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Are lexical categories universal? The view from Chamorro*

Abstract: Many years of linguistic research have led to no consensus on the issue of whether every language has nouns, verbs, and adjectives. This article investigates the issue from the perspective of Chamorro, an Austronesian language of the Mariana Islands. Chamorro has been claimed to have an unusual lexical category system consisting of just two language-particular categories. Evidence is presented here that (i) the language does in fact have nouns, verbs, and adjectives, and (ii) the apparent use of content words in multiple syntactic functions results from productive processes of denominal verb formation and denominal adjective formation that are not signaled by overt morphology. The lexical semantics and pragmatics of these processes are shown to be broadly parallel to denominal verb formation in English. Overall, the evidence supports the claim that lexical categories are universal, and suggests that the broad routes by which semantic and phonological material can be packaged into lexical categories may be universal as well.

Keywords: lexical categories, conversion, Chamorro, Austronesian

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1 A hard question

Are sentences in all languages constructed from the same basic building blocks – the lexical categories known as nouns, verbs, and adjectives? The question, re-raised by Kaufman’s (2009) target article in *Theoretical Linguistics* 35.1, is both very old and still unresolved. It dates back at least to Boas’s famous statement (1911: 43) that “in a discussion of the characteristics of various languages different fundamental categories will be found”.¹ Research in the intervening hundred years has arrived at a kind of consensus that lexical categories are not semantically defined; instead, they are structural categories which, within a given language, are differentiated by formal patterns of inflection, morphological derivation, and syntactic distribution (e.g. Schachter 1985; Sasse 1993). The *evidence* for identifying the lexical categories of a language is language-particular, in other words. But no consensus has been reached on the issue of whether all languages have the same system of lexical categories, or even whether their lexical categories are chosen from the same limited inventory.

Lurking behind this question is a more fundamental issue: to what extent is human language shaped by constraints that are specifically linguistic, as opposed to more broadly reflective of human cognition or human interaction? (See especially Newmeyer [1998];² also Evans and Levinson [2009] and numerous replies in *Brain and Behavioral Sciences* 32 and *Lingua* 120.) Precisely because “the mapping between conceptual categories and syntactic categories is many-to-many” (Jackendoff 1990: 23), the conclusion that every language has the same three lexical categories should weigh in favor of autonomous theories of language that recognize grammar as an independent system. Empirically, the question is kept alive by a persistent thread of research that maintains that there are languages that do not have this familiar trio of categories. Almost all of the languages in question are understudied – a point that I will come back to. Some of them are claimed to group their content words into one monolithic category that cannot be

1 Whether Boas meant to include nouns, verbs, or adjectives among the fundamental categories that differ from language to language is not clear (to me). He does not explicitly address the issue, and his discussion of language-particular differences in grammatical categories in e.g. Algonquian, Kwakiutl, and Chinook presupposes the existence of nouns, verbs, and adjectives in those languages.

2 Newmeyer’s (1998) extensive discussion of syntactic categories deals with the issue of whether they have discrete or fuzzy boundaries. His conclusion, adopted here, is that the boundaries of syntactic categories are discrete.

identified with nouns, verbs, or adjectives (e.g. Bloomfield [1933] on Chinese and Tagalog; Swadesh [1938] on Nootka; Chao [1968] on Chinese; Hengeveld et al. [2004] on Tagalog and Samoan; Gil [2005] on Riau Indonesian). Others are claimed to have a reduced category system consisting of just nouns, just verbs, or just nouns and verbs (e.g. Kaufman [2009] on Tagalog; Hengeveld et al. [2004] on Navaho). Still others are claimed to have a hybrid system consisting of some familiar lexical categories plus other categories that are underspecified, or organized along more idiosyncratic lines (for the former, see e.g. Hengeveld et al. [2004] on Quechua; for the latter, e.g. Biggs [1969] on Maori). Unsurprisingly, these claims are controversial. The chart in (1) summarizes some of the lexical category systems that have been proposed for two Austronesian languages, Tagalog and Maori.

| (1) Language | Lexical categories | According to |
|--------------|---------------------------|--|
| Tagalog | [one monolithic category] | Bloomfield (1933); Hengeveld et al. (2004) |
| | N | Kaufman (2009) |
| | N, V, A | Richards (2009a); Sabbagh (2009) |
| Maori | N, statives, universals | Biggs (1969) |
| | N, V | Bauer (1997) |

