Naduhup Languages and the Typology of Nominal Classification

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Abstract

Nominal classification is a robust feature in many Amazonian languages, and aspects of these systems offer significant challenges to our broader conception of the phenomenon. Yet a clear characterization of Amazonian classification systems must be firmly grounded in detailed descriptive analysis on one hand, and in a principled definition of classification as a typological category on the other – and a failure to do so may lead to spurious claims of typological *rara*. This paper offers a case in point through an exploration of nominal classification phenomena in the small Naduhup family (aka Makú; Brazil/Colombia): while several aspects of these systems have been highlighted in the typological literature as rare or otherwise remarkable, a reconsideration of these phenomena in the light of more data and analysis suggests significant revisions. We consider nominal classification phenomena across the four languages (Hup, Yuhup, Dâw, Nadëb) from synchronic and diachronic perspectives, and reassess their relevance for a broader typology of classification.

1 Introduction

Linguistic typology and language description are mutually informative enterprises (Epps 2010, Mithun 2016). In descriptive work, we make choices about how to characterize phenomena encountered in a given language, and we draw on the categories and labels provided by cross-linguistic comparison in doing so. In typological investigation, establishing the parameters of a given category requires decisions regarding which criteria are key in defining it, and which phenomena should be included or excluded. A classic problem in typology is thus how to deal with liminal or exceptional cases, in light of cross-linguistic variation, and approaches to mitigating this issue are the subject of an extensive literature (e.g. Haspelmath 2010, Van der Auwera & Gast 2011, Brown et al. 2013). Where typology engages with widely attested phenomena, points of descriptive inadequacy may merely be 'noise'; but where typology engages with *rarissima* – structures and categories that are cross-linguistically unusual (see Wohlgemuth & Cysouw 2011) – points of descriptive uncertainty are brought crucially into question, and descriptive choices in labeling phenomena as associated with a particular category can have more far-reaching implications.

An illustration of these challenges can be seen in typological approaches to nominal classification. Probably all languages have operations by which certain categories of nouns are grammatically identified according to properties of their referents, as seen for example in grammatical sensitivity to animacy (e.g. differential object marking), status as a mass or a countable entity (e.g. quantifier choice), or even identity as a body part (as in inalienable possession). Yet not all of these phenomena would normally be considered instantiations of the typological category of nominal classification – just as all languages have strategies to locate an event in time or specify information source, but not all are understood to have grammatical tense or evidentiality. This view therefore requires us to define nominal classification, and to apply the definition descriptively, in such a way that we have a principled approach to delimiting the phenomenon. Not doing so at all would mean that all languages would qualify as 'classifier languages', and thus a typologically

significant distinction would be lost (Allan 1977:286, Croft 1994:151, Aikhenvald 2000:13). On the other hand, not delimiting the category consistently means that 'marginal' phenomena will be variably described as nominal classification or as something else, and claims about typological *rara* – as highly unusual instantiations of a particular phenomenon – may simply reflect the vagaries of descriptive labeling.

These challenges can potentially introduce significant confounds to our typological understanding. As we explore here, a case in point is the representation of the Naduhup language family in the typological literature on nominal classification. This small group of four languages, spoken in the Upper Rio Negro of northwestern Brazil and eastern Colombia, was only minimally described through the early 21st century. Nevertheless, Aikhenvald's (2000) study of nominal classification – undoubtedly the most comprehensive typological exploration of the phenomenon to date – draws heavily on data from Naduhup languages to exemplify several different forms of classification. The most notable of these are two types that are identified as very rare: locative classifiers and a 'possessor' classifier, which categorizes the possessor rather than the possessed entity in a possessive construction. Aikhenvald's characterizations have been amply repeated in the subsequent literature on classification; see e.g. Velupillai (2012:173) and Kilarski (2013:39, 45).

In this paper, we undertake a comparative assessment of nominal classification in the Naduhup languages, and revisit the typological claims that draw on them. We explore the presence of classification across the four languages, pointing out that the family exhibits extensive internal diversity with respect to this phenomenon. Nevertheless, we argue that several kinds of classification previously attributed to these languages – including those conceived as typological *rarissima* – are best understood as falling outside the category, even where they may involve sensitivity to particular features of the referents. This investigation calls attention to the descriptive and typological challenges presented by nominal classification as a category, in that even widely accepted definitions of classification span a diverse range of associated grammatical structures and domains. Ultimately, the identification of a particular phenomenon as typologically 'rare' requires us to both establish the existence of the category as a typologically meaningful entity, and to delimit its membership. If these criteria are not met, then considerable skepticism is in order when proposing, evaluating, or repeating claims concerning *rarissima*.

The paper is structured as follows. §2 outlines a working definition of nominal classification, with the goal of delimiting the category in an operationalizable way. §3 introduces the Naduhup family and briefly summarizes prior claims relating to nominal classification in the four languages. §4 considers the 'multifunctional' classifier systems of the northwest Amazon and their instantiation in Naduhup, while §5 looks at the relationship between possession and classification in the family. §6 addresses the question of locative classifiers and their relationship to adpositions; §7 briefly discusses measure terms and other phenomena; and §8 concludes.

2 Nominal Classification as a Typological Category

The literature on nominal classification has established a number of important parameters, which we briefly lay out here. First, the phrase 'nominal classification' is understood in this context to mean the categorization of nouns according to features associated with their *referents*, rather than of the nouns themselves as linguistic forms (Senft 2000:27, Lucy 2000:331, Contini-Morava & Kilarski 2013:265). Second, nominal classification itself spans a cline of grammaticalization, from lexical strategies (measure terms, class terms, and verbs that reflect features of their arguments' referents; see §7) to nominal classifiers, to gender or noun class markers (Grinevald 2000). Most discussions of nominal classification exclude lexical strategies and focus on the more grammaticalized elements, classifiers and noun class markers. Of these, classifier systems may be distinguished from noun classes in that they are relatively less grammaticalized; as such, they do not necessarily classify all nouns, they often involve an open system with a large number of classes, they are normally marked only once in the noun phrase (as opposed to serving an agreement function), and a given noun is likely to associate with a range of classifiers (which tend to function derivationally; see Dixon 1982, 1986, Grinevald 2000, *inter alia*). In our discussion of Naduhup

languages, we focus exclusively on classifiers, since none of these languages can be said to have noun classes.

Definitions of nominal classification in the literature make reference to several criteria. As we note above, however, operationalizing these criteria in a consistent way is not trivial, in view of the diverse range of morphosyntactic contexts in which classifiers appear, and the fact that synchronic liminality may be associated with diachronic transition. Thus Grinevald (2004:1024), Aikhenvald (2000:14), and other authors leverage a prototype approach, such that "properties of different classifier types will be shown to be gradient rather than categorical" (Aikhenvald 2000:14). However, an overly loose application of this approach invites misidentifying *rarissima*.

Key criteria for defining nominal classification have been identified as follows. With respect to morphosyntactic form and behavior, classification is usually understood to involve a degree of grammaticalization, with classifiers less grammaticalized than noun classes (e.g. Grinevald 2000: 61, Contini-Morava & Kilarski 2013:265), although classifiers themselves may be either free or bound morphemes (Croft 1994:146, Aikhenvald 2000:91, cf. Dixon 1986). A second criterion, though one that tends to be somewhat less clearly formulated, is that classifying etyma should form a coherent set, with paradigmatic relations existing between the set of classes/classifiers and the types of nouns they associate with, across the lexicon (Croft 1994, Aikhenvald 2000:153, 176, Senft 2000:681). Third, nominal classification (particularly classifiers, which are less arbitrarily assigned than noun classes) is understood to "provide semantically based categorization" according to properties of the referents (Aikhenvald 2000:13, see also Senft 2000:680-681, Contini-Morava & Kilarski 2013:266), and these properties are generally characterized as "inherent" (Allan 1977:286). Turning to function, Contini-Morava and Kilarski (2013) identify principal semantic functions as relating to derivation and the differentiation and individuation of referents, while key discourse functions involve the disambiguation of referents and reference management/tracking (with additional functions of indicating speaker stance and shifting discursive perspective vis-à-vis the referent). Finally, the environment in which classifying etyma occur is also significant; Aikhenvald (2000:13) states that classifiers "are restricted to particular construction types known as 'classifier constructions'... understood as morphosyntactic units... which require the presence of a particular kind of a morpheme, the choice of which is dictated by the semantic characteristics of the referent of the head of a noun phrase." Similarly, one of Allan's (1977:286) criteria for "classifier languages" is that "they have classifiers, at least some of which are restricted to classifier constructions, although classifiers exist which function in other environments like nouns... [and that these] belong to one of four types – (i) numeral classifier languages, (ii) concordial classifier languages [i.e. noun classes], (iii) predicate classifier languages, and (iv) intra-locative classifier languages." To these types of classifiers (or 'classifier languages'), later works have added noun classifiers, possessive classifiers, and deictic classifiers (see Aikhenvald 2000).

