between the language in question and individual languages within the comparative set (usually with no firsthand knowledge of any of the languages involved). Rivet made no attempts at reconstruction, was unaware of (or proposed spurious) morphological compositions of words, and allowed great semantic leeway in his assessments of similarity. Examples of his incorrect conclusions include the classification of one of the Jabutí languages (now known to be Macro-Gêan) as Chibchan (Rivet 1953; see Ribeiro and van der Voort 2010:518), of Tikuna (now considered effectively an isolate) as "only a very corrupted dialect of . . . Arawakan" (Rivet 1912:88; our translation), of Miraña (Boran; Rivet 1911*a*) as Tupí-Guaranían, and of Peba (Peba-Yaguan; Rivet 1911*b*) as Cariban.

[8] Recognition of Puinave as a distinct unit goes back at least to the classifications of Chamberlain (1910, 1913), who does not associate it with any other languages. Brinton (1891) had previously classified Puinave with Arawakan.

Puinave-Kakua similarities have some substance (see **3.2.2**), those involving the rest of the "Makú" languages are based principally on Koch-Grünberg's Yuhup transcriptions, which are highly inaccurate.[9]

Subsequent classifications of South American languages have generally followed Rivet in assuming an established grouping of the various "Makú" languages together with Puinave. In reporting on several word lists collected among languages of the region, Nimuendajú (1950:149) makes reference to Ëɸin-od (Puinave), Húbde (Hup), Yẹhụ́b-dë (Yuhup), and Dọ́u (Dâw) as members of the "Makú" family. Loukotka (1935, 1968:190–93) defines the "Makú stock" as being composed of "Western dialects" (involving six different attestations of Hup, Yuhup, or Dâw, plus one unidentified name), "Dialects spoken by the independent tribes" (three attestations of Nadëb, plus three additional unidentified names), a "Central dialect" (one attestation of Kakua), and a "Northern language" (Puinave). Mason (1950:257) refers to the "Puinavean" or "Macú" family, citing Loukotka (1935). Recognition of the Nukak language stemmed from this people's first documented encounters with the national society in the 1980s (see Chaves and Wirpsa 1988; Wirpsa and Mondragón 1988; Politis 2007:39), and inclusion of Nukak in formal classifications of the family began as early as Kaufman's (1990:41, 1994:60) reference to a "Puinavean" group, composed of "Kuri-Dou" and "Kaman" (Dâw), "Hupda" with "Tikie, Hupda, Yahup, Papuri" dialects (Hup and Yuhup), "Nadob/Nadeb" and "Guariba" (Nadëb), "Cacua" (Kakua), "Puinave/Guaipunavi" (Puinave), and "Waviare/Makusa" (Nukak). Kaufman's classification is followed closely by Campbell (1997:183); see also Landaburu (2000:39), who notes the scarcity of data on which the grouping rests.

Nearly one hundred years after Koch-Grünberg's original suggestion of a relationship, research on these languages entered a new phase, which saw the first substantial description and documentation of any of these languages since the word lists published by Koch-Grünberg (1906*a*) and Rivet (Rivet and Tastevin 1920; Rivet et al. 1925). Weir's (1984) brief grammatical description of Nadëb was followed by full-scale investigations into Yuhup (Ospina's 2002 grammatical description and Silva and Silva's 2012 dictionary), Dâw (Martins's 2004 grammar; see also Epps and Storto 2014), Hup (Epps's

[9] Rivet and Tastevin compare Puinave *am*, *a-* (1sg) with Yuhup *ám* (1sg) and *ã* (1pl), whereas in fact the Yuhup forms are *~ʔăh* [ʔə̌h] (1sg) and *~ʔɨ̆d* [ʔɨ̆n] (1pl) (see **3.2.1**; the 1sg form likely involved a confusion between speech act participants in the elicitation setting, cf. Yuhup *~ʔăb* [ʔə̌m] (2sg), while the 1pl form may have involved either a confusion between singular and plural or simply a mistranscription). The third-person-singular pronouns are reported as Puinave *hema* (which possibly involves the personal prefix *ha-*, but is not part of the contemporary Puinave pronominal inventory; see **3.2.2**) and Yuhup *hãme* (likewise distinct from the actual Yuhup 3sg form *tɨ̆h*; Koch-Grünberg's *hãme* could possibly have been a mistranscription of *~hɨd* [hɨ̃n], glossed as '3sg feminine' by Silva and Silva 2012 and as 'woman' by Ospina (2002, plus additional morphology, perhaps the reported evidential *~bah* [mãh] functioning as a quotative).

2005*a*/2008*a* grammar and Ramirez's 2006 dictionary), Kakua (Bolaños 2010, 2016), Nukak (Cabrera et al.'s 1999 phonological description, a brief pedagogical grammar by Hess et al. 2005, and further linguistic description in progress by Dany Mahecha), and Puinave (Girón's 2008 grammar).[10]

With this new wave of research into these languages came the first steps toward a reevaluation of the existing classification. In their overview paper on the "Makú" family, Martins and Martins (1999) posit a relationship between Hup-Yuhup, Dâw, Nadëb (and Kuyawi, elsewhere considered a dialect of Nadëb), and Kakua-Nukak; they suggest that Nadëb may be the most distantly related (apparently on the basis of structural differences only) and propose a figure of 35% cognate vocabulary shared between Kakua-Nukak and each of Hup-Yuhup, Dâw, and Nadëb, while observing that "the lexical data on Kakua-Nukak are scanty and these percentage figures are provisional" (1999:254), and providing only five similar lexical items as illustrative data. They do not include Puinave, stating that "no genetic relationship between Makú languages and Puinave has as yet been proven" (Martins and Martins 1999:251).

Martins's (2005) proposed reconstruction of the "Eastern Maku" family, the most extensive historical investigation involving any of these languages conducted to date, represents the first in-depth evaluation of the classification. This work establishes an extensive set of several hundred cognates with regular sound correspondences across Hup, Yuhup, Dâw, and Nadëb—thus demonstrating a clear relationship among these four "Eastern" languages, although the reconstruction itself is preliminary.[11] Although Martins focuses on the "Eastern Maku" group, in light of "the great distance between the Eastern and Western groups and the insufficient nature of reliable linguistic material on the Kakua, Nukak, and Puinave languages" (2005:2),[12] he also considers more distant relationships. Martins offers a list of 46 possible

[10] Additional work on these languages includes various article-length publications by several of the authors listed here, as well as by missionaries who undertook preliminary work on Hup, Yuhup, and Kakua in the 1970s and 1980s.

[11] A more definitive reconstruction of Proto-Hup-Yuhup-Dâw-Nadëb awaits further data on Nadëb, which currently has received little documentation. Although Martins's (2005) work is an important contribution, we do not follow his proposed reconstructions here in light of methodological deviations from the Comparative Method; for example, Martins reconstructs words to "Proto-Eastern-Maku" that are attested only in closely related languages or even dialects of a single language (rather than across primary branches), including loanwords; proposes various uneconomical forms; and does not take into account the relevance of subgrouping and language contact in evaluating processes of change.

[12] We note that Martins (2005:13) attributes prior challenges to the "Makú" grouping to Rowe (1954) (as well as to "Lyon 1974," which is in fact a reprint of the former in a volume edited by Lyon); however, Rowe's work simply offers a critique of prior classifications of South American languages (see above) without explicitly mentioning any of the so-called Makú or Puinave languages.

cognates shared between the Nadëb-Dâw-Hup-Yuhup languages on one hand and Kakua-Nukak-Puinave on the other (2005: 331–41)—apparently assuming a connection between the latter three languages (his "Western Maku"), in contrast to his previous work.[13] Martins's approach to identifying possible cognates is also highly flexible, much like that of Rivet before him, thus greatly increasing the likelihood of chance matches: He focuses on similarities between any subset and/or individual members of the two sets, rather than on forms that could plausibly be reconstructed to either proto-language (if one existed); also, the resemblances he proposes are not constrained by defined criteria, and many of them rely on only a single similar sound.[14] Martins's conclusion is somewhat equivocal: he states that "it is not possible to discover rules of regular correspondence" between his "Eastern" and "Western" groupings within the cognate set he proposes (2005:331), but he concludes nevertheless that "we propose as members of the Maku family the languages: Nadëb . . . , Dâw, Hupda, Yuhup, Kakua, Nukak and Puinave. Via the analysis of the lexicons of these languages, it is evident that they possess varying degrees of affinity amongst themselves, forming two distinct groups, which we label 'Eastern Maku' (Nadëb do Roçado, Nadëb do rio Negro, Dâw, Hupda and Yuhup) and 'Western Maku'" (Martins 2005:15).

Other work voiced further doubts about the membership of the family. Epps (2005*a*, 2008*a*) gives a brief and highly skeptical evaluation of the claims linking Kakua-Nukakan and Puinave to the group formed by Hup, Yuhup, Dâw, and Nadëb (here termed "Naduhupan"; see **5**), noting the origin of the claims in the extremely scanty evidence presented by Koch-Grünberg (1906*a*) and Rivet and Tastevin (1920). Girón (2008:428–35) presents further comparative evidence involving Puinave; he notes similarities in phonological structure (as did Koch-Grünberg; see below for discussion) and lists various lexical resemblances between Puinave and Kakua, Nukak, Yuhup, Hup, and Dâw, according to the methodology followed by Martins (2005) and Rivet a century earlier. Like Martins, Girón concludes that the evidence for a genetic relationship between Puinave and the other "Makú" languages remains inconclusive. Aikhenvald (2012:19) similarly observes that "the jury is still out" regarding the relationship of Kakua and Nukak with the other "Makú" languages, and that a connection involving Puinave is "suggestive, but highly tentative," but she goes even further by expressing uncertainty regarding the

[13] Martins (2005:342–70; see also Martins and Martins 2009) also considers a possible connection with Arawakan languages, claiming a high but inconclusive likelihood of a genetic relationship between the "Eastern Maku" languages and the "Japurá-Colombia" subgroup of Arawakan (as defined by Ramirez 2001*b*). However, he does not clarify how this much more distant relationship could be identified without reference to each group's closer relatives.

[14] For example, Martins compares his reconstructed Proto-Eastern-Maku form *toʔ 'belly' (attested only in Hup and Dâw, which he considers a likely subgroup; see 2005:330) to Nukak *tʃɨ̄ka*.

affiliation of Nadëb in light of its structural differences, a consideration we address in the following sections.