My aim here is to explore the universality or not of lexical categories through the empirical investigation of another Austronesian language, Chamorro. Like Tagalog and Maori, Chamorro has been assumed to have nouns, verbs, and adjectives (Safford 1903; Chung 1998). But it has also been claimed to have a more unusual, thoroughly language-particular category system (Topping 1973; Topping et al. 1975). The first part of my investigation examines the formal patterns of inflection, derivation, and syntactic distribution that differentiate the lexical categories of Chamorro. I argue that Chamorro has nouns, verbs, and adjectives, and show how this system handles the morphosyntactic evidence advanced by Topping for a differently organized category system. The second part turns to Topping's other evidence for a Chamorro-particular category system; namely, Chamorro content words can often serve multiple functions within the sentence. Drawing on naturally occurring data and speakers' introspective judgments, I demonstrate that this multifunctionality is only apparent. Instead, Chamorro has productive morphological processes of *conversion* that form denominal verbs and denominal adjectives without the addition of any overt morphology. In their productivity, semantic effects, and interaction with pragmatics, these processes closely parallel the English denominal verb formation examined by Clark and Clark (1979) and many others. Additional evidence, like that discussed by

Kiparsky (1997) for English and Arad (2003) for Hebrew, argues that the Chamorro verbs and adjectives formed by conversion are derived from nouns, rather than derived directly from roots. The upshot is that the multifunctionality observed by Topping results from morphosyntactic operations that refer specifically to the categories noun, verb, and adjective.

Research on many other languages with supposedly unusual category systems has concluded that these languages do have nouns, verbs, and adjectives after all (see especially Baker [2003] and Dixon and Aikhenvald [2004]). The discussion of Chamorro morphosyntax in the first half of this study makes a routine contribution to this line of inquiry. The examination of Chamorro lexical semantics in the second half is perhaps more broadly significant; it has a precedent in Vonen's (1997) investigation of yet another Austronesian language, Tokelau. One of the key points to emerge is that the semantic-pragmatic effects of conversion are relatively stable across languages. This suggests that conversion might well lie behind the apparent multifunctionality of content words in many other languages – for instance, Tagalog. After contemplating this possibility, I return to the larger issue of the universality of lexical categories, concluding with a meditation on why this issue has been so hard to resolve.

Section 2 of this paper introduces some background assumptions and describes the sources of the data. Section 3 presents the category system posited by Topping for Chamorro. Section 4 surveys a wider range of morphosyntactic patterns, concluding that Chamorro has the familiar three lexical categories: nouns, verbs, and adjectives. Section 5 turns to the supposed multifunctionality of Chamorro content words. A detailed examination of the lexical semantics of noun-verb and noun-adjective pairs is used to argue for an analysis in terms of conversion. Section 6 concludes.

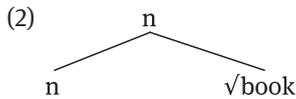
2 Preliminaries

2.1 Lexical categories in generative grammar

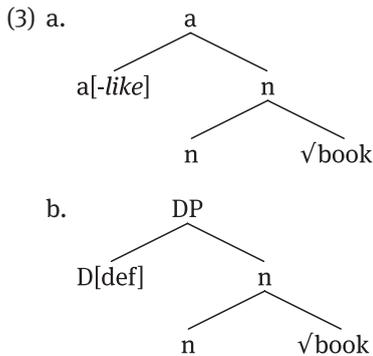
Although most generative syntacticians assume that every language has nouns, verbs, and adjectives, the generative framework is not intrinsically committed to that assumption. This point comes through clearly in versions of minimalist syntax that represent the lexical content of a word and its syntactic category as separate heads.

For instance, consider a minimalist syntax that incorporates Distributed Morphology (DM), a morphological theory in which words are constructed from their

parts in the same way as phrases and clauses (Halle and Marantz 1993; Marantz 1997; Embick and Marantz 2008; Embick 2010). In DM, the basic unit of lexical material is the root (v), a bundle of idiosyncratic phonological and semantic information. Roots either have no syntactic category (Marantz 2001: 11) or are category-neutral (Embick and Marantz 2008: 6); they acquire a category by combining in the syntax with a *category-defining* functional head. In (2), for instance, the root v book has combined with the category-defining head n , to produce the equivalent of the noun *book*:³



This structure can combine with a further category-defining head to produce a structure that is eventually realized as a complex word; see (3a), which is the structure for *booklike* before head-to-head adjunction. Or it can be used to build structures that are eventually spelled out as phrases; see the structure for *the book* in (3b). The point is that all the structures in (2–3) are hierarchical syntactic structures, built up by the same syntactic operations. (For a different approach that separates lexical content from syntactic category, see Borer [2005].)



³ The choice of n , v , and a to name the category-defining heads is unfortunate, given that n , v , and a are often used to represent functional heads located much higher in the syntactic structure. For instance, the functional head that introduces the external argument of a verb phrase is named Voice by Kratzer (1995), but v by Chomsky (1995).

It should be noted that DM assumes that there is no lexicon. Instead, the properties traditionally associated with the lexicon, including the association of a categorized root with its meaning, are claimed to be distributed over other components of the computational system. Readers interested in this aspect of the theory should consult the references cited in the text.