However, these criteria raise a number of questions. Whether a given etymon should qualify as grammatical(ized) is not always clear, particularly where classifying elements may also function as free lexical roots, as in the case of 'repeaters' (classifiers that are identical in form and meaning to nouns). This problem is particularly evident in "suppletive classificatory verbs" (a subcategory of 'predicate' or 'verbal' classifiers; see Aikhenvald 2000:153ff), which consist of a set of lexical verb roots that specify features of the nominal argument (e.g. 'lie (round thing)' and 'lie (flat flexible thing)', see Allan 1977:287), leading Croft (1994:157) to observe that such "predicate 'classifiers' do not fit the formal grammatical definition of a classifier, and in fact, they may not be classifiers at all." The criterion of paradigmaticity is also complex, in that it is not always clear how many classifying members of a given category of etyma (e.g. adpositions or verbs) are enough to characterize the set as a classifier type, especially in cases where virtually all languages share at least a few such elements for which the choice depends on qualities of the referents, such as verbs of ingesting (see Croft 1994:159 and §6-7 below). Regarding the semantic basis of classification, questions arise regarding what sorts of properties associated with the referent are relevant: Most authors agree that 'inherent' or non-relational properties (e.g. size, shape, consistency) are key in nominal classification, given that relational features are already ubiquitous in grammar (e.g. distance from the speaker in demonstrative systems, entities viewed singly or as a set in number marking, etc.); however,

the distinction is less clear where particular 'inherent' features may be foregrounded in classification *because* of their relevance to human intervention, i.e. their relation to functionality (see e.g. Denny 1976:130). This problem is particularly evident in the context of possessive classifiers, which typically correspond directly to the relation between the possessor and possessed (e.g. one of eating, raising as a pet, etc.; see §5). Finally, the criterion that classifiers are associated with specific 'classifier constructions' raises significant questions concerning operationalizability. While the observation that particular morphosyntactic contexts tend to be the locus of nominal classification is typologically robust, it also risks circularity: A classifier construction is defined by the presence of a classifying element, while a classifier is defined by its presence within the construction. As we explore below, this circularity is especially problematic in marginal cases.

In light of these considerations, we employ the following working definition of nominal classification, with the goal of setting reasonably consistent parameters for assessing typologically marginal phenomena like those encountered in Naduhup languages, and to bring more clarity to the task of distinguishing 'classifying languages' from those languages that exhibit other forms of nominal categorization. We understand nominal classification as involving a set of etyma that a) can be identified as grammatical (or grammaticalized) to some degree, such that most or all members are formally and/or functionally distinct from members of the lexicon;[1] b) are robustly relevant within at least one grammatical subsystem, as opposed to being constrained to a limited subset of elements within the same domain (as with gender in third person pronouns in English); c) offer multiple paradigmatic oppositions, as opposed to a single either/or option (cf. sensitivity to animacy in differential object marking);[2] d) group nouns according to at least some inherent (or relatively non-relational) characteristics (cf. conventional number marking strategies); e) have functions relating to derivation, individuation/ differentiation, and reference management, as opposed to basic reference or modification (cf. adjectives). An argument may be made in particular cases for relaxing one or another of these criteria, but we submit that such cases must be evaluated very carefully before they are accepted as typologically relevant, and particularly as examples of *rarissima*.

3 The Naduhup Language Family

The four Naduhup languages – Hup, Yuhup, Dâw, and Nadëb – are spoken by peoples who traditionally inhabit the interfluvial zones of the middle and upper Rio Negro region (see Map 1). All four languages are still being transmitted to children, and speaker populations range from about 130 (Dâw) to 2500 (Hup). Formerly known as the 'Makú' family and lumped together with Kakua and Nukak (and, by some accounts, Puinave to the north), comparative evidence indicates that Naduhup is in fact an independent family (Epps and Bolaños 2017). According to our current understanding of relationships within the family, Hup and Yuhup are quite closely related, while Dâw is a more distant sister, and Nadëb occupies a distinct primary branch. Despite a clear-cut signal of genetic relationship in the lexicon, the languages are typologically remarkably divergent, due in large part to grammatical restructuring driven by contact with their respective neighbors – in particular, East Tukanoan languages on the part of Hup and Yuhup, and (probably) Arawakan languages on the part of Nadëb (Epps 2007a, Epps & Bolaños 2017).

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[1] Note that by this definition, most or all examples of 'classificatory' lexical verb roots would be excluded. We follow Croft (1994) in considering this option viable (see also §6), but leave the question open for further investigation.

[2] We note that gender systems do sometimes offer a single either/or option; as noted above, we exclude these from our discussion here.
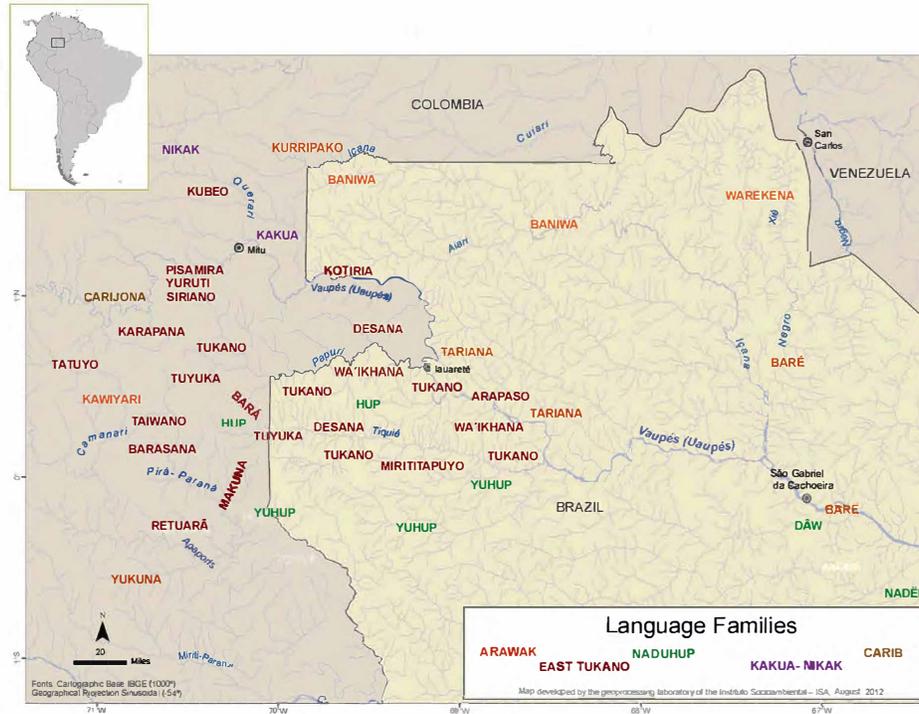
Map 1: Naduhup languages in regional context

Evidence of family-internal typological divergence and contact-driven convergence is highly visible in nominal classification phenomena across the Naduhup family. As we observe in §1, the Naduhup languages have attracted considerable attention in the literature on nominal classification – remarkably so in light of the very limited description available, at least until recently – and due in large part to the striking range of nominal classification phenomena ascribed to them, including several features that are typologically rare. As the sections below lay out, the Naduhup languages are indeed diverse in their approaches to nominal classification, and some of these strategies hold intriguing clues to how classification may emerge over time and through contact. However, we argue that several forms of nominal classification attributed to Naduhup languages are best analyzed otherwise. Moreover, in contrast to many other northwest Amazonian languages, nominal classification appears to be a relatively marginal category in Naduhup, and one that has emerged independently in the respective languages following the breakup of the protolanguage.

Table 1 summarizes the classification types and strategies that have been attributed to Naduhup languages. Hup and Yuhup exhibit reasonably robust, though incipient, systems of 'multifunctional' classifiers (§4), much like those seen in other languages of this region, and Nadëb has a set of etyma that meet generally accepted definitions of possessive classifiers (§5). Three further types – all of which are typologically unusual to varying degrees – are attributed to Dâw (and in one case to Hup) in Aikhenvald's (2000) study (drawing in particular on Martins 1994), and in subsequent literature; these are noun classifiers (§5), 'possessor' classifiers (§5), and locative classifiers (§6). In Table 1, 'X' indicates those strategies that we consider as meeting a relatively rigorous definition of nominal classification, while '[x]' is used for those strategies that have been attributed to these languages but that we exclude.[3]

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[3] The data and analyses presented in this paper draw on our own fieldnotes for Hup, Dâw, and Nadëb (see also Epps 2008 for Hup, and Obert 2019 for Dâw), as well as from Ospina Bozzi (2002, 2004-5) for Yuhup, Martins (2004) for Dâw, and Weir (1984) for Nadëb. Data that appear here without citations come directly from our fieldnotes (see also the archived collections in the Archive for Indigenous Languages of Latin America: Epps 2001+ (Hup); Epps, Obert & Storto 2013+ (Dâw); Epps, Obert & Pissolati 2018+ (Nadëb)).

	Hup	Yuhup	Dâw	Nadëb
multifunctional classifiers	X	X		
possessive classifiers	[x]		[x]	X
locative classifiers			[x]	
noun classifiers			[x]	

Table 1: Nominal classification types attributed to Naduhup languages

4 'Multifunctional' Classifier Systems: Naduhup and the Upper Rio Negro Context

Nominal classifier systems are widely encountered among western Amazonian languages. While fairly diverse, they tend to conform to a general pattern that has by now become familiar to scholars of classification. As Krasnoukhova (2012:193) observes, these 'multifunctional' classifier systems (cf. Aikhenvald's 'multiple classifier languages', 2000:204ff) are generally characterized by three functions, semantic categorization, derivation, and – more marginally – syntactic agreement; and by the fact that classifiers can attach to or occur with many different kinds of hosts and constructions, including nouns, numerals, demonstratives, relative clauses, and even verb roots (in the latter case, either as nominalizers or, in some languages, as predicative elements that make reference to clausal arguments). While treated by some authors as typologically or diachronically transitional in light of their resemblance to canonical understandings of both classifiers and noun classes, recent work has moved toward recognizing these Amazonian systems as "instantiating a coherent system type in their own right," rather than defining them as 'mixed' or 'multiple' systems (Seifart & Payne 2007:384).

Western Amazonian classifier systems tend to share a number of characteristics in addition to their multifunctionality. Systems are likely to include a large number of grammatical elements that encode shape, texture, function, and sex, and they tend to make a salient distinction between animate and inanimate nouns. Many of these languages have a generic classifier form that can stand in for others, and which often relates to the division between animate and inanimate nouns, as well as 'repeater' classifiers that are formally identical to nouns and correspondingly limited in reference (i.e. composing a single-item class). Accordingly, classifier inventories in such languages are typically open sets, occupying a continuum of more lexical to more grammaticalized elements. In discourse, these classifiers often serve anaphoric reference-tracking functions, in addition to their derivational and limited agreement functions (see also Payne 1987, Derbyshire & Payne 1990, Grinevald & Seifart 2004, Farmer 2015, Voort 2018).