3. Evaluating the "Makú" grouping. As the preceding discussion illustrates, the general acceptance in classifications of South American languages of the "Makú" grouping can be attributed at least in part to a cumulative effect of citations, beginning with Rivet's imprecise representation of Koch-Grünberg's original observations, themselves based in part on a sociocultural affiliation. However, now that substantial data is finally available for most of the languages in question, we are at last in a position to reevaluate the classification.

In this section, we begin with a brief overview of the principal languages associated with the family (Hup, Yuhup, Dâw, Nadëb, Kakua, Nukak, and Puinave), followed by a comparative assessment of lexical forms (**3.2**) and grammatical morphology (**3.3**). We deal briefly with the question of Hodi's relationship in the final subsection (**3.4**).

3.1. Characteristics of the languages classified as "Makú." As initially observed by Koch-Grünberg (1906*a*, 1913), all seven of the putative "Makú" or "Puinavean" languages share certain perceptually salient phonological features, which have unquestionably contributed to impressions of their relatedness. These include a strong preference for monosyllabic CVC roots—a striking difference from the wider regional preference for lexical roots with multiple open syllables—and the pronunciation of voiced (non-approximant) consonants as oral-nasal contours (e.g., [bm], [mb]). All but Nadëb also have contrastive tone, and all but Puinave have contrastive glottalization (generally associated with consonants, but frequently manifesting phonetically as vocalic laryngealization). It is important to note that many of these languages present analytical challenges in their phonological systems, and that the status of tone, nasalization, and glottalization in particular has led to conflicting analyses both within and across languages. In light of this variation, we have been forced to choose among multiple competing analyses and transcription conventions in representing the data for the seven languages considered here. For those languages that we have worked on extensively ourselves (Hup and Kakua), we have followed our own analyses (as justified in the works cited below); for the other languages, where multiple analyses have been proposed, we have followed those which are most compatible across the full set of languages (i.e., less idiosyncratic), with the goal of facilitating comparison.

We turn first to consonant inventories. According to Epps's (2008*a*) analysis, Hup has voiced and voiceless plosives (p, b, t, d, c, ɟ, k, g, ʔ), fricatives (ç, h), approximants (w, j), and a glottalized series of plosives (neutralized for voicing: b', d', ɟ', g') and approximates (w', j'). (The analyses of Martins

2005 and Ramirez 2006 are very similar to that of Epps, except that they include voicing distinctions in the glottalized plosives, and Martins considers ç an allophone of c.) For Yuhup, we follow Martins's (2005:100) analysis, which is identical to his analysis of Hup (accordingly, the correspondences involving glottalized consonants and c/ç in the Hup and Yuhup transcriptions below should be understood in light of these analytical differences). We note that Ospina's (2002) analysis of Yuhup's phonological inventory has further differences, some of which may have to do with dialectal variation; Silva and Silva's (2012) analysis is closer to Martins's, but differs in its consideration of the voiced (non-approximant) consonants as underlyingly nasal. In both Hup and Yuhup, as in many other languages of the Vaupés region, nasalization is a morpheme-level prosodic feature (usually affecting all voiced segments within a given morpheme), so according to the analyses drawn on here, nasalized consonants and vowels are considered allophones of their oral counterparts. Outside the Vaupés, however, the Naduhupan languages Dâw and Nadëb both have nasal contrasts on the segmental level. Dâw's consonant inventory includes voiced and voiceless plosives (p, b, t, d, c, ɟ, k, g, ʔ), fricatives (ʃ, x, h), nasals (m, n, ɲ, ŋ), lateral (l), approximates (w, j), and the glottalized consonants (m', n', ɲ', l', w', j') (S. Martins 2004; V. Martins 2005:26). Nadëb's inventory includes voiced/voiceless plosives (p, b, t, d, ɟ, k, g, ʔ), fricatives (ʃ, h), nasals (m, n, ɲ, ŋ), flap (r), and approximants (w, j) (Martins 2005:57, see also Barbosa 2005); however, the status of glottalized consonants in Nadëb is as yet unclear, as are various other aspects of the phonology. Kakua and Nukak resemble their Vaupés neighbors in having morpheme-level nasal prosody and thus lacking oral/nasal contrasts on the segmental level. Kakua's consonants are voiced, voiceless, and glottalized plosives (p, b, b', t, d, d', k, g, g', ʔ), fricatives/affricates (f, h, tʃ), lateral (l), and approximants with glottalized counterparts (w, w', j, j') (Bolaños 2010, 2016). Nukak has voiced, voiceless, and glottalized plosives (p, b, b', t, d, d', c, ɟ, k, g, ʔ), fricatives/affricates (h, tʃ), flap (r), and approximant (w) (with status of (j) and glottalization of glides unclear) (Cabrera et al. 1999; Mahecha et al. 2000, and p.c. 2016). Puinave's consonant inventory is the smallest among these languages, containing only voiceless plosives (p, t, k, ʔ), nasals (m, n), and fricatives (s, h) (Girón 2008:43).[15]

There is more analytical agreement across sources regarding vowel inventories. According to the authors followed above, the four "Naduhupan"

[15] The vowels (i, u) occur in onset and coda positions in Girón's analysis and can be understood as the counterparts of (j, w) in the other languages. The same probably also applies to (i) and some attestations of coda (u) in the Nukak transcriptions, and their co-occurrence with a following glottal stop suggests glottalized glides matching those found in Kakua. We note that the phonological analyses in these descriptions do not always match the analyses (and transcriptions) evident in the sources from which we have drawn lexical data; for example, Girón (2008) considers voiced stops to be allophones of nasal consonants, but in this paper we have retained the oral/nasal distinction that is orthographically represented in other Puinave sources.

languages share notably large vowel inventories: Hup, Yuhup, and Dâw each have nine vowels (i, ɨ, u, e, ə, o, æ, ɔ, a; with six vowel qualities relevant in nasal contexts: ĩ, ɨ̃, ũ, æ̃, ɔ̃, ã); Nadëb adds a tenth vowel (ʌ) to its inventory (yielding a total of seven nasal counterparts) and has contrastive vowel length. Kakua and Nukak have more standard Amazonian six-vowel systems (i, ɨ, u, e, o, a; all with nasal counterparts), and Puinave has seven vowels (i, ɨ, u, e, ə, o, a; with four nasal counterparts: ĩ, ə̃, õ, ã). We have regularized transcription conventions for phonemic categories across sources in order to facilitate comparison, such that (ɨ, ə, æ, a) are used where Martins (2005) and Girón (2008) use (ɯ, ɤ, ɛ), Ospina (2002) uses (ɛ), and Silva and Silva (2012) use (ɑ), respectively, and (e) is used where Nukak sources vary between (e) and (ɛ).

The seven languages exhibit considerable variation in their grammatical profiles, which can be attributed in part to restructuring driven by contact with other languages of the region, principally of the Tukanoan and Arawakan families (see **4**). Basic word order preferences range from SVO (Nukak, Dâw), verb-final/SOV (Hup, Yuhup, Kakua), OSV (Nadëb), to flexible/not verb-final (Puinave); alignment systems include both nominative-accusative (Hup, Yuhup, Dâw, Kakua, Nukak) and ergative-absolutive patterns (Nadëb, Puinave); and person cross-referencing prefixes occur in Kakua, Nukak, Puinave, and Nadëb (but not in Hup, Yuhup, or Dâw). All of the languages exhibit a relatively agglutinative verbal structure, and all but Nadëb (which is heavily prefixing) show a preference for suffixes and case-marking on core arguments. All likewise share small or incipient systems of nominal classifiers, verbal compounding patterns, and evidentiality distinctions (which are most elaborated in Hup, Yuhup, and Kakua); see, e.g., Epps (2005*b*, 2007*b*), Mahecha (2009), and Ospina (2004–2005, 2009).

The data presented below are drawn from the following sources: Hup: Epps (2008*a*, and fieldnotes); Yuhup: Ospina (2002), Martins (2005), Silva and Silva (2012), Epps fieldnotes; Dâw: S. Martins (2004), V. Martins (2005), Epps fieldnotes; Nadëb: Weir (1984), Martins (1999), Martins (2005); Kakua: Bolaños (2010, 2016, and fieldnotes); Nukak: Huber and Reed (1992), Cabrera et al. (1999), Mahecha et al. (2000), Dany Mahecha (p.c. 2016), Hess et al. (2005); Puinave: Richardson (2007), Girón (2008). In the case of Yuhup, we have drawn principally on the data from Silva and Silva (2012) and Martins (2005), since Ospina's data come from a distinct region with probable dialectal differences. As explained above, the data are given in a normalized transcription where possible in order to facilitate comparison; the symbols used are IPA, and a preceding tilde indicates morpheme-level nasalization.[16]

[16] Tone is also included in the transcriptions provided here, but its analysis and representation are somewhat problematic across the languages. Although analyses disagree, here we take the perspective that tone is not contrastive on verb roots in Hup and Yuhup, so we leave it unmarked in these lexical entries for these languages. In Dâw, tone is not marked on roots that are understood to be atonal. Tone values are marked above the vowel: v́/v̂ = high/falling; v̌ = rising; v̀ =

3.2. Comparison of lexical items. This section presents a comparison of pronouns and basic vocabulary. We begin with the question of a relationship among the six core "Makú" languages (Hup, Yuhup, Dâw, Nadëb, Kakua, and Nukak) and subsequently consider Puinave. Discussion of Hodi follows in **3.4**.

3.2.1. Naduhupan and Kakua-Nukakan. Tables A1 and A2 (see online appendix) display the subsets of a 100-word Swadesh list (provided with their Swadesh list numbers) that are good candidates for cognacy across the four Naduhupan languages and across Kakua-Nukak, respectively; a subset of these data can be seen below.[17] (A full 100-word Swadesh list in all seven languages is provided in table A7.) These data provide ample support for a genetic relationship within each of these two sets of languages.

In the Naduhupan set (table A1), 46 of the 100 Swadesh list meanings are probable cognates across the family, as can be seen for example in words for 'fish (n.)' (set 19): Hup *~hŏp*, Yuhup *~hôp*, Dâw *hăp*,[18] Nadëb *[ta]hɨ̃ːb*, and 'tooth' (set 43): Hup *tə́g*, Yuhup *tə̆g*, Dâw *təg*, Nadëb *təg*. We note that many more cognates can certainly be reconstructed since our data set allows very little semantic leeway and excludes those meanings that are unattested in Nadëb, Dâw, and either Hup and/or Yuhup (i.e., in an agnostic stance vis-à-vis primary subgrouping). The data reveal numerous sound correspondences, including many identical reflexes, and the affiliation of Nadëb appears unquestionable (contra Aikhenvald 2012:19, and in agreement with Martins 2005).[19] These correspondences provide substantial evidence for subgrouping Hup and Yuhup—such as the shared development of prosodic nasalization and the merger of *x with *h (compare, e.g., sets 75 and 79 with set 59 in table A1), together with numerous grammatical developments. A Hup-Yuhup-Dâw subgroup is (much more marginally) suggested by the apparent devoicing of word-final stops in these languages (e.g., sets 19, 20, 27) and their shared development of

low (Kakua only). Tone in Nukak is variably marked according to the conventions followed by the sources from which the data were taken: via superscript numerals (Huber and Reed 1992), diacritics (Hess et al. 2005; Dany Mahecha p.c.), or unmarked (Mahecha et al. 2000).