What assumptions of DM force a root to combine with a category-defining head? As it happens, roots do not need to merge with a category-defining head in order to participate in further syntactic operations. A root can merge with a complement and project; it can also undergo head movement (Marantz 2001: 26–27; Embick and Marantz 2008: 28; Embick 2010: 37). So the requirement that a root must have a syntactic category must come from elsewhere. Embick and Marantz (2008: 6) treat it as a stand-alone interface condition: “Roots cannot appear (cannot be pronounced or interpreted) without being categorized: they are categorized by merging syntactically with category-defining functional heads.”

Notice that nothing about the *computational system* motivates this condition. Further, since there is no theory (yet) of which heads are category-defining, it is imaginable that languages could differ along this dimension.⁴ Some languages might have *n*, *v*, and *a* as their category-defining heads; in other words, they might have nouns, verbs and adjectives (Embick 2010: 13). Other languages might have only some of these heads – a possibility exploited by Kaufman (2009) – or might classify a different set of functional heads as category-defining. (Some prime candidates are *D*, *Deg*, and *Voice*.) A minimalist syntax that incorporates DM is fully consistent with all these possibilities.

In short, in a minimalist syntax that incorporates DM, it remains an open question whether every language has nouns, verbs, and adjectives.

I will adopt a generic version of minimalist syntax in what follows. DM will come into play in Section 3, when I discuss the category system proposed by Topping for Chamorro, and again in Section 5, when I discuss the derivation of noun-verb and noun-adjective pairs.

2.2 Lexical categories and meaning

The fact that there are no workable semantic characterizations of nouns, verbs, and adjectives might seem to pose an analytic dilemma. Once formal criteria have been used to establish that a language has exactly three lexical categories, how does the linguist know which category to identify as the category noun? In practice, meaning is often appealed to. Jackendoff (1990: 23) suggests that the mapping between conceptual categories and syntactic categories, though many-to-many, is “subject to markedness conditions: in the unmarked case, NP expresses

⁴ Baker (2003: 269, note 2) suggests that his theory of lexical categories could be recast as the theory of category-defining heads in DM. This suggestion remains to be worked out.

Thing, S or VP expresses Action, and so on”. Markedness conditions of this sort have been investigated extensively in the functionalist literature on word classes. For instance, Croft (2000: 88), who takes a prototype approach to parts of speech, characterizes the “unmarked combinations of pragmatic function and lexical semantic class” as follows: “noun = reference to an object”, “adjective = modification by a property”, “verb = predication of an action”. (It should be noted that Croft denies the existence of formally defined syntactic categories with discrete boundaries.) Taking a different tack, Wierzbicka (2000) argues that the cross-linguistic identification of lexical categories should be based on semantic concepts that she claims are universally lexicalized. She proposes that words that lexicalize the concepts PEOPLE and THING are universally exemplars of nouns; words that lexicalize SEE, HEAR, SAY, DO, HAPPEN, MOVE are universally exemplars of verbs; and words that lexicalize BIG and SMALL are universally exemplars of adjectives. As she observes, her approach does not assume that semantic (or syntactic) categories have fuzzy boundaries. I will make a strategic appeal to these approaches near the end of Section 4.

2.3 The data

Finally, let me introduce the Chamorro language and the sources of the data.

Chamorro is an Austronesian language indigenous to the Mariana Islands. The language currently has some 45,000 speakers in the U.S. Commonwealth of the Northern Mariana Islands (CNMI) and the unincorporated U.S. territory of Guam, as well as numerous speakers who now reside in the U.S. mainland. But the last thirty years have seen a precipitous decline in the number of children who speak Chamorro, and it is now clear that the language is, or could quickly become, endangered.

Chamorro is a head-initial language that allows a range of null arguments. In the word order of the clause, the predicate comes first, followed by its arguments. Words from any lexical category – that is, any content word – can serve as the predicate, as the following examples are intended to suggest. The predicates are underlined in (4–5).⁵

⁵ In addition to the standard abbreviations provided by the Leipzig glossing conventions, the following are used in the morpheme-by-morpheme glosses: AP = antipassive, L = linker, NM = unmarked morphological case, WH = wh-agreement.

- (4) a. *Mumu i dos ch(um)e'lu nigap, lao esta m̄pao*
 AGR.fight the two (AGR)sibling yesterday but already AGR.cool.off
i mumun-ñiha.
 the fight-AGR
 ‘The two brothers fought yesterday, but their fight has cooled off.’ (CD, entry for *m̄pao*)
- b. *Ha tokcha'i gatgantâk-ku i te'lang i guihan.*
 AGR pierce the uvula-AGR the bone.L the fish
 ‘The fish bone poked my uvula.’ (CD, entry for *gatgânta*)
- c. *Mala'it kurason-ña ennao na tâotao.*
 AGR.bitter heart-AGR that L person
 ‘That man has a bitter heart.’ (CD, entry for *mala'it*)
- d. *Para batângga-n karabão esti.*
 FUT shed-L carabao this
 ‘This is going to be a carabao shed.’ (CD, entry for *batângga*)

I argue in Section 4 that the predicates in (4a–b) are verbs, the predicate in (4c) is an adjective, and the predicate in (4d) is a noun. The predicate can also be a prepositional phrase, as (5) shows.