Classifier systems of this general type are widely encountered among Tukanoan and northern Arawakan languages (see e.g. Farmer 2015, Aikhenvald 1996, 2000), and are ubiquitous among languages of the Upper Rio Negro region, where classifiers also show considerable evidence of contact-driven convergence (Gomez-Imbert 1996, Aikhenvald 2002:86ff, Bolaños 2016:150). Hup and Yuhup, the two Naduhup languages that are spoken squarely within the Upper Rio Negro region, exhibit classifier systems that are comparable to those of their neighbors, but also stand out as clearly incipient: all members of the inventory are transparently associated with their lexical sources – lexical nouns, many of which are plant part terms that occur as 'bound' elements in compound constructions that encode whole-part (i.e. inalienably possessed) relationships; as in Yuhup *căk=wə̂gⁿ* (moriche=seed) 'moriche (*Mauritia flexuosa*) seed' (Ospina Bozzi 2004-5:184), and Hup *b'ab'aʔ=g'æt* (embaúba=leaf) 'embaúba (*Cecropia* sp.) leaf'. As such, the Hup and Yuhup classifiers or bound nouns still have a robust identity as nouns themselves, and can be seen as the heads of compounds in many constructions. The relationship between these nominal constructions and the emergent system of nominal classification is discussed at length by Ospina Bozzi (2004-5) for Yuhup and by Epps (2007b, 2008, 2009) for Hup.

The bound nouns in Hup and Yuhup, like the more grammaticalized classifiers in many of the languages around them, are in very frequent use as derivational elements. In addition to their use in whole-part

compounds like those above, they combine with nouns in a wider range of nominal expressions, as in Yuhup *mɔ́j=k'ǽt* (house=leaf) 'caraná (palm leaf used for thatch)' (Silva & Silva 2012:223), and occur productively with verb roots to derive new noun phrases, as in Hup *tăc=tat* (kick=FRUIT/ROUND) '(soccer) ball'. They also combine with a range of other word and clause types associated with the noun phrase – numerals, demonstratives, relative clauses, adjectives, etc. – many of which cannot occur on their own as independent noun phrases without the addition of a classifier or other nominal element; e.g. Yuhup ͜*bɔ̌ʔ=tăt* (two=fruit) 'two fruits' (Ospina Bozzi 2004-5:191). In discourse, the bound nouns appear frequently in nominal constructions of this kind and function deictically and/or anaphorically (examples (1-2)), playing an important role in reference tracking.[4]

(1)   *jɨ̃́-n'ɨ̃h*   *hɨd bíʔ-ɨh,*   *núp=**tat***
        that.ITG-NMZ   3PL work-DECL this=ROUND/FRUIT
        'Thus they made it (a clay musical instrument), this size (round).'
        (speaker is indicating the size with his hands) (Hup, Epps 2008:277)

(2)   *hĩ̃'ɨhĩ̃*   *tɨh=sap=**k'ǽt***?
        which   3SG=pretty=BOOK/LEAF
        'Which notebook is the nicest?' (Yuhup, Silva & Silva 2012:257)

The Hup and Yuhup classifier systems have transparently developed out of the system of 'bound nouns' in compounds associated with whole-part and inalienably possessed relations. This process was evidently propelled by contact with neighboring East Tukanoan languages, and the resulting systems in Hup and Yuhup shares many features with these systems – not only the general set of functions and loci of classifying elements, but also an emphasis on shape as a salient feature in the classification of inanimates; a male/female gender distinction for animates (example (3)), as well as a generic animate plural and (in Yuhup) singular; and (at least in Hup) a generic inanimate classifier (=*teg*, which also functions as the plant part 'tree, stick' and the shape classifier 'shaft'); e.g. *pəpɔ́d=teg* (roll=THING) 'wheeled vehicle'.

(3)   *jɨ́t=mahjúp*   *húp=wəd*   *wɨʔ-g'ét-éj,*
        thus=REP   that.ITG person=RESP   hear-stand-DYNM
        mɔ̌h   *g'íg-ip=ʔɨ̃h*
        tinamou   arrow.shoot-DEP=MSC
        'There, they say, an old man was standing listening, one who was shooting tinamou birds.'
         (Hup, Epps 2008:829)

As Epps (2007b, 2009) explores, the emergence of classifiers in Hup (and presumably also in Yuhup) involved a reanalysis of which element of the compound constructions was semantically more 'in focus' (i.e. more likely to be construed as the more variable or discursively salient element), and likewise a reanalysis of the type of relation between the two components of the construction. Thus, for example, a leaf may be viewed as a part of a plant (e.g. *pɨhɨ́t=g'æt* 'banana leaf'), but also as an object that is categorized by the type of plant it comes from, and which defines it as possessing particular qualities that lend

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[4] All data in this paper are presented in IPA. Diacritics on vowels represent tone (v́ = high, v̂ = falling, v̌ = rising). The symbol <=> here represents the morphosyntactic and phonological dependence of the 'bound' noun or classifier on the noun it occurs with (as well as a clitic boundary). In the case of Yuhup and Dâw, we have added this symbol to Ospina Bozzi's and Martins's transcriptions, and we have adapted Martins's representation of two Dâw vowels (ɤ > ə, ɯ > ɨ) to conform to our own phonological representation of this language; otherwise, we have generally maintained the authors' respective transcriptions. We note that Ospina Bozzi's transcription conventions are different from Silva and Silva's (which we have converted from the practical orthography), which are closer to ours for Hup. Nasalization is a morpheme-level prosody in Hup and Yuhup, and Ospina Bozzi's transcription includes a preceding tilde (~) to indicate a nasal morpheme, whereas other Hup and Yuhup transcriptions in this chapter indicate morpheme-level nasality by representing one or more segments within the morpheme as nasal. We have slightly standardized some of Ospina Bozzi's and Martins's glosses to conform to the conventions used throughout this paper. Translations of examples and direct quotes from sources authored by Ospina Bozzi, Silva and Silva, Weir, and Martins are our own.

themselves to particular uses; for example, a banana leaf is large and flat, and may be used as a plate or a cover for a container. It was presumably this second construal of the relationship between the bound noun and its counterpart that produced compounds like *mɔhɔ̌j=g'æt* 'deer leaf' (*Phytolacca rivinoides*) and *jɔ̌h=g'æt* 'medicinal leaf' (i.e. any leaf used as medicine), where the first element in the compound modifies or categorizes the second, as opposed to representing a whole or possessor. Compounds of this kind would have also enabled the use of bound nouns as derivational elements in combination with verb roots, and, finally, their semantic extension from plant parts to indicators of physical form (particularly shape, size, and consistency). For example, *hǐʔ=g'æt* 'draw/write=LEAF' refers to a particular type of leaf that retains dark marks when inscribed with an object, but is more commonly used today in reference to writing paper or notebooks.

Interestingly, there is some evidence that these metaphorical extensions of plant part terms have been marginally present in Hup and Yuhup for what is probably a long time – visible in particular in body-part terms, such as (Hup) *nɔhg'ěd* 'tongue' (etymologically *nɔ* 'mouth' + *g'æt* 'LEAF/BLADE') and *cǐʔ=tat* (leg.calf=FRUIT/ROUND) 'round part of calf of leg', and some terms for items of native manufacture, such as *hæ̌j'=b'ah* (paddle=SPLIT.WOOD) 'canoe paddle' and *pǐh=teg* (play.flute=STICK/SHAFT) 'flute (type)'; however, the vast majority of nominal expressions in which a semantic leap is evident refer to recently introduced cultural objects, as can be seen in the extension of 'leaf' to 'paper, book' in the examples above. As Epps (2007b, 2009) observes, while the classifier system undoubtedly emerged through Tukanoan influence, the potential for semantic extension appears to have been kicked into high gear over the last few decades by the influx of culturally unfamiliar objects requiring names. Further examples from Hup are provided in (4); the high productivity of the system can be seen in the multiple options for terms for culturally very recent items such as 'light bulb'.

(4) a. *b'ŏj=g'æt* 'study book'   (b'oj- 'study/ teach')

     b. *hǐʔ=g'æt*   'writing/notebook'   (*hiʔ-* 'write, paint')

     c. *dŭc=tat*   'light bulb'   (Port. *luz* 'light')

     d. *hɔ̃́=tat*   'light bulb'   (*hɔ̃-* 'burn')

     e. *wæ̌d=b'ah*   'spoon, plate'   (*wæd-* 'eat')

     f. *méca=b'ah* 'table'   (Port. *mesa* 'table')

     g. *hǐʔ=teg*   'pencil'   (*hiʔ-* 'write, paint')

     h. *nŭj'=teg*   'eraser'   (*nuj'-* 'rub')   HUP

As Ospina Bozzi (2004-5:181) observes for Yuhup (see also Epps 2008:279 for Hup), the classifying etyma in these languages resemble class terms in their role in lexical genesis, as well as in their transparent lexical origins (see Grinevald 2000:58). However, their occurrence in a range of morphosyntactic constructions and their extended semantics are in keeping with more fully-developed classifier systems, and their determinative and anaphoric uses and ability to occur on multiple constituents within a clause is reminiscent of noun classes. In fact, they fit quite neatly into the template of a Tukanoan-style multifunctional classifier system, with their main difference being simply one of overall degree of grammaticalization. Thus many of the etyma that can occur in the morphosyntactic classifier 'slot' in Hup and Yuhup are akin to 'repeaters', and include nominal elements that function in other contexts as independent nouns and as measure terms (§7).