[17] Abbreviations: ALL Allative; CL Classifier; COM Comitative; DEM Demonstrative; EXCL Exclusive; FEM Feminine; INCL Inclusive; INESS Inessive; IMPER Imperative; INDEF Indefinite; INSTR Instrumental; INT Interrogative; MSC Masculine; NEG Negative; NMLZ Nominalizer; NOM.PAST Nominal past; NON.SPEC. Non-specific; O Object; PERL Perlative; PL Plural; S Subject; SG Singular; TERM Terminative; TRANSL Translative; V. Verb.

[18] All instances of "a" (whether appearing as "a" or "ɑ") are front low vowels and the change in character does not indicate change in vowel quality.

[19] Contact is an extremely unlikely alternative explanation for Nadëb's similarities to the other Naduhupan languages. The proportion of lexical resemblances is very high in basic vocabulary (which has been shown to be generally resistant to borrowing throughout the Northwest Amazon; see Bowern et al. 2011); historical and ethnohistorical accounts report mostly sporadic and unfriendly contact between speakers of Nadëb and Dâw; and Nadëb is structurally highly divergent from the rest of the family, a fact that is itself most plausibly attributed to these languages' different histories of contact with unrelated languages, principally Arawakan and East Tukanoan (see **4**).

tone.[20] This subgrouping proposal agrees with that of Martins (2005:323–26), who arrived at his results via lexicostatistical analysis, based on percentages of shared lexical retentions (but note that shared innovations are widely accepted as a more reliable indicator of subgrouping than are retentions). We do not attempt a reconstruction of the Proto-Naduhupan forms here; much of the Nadëb data is of poor quality, and the phonological status of tone, glottalization, and other features in this language is not yet well understood. A definitive reconstruction of this language family awaits further research on Nadëb.

Table A2 lists the 54 out of the 100 Swadesh list items that are clearly cognate across Kakua and Nukak, with their many regular sound correspondences (most of which involve identical reflexes; we note that some of the differences may also be due to transcription error or other inconsistencies across our various Nukak sources). Examples include 'tongue' (set 43): Nukak *~dîk*, Kakua *~dǐk*, and 'good' (set 97): Nukak *tǐi,* Kakua *tîj.* As with the Naduhupan languages above, we do not attempt a full reconstruction here, which must await a more conclusive analysis of Nukak.

We now turn to the question of whether lexical evidence might support a relationship between the two sets of languages. In the following tables, we provide preliminary reconstructions for comparative purposes, but these must be understood as extremely tentative and subject to revision in future work for the reasons noted above.[21] Our preliminary Naduhupan reconstruction assumes that Nadëb and Hup-Yuhup-Dâw form two primary branches, in light of the sound changes mentioned above and in keeping with Martins's (2005) lexicostatistical results.

Table 1 compares the full sets of personal pronouns in Hup, Yuhup, Dâw, and Nadëb with those in Kakua and Nukak, and table 2 compares the non-pronominal items from the 100-word Swadesh list that can be reconstructed for both Proto-Naduhupan and Proto-Kakua-Nukakan (including a few forms not included in table A1 that are attested in either Hup-Yuhup or Dâw, but not both; see notes in tables A1 and A2 for information about etymological complexity in particular forms). Table A3 (online) presents additional vocabulary items that reconstruct for both groups, taken from a controlled list of about 220 meanings that includes basic vocabulary, flora-fauna, and culture terms; we note however that the Nukak and Nadëb data beyond the Swadesh list vocabulary are very sparse, so only a small number of these additional terms are reconstructable for each of the two groups.

Tables 1, 2, and A3 offer no substantial support for a genetic relationship between the Naduhupan languages and Kakua-Nukakan. In general, the lexical

[20] However, neither of these features is as yet conclusive. The presence of final consonant voicing on Nadëb verbs is associated with the grammatical category of mood (Weir 1984), although how this works (and whether it has any relevance to nouns) is not made clear in the available sources; also, the loss of tone in Nadëb is a plausible alternative to its development in the other three languages.

[21] We have made no attempt to reconstruct tonal values.

TABLE 1
PRONOUNS COMPARED: NADUHUPAN AND KAKUA-NUKAKAN

	Hup	Yuhup	Dâw	Nadëb	Proto-Ndhp (tentative)	Nukak	Kakua	Proto-Kk-Nk (tentative)
1SG	*~ʔáh*	*~ʔǎh*	*ʔãh*	*ʔɨ̃h*	*ʔãh	*~wéeb*	*~wěb*	*~web
1SG vb. prfx	—	—	—	—	—	*wa-*	*~wa-*	*wa-
2SG	*~ʔáb*	*~ʔǎb*	*ʔãm*	*ʔɔ̃m*	*ʔɔ̃m	*~béeb*	*~běb*	*~beb
2SG vb. prfx	—	—	—	*ma-*	—	*~ba-*	*~ba-*	*~ba-
3SG	*tɨ́h*	*tɨ̌h*	*tih*	—	*tɨh	*~kad, kun* (MSC), *~kadʔ, ~kudʔ* (FEM)	*~kǎd* (msc), *~kǎd'* (fem)	*~kad (MSC), *~kad' (FEM)
3SG vb. prfx	—	—	—	*ta-*	—	*ʔa-* (msc), *~bi-* (fem)	*~ʔa-*(msc), *~bi-* (fem)	*ʔa- (MSC), *~bi- (FEM)
1PL	*~ʔɨ́d*	*~ʔɨ̌d*	*ʔid*	*ʔəːr* (INCL), *ʔãh* (EXCL)	*ʔɨd	*wíit*	*fǐt*	*fit
1PL vb. prfx	—	—	—	—	—	*hi-*	*~fi-*	*fi-
2PL	*~dɨ́g*	*~dɨ̌g*	*nɨ̃g*	*bəːh*	—	*jéeb*	*jěb*	*jeb
2PL vb. prfx	—	—	—	*da-*	—	*~ji-*	*~ji-*	*~ji-
3PL	*hɨ́d*	*hɨ̌d*	*hid*	—	—	*kéet*	*kět*	*ket
3PL vb. prfx	—	—	—	*la-*	—	*ʔi-*	*~ʔi-*	*ʔi-

TABLE 2
SWADESH LIST VOCABULARY COMPARED: NADUHUPAN AND KAKUA-NUKAKAN

		Hup	Yuhup	Dâw	Nadëb	Proto-Ndhp (tentative)	Nukak	Kakua	Proto-Kk-Nk (tentative)
7	what	*~hɨ-dʼɨ̌h* 'INT-NMLZ'	*~dʼɨ̌h*	—	*hɨ̰ːd, nɨːh*	*hɨ̃d-nʼɨːh	*dee²de*	*dedě*	*de:de
15	small	—	—	*piʃ*	*-iʃ*	*piʃ	*bai²*	*bai-~di*	*bai
16	woman	*~taʔáj*	*~ʔâːj*	*ʔâj*	*ʔɨ̃ːɲ, ʔɨ̃ːj*	*ʔã:j	*ɟad*	*jàd*	*jad
18	person	*húp*	*juhûp*	—	*jihub*	*jihub	*~(dɨ⁴)kak¹*	*~kâk*	*~kak

23	tree	*tĕg*	*têg*	*tə̂g*	*tə:g*	*te:g	*ti̵-~daʔ⁴*	*~bâ-daʔ*	*~daʔ
24	seed	*ti̵b* 'penis'	*tĭ̵b* 'eye' (archaic)	*ti̵m*	*ti̵m*	*tiʉb	*tîb*	*tib*	*tib
25	leaf	*g'æt*	*k'ə̂t*	*kə̆t*	*gə̤:d*	*g'æ:d	*~di̵u³*	*~dî̵w*	*~diʉw
28	skin/bark	*b'ɔ́k*	*b'ɔ̆k*	*bi̵k*	*bɔ̤g*	*b'ɔg	*tʃú*	*ʧûw*	*tʃuw
29	flesh	*d'áp*	*d'ă̆p*	*dæp*	*dab*	*d'ap	*dép*	*dep*	*dep
30	blood	*bijĭ̵w*	*dî̵w*	*jî̵w*	*mãjɨ̤:w*	*bijɨ:w	*~beʔepʔ*	*~bĕp*	*~bep
33	egg	*tĭ̵p*	*tî̵p*	*tĭ̵p*	*ti̵b*	*ti̵:b	*típ*	*típ-daʔ*	*tip
38	head	*~dúh*	*~dŭ̆h*	*nũ̆h*	*nu:h*	*nũ:h	*wau²*	*wă̆w-daʔ*	*waw
39	ear	*bɔtɔ́k*	*bujdɔ̆k*	—	*nabu:j*	*bu:j	*~budi⁴ ~di̵t¹*	*~buri-ʧû*	*~budi
43	tooth	*tə́g*	*tə̆g*	*təg*	*təg*	*təg	*~báu*	*~bă̆w*	*~baw
44	tongue	*~dɔg'ă̆d*	*~dɔh k'ə̂d*	*nɔ̃hkə̂d*	*nagə̤:d*	*nɔ̃-g'æ:d 'mouth-leaf'?	*~dî̵k*	*~dĭ̵k*	*~dik
48	hand	*d'a~púh*	*~pɔ̂h*	—	*mɔ̃:h*	*pɔ̃:h	*tĕiʔ*	*têj'(ja)*	*tej'
53	liver	*hɔ́*	*hɔ̂*	—	*ho:h*	*hɔ:h	*~debˀ*	*~dèb*	*~deb'
56	bite	*g'əç*	*k'əç*	*kəʃ*	*gəʃ, gə:j*	*g'əʃ	*~câk*	*~ʧă̆k*	*~tʃak
58	hear/listen	*wi̵ʔ*	—	*wə̆ʔ*	*wə:ʔ*	*wi̵:ʔ	*húi*	*hŭ̆j*	*huj
59	know	*~hipah*	*~pah*	*pə̆h*	*pʌh, pə:h*	*pɔ̃:h	*hĕ̆iˀ*	*hêj'*	*hej'
60	sleep	*~ʔɔh*	*~ʔɔh*	*ʔə̃̂*	*ʔɨ̃:h, ʔə̃h*	*ʔɔ̃h	*~ʔi̵u⁴*	*~ʔî̵w*	*~ʔi̵w
63	swim/bathe	*~ɻ'ɔb*	*~c'ɔb*	*cɔm*	*a-tǫ́m*	*c'ɔm	*ɻâʔ*	*jă̆ʔ*	*jaʔ
67	lie	*jæt*	*jæt*	*jet*	*jat, jad*	*jæd	*~jah⁴*	*lah-*	*lah
69	stand	*g'et*	*k'ed'*	*kə̆t*	*gə̤:d*	*g'e:d	*~jaʔ⁴*	*~jɨ̀ʔ*	*~jaʔ
70	give	*~dɔʔ*	*~dɔʔ*	*nɔ̃ʔ*	*nɔ̃:ʔ*	*nɔ̃:ʔ	*wi̵*	*~wi̵ʔ*	*wiʔ
71	say	*~dɔ*	*~dɔ*	*nə̂*	*nə:, nəŋ*	*nɔ̃:	*~diih²*	*~dih*	*~dih
79	earth	*ɻ'áh*	*c'ă̆h*	*cax*	*ɻʌŋ*	*c'ax	*bâk*	*bák-(daʔ)*	*bak
82	fire (wood)	*teg [~hɔ́]*	*têg*	—	*tə:g*	*te:g	*~ti̵a⁴*	*tɨ̀(-ki̵t)*	*~ti
85	path	*tĭ̵w*	*tî̵w*	*tî̵w*	*ti̵:w*	*ti:w	*~daba²*	*~dabă̆*	*~daba
92	night	*ɻ'ə́b*	*c'ə̆b*	*cem*	*ɻəm*	*c'əm	*tʃei⁴*	*ʧ'èj*	*tʃej
93	hot	*j'uʔ* ('burn')	—	*jŭ̆ʔ*	*juʔ*	*j'uʔ	*~ʧâʔ*	*~ʧâʔ*	*~tʃaʔ
97	good	*~dáw*	*~dă̆w*	*jə̃̂w*	*ni̵:w*	*na:w	*tĭ̵i*	*tî̵j*	*tij