- (5) *Para mânu hao guatu?*
 to where? you over.there
 ‘Where are you going to?’ (CD, entry for *mânu*)

The wide range of elements that can serve as the predicates of clauses could be taken to indicate that lexical categories in Chamorro are organized differently from, say, English. This possibility is taken up in Sections 3 and 5.

The Chamorro data discussed in this paper come mainly from two sources. First, from the Chamorro Dictionary Revision Project, an NSF-funded, community-based project now in progress in the CNMI to revise and upgrade the *Chamorro-English Dictionary* (Topping et al. 1975). Since 2008, over 60 speakers of Chamorro have been involved in creating multiple illustrative examples for dictionary entries and entering them in an electronic database. The 20,000 to 25,000 examples currently in the dictionary database (abbreviated CD) are an unusually rich source of naturally occurring language data. Second, from my fieldwork and conversations – in person, via e-mail, and via Skype – with key participants in the Dictionary Project. I am especially indebted to the Principal Investigator, Dr. Elizabeth D. Rechebei, and to the heads of the dictionary working group, Manuel F. Borja, Tita A. Hocog, and the late Dr. Rita H. Inos, for their generosity and insights.

The data are presented in the new standard orthography developed in the CNMI in 2009 and approved by the Chamorro/Carolinian Language Policy Commission in 2010.⁶ This orthography ranks the principle “one sound, one symbol” over the principle “one word, one spelling”. Readers should be aware that it differs from the older standard orthography found in Topping (1973) and Topping et al. (1975) and still used, with minor modifications, in Guam. (The older orthography ranks the two spelling principles in the other order.) It also differs from the surface phonemic representations found in e.g. Chung (1998).

3 A Chamorro-particular category system?

Topping’s (1973) approach to the lexical categories (“major word classes”) of Chamorro is firmly anchored in the analytic tradition pioneered by Boas. As he says:

In classifying parts of speech in Chamorro it is tempting to follow the traditional lines of nouns, verbs, adjectives, adverbs, and so forth . . . This system of classification is based largely on traditional methods for classifying parts of speech in English. . . . For our present purposes, this system of classification of words does not work very well.

The classification of words in Chamorro requires that we use a system that is suitable for Chamorro. (Topping 1973: 76–77)

The specific reasoning that leads Topping to the lexical categories he posits for Chamorro goes like this. First, many content words in Chamorro seem to function as nouns, verbs, or adjectives depending on the context in which they appear. To Topping, this *multifunctionality* (as I will call it) argues that meaning and function are poor guides to the structure of the category system; instead, the lexical categories of Chamorro must be discovered on the basis of formal patterning alone. It simultaneously argues that Chamorro has a lexical category different from, and impressionistically more inclusive than, the categories noun, verb, or adjective. Second, morphosyntactic patterning reveals that Chamorro has a further, disjoint category that corresponds quite closely to the traditional notion *transitive verb* (Topping 1973: 78). There are thus (at least) two lexical categories, which Topping terms *Class I* and *Class II*. Class I contains the transitive verbs; Class II – the more

⁶ This orthography represents the low front vowel as (a) and the low back vowel as (ã). Otherwise it is highly similar, but not identical, to the surface phonemic representation used in e.g. Chung (1998).

inclusive category – contains all the other content words (see also Topping et al. 1975: xx).⁷

Topping (1973: 78–79) gives two formal criteria for differentiating Class I and Class II, which I restate in generative terms as follows. First, all and only Class I words can be used to form the predicates of passive clauses. Passive predicates show voice inflection, which is realized as the infix *-in-* (Topping’s “goal focus”) or the prefix *ma-* (his “passive”) under conditions described in Chung (1998: 382, note 8). The passive predicates in the clauses below are formed from the Class I words *li’i* ‘see’ (in (6)) and *cho’gui* ‘do’ (in (7)).

- (6) a. *Kao l(in)i’i’ hao as Juan nigap?*
 Q AGR<PASS>see you OBL Juan yesterday
 ‘Were you seen by Juan yesterday?’
- b. *Nehung p̄apa’ sa’ un ma-li’i’.*
 duck down because AGR PASS-see
 ‘Duck down because [otherwise] you’ll be seen’. (CD, entry for *nehung*)
- (7) a. *Gi kuttura-n Chamorro, i lahi para u ch(in)e’gui esti i*
 LOC culture-L Chamorro the man FUT AGR <PASS>do this the
ginitus finihu.
 marriage proposal
 ‘In Chamorro culture, the male is the only one who is supposed to do the marriage proposal.’ (CD, entry for *ginitus finihu*)
- b. *Ti ma-cho’gui i otden-hu.*
 not AGR.PASS-do the order-AGR
 ‘My order was not followed (lit. done).’ (CD, entry for *châthinalum*)

Second, all and only Class II words can serve as the predicate of a clause whose subject is a weak pronoun (Topping’s “yo’-type pronouns”; see Chung [2003]). The examples in (8) contain clauses of this type: their predicates are the Class II words *hânao* ‘go’, *gaiği* ‘be (at a location)’, *tãotao* ‘person’, and *dângkulu* ‘big’.