Dâw offers an intriguing comparative perspective on the Hup and Yuhup classifier systems. In contrast to Aikhenvald's (2000) observations (which draw on Martins's 1994 work), we point out that Martins (2004) is actually much more equivocal about the existence of classifiers in the language. In fact, Martins (2004:129) goes so far as to state that no "active system" of classifiers exists in contemporary Dâw, although she suggests that such a system was more robust in the past and is still detectable in certain areas of the

grammar, particularly in the locative postpositions that characterize inherent properties of the place reference and in verb roots that make reference to inherent qualities of their arguments (but see §6 and §7 below). However, she does observe that "a form of nominal classification" is synchronically present in Dâw in the form of "class terms", which represent parts of an entity and combine with nouns in compound constructions (Martins 2004:148). As she describes, and as our own work confirms, Dâw has a robust and productive nominal compounding construction that encodes possessive and whole-part relations, and in which body parts, plant parts, and other parts of a whole figure prominently (example (5)), very much like what we have seen above for Hup and Yuhup. As in those languages, the second element of the compound in Dâw receives word-level stress and in many cases cannot freely occur without a preceding nominal element.

(5) a. *pɔ̂j=kĕt*   'caraná (*Mauritia sp.*) leaf'

      b. *tɔw=tɔ̂g*   'molongó (*Ambelania grandiflora*) trunk'

      c. *tăx=nũh*   'tapir head'

      d. *lakah=tĭp*   'chicken egg' (Martins 2004:149)

      e. *bɛh=nɨd*   'tree stump/log' (Martins 2004:149)   DÂW

Moreover, Dâw class terms appear in a limited number of compounds in which their semantics have been metaphorically extended from parts of a whole to relate more generically to shape, size, and consistency. Just as in Hup and Yuhup, most compounds of this type refer to body parts, and the second element is usually a plant part term (example (6)). Many of these compounds in Dâw have direct counterparts in Hup and/or Yuhup, suggesting that they were present in the common ancestor of all three languages. However, in Dâw these 'class terms' have not undergone further extension, either in their semantics or in the morphosyntactic contexts in which they occur. Thus, they cannot be understood as a system of nominal classification according to the definition we provide in §2, but they presumably represent the starting point that gave rise to classifiers in Hup and Yuhup.

(6) a. *nɔ̃h=kĕd*   (mouth=leaf)   'tongue' (Martins 2004:149)

      b. *tɔp=jɔ̃h*   (house=mouth; *jɔ̃h < nɔ̃h*)   'door' (Martins 2004:150)   DÂW

5 Possession and Classification

As the previous section has explored, the Dâw 'class terms' and their counterparts in Hup and Yuhup – the principle source of the nominal classification systems in these languages – are anchored in nominal compounds that encode a whole-part relationship, which is effectively one of possession. In fact, as this section elaborates, the relationship between the expression of possession and the classification or categorization of nouns is even more wide-ranging in these languages; however, characterizing these phenomena as forms of nominal classification is not in all cases well-founded.

We begin by observing that the expression of possession in Hup, Yuhup, and Dâw formally distinguishes alienability and obligatoriness. In these languages, possessed kin terms, body and plant parts, and other whole-part relationships are in general expressed inalienably via the juxtaposition of the nouns encoding the possessor and the possessed entity (i.e. in a compound noun construction), while the possession of other nouns is encoded via an overt possessive morpheme associated with the possessor. Some variation exists across the three languages, most notably in that for Dâw the juxtaposition strategy is also an option with alienable nouns, but they share this basic pattern; Nadëb, on the other hand, does not make an alienability distinction and relies entirely on juxtaposition (together with dedicated possessive

pronominal forms). In all four languages, and overlapping closely with the inalienably possessed nouns in Hup, Yuhup, and Dâw, some nouns are also obligatorily possessed, such that they cannot occur independently without additional morphological marking. These general features of Naduhup possession are typical of those attested more widely among languages of the Rio Negro region, which tend to juxtapose possessor and possessed in inalienable contexts, and employ an overt possessive marker for alienable relations (see Stenzel 2013 for a comparative view). An alienability distinction that contrasts morphological marking of possession with an unmarked or less-marked strategy is also very common cross-linguistically (Nichols 1988, Chappell & McGregor 1996).

The overt marking of obligatorily possessed nouns for which a particular possessor is not specified is also widely encountered among western Amazonian languages. A range of strategies for doing this can be observed; the use of an 'unpossessed' suffix is frequently encountered in the Arawakan family, while languages such as Kwaza employ an 'empty noun' that takes the place of the possessor (Voort 2009). In Hup and Yuhup, an unspecified possessor is most frequently encoded by means of the procliticized third person singular pronoun *tɨh=*, which can also refer anaphorically to a particular possessor or associated whole that has been previously established in the discourse.[5] Examples include Hup *tɨh=ʔág* 'a/its fruit', *tɨh=g'ætd'ŏh* 'the end (of something)' (see Epps 2008:232ff), and the Yuhup example in (7) (Ospina Bozzi 2004-5:186; see also Ospina Bozzi 2002:242-243, Silva & Silva 2012:93, 95-96). In Nadëb, an unspecified possessor can likewise be indicated via the third person singular pronoun *ta=* (e.g. *taʔ=tyb* 'a/its egg'), or via the indefinite pronoun *jiʔ=* (e.g. *jiʔ=mo:h* 'a/someone's hand').

> (7)   *tɨ̀h=ăgⁿ*   *tùhúbà*
>   3SG=fruit   be.good
>   'The fruit (of the *Mauritia flexuosa* palm) is good.' (Yuhup, Ospina Bozzi 2004-5:186)

Before we turn to unspecified possessors in Dâw, we take up one further – and typologically much more unusual – feature associated with possession in Hup, Yuhup, and Dâw (but which is apparently absent in Nadëb). In these languages, nouns referring generically to humans – e.g. man, woman, old man, child, shaman, youth, etc. – are obligatorily bound; that is, they must be preceded by some other noun, such that they are structurally indistinguishable from inalienable nouns in these languages. Just as the first element of a whole-part construction refers to the plant or other entity to which the part belongs, the noun that precedes human terms typically refers to an ethnic affiliation – e.g. in Hup, *húp=ʔĩh* 'Hup man', *teghɔ́=ʔǎj* 'non-indigenous woman'; and the same structure can occur with kin terms in certain contexts, e.g. *wɔ̌h=tæ̌h* 'son of a Tukanoan/Arawakan person / child of Tukanoan/Arawakan parentage'. Alternatively, and very often, the human noun may simply be preceded by the element that marks unspecified possession; e.g. Hup *tɨh=dóʔ* 'child', *tɨh=cɔ́w* 'shaman', and the semi-lexicalized *tijĭʔ* (*tɨh=jĭʔ*) 'man' and *tã̌ʔǎj* (*tɨh=ʔǎj*) 'woman' (for Yuhup examples, see e.g. Silva & Silva 2012:286-287). As discussed in Epps (2008:258-259), this unusual requirement for human nouns can be understood in the context of the bound noun construction and its association with inalienable or obligatory possession and part-whole relations: a human can never be disassociated from his/her social group affiliation, just as a leaf can never be disassociated from the plant it came from, and which effectively classifies it as a particular type.

In Dâw, these same patterns are implicated in claims regarding the existence of noun classifiers in this language. Just as in Hup and Yuhup, most generic nouns referring to humans obligatorily appear in bound constructions, such that the individual must be categorized by the social group it belongs to, and these constructions are formally identical to those encoding inalienable possession (compare example (5) above). Other nominal constructions referring to humans may optionally occur with a preceding social group term, as may be seen in (9) below. Even more productively than in its sister languages, social group terms in Dâw can combine with body parts and kin terms (which in some cases double as generic human terms; e.g. *tê* 'son' > 'boy' and *tôg* 'daughter' > 'girl'). Commonly encountered social group terms include e.g. *dǝw*

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[5] The possibility of occurring in such a construction with a 'dummy' possessor is thus a diagnostic of whether a noun belongs to the inalienable/obligatorily possessed set.

'Dâw', *buj* 'non-indigenous', and *wɔh* 'Tukanoan', and are functionally parallel to terms referring to other categories of entities, such as *nũ̌x* 'forest spirit' and *mĩ̌ʃ* 'tortoise' (examples (8-10)). In contrast to human nouns like 'man', the social group terms may occur independently with generic reference (i.e. some person or people of the group in question).

(8) a. *dəw=xut*   'Dâw man'

     b. *nũ̌x=â̂j*   (forest.spirit=woman) 'female forest spirit'

     c. *wɔh=mĩn*   'Tukanoan person's arm'

     d. *dəw=tôg*   'Dâw daughter/girl'   Dâw

(9) **buj**   **băl**   **dě̌ʔ** **dəh** wîd   hãm   dəw   pɛj
     non.indigenous Manaus   ORIG   PL   arrive go   Dâw   next.to
     'The non-indigenous people from Manaus arrived near the Dâw.'[6]   Dâw

(10) bɨg   nũʔ   w'ət   tɨh   wəj   **mĩ̌ʃ=tê-ĩjʔ**
     then   other   day   3SG   see   tortoise=son-OBJ
     'Then one day he saw the son of the tortoise.'   Dâw

While Dâw's treatment of human nouns is closely parallel to that of its sister languages, it differs in its preferred means of encoding an unspecified possessor, and likewise the default element that occupies the first slot in the bound human noun construction. In Dâw, the third person singular pronoun is normally reserved for anaphoric reference to a particular discourse participant (e.g. *tɨh=ʔɛ̀g* 'his/her fruit'), while an unspecified/default possessor or associated entity is encoded via a generic noun; e.g. *bê=kě̌t* '(tree) leaf' (compare e.g. *pɔ̂j=kě̌t* 'caraná leaf' in (5) above). For human referents, this generic noun is normally the term *dəw*, which also functions as an indefinite pronoun (example (11), see also Martins 2004:355); thus expressions such as *dəw=xut* (see (8) above) or *dəw=tĩm* can simply designate 'man' or '(human) eye' (respectively) as well as 'Dâw man' or 'Dâw person's eye'. This strategy does have counterparts in other Naduhup languages; as noted above, the indefinite pronoun *jiʔ* in Nadëb (cf. its cognate *(tɨh)jɨʔ* 'man' in Hup) is available for marking default or unspecified possessors, and the indefinite pronoun *húp* in Hup can also be used in generic reference to a human (as possessor or otherwise) as well as to a member of the Hup ethnic group. Such links between an indefinite pronoun, a generic term 'person', and a person associated with a particular ethnicity constitute a cross-linguistically common form of polysemy; see e.g. Proschan 1997).