forms that can be reconstructed to each family bear little or no resemblance to each other. Only a handful of the reconstructed pairs share even one similar segment in a comparable position, such as the initial coronal consonants in (71) 'say', (82) 'fire', and (97) 'good'; the initial glottal stop followed by a nasal vowel in (60) 'sleep'; and the initial /h/ in 'tobacco' (table A3). There is no evidence of regular sound correspondences in these data, as Martins (2005) likewise observes for his data set.

However, several of the words in tables 1, 2, and A3 display much closer matches that result in a nearly identical word; these are (24) 'seed', (29) 'flesh', (33) 'egg' (table 2), 'father', 'fear', 'flower', 'mother', and 'rope/vine' (table A3) (but note that 'seed' and 'egg' are probably related language-internally via semantic extension). The Swadesh and controlled vocabulary lists referred to above also provide a number of other words that have at least two similar segments and are attested across one or more Naduhupan and Kakua-Nukakan languages, respectively, but cannot (at this point) be reconstructed to each of the two protolanguages; these are listed in table A4 (where the similar forms appear in bold font, with attested dissimilar forms also included for comparison). Of these, 'thorn' (Hup *ʔŭt*, Yuhup *ʔút*, Dâw *ʔut*; Nukak *út*, Kakua *ʔut*), 'root', 'chili pepper', and 'cockroach' present the most striking similarities.[22]

While some of the lexical similarities between these two sets of languages can easily be attributed to chance, a number are almost certainly loanwords. The near-identical forms are unlikely to be distant cognates, given the low probability that they would withstand change over time while traces of relationship were so completely obscured elsewhere in the lexicon (and in the grammatical morphology, as demonstrated in **3.3**). Borrowing is certainly plausible in light of the languages' geographic proximity and the documented evidence of contact, including intermarriage, between speakers of Hup and Kakua (Silverwood-Cope 1972:174; Reid 1979:103; Pozzobon 1991:78, 180), and the former location of the Nukak within the Vaupés region. Intriguingly, many of the near-identical forms are terms that occur productively in nominal compounds in these languages, where they take on a classifier-like function (see Epps 2007*b*): 'seed'/'egg', 'flesh', 'flower', 'rope/vine', 'root', 'thorn', and 'river'. Extensive borrowing of classifiers is attested in other multilingual Amazonian regions where lexical borrowing is otherwise restrained (Seifart 2011; van der Voort 2005:397), suggesting that terms of this sort might be particularly prone to borrowing in the Vaupés context as well.[23] For the

[22] Martins and Martins (1999:253–54) and Martins (2005:331–41) provide further examples of "matches" between particular languages of the two families involving one or two segments.

[23] Other classifiers in Kakua are also likely to be loans from neighboring languages. For example, *–daʔ* 'round/cylindrical' (also found in Nukak) has counterparts with similar forms and meanings in nearby Tukanoan and Arawakan languages (e.g., Baniwa *–da*), and *–~daʔ* 'tree-like/upright' has counterparts in Arawakan (e.g. Baniwa *–na* 'trunk'); see Bolaños (2016:150). The

remaining terms, lexical borrowing is plausible on semantic grounds; kin terms such as 'mother' and 'father' are relatively prone to borrowing in situations of intermarriage, and other similar terms refer to cultivated plants ('tobacco', 'chili pepper', 'avocado'), which are likely to have been novel introductions at a relatively recent stage in these foraging peoples' histories. Finally, still other resemblances among these languages are regional Wanderwörter that probably originated outside either Naduhupan or Kakua-Nukakan; these include terms for 'cat' (Hup *~picăda*, Dâw *ʃə̂n'*, Kakua *~pitʃida*; originally from Portuguese), 'ayahuasca (*Banisteriopsis caapi*)' (Hup *kapíʔ*, Yuhup *kapĭ*, Kakua *kapi*), and 'cockroach' (Hup *dadăp*, Yuhup *dadáp*, Dâw *năp*, Nukak *tárap*, Kakua *tàlap*).

We conclude this section by revisiting Koch-Grünberg's (1906*a*:882) original list of nine pairs of Yuhup and Kakua terms that he considered similar enough to hint at a genetic relationship, and the source of the view that these six languages form a single family (see **2.2**). Table 3 provides these terms according to their contemporary usage and transcription across all six languages (with 'flesh', 'house', 'tinamou bird', and 'chili pepper' repeated from the tables above). We conclude that the similarities Koch-Grünberg noted (here flagged with bold font across all relevant languages) can be explained without reference to inheritance from a common ancestor. Some can be dismissed as deriving from imprecise transcriptions (e.g., Yuhup *wɨ̈hɨ̈t* 'banana'—which appears as *uhéd* in Koch-Grünberg's transcription—and Kakua *horaʔ*) or improperly parsed terms (e.g., 'foot' in Hup/Yuhup and 'seed' in Kakua); others (e.g., 'flesh' and 'chili pepper') could be loans between Hup/Yuhup and Kakua-Nukak, as noted above. The similarities among the other terms—especially in light of the revised transcriptions—rest for the most part on only one similar segment (e.g., Hup/Yuhup *tuh* and Kakua *tə̆̃w'* 'ash, charcoal', originally transcribed as *d(ẹ)ú* and *tãũ*) and could easily arise by chance.

3.2.2. Puinave. We now turn to a comparative lexical assessment of Puinave with Naduhupan and Kakua-Nukakan. In the pronouns, listed in table 4, little resemblance can be seen between Naduhupan and Puinave; however, the Puinave and Kakua-Nukakan forms reveal more similarities, with between one and three close matches among segments in the first- and second-person forms, and further similarities between free and bound variants in the third-person forms.

The Swadesh and extended vocabulary lists likewise show little support for a relationship between Naduhupan and Puinave. Table 5 lists those forms (18 of the more than 300 meanings) for which at least two similar segments in comparable positions in the word can be identified between Puinave and Naduhupan (minimally reconstructible to Proto-Hup-Yuhup-Dâw); corresponding similarities to forms in Kakua-Nukakan are also noted where relevant. Most of these similarities between Naduhupan and Puinave are probably

borrowability of classifiers may have to do with their "camouflaged" status within larger lexical constructions (see also Epps 2009) and their reference-tracking function (cf. Matras 1998).

TABLE 3
KOCH-GRÜNBERG'S (1906*a*:882) LIST REVISITED: NADUHUPAN AND KAKUA-NUKAKAN

	Hup	Yuhup	Dâw	Nadëb	Nukak	Kakua
foot	***ɟ'ĭb***	***c'îb***	***cə̂m***	***ɟɨ:m***	*~ʈʃɨihát*	*hitʃa-**tib*** (‘foot-seed’ = ‘toe’)
charcoal	***tŭh*** (‘ash’)	***túh***	*fə̆h*	*fəh*	—	***(ti-)tă̆w'***
flesh	***d'áp***	***d'ăp***	***dæp***	***dab***	***dép***	***dep***
house	***~bɔ̆j***	***~bɔ̂j***	***mɔ̃j*** ‘hut’	***mɨ̃:j***	***~bɨɨ²***	***~bɨ̆***
japu (bird)	***d'ŏp***	***d'ôp***	***dŏp***	***dɻ:b***	—	***~dâp***
tinamou (bird)	***~bɔ̆h***	***~bɔ̂h***	***mɔ̃̂***		***~bɨú*** (Meu Muno dialect)	***~bɨw***
grass	***cĭh***	***jɨ́h***	***jɨ̆h***	*jaʔwii*	***ɟilip***	***jilip***
banana[a]	***pɨhɨ́t***	***wɨhɨ̆t***	*fêl', nâl'* [loan]	*mafe:ɾ, pãnã:ɾ* [loan]	***~huda,*** *~huda'bɨ́dɨ̀ʔ,*	***horaʔ*** [loan Kubeo]
chili pepper	***kɔw***	***kɔ̆w***	***xɔw***	*pọ:h*	***kaú*** (Wayari Muno dialect)	***~kaw***

Bold indicates similarities noted by Koch-Grünberg

[a] The banana was probably an early European import (but see Balée 2008); these ‘banana’ terms are for the most part either loans or derived via semantic shift.