- (8) a. *H(um)âhanao yu’ gi chalan.*
 <AGR>go.PROG I LOC road
 ‘I was going on the road.’ (CD, entry for *ophetu*)

⁷ Topping (1973) also identifies a third lexical category, Class III, which contains some functional elements and some morphosyntactically irregular content words. In Topping et al. (1975), Class III is pared down to the handful of verbs whose agreement with the subject is always realized via the morphology used for possessor-noun agreement. Either way, Class III is a closed class; it is ignored here.

- b. *Kuastaria ya gaigi yu', todū mañ-ãonaō.*
 especially and AGR.be I all AGR-participate
 'Especially if I am there, everyone will join in.' (CD, entry for *kuastaria*)
- c. *Laña' na puñeta-n tãotao hao.*
 INTJ COMP expletive-L person you
 'My, what a %^&* person you are.' (CD, entry for *puñeta*)
- d. *Si Antonette bula ofresimientoñ-ña gias nanã-ña yanggin*
 NM Antonette AGR.many promise-AGR OBL mother-AGR if
dãngkulu gui'.
 AGR.big she
 'Antonette has so many promises to her mother if she grows up.' (CD,
 entry for *ofresimientu*)

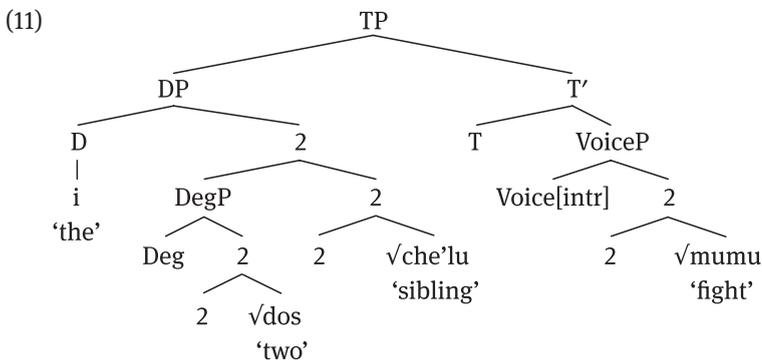
Finally, in support of the claim that content words can serve multiple functions depending on the context in which they appear, Topping (1973: 77) cites the examples of *dãngkulu* 'big' shown in (9).

- (9) a. *Dãngkulu si Juan.*
 AGR.big NM Juan
 'Juan is big.'
- b. *Hu li'i' i dãngkulu.*
 AGR see the big
 'I saw the big one.'
- c. *Hu li'i' i dãngkulu na tãotao.*
 AGR see the big L person
 'I saw the big person.'

This style of evidence for multifunctionality harks back to Bloomfield's (1917: 146) claim that in Tagalog, "*full words* act not only as attributes, but also as subject or predicate, and any full word may, in principle, be used in any of these three functions". Bloomfield supported his claim with examples in which the words functioning as predicate and argument could be reversed (see also Swadesh [1938: 78] on Nootka). Similar examples of (apparent) predicate-argument reversal can be found in Chamorro; see (10).

- (10) a. *Malingu i patgun.*
 AGR.disappear the child
 'The child disappeared.'
- b. *Pãtgun i malingu.*
 child the AGR.disappear
 'The one who disappeared was a child.'

The category system that Topping proposes for Chamorro is unusual – perhaps unprecedented. But it is easy to recreate it in a minimalist syntax augmented by DM. All we would have to do would be suppose that in addition to the usual array of functional heads – C, D, Deg, P, Voice, T, – Chamorro has two language-particular category-defining functional heads, called 1 and 2. Each category-defining head would be able to merge with the other, in the syntactic equivalent of complex word formation. Aside from that, the only functional head that could take a 1 as its complement (= could merge with a 1 and project) would be the transitive Voice head – the Voice head that selects an external argument and licenses objective Case. A wider range of functional heads could take a 2 as their complement, including the other Voice heads as well as D and Deg. Given these assumptions, we could represent the first clause in (4a), before linearization, via the hierarchical structure sketched in (11).



More or less plausible clause structures could be built up from this system of lexical categories, in other words. With that in mind, I now turn to the question of whether Topping's system is correct for Chamorro.