(11) ɹâj   **dəw**   kɛd   kɔn
     after   INDF   carve   do.first
     'Afterward, one / we Dâw first carve(s) (it).'   Dâw

In Dâw, therefore, generic nouns frequently accompany morphosyntactically 'bound' nouns that refer to parts of a whole or to human entities; and as such, they resemble noun classifiers. This resemblance is undoubtedly behind Martins's (1994:51) reference to the generic nouns in these constructions as "taxonomic classifiers", and Aikhenvald's characterization of Dâw as a language with an "open set" (2000:192) of noun classifiers, such that "any noun with generic reference can be used as a noun classifier" (2000:85; see also p.371). However, we note that in Martins's later work (2004), she does not refer to these elements as noun classifiers, and instead characterizes the *second* constituents of these bound constructions

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[6] In this example, *băl dě̌ʔ* ('(those) from Manaus') functions as the head of the compound, modified by *buj* 'non-indigenous'; *dě̌ʔ* is a postposition meaning 'originating from (a place)' (see below).

(i.e. those referring to the part of the whole or the possessed entity) as 'class terms' – a view that is supported by comparison with Dâw's sister languages (§4 above).

While it is possible that these generic nouns in Dâw might ultimately develop into noun classifiers, much as the 'class terms' they typically combine with have done in their Hup and Yuhup constructional counterparts, we argue that Aikhenvald's characterization of them as noun classifiers is not well supported. First, these generic nouns are quite constrained in their occurrence, and only occur with the relatively small number of 'bound' or obligatorily possessed nouns that exist in the language (parts of a whole, human designations, body parts, kin terms). They also show no particular evidence of semantic generalization or grammaticalization, aside from their use in indefinite reference. Accordingly, they lack several key functions associated with nominal classifiers in other Amazonian languages of the region, as well as cross-linguistically; in particular, they are not used in derivation, nor for anaphoric reference in discourse (cf. [Grinevald] Craig 1992:284, Aikhenvald 2000:87, Contini-Morava & Kilarski 2013). Thus, neither element in a construction like *buʔ=bǎk* 'termite nest' (example (12)) can be used to refer anaphorically to the whole, a task that is fulfilled instead by the anaphoric pronoun *ʔâʔ* (whereas, in contrast, the cognate construction in Hup *b'uʔ=b'ǎk* 'termite nest' can be anaphorically referenced via the second element *=b'ak* 'bunch, nest, clump'; compare examples (1-3) above).

(12)   a.   **buʔ=bǎk**   hid   xâ   mãh
        termite=nest   3PL   cook   REP
        'They say, they were cooking the termite nest.'   DÂW

    b.   *abig*   *ʔâʔ*   *xâw*   *mãh*
        then   ANPH   boil   REP
        'And then, they say, it (the termite nest) was boiling.'   DÂW

We turn next to constructions associated with alienable possession, the source of a distinct set of claims relating to the existence of nominal classification phenomena in Naduhup languages. Aikhenvald (2000:139, citing Martins 1994:138-141 and Moore & Franklin 1979:16, respectively) states that Dâw and "possibly Hup" exhibit a form of possessive classification in which the *possessor* is categorized, rather than the possessed entity – a strategy that is otherwise all but unattested in the languages of the world. Other studies of nominal classification have repeated Aikhenvald's assessment that these Naduhup languages are thus notable exemplars of a feature that is vanishingly rare in typological terms (Velupillai 2012:173, Kilarski 2013:39.).

Aikhenvald (2000:139) characterizes Dâw as requiring one of two classifiers in alienably possessed constructions: *-ẽɪ* for an animate possessor, and *děʔ* for an inanimate possessor[7] – thus classifying the possessor in terms of animacy. Again, however, we argue that these etyma cannot be meaningfully identified as classifiers, and in fact Martins herself does not label them as such in either her earlier or later work, in which she refers to them as 'genitive case' markers (relabeling *děʔ* as a postposition indicating 'origin' in her 2004 grammar).

As Martins (2004:361, 503) and our own data indicate, the *-ẽɪ* suffix does occur in alienable possessive constructions with animate possessors (see example (13)). However, it is not required in this context (example (14)), and it also frequently occurs on postposed animate nouns with a benefactive reading (i.e. distinct from its function of marking a possessor within a possessive noun phrase; example (15)). On the other hand, contexts in which an inanimate entity could be construed as a possessor are normally understood in terms of whole-part relations, which are encoded via juxtaposition – i.e. as inalienable possession – as described above. Thus, we consider the *-ẽɪ* suffix to be simply an optional marker of possession with alienable nouns.

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[7] Aikhenvald's transcription represents these etyma as *-ẽj* and *dee'*, respectively.

(13)   *ʔâʔ*   *jɛ̃̂w*   *mɑ̃̂j*   *pɨnʔ*   *[hɨd-ɛ̃ɟ*   *jeg]*
      ANPH   beautiful   INTS   IPFV   3PL-POSS/BEN   hammock
      'Their hammock(s) used to be very beautiful.'   DÂW

(14)   *bɨg*   *hɨd hãm*   *jɔ̂w*   *[hɨd*   *tɔp]*   *hɨd*
      here   3PL go   PROG   3PL   house   LOC
      'Then they left for their house.'   DÂW

(15)   *mɛ̃h*   *ʃŭk*   *[hɨd-ɛ̃ɟ]*
      NEG.EXI   manioc.flour   3PL-POSS/BEN
      'There was no manioc flour for them.'   DÂW

Similarly, we see no grounds for analyzing the *dɛ̆ʔ* etymon in Dâw as a nominal classifier. As Martins's (2004:434) description and our own fieldnotes indicate, *dɛ̆ʔ* functions as a locative postposition indicating 'originating (from a place)', and it typically occurs with place names or landscape terms in locative predicates, as in examples (16-17). These constructions cannot be understood as encoding possession per se, and the 'origin' postposition patterns much like other postpositions in the language (see e.g. example (14) above).

(16)   *dəw*   *mɑ̃̂j*   *ʔâʔ*   *tiʔ*   **xâj**   **dɛ̆ʔ**
      person   not.be   ANPH   AFFIRM   forest   ORIG
      'That (one) wasn't a person, it was from the forest.' (Dâw, Obert 2019:202)

(17)   *hən*   *dəh*   *wic*   **dɛ̆ʔ**
      elder   PLZ   wiç.creek   ORIG
      'The elders are from the Wiç creek.' (Dâw, Obert 2019:216)

Hup and Yuhup pattern similarly to Dâw. In both of these languages, noun phrases encoding alienable possession are overtly marked via the etyma *nɨh* (Hup, example (18))[8] and *nɨh* (Yuhup, example (19)),[9] which associate with the possessor and are fused with some pronominals; though in contrast to Dâw this marker of possession is generally required in alienable contexts and does not have an alternative function as a benefactive. As in Dâw, constructions involving inanimate 'possessors' are construed as whole-part relations and encoded inalienably. Likewise, Hup exhibits a marker *=ʔŭj*, which indicates origin from or association with a place (example (20)).[10]

(18)   *tǽ=d'əh*   **nɨ̆h,**   *jɨʔ-d'ŏh* **nɨ̆h**   *dɛ̆h*
      ant.sp=PL   POSS   that-PL   POSS   water
      'The water (saliva) of those ones, those *tǽ* ants.' (Hup, Epps 2008:224)

(19)   *ìhɔ̂w-~**də̀h***   *ɓót*
      Ihow-POSS   field
      'Ihow's field' (Yuhup, Ospina Bozzi 2002:243)

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[8] Note that in Hup body parts and bodily substances may be treated as alienable nouns; see Epps (2008:254ff) for discussion.

[9] This etymon is represented as ~*də̀h* in Ospina Bozzi's transcription, and *nɨh* in Silva and Silva (2012:468).

[10] Neither of these etyma are cognate between Hup/Yuhup and Dâw; a likely source of the Dâw 'originating from' postposition is the noun 'master/patron', while the Hup etymon appears to derive historically from the interrogative pronoun *ʔŭj* 'who'. Yuhup has the cognate form *uj*, which Silva and Silva (2012:297) describe as a locative postposition expressing proximity. The Hup possessive marker *nɨh* may itself derive from the verb *nɨ-* 'possess' or its nominalized form *nɨ̆* 'possession'.

(20) *n'i=có?   ni-jó?, núp ma-an=**ʔŭj**=ʔãj=n'ăn   tɔn-jó?...*
      that=LOC   be-SEQ this river-DIR=WHO=FEM=PL.OBJ   hold-SEQ
      'Having lived there, having taken (in marriage) the women of this river...' (Hup, Epps 2008:358)

In sum, we conclude that these possession-marking strategies in Dâw, Hup, and Yuhup are not productively understood as nominal classification. The markers of alienable possession in these languages are unitary grammatical elements, rather than representing a coherent paradigm of alternatives, and the marking of origin is effectively distinct from that of possession. Similar strategies for encoding alienable possession are also widely observed in other languages of the upper Rio Negro region, as well as cross-linguistically, and these three Naduhup languages present nothing particularly unusual in this regard.[11] The association of an alienable construction with animate (and particularly human) possessors is also cross-linguistically expected, and corresponds to the importance of animacy in many other grammatical domains not associated with nominal classification, such as differential object marking.