TABLE 4
PRONOUNS COMPARED: PUINAVE, NADUHUPAN, AND KAKUA-NUKAKAN

		Proto-Kk-Nk (tentative)		Puinave	
	Proto-Ndhp (tentative)	Free pronouns	Prnm. prefixes	Free pronouns	Pronom. prefixes
1SG	*ʔɐ̃h	*~web	*wa-	*ʔãm*	*a-*
2SG	*ʔɐ̃m	*~beb	*~ba-	*mam*	*ma-*
3SG	*tɨh	*~kad (MSC) *~kad' (FEM)	*ʔa- (MSC), *~bi- (FEM)	*háʔə, dúʔu* (DEM): *óʔo* (NON.SPEC); *bəî* (INDEF)	*ha-*; *mo-* (NON.SPEC)
1PL	*ʔɨd	*fit	*fi-	*bidú, bidút*	*bi-*
2PL	—	*jeb	*~ji-	*jãm*	*ja-*
3PL	—	*ket	*ʔi-	*hát, dút* (DEM); *ót* (NON.SPEC); *bət* (INDEF)	*ka-*

TABLE 5
VOCABULARY COMPARED: PUINAVE AND NADUHUPAN
(PLUS CORRESPONDING SIMILARITIES IN KAKUA-NUKAKAN)

	Puinave	Naduhupan	Kakua-Nukakan
anteater	*jãn*	*jahun	
armadillo	*juu*	(H-Y-D) *jew	*jŭ
big	*-pek*	*pog	
bark/skin	*-pik*	*b'ɔg	
bromeliad/pineapple	*joi*	(H-Y) *jɔj	
chili pepper	*kok*	(H-Y-D) *kɔw	*~kaw
clothes	*jui-ot*	(H-Y-D) *jun	
ear	*-but, butuk*	*bu:j	*~budi
father	*ʔiʔ*	*ʔib	*ʔip
firefly	*kŭi*	*xuj	
foot	*-sim*	*c'i:m	
house	*mõ*	*mɔ̃:j	*~bɨ
mother	*ʔin*	*ʔi:n	*~ʔid
resin	*wɨ̃h*	(H-Y-D) *wɨk	
rope	*dɨt-ot*	*tɨd	*tɨt
steal	*sek*	*c'ek	
thin	*-sə̃m*	*ʃəp	
thorn	*ʔút*	(H-Y-D) *ʔut	*ʔut

due to chance, particularly given that the shared CVC morpheme template raises the probability of a close correspondence. Only a few of the similarities involve basic vocabulary, and some may be loans (presumably very old and/or widespread); for example, 'firefly' appears to be a regional Wanderwort, possibly of Arawakan origin. The Puinave terms for 'father' and 'mother' are strikingly similar to those in Naduhupan and Kakua-Nukakan (and distinct from those found in other languages of region), likewise suggesting borrowing, but independent innovation is also plausible given that these terms tend worldwide to favor stops and nasals, respectively (Jakobson 1962).

On the other hand, the lexical similarities between Puinave and Kakua-Nukakan are more numerous, in keeping with the pronominal similarities noted above. Out of a 100-word Swadesh list, 14 further Puinave terms (not counting the three pronouns listed above) were identified with at least two positionally comparable phonemic resemblances to their reconstructable Kakua-Nukakan counterparts (see table 6). Two additional resemblances between Puinave and either Kakua or Nukak (indicated in bold font) are (20) 'bird' and (31) 'bone', although Girón (2008:426) proposes that Puinave 'bird' is borrowed from Kurripako (Arawakan) *wipiaro*. From the extended lists (104 flora-fauna/culture terms and 75 basic vocabulary terms that are attested in both Puinave and either Kakua or Nukak), 15 further terms were identified that met the same

TABLE 6
SWADESH LIST VOCABULARY COMPARED: PUINAVE AND KAKUA-NUKAKAN

		Nukak	Kakua	Proto-Kk-Nk (tentative)	Puinave
20	bird	*~dɨɟip butu*	***fwebeʔ***	—	*wip*
29	flesh	*dép*	*dep*	*dep	*-ta*
30	blood	*~beʔep²*	*~bĕp*	*~bep	*-mã*
31	bone	*~bik¹wĭp⁴at¹*	***ʔid***	—	*-ut*
32	grease/fat	*ɟĭ*	*jî*	*ji:	*-je, -jek*
39	ear	*~budi⁴ ~dɨt¹*	*~buri-ʧû*	*~budi	*-but; -butuk*
41	nose	*~wîk*	*wɨ̆k*	*wɨk	*-hɔ̀k*
44	tongue	*~dîk*	*~dĭk*	*~dik	*-dok*
53	liver	*~debʔ*	*~dèb*	*~deb’	*-namʔot*
56	bite	*~câk*	*~ʧăk*	*~tʃak	*-sak*
58	hear/listen	*húi*	*hŭj*	*huj	*-hui*
60	sleep	*~ʔɨu⁴*	*~ʔɨw*	*~ʔɨw	*-ou*
70	give	*wɨ*	*~wɨ̀ʔ*	*wɨʔ	*-bɨ́k*
74	star	*kĭi*	*kîj*	*kij	*kɔt*
77	stone	*hee²*	*hĕ-daʔ*	*he:	*ha*
92	night	*ʧei⁴*	*ʧèj*	*tʃej	*sai*

criteria for similarity, at least 12 of which can be tentatively reconstructed to Proto-Kakua-Nukakan (table A5). (Of these, however, the presence of a term *hobo* ‘tobacco’ in Sikuani, a neighboring Guahiban language, suggests that this term may be a more widespread loan, cf. Girón 2008:427; see also the observations concerning ‘flesh’, ‘thorn’, ‘rope/vine’, ‘mother’, and ‘father’ above, in light of their comparable forms in Naduhupan.) These results may be compared with Martins’s (2005) count of 15 similarity sets between Puinave and Kakua and/or Nukak (as well as members of the Naduhupan family), but out of which only five share more than one similar segment. Girón (2008:428–32) reports “exact or approximate” similarity percentages at between 10% and 20% for Puinave and Hup, Yuhup, Dâw, Kakua, and Nukak, respectively, from a list of roughly 100 basic and non-basic meanings, but many of the sets he lists likewise share only one similar segment, and the inclusion of potential matches between individual languages (regardless of reconstructability) greatly increases the likelihood of chance resemblances. Nearly all of the closer matches listed by Martins (2005) and Girón (2008) are among the data presented here in tables 6, 7, and A5.

Within this list of similar terms, certain recurring sound correspondences can be identified, as summarized in table 7. Square brackets set apart those similarity sets where the correspondence is attested in either Kakua or Nukak, but not both.

TABLE 7
RECURRING SOUND CORRESPONDENCES: PUINAVE AND KAKUA-NUKAKAN

Kakua-Nukak	Puinave	Similarity set
e	a	(1) 1sg, (2) 2sg, 2pl, 3pl, (29) flesh, (30) blood, (53) liver, (77) stone, (92) night, [fan]
a	a	(56) bite, lung, pot
ɨ	ə	(41) nose, (74) star, tobacco
ɨ	o	(44) tongue, (60) sleep, [caiman], house
u	u	(39) ear, (58) hear, armadillo, hummingbird, thorn
p	p	[fan], tobacco
b	p	[(20) bird], hummingbird
b	b/m[a]	(1) 1sg, (2) 2sg, 2pl, (30) blood, (39) ear, (53) liver, house, [fan], pot
t	t	rope, thorn
t	d	1pl, rope
d	t	(29) flesh, [(31) bone], (39) ear
d	d/n	(44) tongue, (53) liver, mother
k	k[b]	3pl, (41) nose, (44) tongue, (56) bite, (74) star, chili pepper
tʃ	s	(56) bite, (92) night, lung
h	h	(58) hear, (77) stone, [ant], [hawk], tobacco
j	j/i	2pl, (32) grease, (58) hear, (92) night, [ant], armadillo, hummingbird
w	w/u	(60) sleep, caiman, pot

[a] As we note above, Girón considers these sounds to be allophones, although our source of Puinave lexical data distinguishes them.

[b] Many of these apparent correspondences involving *k* are probably not meaningful; in Puinave, *k* is extremely common in coda position on verb roots, and may well derive historically from some other morpheme, perhaps the verb *'ək* 'do' (see Girón 2008: 222–23). Its frequency in coda position in body-part terms also suggests etymogical separability.

Assessing long-distance relationship is a contentious enterprise (see, e.g., Salmons and Joseph 1998; Nichols 2010), which turns on the question of *how much* similarity can be understood as indicative of a dependent relationship among languages, beyond the threshold of chance resemblance. One approach to this problem involves quantifying lexical matches, according to a constrained definition of "match." Bender (1969, building on Swadesh 1954) argues that three or more lexical matches in a 100-item list of core vocabulary are enough to refute the null hypothesis (of no relationship) at the 95% confidence level, according to his "extended" criteria (where a match is understood to involve either a CVC sequence with two identical consonants, CVC with one identical consonant + vowel + similar consonant, or identical CV). Seven or more matches may meet the 95% level if "weakened" criteria are applied (but Bender cautions that the more subjective assessments of "plausible" correspondence involved here translate to a considerable range of error). Of the 53 terms for which we can reconstruct an (independent) proto-form for Kakua and Nukak in the Swadesh list data (table A2), the similar terms listed in tables 6 and A5 include five matches that meet Bender's extended criteria, and at least 17

according to weakened criteria (here defined as at least two similar segments in CVC forms, or one plus shared height/backness in vowel quality where the form is limited to CV); thus by Bender's criteria these figures score above chance, suggesting a dependent relationship among the languages. Kaufman (1990:24–25) suggests more conservative criteria, with a limit of 10% of lexical items having at least a CVC match (see also Campbell 1997:206–14, Campbell and Poser 2008). According to our relaxed definition of "match," our data meet these standards within the 53 terms considered above, but not within the wider list (of hundreds of terms) suggested by Kaufman.

A further question involves how many sound correspondences are needed to plausibly move beyond the threshold of chance, a problem addressed by Ringe (1998). We evaluated six of the most recurrent sound correspondences listed in table 7 (*tʃ : s*, *b/m : b/m*, *d/n : d/n*, *d/n : t*, *e : a*, and *ɨ : e*) according to Ringe's methodology (1998:155–56, calculated over the Swadesh list). Our results indicate that the probabilities of these correspondences occurring at or above the observed number range from 0.01% to 28%, if there is no dependent relationship among the languages, with two of them (*tʃ : s* and *e : a*) falling below a 5% threshold (95% confidence level). Since Ringe demonstrates that any pairwise comparison of unrelated languages is relatively likely to yield a subset of low-probability results, we interpret our results as indicating that a relationship is plausible, though not strongly confirmed.