4 Chamorro evidence for a familiar category system

Inspection of a wider range of evidence reveals that Chamorro does not have the category system proposed by Topping, but rather the familiar trio of lexical categories: nouns, verbs, and adjectives. This result is consistent with the universalist position that every language has these categories. Section 4.1 shows that Chamorro distinguishes lexical categories from other syntactic categories – notably,

from prepositions. Then, Sections 4.2 through 4.4 present the evidence for a three-way lexical category system. Section 4.2 argues that Chamorro differentiates the category I call “nouns” from the categories I call “verbs” and “adjectives”; Section 4.3 argues that the language also differentiates “verbs” from “nouns” and “adjectives”. Section 4.4 makes the case that Chamorro “nouns”, “verbs”, and “adjectives” are exactly the familiar trio of lexical categories. Section 4.5 returns to Topping’s evidence for differently organized categories and shows how it can be integrated into the system.

4.1 Lexical categories

Recall that Chamorro allows the predicate of the clause to be any content word – that is, a word from any lexical category – or a prepositional phrase. These options are freely available in matrix clauses, as was shown in Section 2.3. They are also freely available in finite embedded clauses, as can be seen from the examples below.

- (12) a. *Maolek-ña* [na si Roy u cho'gui i project].
 AGR.good-COMPAR COMP NM Roy AGR do the project
 ‘It is better if Roy does the project.’ (CD, entry for *pípenta*)
- b. *Si Henorah masakâda na palão'an* [sa' h(um)ânao para
 NM Henorah brave L woman because (AGR)go to
i taddung na halumtânu' na maisa].
 the deep L forest L self
 ‘Henorah is so brave that she just went to the deep forest by herself.’ (CD, entry for *masakâda*)
- c. *Mapput mañâgu* i *hagâ-hu* [sa' dângkulu i
 AGR.hard INFIN.give.birth the daughter-AGR because AGR.big the
neni].
 baby
 ‘My daughter had a hard time delivering because the baby was big.’ (CD, entry for *mañâgu*)
- d. *Gi mismu tiempu kunbiñienti* ha *maleffan-ñaihun* [na
 LOC same time AGR.convenient AGR forget-for awhile COMP
man-siudadanu-n Amerikânu hit *lokkui*].
 PL-citizen-L American we also
 ‘At the same time it is convenient for him to forget that we too are American citizens.’ (*Saipan Tribune* 3/5/98)

The embedded predicate (underlined) is what I call a “verb” in (12a–b), an “adjective” in (12c), and a “noun” phrase in (12d). In the examples in (13), the embedded predicate is a prepositional phrase.

- (13) a. *Ti ha tungu’ si Helena esta [para mǎnu gui’ ni*
 not AGR know NM Helena already to where? she OBL
atarantǎo-ña].
 indecisive-AGR
 ‘Helena does not know where she’s going with her indecisiveness.’ (CD, entry for *atarantǎo*)
- b. *Rastreha [ginin manu i hale’-mu mǎgi].*
 trace from where? the root-AGR to.here
 ‘Trace where your family originates from (lit. where your roots are from).’ (CD, entry for *hǎli*)

Significantly, the options are more restricted in nonfinite embedded clauses – henceforth *infinitive clauses*. Infinitive clauses in Chamorro occur only in control and raising constructions. Their subject is necessarily ‘missing’; their predicate exhibits a mood-neutral inflection that is either homophonous with finite realis inflection or else realized as the infix *-um-*.⁸ In (14), the predicate of the infinitive clause is *s(um)ǎngan* ‘to say’.

- (14) *Ha tungu’ [s(um)ǎngan buen prubetchu].*
 AGR know ⟨INFIN⟩say you’re welcome
 ‘He knows (how) to say “you’re welcome”.’ (CD, entry for *buen prubetchu*)

What we are interested in is that the infinitival predicate can be from any lexical category. It can be a “verb” (as in (14) and (15)):

- (15) a. *O’sun yu’ [h(um)ǎnao para i tenda].*
 AGR.bored I ⟨INFIN⟩go to the store
 ‘I’m bored of going to the store.’
- b. *Malagu’ yu’ [l(um)i’i’ i tanu’ Roma un diha].*
 AGR.want I ⟨INFIN⟩see the land.L Rome one day
 ‘I want to visit Rome one of these days.’ (CD, entry for *Roma*)

⁸ Infinitival inflection is homophonous with finite realis inflection when the predicate is an intransitive verb or adjective. Otherwise, when the predicate is a transitive verb or a noun, infinitival inflection is realized as the infix *-um-*.