Finally, we return to Nadëb, the most divergent member of the family with respect to the encoding of possession, as with many aspects of its grammatical profile (see §3). As we observe above, possession in Nadëb is marked principally by juxtaposition (possessor-possessed), although there are dedicated possessive forms of some pronouns (and a distinct ordering pattern of possessed-possessor in the case of the first person), as seen in examples (21-23). Nadëb does not formally encode an alienability distinction, although some nouns are obligatorily possessed (including body parts, kin terms, parts of a whole, and terms associated with some social roles; see Weir 1984:84). Our discussion here draws principally on Weir (1984) and on our own preliminary fieldwork.

(21) *[a?   ta:h]   a-o:t*
      2SG.NSUBJ offspring.PL   DFT.A-cry
      'Your children are crying.'   NADËB

(22) *[ta?ah   ʔĩ:?]*
      offspring.SG   1SG.NSUJB
      'my child'   NADËB

(23) *[waɾaja?   tɔb]   na-ʃo:h hahĩ:?*
      giant.armadillo house   ?-sit   here
      'Here is the house of the giant armadillo.'   NADËB

Certain nouns in Nadëb, which Weir (1984:85) refers to as "unpossessable", cannot occur in a possessive construction without the addition of a generic nominal element (which itself is drawn from the set of 'obligatorily possessed' nouns); see examples (24-28). These "unpossessable" nouns correspond to terms for animals, fish, trees, plants, and foods of various kinds, and Weir's work and our data indicate that the set of generic nouns includes at least the following: *wa:?* 'vegetable food', *tʌ?* 'meat/fish food', *maʃãʔãh* 'pet, domesticated animal',[12] and *jo:m* 'cultivated plant'. As these examples demonstrate, the generic noun

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[11] Interestingly, the comparable marker of alienable possession in East Tukanoan languages (*ja(a)*) has occasionally been described as a 'classifier' by some authors, probably in light of the fact that in some languages it can also function as a generic noun root meaning 'possession, belonging' (Stenzel 2013:388; compare Hup). In Tukanoan languages, as in Hup, the possessive marker can itself host a classifier, which agrees with or cross-references the possessed entity; compare Makuna *ĩ ja-gi hĩgɨ* (3SG GEN-CL:hammock hammock) 'his hammock' (Smothermon et al. 1995:40, cited in Stenzel 2013:377).

[12] In our corpus and in Weir's data, this term occurs exclusively with *awa:ɾ* 'dog', our assumption here that it is used with other domesticated animals awaits further testing.

and the possessor form a syntactic unit, which the noun referring to the possessed entity can either precede or follow, and the generic noun hosts any associated morphology (e.g. the quantifying element in (26)).

(24)   *awa:ɾ   ʔ̃ĩ:ʔ
       dog   1SG.NSUBJ
       Intended meaning: 'my dog.'   NADËB

(25)   **maʃãh**   **ʔ̃ĩ:ʔ**   awa:ɾ
       CL:pet   1SG.NSUBJ   dog
       'my dog'[13]   NADËB

(26)   ʔ̃ĩʔ   kaɾẽn   kanahẽn   do:ʔ   hẽʔ   [aʔ   **wa:ʔ-u:h**
       1SG   want   a.little.bit REL   ADVZ   2SG.NSUBJ   CL:food.veg-portion.of
       maʃu:k]
       manioc.flour
       'I want a little bit of your manioc flour.'   NADËB

(27)   pewɔp hẽʔ   [tahiʔib   aʔ   tʌʔ]
       two   ADVZ   fish   2SG.NSUBJ   CL:food.meat
       'You have two fish.' (lit. 'Your fish are two.') (Nadëb, Obert 2021:12)

(28)   tameʔwo:b hẽʔ   [jo:m   ʔ̃ĩ:ʔ   maʃe:ɾ]
       three   ADVZ   plant   1SG.NSUBJ   banana
       'I have three banana plants.' (lit. 'My banana plants are three.')   NADËB

All of these generic nouns can also occur as independent (possessed) nouns in their own right, without an associated 'unpossessable' noun (example (29)).

(29)   kanahẽn   dos   jiʔ   a-wa   **jiʔ**   **wa:ʔ**
       a.little   ?   INDF   DFT.A-eat   INDF   food.veg
       'Our eating, our (non-meat) food, is only a little.'   NADËB

Nadëb's generic possessive nouns correspond closely to the typological category of possessive classifiers (as briefly noted by Aikhenvald 2000:147). A relatively rare classifier type, possessive classifiers are known primarily from Oceanic languages (e.g. Lichtenberk 2009) and some native American languages (e.g. Uto-Aztecan, see Croft 1994:155; languages of the Gran Chaco and Guaporé-Mamoré regions of South America, see Comrie et al. 2010, Voort 2018; and a few languages of northern Amazonia, see Aikhenvald 2000:193). Possessive classifiers occur exclusively in alienable possessive constructions, and tend to be morphosyntactically bound to the possessor while semantically classifying the possessed noun (Grinevald 2000:66). They are usually restricted to a small set of nouns, and typically include classifiers for food/drink or artefacts (Croft 1994:154), as well as (especially in the Americas) domesticated animals. Nadëb's possessive classifiers probably have their historical sources in nominalized verbs: -maʃaʔ 'help', -tə:ʔ 'roast/cook meat/fish', -wa:ʔ 'eat (vegetable food)', and -jo:m 'plant, sow'.

Nadëb's possessive classifiers meet at least some of our basic criteria for nominal classification, although it appears that they – and perhaps possessive classifiers more generally – are relatively marginal members of this larger category. In Nadëb, their role in possessive constructions is a grammatical one, in terms of their obligatory co-occurrence with a particular set of nouns, but their capacity to function as independent nouns (with essentially the same form and meaning) blurs the lexical-grammatical distinction

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[13] The postposed first person pronominal possessor conditions changes in the preceding possessed noun, including the loss of glottalization and vowel shortening seen here in maʃãh.

(compare possessive classifiers in Cariban languages; see Aikhenvald 2000:129). Like other classifier types cross-linguistically, the Nadëb possessive classifiers group nouns according to certain inherent qualities of their referents, namely animal vs. plant status, but their classification is also relational (cf. Croft 1994:154) – according to whether the animal or plant is to be eaten or cultivated/raised (while apparently a wild, un-caught animal or plant is simply not possessable in Nadëb, either grammatically or pragmatically).[14] Finally, possessive classifiers form a coherent set that relate paradigmatically to the larger set of nouns, but they are very constrained, associating with only a small subset of nouns in the language. In fact, the four possessive classifiers we have identified create a highly coherent set of oppositions: animal/plant and food/domesticate; i.e. relating to the two coherent ways of possessing plants and animals in the Amazonian cultural context (cf. Costa 2017, Fausto & Neves 2018).[15]

In sum, we conclude that Nadëb's generic possessive nouns can indeed be understood as possessive classifiers from a typological perspective, while at the same time they underscore the uneasy fit between this type of categorization device and nominal classifiers more generally. On the other hand, the further putative classifier types associated with possessive contexts in Naduhup languages – the 'noun classifiers' of Dâw and the 'possessor classifiers' of Dâw and Hup/Yuhup – should not be considered examples of nominal classification at all.

6 'Classificatory' Locative Adpositions

As we observe above, various lexical and grammatical domains may be sensitive to qualities of nominal referents, and the distinction between these sensitivities and systems of nominal classification can be less than straightforward. This point is particularly evident in discussions of classification associated with locative or deictic functions. In some languages, locative or deictic forms may host classifiers that are robustly attested across grammatical subsystems, as is the case in multifunctional classifier systems like those of Hup and Yuhup, where demonstratives, quantifiers, and other modifiers in a noun phrase can host members of the same set of classifiers (see e.g. examples (1)-(3) above). However, the literature on nominal classification has maintained that, in some cases, such domains should be understood as involving classification in their own right. Allan (1977), followed by Aikhenvald (2000) and others, includes locative (or, in Allan's terms, 'intra-locative') classifiers as a cross-linguistically coherent, though rare, type of classifier system. Croft (1994:160) questions this claim, arguing that Allan's examples of locative classifiers can in fact be dismissed as instances of noun class distinctions (functioning as determiners) and predicate classifiers (involving for example the grammaticalization of posture verbs to demonstratives), and do not constitute distinct types of classifier systems. In turn, Aikhenvald (2000) argues in favor of locative classifiers as a bona fide type, relying directly on data from Dâw and a few other Amazonian languages, which as she points out were not accessible to Croft in his 1994 study.

Allan (1977:287) defines "intra-locative classifier languages" as those in which "noun classifiers are embedded in some of the locative expressions which obligatorily accompany nouns in most environments". Aikhenvald (2000:172) points out that "in all the known cases, locative classifiers are 'fused' with an adposition... [the choice of which] depends on physical properties of the head noun, e.g. shape, or consistency." As she observes, the choice of an adposition in English and many other languages likewise may depend on certain properties of the associated nominal referent; for example, English prepositions like 'on' and 'in' entail that it has a surface or an interior, respectively. However, Aikhenvald states explicitly

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[14]Aikhenvald (2000:11) makes a distinction between two kinds of possessive classifiers (in addition to the putative type that classifies the possessor, discussed above): those that "characterize the ways in which nouns can be possessed, or handled (relational classifiers) and devices which describe properties of possessed nouns (possessed classifiers)." In Nadëb and some other languages, however, it seems that both functions are implicated in possessive classifiers, and it is not possible to make a clear-cut distinction.

[15] In traditional Amazonian societies, the same species of animals are both hunted as game, and caught (typically as the babies of hunted adult animals) to be raised as pets – but pet/domesticated animals of any kind are not normally eaten. There are no natively domesticated animal species in Amazonia (with the marginal exception of the duck; and dogs in particular have gained an important role since their introduction by Europeans).

that "this lexical choice is different from locative classifiers", such that in "languages with locative classifiers... the obligatory choice of an adposition is made depending strictly on the properties of the referent noun; there are paradigmatic relations between the types of nouns and the choice of an adposition". As we interpret it, Aikhenvald's characterization requires that the set of adpositions in a 'locative classifier' language is mostly or entirely defined by elements that make reference to particular properties of the head noun, such that all nouns are more or less rigidly associated with one (or a small subset) of adpositions.