A recent proposal by Beck, Wichmann, and Brown (2014; see also Brown forthcoming) offers a new approach to objectifying and quantifying similarities among comparative lexical sets. This method rates the likelihood of cognacy by assigning points according to the presence of putative sound correspondences, translation equivalence, lack of potential onomatopoeia, and lack of unexplained, unmatched phonological segments (Brown forthcoming: §1). Language relationships are then evaluated according to the proportion of sets that score above the threshold of likely dependency, the number of sound correspondence series that are substantiated by three or more such sets, and the percentage of high-scoring sets within basic vocabulary (considered indicative of shared inheritance rather than contact). Brown (forthcoming) applies the method to the Kakua-Nukak and Puinave data presented in this paper and finds that it provides "strong support for the historical connection of Puinave and Kakua-Nukak" (Brown forthcoming, appendix B.13).

According to the above metrics for gauging lexical similarity, the balance appears to fall in the favor of a relationship between Kakua-Nukakan and Puinave. However, it is plausible that at least some of the observed lexical similarities are a result of contact, rather than inheritance.[24] Although Brown (forthcom-

[24] Some of the meanings in table 6 are quite resistant to borrowing cross-linguistically; however, chance resemblance remains an alternative explanation for similarity (see, e.g., 'ear': Kakua-Nukak *~budi; Puinave *–but*, *–butuk*; Naduhup *bu:j).

ing) observes that the high proportion of above-threshold comparative sets occurring in basic vocabulary is suggestive of genetic relationship, we note that the paucity of Nukak data beyond the Swadesh list limits the possibility of robust comparison, and that the terms with classifier-like functions may be more susceptible to borrowing, as noted above. Moreover, as we explore in **3.3**, the grammatical morphology provides little or no evidence of relationship.

As figure 1 illustrates, the contemporary territories of the Puinave, Kakua, and Nukak peoples are geographically close, and the high mobility of the Kakua-Nukakan foragers could easily have brought them into contact with neighboring groups. Mahecha (2007) observes that the Puinave identify the "Makú" as ancestral enemies; some Puinave have also proposed that the contemporary Nukak people are the descendents of a "lost group" recalled by their forefathers, who used to live among them and spoke a language they called "Nolit" (Larry Richardson, p.c. to Daniel Valle, Jan. 26, 2010). Puinave ethnohistory suggests their engagement in the Upper Rio Negro exchange system (with particularly strong ties to the Arawakan Kurripakos; see Girón 2008:436–37), in which the Kakua and probably the Nukak were also involved (see Mahecha 2007). Further similarities across these languages include loans from unrelated languages of the same region (see Epps 2016; also Girón 2008:424–27); examples include 'beans' (Dâw *mə̂n*, Nadëb *kamaan*, Puinave *kumana*; probable Tupi-Guaranian origin, disseminated by North Arawakan and Lingua Geral), 'maize' (Nukak *kánáʔ*, Puinave *kãn*; Arawakan origin), 'manioc meal' (Dâw *ʃuk*, Nadëb *mãʃoːk*, Puinave *masuká*; possibly of Quechuan origin but again of Arawakan and Lingua Geral dissemination), and 'iguana' (Kakua *mánàʔ*, Puinave *damana*; a regional Wanderwort).

In light of these observations, we conclude that a distant genetic relationship between Kakua-Nukakan and Puinave is plausible, but in our view the similarities identified here do not provide sufficient confirmation. A distant relationship may yet be more conclusively demonstrated via methodological refinements and further data, particularly from Nukak.

3.3. Comparison of morphological forms. Here we consider grammatical morphology in the seven languages under discussion (Hup, Yuhup, Dâw, Nadëb, Kakua, Nukak, and Puinave). In light of space constraints and the limited amount of information available for Nukak and Nadëb, we have taken a systematic but non-exhaustive approach, surveying each language for morphological forms associated with a set of major categories of tense, aspect, mood, evidentiality, valence-adjustment, sentential mood, derivation, negation, and case-marking. While most of these are bound forms, some are phonologically free particles. These are presented in table 8, together with the verbal person-marking prefixes from the tables above (repeated here to facilitate comparison).

While grammatical morphology is considered to be relatively resistant to replacement cross-linguistically and thus a generally reliable source of insights into

TABLE 8
GRAMMATICAL MORPHOLOGY COMPARED: NADUHUPAN, KAKUA-NUKAKAN, PUINAVE

		Puinave	Nukak	Kakua	Hup	Yuhup	Dâw	Nadëb
Tense	general future	*-ja*	*-tuʔ, -~dátuʔ*	*-bip*	*-tég, ~tád*	—[a]	*-èj*	*dah*
	near future	—		*-~bid*	—	—	*-ɑ̃j*	—
	general past	*-di* *-hĩn* (NOM.PAST)	*-bé, -~dábé*	*-Vp*	—	—	*-ʔèʔ*	*paah*
	recent past	*-ni*		*=be*	*páh*	*pah, pa*	—	—
	remote past	*bən* ('before')		*=~hi*	*~j'áb*	*~ab*	—	—
Aspect	imperfective	*-hu*	*-~dá*	—	—	*-ɨ́(-p)*	*taʔ*	*i-, a-* (?)
	completive	*-at*		—	*-~cɨp-, ~huʔ*	*~huʔ, hə*	*hɨ̃ʔ*	*-wɨt/wɨ́d, -dɨ́k/dɨg*
	progressive	*sikóm*	*-~déʔ*	*=~tʃahap*	*-V́y*	*-V́(-p)*	*jɔw, kaʔ, tæ*	
	perfective			—	*-ʔe-*	*-ɨ̌(-p)*	*jũt*	
	habitual	*-pak*	*-~piʔ*	*~pi-* (+assumed)	*-bɨ́g*	*~hɨʔ, tiʔ*	*tə́g, w'éh*	
Mood	desiderative	*-súk*	*-ɨ́ʔ*	—	*-tuk-, -tu-*	*-tuk*	*taʔ ʔeh*	—
	epistemic	*teté-, tʃpa-*	*tɨ́*	*ta-, ~t-, ~ti-*	*~ʔúh*	*~ʔuh*	*tɨ̃n*	
	frustrative	*-kuk-*		*=jɨʔ*	*~jéh*	*pat, bo*	*wɨ̀d*	*paawɨ́*
Evidentials	visual	*-kõm* (mirative)		—	—	—	—	—
	nonvisual	—		*ɨ̃-*	*=~hɔ(h)*	*~hɔ*	—	—
	inferred	—		*=taga*	*=cud,*	*cud,*	—	—
	assumed	—		*~d-* (+ future)	*-~di*	*-~di*	—	—
	reported	*-ma-*		*=wɨt*	*~bah*	*~bah*	*mãh*	*mɨh*
Valency	reflexive	reduplicate person marker		*~bik-*	*hup-*	*hup*	*xub*	*ka-*
	reciprocal	*-jek* + reduplicate person marker		*~bik-*	*~ʔuh-, (hup)*	*~ʔuh*	*xup*	*ka-*

[a] Dashes represent the apparent absence of a specific grammatical morpheme associated with the relevant category; blanks indicate no information.

Verbal person marking	1sg	*a-*	*wa-*	*~wa=*	—	—	—	—
	2sg	*ma-*	*~ba-*	*~ba=*	—	—	—	*ma-*
	3sg	*ha-, mo-* (NON.SPEC)	*ʔa-* (MSC), *~bi-* (FEM)	*~ʔa=* (MSC), *~bi=* (FEM)	—	—	—	*ta-*
	1pl	*bi-*	*hi-*	*~ɨi=*	—	—	—	—
	2pl	*ja-*	*~ji-*	*~ji=*	—	—	—	*da-*
	3pl	*ka-*	*ʔi-*	*ʔi=*	—	—	—	*la-*
Sentential mood	imperative	*-u-* *ku-* (exhortative)	*-V́*	*-V́*	-∅ + high tone	-∅ + rising tone	*-ɔh*	—
	interrogative	*-te*	*-jáa(ʔ), -ka(ʔ), -ráʔ*	*=~dit*	*-Vʔ*	*-Vp*	*ʔe, dah*	voicing final cons. (irrealis)
	declarative	—		*=~da*	*-V́h*	*-p, pup*	—	voiceless final cons. (realis)
Derivation	adjectivizer/ adverbializer	*-wîn, -het*		*-~di* (verbs)	*-yɨʔ*	*-ah*	*tiʔ*	*-hí*
	nominalizer	*-ju, -i*	*-hát, -~di, -de, peʔ*	*-at*	*-Vp*-CL, rising tone	falling tone	rising tone	*doo*
	diminutive	*-tí, -tɨ̂i*	*-bit*	*-bit*	*=~bæh, ~tæh*	*~tæh*	*pif*	*-is, -id*
	augmentative/ intensifier	*-suai*	*-beʔ*	*-beʔ*	*=pog, -cáp*	*-póg*	rising tone	
	plural/collective	*-ot*	*-~wɨd*	*-~wa* (animate) *-~da* (inanimate)	*=d'əh*	*deh*	*dəh*	verb stem change (number of S/O)
Negation	verbal neg.	*sãn-*	*-~káʔ*	*-~kad, -kap, -~kɨd*	*-~dɨ̌h*	*-~dɨ́h*	*-ɛ̃h*	*na-*
	existential neg.	*bəidût*		*wîʔi~kad, wîʔi~kɨd*	*~pɨ̌*	*-~dɨ̌h*	*mɛ̃h*	*dooh (nɨh)*
	other neg.	*ʔɨî* ('privative')		—	*-ʔap* (identity)	*-wɨ̌p* (identity)	—	*manɨh* (IMPER)

TABLE 8—*continued*

		Puinave	Nukak	Kakua	Hup	Yuhup	Dâw	Nadëb
Case marking	nominative	—		—	—	—	—	—
	ergative	*-at*		—	—	—	—	—
	object/ non-subject	—	*-~dá*	*=di?*	*-~ăd*	*-~dih*	*-ɨ̃j?*	—
	absolutive	—	—	—	—	—	—	—
	comitative/ instrumental	*-het*	*-~hid, hí?*	*=~hid*	*-V́t, -~hŭj*	*kuj*	*díd, hɨ̃j* (COM), *hɛ̃d* (INSTR)	*sii*
	locative	*-ʔu*, *-at*, *-a* (ALL), *-ha* (TRANSL), *-je* (PERL), *-te* (INESS)	*-ri?/di?*	*=bŭ, -pɨ* (TERM)	*-V́t*, *-~ad* (directional)	*-V́t*	*-t/-d*	*bɨ́, ba-*
	dative/recipient	*-at*	*-ré?, -~da*	—	*-~ăd*	*-~dih*	*-ɨ̃j?*	*hã*

genetic relationships, it is noteworthy that Naduhupan and Kakua-Nukakan each have substantial internal diversity in their grammatical morphology, in comparison to their basic vocabulary. Some of this diversification is without doubt due to the massive contact-driven grammatical restructuring that some of the languages have experienced, and which has influenced language-internal processes of grammaticalization. In Hup, for example, the development of tense, evidentiality, case, and other markers has been influenced by contact with East Tukanoan languages (see, e.g., Epps 2005*b*, 2007*a*, 2008*b*), and similar outcomes are evident in Yuhup and Kakua (e.g., Bolaños 2012). Nadëb, on the other hand, has almost certainly been affected by contact with Arawakan languages, to which it likely owes Arawakan-like structural features such as pronominal prefixes (see **5**).