An “adjective”:

- (16) a. *Esta ti ya-hu [um-ettigu].*
 already not like-AGR INFIN-short
 ‘I don’t want to be short any more.’
- b. *P(um)åra [d(um)ebu’].*
 <AGR>stop <INFIN>fat
 ‘He stopped being fat.’
- c. *Para u chaddik [måsa] i nengkannu’.*
 FUT AGR quick INFIN.ripe the food
 ‘The food will cook fast (lit. will be quick to become cooked).’ (CD, entry for *atisa*)

Or even a “noun” (contrary to what is claimed in Chung [1998: 64]):

- (17) a. *Esta yu’ o’o’sun [m(um)a’estråm-mu].*
 already I AGR.bored.PROG <INFIN>teacher-AGR
 ‘I’m already bored of being your teacher.’
- b. *Todu tåotao malagu’ [m(um)å’gas].*
 all person AGR.want <INFIN>boss
 ‘Everybody wants to be a boss.’ (CD, entry for *må’gas*)
- c. *Malagu’ si Juan para u chagi [um-ampaia’ afulu’].*
 AGR.want NM Juan FUT AGR try INFIN-referee.L wrestling
 ‘Juan wants to try being a wrestling referee.’ (CD, entry for *ampaia’*)

However, the infinitival predicate cannot be a prepositional phrase. Compare the examples below, which show that the prepositional phrase *para i tenda* ‘to the store’ can serve as the predicate of the matrix clause in (18a) but not the infinitive clause in (18b).

- (18) a. *Para i tenda hit guatu gi un ora.*
 to the store we to.there LOC a hour
 ‘We’re (going) to the store in an hour.’
- b. **O’sun yu’ [p(um)ara i tenda].*
 AGR.bored I <INFIN>to the store
 (‘I’m bored of (going) to the store.’)

Suppose we assume, with Baker (2003: 303–311), that prepositions are functional as opposed to lexical categories. Then the contrast just seen reveals that Chamorro differentiates lexical categories from other categories: only lexical

categories can serve as predicates of infinitive clauses. (In this respect, Chamorro differs from Tagalog, which allows predicates of all types in matrix clauses but requires the predicates of infinitive clauses to be verbs; see Richards [2009a, 2009b].)

4.2 “Nouns” versus other lexical categories

Numerous morphosyntactic patterns in Chamorro differentiate “nouns” from other lexical categories (i.e. “verbs” and “adjectives”). Here are three such patterns.

First, only “nouns” can undergo incorporation (see Baker [2003] on the usefulness of incorporation as a diagnostic for nounhood). Chamorro has two incorporating verbs, *gai* ‘have’ and *tai* ‘not have’, which are realized as stressed prefixes but written as separate words in the standard orthography. Each of these verbs takes two arguments, the possessor and the possessed. The lexical category linked to the possessed must undergo incorporation (Chung and Ladusaw 2004); when that happens, the verb and the lexical category form a complex verb that is realized as a phonological word. Some examples are given below, with the incorporee underlined.

- (19) a. *Esta gai binga i trongku-n niyuk.*
 already AGR.have shoot the tree-L coconut
 ‘The coconut tree has a new shoot already.’ (CD, entry for *binga*)
- b. *Bula tãotao man-tai salãppi’ sa’ bãba i*
 many person AGR-not.have money because AGR.bad the
ikonomiha.
 economy
 ‘A lot of people have no money due to the bleak economy.’ (CD, entry for *salãppi*)
- c. *Gai linekka’.*
 AGR.have height
 ‘He has some height / is relatively tall.’

Importantly, the incorporee can have a wide range of meanings – it can pick out individuals, relations, events, or abstract concepts. But it must be a “noun”:

- (20) a. *Mungnga um-andi’ gias Maria sa’ esta hu hunguk na*
 don’t AGR-flirt LOC Maria because already AGR hear COMP
gai taotao.
 AGR.have person
 ‘Don’t flirt with Maria, because I heard that she already has someone.’

- b. *Ai, sa' pã'gu ha chachagi si Fulãnu g(um)ai kosas*
 well because now AGR try.PROG NM Fulanu <INFIN>have thing
anai mang-gãna gi gayera gi paingi.
 when AGR.AP-win LOC cockfight LOC last.night
 'Well, for the first time, Fulanu has experienced having many things
 when he won at the cockfight last night.'
- c. *Yanggin para un gai rubetbit, debi na un gai lisensia*
 if FUT AGR have pistol should COMP AGR have license
ginin i Dipattamentu-n Pulisia.
 from the department-L police
 'If you're going to have a pistol, you have to have a license from the
 Department of Public Safety.' (CD, entry for *rubetbit*)

It cannot be from any other lexical category. The complex verbs in (21) are ill-formed because their incorporees that are not “nouns”, but rather “verbs” (21a–c) or “adjectives” (21d–f).⁹

- (21) a. **gai tungu'*
 have know
 ('have know')
- b. **gai li'i'*
 have see
 ('have see')
- c. **gai hanao*
 have go
 ('have go')
- d. **gai lokka'*
 have tall
 ('have tall')
- e. **tai mesngun*
 not.have enduring
 ('not have enduring')

⁹ A reviewer asks why verbs like *tungu'* 'know' and adjectives like *lokka'* 'tall' cannot undergo conversion to become abstract nouns with meanings like 'knowledge' and 'height'. Part of the answer may be that in Chamorro, such deverbal nouns and deadjectival nouns are derived by infixation of *-in-*; for instance, *t(in)ingu'* 'knowledge' and *l(in)ekka'* 'height' (see (19c)). More generally, it should be emphasized that conversion is not an entirely free process of category changing. Rather, like other types of complex word formation, it is restricted syntactically, semantically, and lexically. See Section 5.