However, this characterization does not in fact apply to Dâw, as we argue here, and probably also does not apply to at least several of the other Amazonian languages Aikhenvald offers as examples of locative classification. For Dâw, Aikhenvald lists a set of five locative classifiers of which the "choice depends on the physical properties of the referent of the head," citing Martins (1994:53ff), as seen in (30).

> (30)   a.   *kɛd*   'inside a bounded object'
>
>   b.   *bɨt*   'underneath an object with an upper boundary'
>
>   c.   *wəʔ*   'above an unbounded object'
>
>   d.   *mĩʔ*   'inside liquid, or fire'
>
>   e.   *ʃaʃ*   'inside a mixture' (Dâw, Aikhenvald 2000:174, cf. Martins 1994:52-54)

In subsequent work on the language, Martins (2004:420) maintains the view that Dâw has "classificatory locative postpositions", noting that "their selection makes reference to inherent spatial characteristics of the noun", but several aspects of Aikhenvald's characterization are not in fact confirmed (see also Obert's 2019 work on spatial relations in Dâw). Martins's (2004:420) characterization of the set of 'classificatory' locatives is given in (31).

> (31)   a.   *kɛd*   'inside (with lateral bounds)' (also *kɛdkaʔ* 'inside a concave object')[16]
>
>   b.   *bɨt*   'in, having upper bound' (cf. Obert 2019:80, 'under, no physical contact with
>
>   upper bound')
>
>   c.   *wəʔ*   'on, no upper bound' (cf. Obert 2019:78-79, 'on a horizontal surface;
>
>   in/through a defined area')
>
>   d.   *mĩʔ*   'in water or fire' (cf. Obert 2019:76, also 'at a waterway')
>
>   e.   *waʔ*   'underground or at the bottom of' (Dâw, Martins 2004:420)

Martins (2004:427) characterizes three further etyma as 'non-classificatory' locative postpositions, on the grounds that the information they encode is more relational than inherent: *xáx* 'between' (i.e. two or more entities; see example (32)) – Aikhenvald's *ʃaʃ*, but with a more generic meaning (also confirmed by Obert 2019, and like that of cognate forms in other Naduhup languages)[17] – *jod* 'movement away from', and *pɛj* 'movement toward' (cf. Obert 2019:81 'next to, beside', with a movement reading only evident in combination with a verb of motion). Further postpositions are also present in Dâw, some of which are

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[16] This second form is used most frequently in reference to a canoe or hammock and involves the positional verb *kaʔ* 'lie in hammock' (cf. Hup *g'ãʔ* 'be suspended', 'be inside hammock / canoe on water').

[17] Aikhenvald's transcription (*ʃaʃ*) apparently derives from a misinterpretation of the IPA velar fricative in Martins's work as an orthographic representation (<x> is commonly used to represent /ʃ/ in Brazilian Portuguese). Martins (2004:441) offers the alternative gloss 'between, be mixed up in' ('*entre, estar misturado*'), but her own and Obert's (2019) examples indicate that any 'mixture' reading of this adposition is context-dependent. Martins's earlier work (1994:52-54) does not in fact include *xáx* in the set of locative postpositions she identifies there.

clearly associated with spatial semantics; e.g. *tŭt* 'in the middle of' (a ground, e.g. canoe, river), *dôʔ* 'in front of, not facing', *tă* 'in front of, facing', *hid* 'locative' (see Obert 2019 for discussion).

(32)   *komunidadʃì   nɔ̌x   xắx*
        village   water   between
        'The village is between two rivers.' (Dâw, Obert 2019:84)

While it is indeed the case that at least some of these adpositions make reference to characteristics of the nominal referent, the case for a typologically distinct system of locative classifiers evaporates upon closer inspection. Out of Aikhenvald's original set of five terms, four (*wəʔ* 'on [a surface]; within a defined area', *kɛd* 'inside', *bɨt* 'under', and *xắx* 'between') appear to be no more semantically specific than are their English counterparts, and thus do not qualify as classifiers by Aikhenvald's own criteria. This leaves just one adposition out of a large inventory that stands out in typological perspective as classifier-like: *mĩʔ* 'in/at water or fire'. To this, one might also add *hûj* 'following a person/animate entity' (example (33)).

(33)   *tih   mẽʔ   hûj   ʔâʔ   hãm-eʔ   kâw   wəʔ*
        3SG   mother follow.person ANPH   go-PST   manioc.garden   on
        'He went with (lit. following) his mother to the manioc garden.' (Dâw, Obert 2019: 79)

Dâw's inventory of adpositions is not unusual with respect to the Naduhup family, or indeed more generally. Many of the same general meanings (and some cognate forms; cf. Epps 2020) are found in the other Naduhup languages, including 'under', 'inside', 'on (a horizontal surface)'; adpositions relating to water (and in some cases also to fire) are also attested in Hup (*hŭ̃jan* '[submerged] in water') and Nadëb (*meʔ* 'in water/fire').[18] Hup also has a cognate form *hŭ̃j* 'following a person/animate entity'. Sensitivity to animacy is evident in other adpositions, both in Naduhup and cross-linguistically, as seen for example in comitative vs. instrumental selection and in the Nadëb directional adpositions *hẽn* 'inanimate goal' and *wəʔ* 'human/animate goal' (examples (34-35)).

(34)   *ʃə:w   a-jəŋ   ke-du:ʔ   jəŋ   mĩ:j   hẽn   ta-ba-jəŋ*
        shaman   DFT.A-return   ʔ-be.angry return   camp   DIR.INANIM   3SG-ADV-return
        'The shaman returned, he returned angrily to the encampment.'   NADËB

(35)   *"ʔĩʔ   a-hõm   e:ʔ   wəʔ"   nʌŋ   ta-kɨ:h*
        1SG   DFT.A-go   father   DIR.ANIM   EXI   3SG-speech
        '"I will go to my father," he said.'   NADËB

Similar adpositional semantics are likewise attested in many other Amazonian languages, although most descriptions do not associate these with nominal classification. As Aikhenvald (2000:175) points out, the Naduhup categories parallel those attested in Cariban languages: 'on/to a flat surface', 'on/to an open area', 'in/to an enclosed place', 'in/into liquid' (see also discussion of the Tiriyo [Cariban] "aquatic" adposition in Levinson et al. 2003). The adpositions Aikhenvald lists for Lokono make similar distinctions, with reference to animacy, liquid, and fire. The same arguments against analyzing the Naduhup adpositions as locative classifiers are easily applied to these languages.[19] Moreover, the presence of an 'aquatic' adposition is in fact quite commonly encountered in Amazonian languages, as is specific reference to water in other lexical and grammatical resources, including verbal suffixes encoding direction/orientation (e.g.

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[18] The Nadëb form may be cognate with the Dâw etymon (but the sound correspondences are not fully clear); these forms may also be related to *mi* 'stream, waterway' (Hup) / *miih* 'river' (Nadëb; cf. Aikhenvald 2000:371). The Hup form is apparently etymologically 'following an animate entity + directional', perhaps semantically linked to the flow of running water.

[19] The system in Palikur is more complex, and Aikhenvald (2000:172) considers it the "only clear-cut example of locative classifiers" among the examples she considers (see Aikhenvald & Green 1998). We do not address it further, but it would be well worth closer investigation in light of the questions we raise here.

Yanomami *-pa* 'downward/ downriver', *-kiri* 'downstream, at riverside'; Mattei-Müller 2007), lexical verbs of motion (e.g. Jarawara *kisa* 'move downstream', *saa* 'put in water'; Dixon 2004), and adverbials (e.g. Muinane *séese* 'upriver', *báago* 'downriver'; Walton 1997); see Epps & Neely (2014) for further examples and discussion.

From a broader perspective, typological investigation into the semantics of spatial resources across languages indicates that these provide diverse and sometimes quite specific information about the shape/consistency of the Ground referent (Talmy 2000:192-194). Similarly, Levinson et al.'s (2003) study of adpositions observes that there is substantial cross-linguistic variation in the kinds of information that adpositions encode and in how they carve up the semantic space. However, Levinson et al. also note that categories associated with the values IN, ON, UNDER, and ATTACHMENT are robustly attested across languages. As we saw for Dâw and the other languages discussed above, all of these values make reference to (super)position and contact, and thus inherent features of the referent's form, particular as it relates to gravity – and are hardly typologically distinctive.

Finally, a handful of 'classificatory' members within a large and diverse set – as seen with adpositions in Naduhup and other Amazonian languages – do not make a 'classifier system' or a 'classifier language' in typologically meaningful terms, just as a gender distinction in third person pronouns does not make English a noun class language (see §2). As Croft (1994:159) points out for languages that have been described as having 'classificatory' verb roots, referencing Talmy's (1972) discussion of Atsugewi's highly specific locative spatial semantics in verbs, "it appears difficult to separate a set of 'classificatory' verbs from the general range of verb types that describe manner of motion, carrying, manipulating etc." Such verbs are present to varying degrees in practically all languages (e.g. English 'float', 'swim', 'burrow'); and indeed Naduhup and other languages of the northwest Amazon have quite elaborate inventories of position and motion verbs that can register qualities of the nominal arguments (e.g. 'stand', 'lie') particularly in relation to water ('go upstream/downstream', etc., as noted above), although these have not for the most part been described as classificatory verbs. In fact, Martins (2004:225) does make exactly this suggestion for such verbs in Dâw, but we disagree with characterizing these as a discrete classifier system according to the reasoning laid out here. As Croft (1994:151) observes, if we do not leverage coherent criteria to distinguish between classifying and non-classifying languages, the distinction is lost and thus becomes meaningless. Accordingly, as our discussion of Dâw and other Amazonian languages suggests, 'locative classifiers' may in fact not be a typologically valid category at all. Their putative rarity is probably due in large part to the fact that such etyma are usually simply described as adpositions rather than as classifiers.