A genetic relationship among the four Naduhupan languages is corroborated by cognate forms for the reported evidential and past tense morphemes across the family.[25] A closer grouping of Hup-Yuhup and Dâw is further suggested by cognate markers of completive aspect, reflexive, plural, existential negation, comitative relations, and locative case; the shared marking of nominalization via tone change; and possibly the relationship between the Dâw past tense and the Hup perfective aspect forms (though the extent to which these forms are shared innovations or retentions is unclear). Hup and Yuhup share still other forms (of which some are certainly innovations), such as the remote past, desiderative, epistemic, nonvisual and inferred evidential, and reciprocal markers. Still other cognates can be identified between grammatical morphology and lexical content items, indicative of ongoing processes of grammaticalization, such as Yuhup (=)~*tæh* diminutive, 'offspring'; Hup ~*tæh* 'small', 'offspring', marginal diminutive; and Dâw *tæ* 'offspring'. Kakua and Nukak likewise exhibit a range of cognate morphological forms, including markers of past tense, habitual aspect, imperative mood, diminutive and augmentative, verbal negation, and comitative/instrumental case.

However, the grammatical morphology provides no substantive indication of a relationship between these two groups, or between either of them and Puinave. Between Kakua-Nukakan and Puinave, resemblances are limited to a single shared segment in a few forms (such as the initial /t/ in the epistemic marker), to two-segment matches in the instrumental marker (Puinave –*het*, Kakua-Nukakan *–~hid, with t–d correspondence), and to some vague similarities in the verbal person markers (particularly the second-person singular and first-person plural), as noted above.

3.4. Hodi and the "Makú" languages. We now turn briefly to the question of relationship between the so-called Makú languages discussed

[25] A relationship between the Hup and Yuhup negative suffix (-*nɨh*) and the Nadëb negative construction *dooh* [Verb] *nɨh* (NEG [Verb] 'still/yet') is also probable and suggests the innovation of the Hup-Yuhup negative via Jespersen's Cycle.

here and the unclassified language Hodi (Hoti or Yuwana), spoken by about 900 people in central Venezuela (see, e.g., Zent 2009). An affiliation was first suggested by Henley et al. (1994–1996), who based their arguments heavily on ethnographic observations relating to the Hodi people's hunting-gathering subsistence practices and relationship with their agriculturalist neighbors (in this case, the Cariban E'ñepa [Panare])—in other words, non-linguistic considerations much like those behind the original proposal of a linguistic affiliation among the Upper Rio Negro foragers (see **2.1**). The proposal includes linguistic evidence in the form of an appendix consisting of about 60 meaning sets, each of which compares a Hodi term with an ostensibly similar term or terms in Kakua, Nukak, Hup, and Nadëb.

Although the possibility of a "Makú" affiliation for Hodi is frequently mentioned in the literature on these languages, there is clearly insufficient evidence to support Henley et al.'s proposal. The authors' linguistic arguments share many of the methodological problems found in prior comparisons of Naduhupan, Kakua-Nukakan, and Puinave, as discussed above, all of which point to a high likelihood of chance similarity.[26] Martins (2005:341) observes the apparent lack of systematic sound correspondences; Girón (2008:428) further observes no notable lexical resemblances between Hodi and Puinave. We confirm the lack of any substantial similarity between Hodi and any of the "Makú" languages, as can be observed by comparing the data provided in this paper with the Hodi data in table A6 (which lists the first 42 items of the Swadesh list as attested in Guarisma and Coppens's 1978 Hodi lexicon, plus the full set of personal pronouns). We also note that Hodi lacks the preferred morphemic template of a single closed syllable that the other languages share. In fact, Rosés Labrada (forthcoming) presents evidence that Hodi may be a distant relative of the Saliban family (see also Coppens 1983:253, citing Marshall Durbin p.c.; Zent and Zent 2008:504; Jolkesky 2009).

4. The "Makú" languages in areal perspective. Multilingualism is the norm among many Upper Rio Negro Tukanoan and Arawakan groups (particularly in the Vaupés linguistic exogamy networks), and likewise among the region's Forest Peoples, whose bilingualism in their socially dominant riverine neighbors' languages is generally unreciprocated (see, e.g., Epps and Stenzel 2013; also **2.1**). Numerous studies have shown that these

[26] For example, the Hodi terms are compared individually against terms in four languages belonging to two known genetic units, without consideration of whether they reconstruct; the majority of the words compared are very short; transcriptions are poor; and the "similarities" are highly impressionistic and often not particularly close (cf., e.g., Hodi *tu*, Nukak *kiu*, *chêû*, Hup *~du*, Nadëb *nu*/*nuuh* 'head'; and Hodi *ho* Nukak *kak*, Kakua *kak*, Hup *hup* 'person'; Henley et al. 1994–1996:33–34, authors' transcriptions). No observation is made of any regular sound correspondences.

multilingual practices have led to extensive contact-driven convergence in grammatical categories and structures, affecting systems of tense, aspect, nominal classification, evidentiality, case-marking, and many other areas of the grammar (see, e.g., Gomez-Imbert 1996; Aikhenvald 2002; Epps 2007*a*, 2008*a;* Gomez-Imbert and Ospina 2013; Stenzel 2013). Thus, while lexical borrowing is relatively low owing to cultural constraints against mixing codes (see Aikhenvald 2002; Epps 2009), structural features of Northwest Amazonian languages are on the whole prone to contact-driven change.[27]

A comparison of the structural profiles of the so-called Makú languages illustrates these points. Figure 2 presents a similarity analysis of 226 grammatical features (mostly morphosyntactic) in Hup, Dâw, Nadëb, Kakua, Puinave, and in neighboring East Tukanoan and North Arawakan languages, modeled as a NeighborNet splitsgraph (Huson and Bryant 2006; Gray et al. 2010).[28] Notably, the groupings in the splitsgraph reflect geographic proximity and known patterns of interaction but cross-cut certain family affiliations. The diagram presents two fairly distinct clusters: East Tukanoan languages on the left and northern Arawakan languages on the right. An exception is Arawakan Tariana, which groups more closely with Tukanoan; Yukuna's peripheral status likewise reflects Tukanoan influence, mainly involving Retuarã/Tanimuka (see, e.g., Aikhenvald 2002). The Naduhupan family is pulled neatly apart—Hup toward Tukanoan, Nadëb toward Arawakan, and Dâw more or less in the middle. Kakua patterns closest to Hup, likewise reflecting its place in the Vaupés contact zone, whereas Puinave is associated with Arawakan. These structural affinities conform closely to the traces of contact evident in their lexicons (Epps 2016); loanwords in Hup and Kakua are mostly from East Tukanoan languages, whereas loanwords in Nadëb (and to a lesser extent in Dâw) are predominantly Arawakan. Puinave loanwords are likewise mostly Arawakan, drawn particularly from Baniwa-Kurripako (Girón 2008:424), with which it groups most closely in figure 2.

Intriguingly, however, phonological and phonotactic features show a more distinct grouping of the so-called Makú languages. As noted above, all seven of these languages share perceptually salient characteristics that differentiate them from their regional neighbors, most notably their preference for CVC morphemes, set off further by the nasal-oral contours on voiced non-approximant consonants. These perceptual similarities were explicitly noted by Koch-Grünberg (1906*a*, 1913) and others in their discussions of these

[27] Accordingly, structural features in this region should not be considered as potential indicators of long-distance genetic relationship, or at least not without a robust and regionally tested understanding of the variable accessibility of different features to contact-driven change (cf. Dunn et al. 2005).

[28] Nukak is not included due to lack of data; Yuhup is left out in light of its structural proximity to Hup. Data and features are available in Epps (2015).

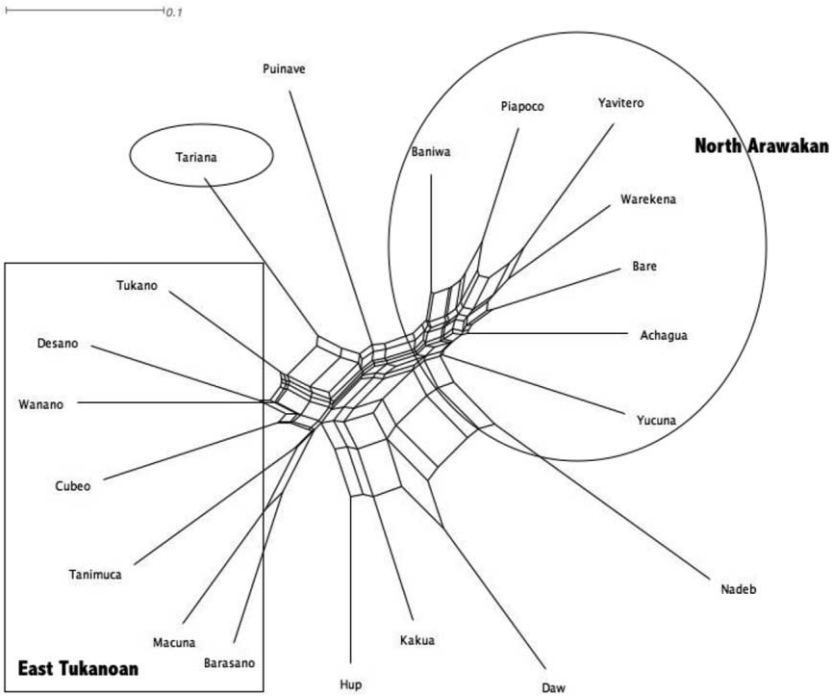

FIG. 2—NeighborNet representation of grammatical structures in "Makú" languages and their neighbors.

languages, and they have undoubtedly encouraged the proposals of relationship (see, e.g., Silverwood-Cope 1972:5; also see **2.2**)

Figure 3 models 39 phonological and phonotactic features as a NeighborNet splitsgraph across the "Makú" languages and their Tukanoan and Arawakan neighbors. Of these, 26 are segmental (consonant/vowel contrasts), two are phonotactic (morpheme/syllable structure), and 13 are prosodic (nasalization, tone, glottalization, vowel harmony, vowel length). In contrast to the predominantly morphosyntactic groupings seen above, figure 3 shows a clear bundling of the seven "Makú" languages, particularly Naduhupan and Kakua-Nukakan, in contrast to their regional neighbors. This bundling becomes even more pronounced if we factor out the prosodic features, which are strongly areal in their distribution, in contrast to the segmental and phonotactic features.

The reasons for these phonological and phonotactic similarities are mysterious. The possibility that they represent an ancient trace of otherwise undetectable genetic relationship cannot currently be ruled out; however, it is perhaps more likely that they reflect an areal stratum that antedates the arrival of the Tukanoan and Arawakan groups (which may also account for some of the lexical similarities observed above). It is also possible that, at least

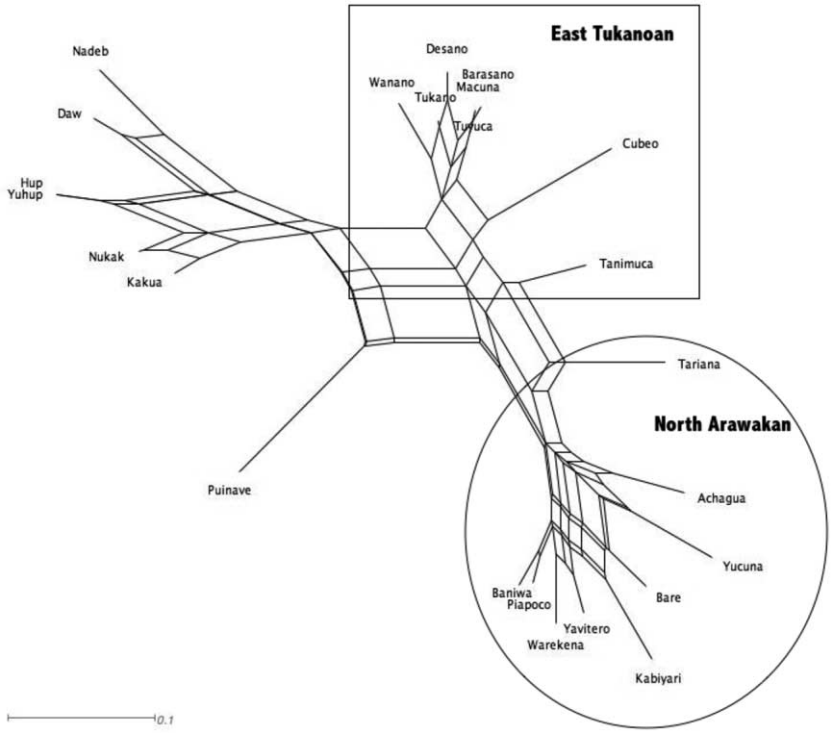

FIG. 3—NeighborNet representation of phonological and phonotactic features in "Makú" languages and their neighbors.

for the groups in the Upper Rio Negro, these perceptually salient features have been retained over time as phonological shibboleths associated with an interfluvial/foraging orientation (i.e., sociolinguistic markers of the "Makú" cultural category; **2.1** above).

5. The names of the language families. In light of our demonstration that the so-called Makú family should actually be understood as three distinct genetic units (at least until further evidence emerges in support of a Kakua/Nukakan-Puinave link), we turn here to the question of what these units should be called. We submit that the name "Makú" (Maku, Makúan) should be abandoned in favor of three distinct names for the groupings established here.

Problems with the name "Makú" have been recognized for virtually as long as the linguistic grouping has been in place. As noted in **2.1**, its reference to a cultural category defined according to stereotypical notions of the "primitive" and "savage" (adapted by non-indigenous explorers and travelers from native

riverine points of view) was well known to Koch-Grünberg and many who both preceded and followed him, and who noted the application of the term to a wide range of unaffiliated peoples (see Mahecha et al. 1996–1997 for detailed discussion). The name gradually became cemented in the emerging scholarly literature, resulting in a confusing plethora of unrelated peoples and languages referred to by variants of the same name (as noted, for example, by Koch-Grünberg 1906*a*:878; Métraux 1948; Mason 1950:257; Nimuendajú 1950:172; Hammarström 2011; Campbell 2012:61); these include, for example, the Saliban language Mako (Venezuela), the isolate Máku or Mako (northern Brazil near Venezuela), and others, in addition to the languages discussed in this paper.

In addition to the confusion the term has generated for scholars, the name "Makú" is highly problematic for many of the people to whom it is applied. In the Upper Rio Negro region, "Makú" has not lost its historically pejorative overtones and is widely recognized as an offensive ethnic slur. As Ramirez (2001*a*:2) observes, "in today's world, we see leaders emerging among these groups who have access to literacy and to books, and who end up discovering, with sadness, horror, and despair, that they are known as 'Makú' on maps and by the global scientific community."

These concerns are behind what is in fact a long history of attempts to avoid using the name "Makú" to refer to this linguistic grouping. In the very first proposal that the languages addressed in this paper be considered a single family, Rivet and Tastevin (1920) propose the name "Puinãve" and justify their choice by observing that this name has been known longer by scholars, and that it avoids the confusion resulting from the use of the name "Makú" for so many distinct language groups. Similarly, Mason (1950:257) refers to the grouping known as "Puinavean" or "Macú" but writes that "the older and generally more accepted name *Puinave* is preferable to avoid confusion." Kaufman (1994:60), followed by Campbell (1997:183), refers to the family as "Puinávean," noting the pejorative nature of the name "Makú" and observing that "although the term is entrenched, it is clearly unacceptable." Mahecha et al. (1996–1997:87) voice similar concerns, while opting for the name "Maku-Puinave" for the linguistic group (see also Cabrera et al. 1999:45–46, Ospina 2002:18). Ramirez (2001*a*) suggests the name "Uaupés-Japurá," with reference to the major rivers linking the Kakua, Nukak, Hup, and Yuhup territories. However, none of these alternative names are appropriate upon the dissolution of the classification.

Although it appears that most scholars have either questioned the use of the name "Makú" or applied it without discussion, Aikhenvald (2012:53) offers an explicit argument in favor of keeping the name to refer to whatever subset of the original classification turns out to be related. She observes that "the more different names we introduce, the more confusion we create" and

compares the pejorative overtones and etymology of "Makú" with the Russian term *nemec* 'German', apparently derived from 'mute, who does not speak'.

We strongly disagree with Aikhenvald's position. While the tendency for particular Amazonian languages to be associated with multiple names does indeed create confusion, we have noted the comparable (and arguably greater) confusion generated by the application of one name to multiple groups. Moreover, as Ramirez (2001*a*) eloquently observes, the contemporary Forest Peoples of the Upper Rio Negro find the name offensive and degrading in a way that Germans do not, particularly in light of their marginalized and discriminated status in their own region—whereas the Germans and many other groups with exonyms of similarly unflattering origin are currently politically and economically powerful entities (see also Terhart 2014:559–60). Finally, the precedent for the name "Makú" in the scholarly literature is in fact relatively tenuous, as the above discussion has indicated.

We propose that the language family name "Makú" should be dropped altogether, rather than being assigned to any subset of the languages previously associated with this name. In addition to the reasons listed above, discarding the name "Makú" represents a clear break with the erroneous classification that has persisted for so long in the literature. In its place, and together with the English-language convention of distinguishing the names of language families from those of languages via a suffix, we recommend the adoption of the names used in this paper. For the established sisters Nadëb, Dâw, Hup, and Yuhup, we propose the name "Naduhup(an)," formed via a blend of the four names. This name follows the convention introduced in Epps (2005*a*, 2008*a*) but introduces a variant spelling in which *u* replaces *a* (and can be understood to represent both the *u* of Yuhup and the schwa of Dâw and Nadëb, indicated orthographically by *â* and *ë*, respectively), in order to avoid the potentially pejorative association with Portuguese/Spanish *nada* 'nothing' that has been pointed out by some speakers (Silva and Silva 2012:57; Ana María Ospina Bozzi p.c. 2016).[29] For the second small language family addressed here, we propose "Kakua-Nukakan." Finally, the name "Puinave" (or "Wa̋nsöjöt," following Girón 2008) is reserved for the single language that, as we have

[29] The name "Naduhup" was formally presented to a group of speakers of Hup, Yuhup, Dâw, and Nadëb in July and August of 2016. While our proposal met with a positive response, these speakers take the replacement of the name "Makú" very seriously in light of its regional use as an ethnic slur, and they felt strongly that the choice of a new name should be undertaken with care and should include a period of discussion in their home communities. Although we are very aware of the problem of introducing multiple names in the scholarly literature, we also emphasize that the concerns of speakers have been and will continue to be relevant in this (and other) cases, and that our proposal cannot be fully finalized until the speakers themselves have had time to come to a consensus.

argued here, is at this point best considered an isolate, at least until further work demonstrates otherwise.

6. Conclusions. In this paper, we have reviewed the history of the "Makú" family classification, which we trace back to a highly tentative proposal by Koch-Grünberg (1906*a*) that was based at least as much on a sociocultural category as on linguistic evidence. Koch-Grünberg's suggestion was misrepresented and elaborated in a methodologically problematic manner by Rivet and Tastevin (1920), and subsequently solidified through cumulative citations. Our examination of the new data now available for these languages indicates that we are dealing with what are at this point best understood as three distinct genetic units: the Naduhupan family (Nadëb, Dâw, Hup, and Yuhup), the small Kakua-Nukakan family, and the isolate Puinave/Wa̋nsöjöt. Our data reveal no convincing evidence for grouping any of these three units together, although similarities between Puinave and Kakua-Nukakan suggest the possibility of a relationship, which we hope that future work may explore further. On the other hand, while their divergent morphosyntactic profiles provide evidence of substantial contact with their Tukanoan and Arawakan neighbors, the seven languages share distinctive phonological and phonotactic characteristics that set them apart from their neighbors, and could perhaps be due to some ancient areal affiliation.

The "Makú" case brings the fascinating linguistic diversity of the Amazon Basin into clearer focus. Although advances in our understanding of these languages might be expected to result ultimately in a reduction of genetic diversity through the discovery of higher-level groupings, this paper illustrates that it is perhaps just as likely to result in the splitting of previously accepted families. We are thus unlikely to see a substantial revision of the striking Amazonian profile, which combines deep genetic diversity with many very small language families.

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