7   Measure Terms and Other Phenomena

In this final section, we briefly consider other phenomena in the Naduhup languages that bear some resemblance to nominal classification. While to our knowledge no authors have identified them specifically as such, the fact that they relate to broader categories associated with qualities of the nominal referents brings them into the possible scope of this typological category. However, they can be excluded on the basis of the same criteria that we have applied above.

Measure terms are an interesting case, in light of their resemblance to classifiers both in Naduhup languages and cross-linguistically. They occupy a place on Grinevald's (2000) classification continuum, although at the lexical end, and are particularly similar to numeral classifiers; however, as Croft (1994:151) observes, work on classifier systems has tended to exclude them on the grounds that "they do not classify the substance or liquid as such, but provide a measure for counting." Measure terms are typically associated with distinguishing countable units of mass nouns (see Chierchia 2010), such that in many languages their usage depends crucially on qualities of the nominal referent – whether it is a liquid, loose substance, or some other material that is not inherently individualizable. They do therefore classify nouns in this very general sense, but they are so widely attested across languages that, as argued for several of the categories

addressed above, treating them as classifiers would trivialize numeral classifiers as a typological category (Croft 1994:151).

All Naduhup languages employ measure terms in counting mass nouns. In Hup and Yuhup, measure terms are morphosyntactically equivalent to classifiers (see §4 above): they head noun phrases involving relative clauses, demonstratives, adjectives, numerals, etc., and they perform functions of derivation, individuation, and reference-tracking. They include etyma that are otherwise free lexical items (e.g. *b'ɔ́ʔ* 'drinking gourd') and bound nouns (e.g. =*cəg* 'piece'), which function effectively as 'repeater' classifiers, in that their form and meaning is identical to that of the corresponding noun; they also include etyma that can be defined more clearly as classifiers on the basis of semantic extension (e.g. =*b'ah* 'flat piece'). As argued in Epps (2008:203) for Hup, to the extent that even many count nouns may be undifferentiated with respect to quantity and form, classifiers function like measure terms in that they individuate and identify a particular referent; e.g. *c'ǐw=teg* 'peach-palm stick/tree', *c'ǐw=tat* 'peach-palm fruit', *c'ǐw=g'æt* 'peach-palm leaf'; *wéda=teg* 'candle', *wéda=cəg* 'wax piece' (from Portuguese *vela* 'candle'). However, measure terms and classifiers are nonetheless functionally distinct in this language in that measure terms are required in counting mass nouns (example (36)), whereas they are optional in combination with count nouns, where their primary function is to disambiguate (e.g. between wrapped rolls of cookies vs. individual cookies; example (37)).

(36)   **koʔap b'ɔ̌ʔ**   *d'ŭç*   *deh*   *tɨh*   *ʔəg-jíʔ-aj-áh,*   **koʔap b'ɔ̌ʔ**
       two   gourd   fish.poison water   3SG   drink-TEL-INCH-DECL   two   gourd
       'He drank two gourds of fish-poison juice, two gourds (full).' (Hup, Epps 2008:202)

(37)   *ʔɨ́n-ăn*   *cúku*   *tɨh*   *nɔ́ʔ-ɔ̌h,*   *bodáca*   **ʔójtu=b'ah**
       1PL-OBJ   juice   3SG   give-DECL   cookies   eight=SPLIT
       'She gave us juice, and eight cookies…' (Hup, Epps 2008:203)

The same is true for Nadëb: As in Hup, count nouns are freely combined with numeral terms (example (38)), while mass nouns require a measure term (example (39)). In Dâw, measure terms are also available for use with mass nouns, although they are not required (example (40)).

(38)   *ɟɛm*   *hẽʔ*   *watom* *ba-hapʌh*   **tamaʔwob** *hẽʔ*   *depa:ʔ*
       yesterday   ADVZ   Watom   ADV-see   three   ADVZ   paca
       'Yesterday, Watom saw three pacas.' (Nadëb, Obert 2021:4)

(39)   **tamaʔwob** *hẽʔ*   **ʃare:j** **kajahar**   *ã:h*   *e-ə:k*   *jəŋ*
       three   ADVZ   pot   manioc.porridge 1PL.EXCL   DFT.E-drink   VERB.QNT
       'We drank three pots of manioc porridge.' (Nadëb, Obert 2021:10)

(40)   *nĩ̂ʔ* **tĭm (got)** *dəw*   *jîw*   *mẽ̌n*   *jɛg*   *kɛd*
       EXI two (drop)   person   blood   1SG.POSS   hammock in
       'There are two drops of blood/bloods in my hammock.' (Dâw, Storto 2020:223)

While measure terms can be said to classify according to the nature of the nominal referent as a mass or a countable entity, as noted above, this distinction is in fact more broadly relevant across grammatical subsystems in many languages, including those of the Naduhup family. For example, quantifier choice in Dâw (as in Nadëb) is sensitive to a mass/count distinction (examples (41-42)).

(41)   *nĩ̂ʔ* **hêw**   *pĭd*   *dəw*   *tɛ̂*   *komunidadʃɛ*   *wəʔ*
       EXI many   INTS   person   child community   on
       'There are many children in the community.' (Dâw, Storto 2020:224)

(42) nî̂ʔ   **peg**   pĭd   nə̆x   kalap   kɛd
      EXI   be.big   INTS   water   bottle   in
      'There is a lot of water in the bottle.' (Dâw, Storto 2020:224)

There are many other grammatical elements in Naduhup languages that modify nouns, and sometimes refer to an inherent quality associated with the referent, but would not be considered classifiers according to most definitions, and certainly not by our own: they do not form a set, are not used referentially or anaphorically, and are not relevant to any grammatical subsystem beyond the specific constructions in which they occur. Such elements include augmentative and diminutive markers (which in some cases are grammaticalized from kin terms; see example (43) for Nadëb); a 'deceased' marker, for the most part restricted to nouns referring to humans (normally kin terms and human proper names, as in Hup ʔãh ʔɔ́h=cud [1SG grandmother=DCSD] 'my deceased grandmother); nominal tense markers (example (44) for Nadëb); etc. Any apparent derivational function of these elements is better understood as simply lexicalization of a noun together with a modifier; e.g. Nadëb tə:g 'wood' vs. tə:g ɨb 'rifle' (lit. 'wood father/big').

(43) tiʔ   a-ʃoʔ   dʌg-iʃ   **tɔb**   **taʔa**   taʔ   ti:ʔ
      ANPH   DFT.A-sit   CHG.ST-REST   house   offspring   3SG   ANPH
      'Now there is only one small house at this place.'   NADËB

(44) taʔ ti:ʔ   bʌʔ   erẽn   **pa:h**   be-kəʔə   wʌt   babʌʔ
      3SG ANPH   LOC   Helen   PST   ADV-stand   PFV.SG   here
      'That (former) Helen lived here.'   NADËB

8 Conclusion

The Naduhup languages have occupied a remarkably prominent position in the typological literature on nominal classification, despite their status as representing an under-described language family from a more generally under-described part of the world. As we have explored here, however, much of this prominence is in fact a direct *result* of their very limited description, in that several of the claims made about these languages do not stand up either to more nuanced description and analysis, nor to a more principled typological comparison. Beginning primarily with Aikhenvald's (2000) typological study and carried forward by other authors, Naduhup languages have been held up as exemplifying at least three types of nominal classification that are typologically relatively uncommon, rare, or perhaps even non-existent – noun classifiers, locative classifiers, and 'possessor' classifiers. However, our closer investigation indicates that this language family exhibits only two plausible classifier types, an incipient version of the regionally widespread 'multifunctional classifier' system in Hup and Yuhup, and a restricted set of possessive classifiers in Nadëb. Despite previous perceptions of Dâw as endowed with several different kinds of classifiers, we conclude that this language is in fact the only member of the family to have no classifiers of any kind, according to criteria that are both descriptively rigorous and typologically robust.

While there is no question that the Naduhup family, like other languages of Amazonia and beyond, holds its share of typological surprises, our exploration of nominal classification in these languages reminds us that we must be cautious in evaluating claims of typological *rarissima*. Especially for categories like nominal classification that span diverse grammatical structures and domains, establishing them as typologically meaningful requires a characterization that is both coherent and constrained. As we have seen here, grammatical phenomena that 'classify' nouns according to features of their referents are ubiquitous across languages, and only a subset of these meet a principled definition of nominal classification as a typologically relevant construct. Ultimately, descriptive linguists and typologists share the responsibility for setting out a coherent and mutually useful characterization of both the diversity and universality of human language.

9 Acknowledgements

10 Glossing Conventions

1 'first person', 2 'second person', 3 'third person', ADV 'adverbial prefix', ADVZ 'adverbializer', AFFIRM 'affirmative', ANIM 'animate', ANPH 'anaphoric pronoun', BEN 'benefactive', CHG.ST 'change of state', CL 'classifier', DECL 'declarative', DEP 'dependent marker', DFT.A 'default verbal prefix a-', DFT.E 'default verbal prefix e-', DIR 'directional', DSCD 'desceased marker', DYN 'dynamic', EXCL 'exclusive', EXI 'existential', FEM 'feminine', INANIM 'inanimate', INCH 'inchoative', INDF 'indefinite', INTS 'intensifier', ITG 'intangible', IPFV 'imperfective', LOC 'generic locative marker', MSC 'masculine', NEG 'negation', NMZ 'nominalizer', NSUBJ 'non-subject', OBJ 'object', ORIG 'origin', PFV 'perfective', PL 'plural', PLZ 'pluralizer', POSS 'possessive', PROG 'progressive', PST 'past', REL 'relativizer', REP 'reportative', RESP 'respect marker', SEQ 'sequential', SG 'singular', VERB.QNT 'verbal quantifier'

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