- f. **Mang-gai malati' i famagu'un.*
 AGR-have smart the children
 ('The children have smart.')

Second, various types of complex word formation differentiate “nouns” from other lexical categories. For instance, the stressed prefix *mí-* combines with “nouns” to form complex words (denominal adjectives) with the meaning ‘having lots of’. In the examples in (22), these complex words serve as the predicate of the clause.¹⁰

- (22) a. *Mi-chinina si Kika' ginin Amerika.*
 AGR.having.lots.of-shirt NM Kika' from America
 ‘Kika has lots of clothes from the United States.’ (CD, entry for *mí-*)
- b. *Mi-chá'guan uriya-n gimá'-ña si Ton.*
 AGR.having.lots.of-grass vicinity-L house-AGR NM Ton
 ‘The area around Ton’s house is full of grass.’ (CD, entry for *mí-*)
- c. *Mi-'unai i yure'-hu anai mamokkat yu' gi*
 AGR.having.lots.of-sand the zori-AGR when AGR.walk I LOC
kantu-n tási.
 side-L ocean
 ‘My zories had lots of sand when I walked on the beach.’ (CD, entry for *mí'unai*)
- d. *Man-mi-guinaha esti siha na táotao.*
 AGR-having.lots.of-wealth this PL L person
 ‘These people have lots of wealth.’ (CD, entry for *mí'guinaha*)
- e. *Ti man-mi-hitu esta i famagu'un.*
 not AGR-having.lots.of-lice already the children
 ‘The children do not have lots of lice anymore.’ (CD, entry for *mí'hitu*)

What is important is that *mí-* combines only with “nouns”. It cannot combine with “verbs” or “adjectives”, as can be seen from the examples in (23).

¹⁰ Complex words formed with *mí-* are categorized as adjectives by the criteria described later in the text. Like verbs and other adjectives, but unlike nouns, they are inflected for subject-predicate agreement (see (22d–e)). Like nouns and other adjectives, but unlike verbs, they allow their subjects to satisfy the specificity requirement via possessor dominance (see (22b)).

- (23) a. **mi-sangan*
 having.lots.of-say
 ('having lots of say')
- b. **mi-li'i'*
 having.lots.of-see
 ('having lots of see')
- c. **mi-hanao*
 having.lots.of-go
 ('having lots of go')
- d. **mi-dangkulu*
 having.lots.of-big
 ('having lots of big')
- e. **mi'ettigu*
 having.lots.of-short
 ('having lots of short')

Third, “nouns” differ from other lexical categories in that they do not participate in subject-predicate agreement. In Chamorro, when the predicate of the clause is a “verb” or “adjective”, it agrees with the subject in person and number. This agreement is realized by pre-predicate morphemes that also encode mood and the predicate’s transitivity. Some of the agreement morphemes are treated as affixes in the standard orthography; others are represented as independent words. The point is that predicate “nouns” do not exhibit subject-predicate agreement. This fact comes through most clearly in the irrealis mood, because all the irrealis forms of subject-predicate agreement happen to be overt.

The examples below illustrate subject-predicate agreement in various types of irrealis clauses. The relevant predicates (underlined) are “verbs” in (24) and “adjectives” in (25); notice that each predicate is immediately preceded by agreement morphology.

- (24) a. *Bai hu sangan un ebidensia para pruebasion put esti.*
 AGR AGR say a evidence for proof about this
 ‘I will tell one piece of evidence as proof about this.’ (CD, entry for *pruebasión*)
- b. *Ya-ña si Felis para u li'i' todú i gástu.*
 like-AGR NM Felis FUT AGR see all the expenditure
 ‘Felis likes to see (lit. that he should see) all his expenditures.’ (CD, entry for *gástu*)
- c. *Arekla hao, dispues ta fan-hánao.*
 arrange yourself then AGR AGR-go
 ‘Get ready, then we’ll go.’ (CD, entry for *dispues*)

- (25) a. *Mungnga ma-nangga na u dãngkulu i prublema.*
 don't AGR-wait COMP AGR big the problem
 'Do not wait for the problem to grow (lit. that the problem might become big).' (CD, entry for *pruponi*)
- b. *Maseha hãfa un sãngan put guãhu, ti bai hu ma'ã'ñao.*
 no.matter what AGR say about me not AGR AGR afraid
 'Whatever you say about me, I will not be afraid.' (CD, entry for *maseha hãfa*)

The relevant predicates in (26) are “nouns”; these predicates do not show subject-predicate agreement. (The agreement suffixes on *asaguã-hu* ‘my spouse’ in (26a) and *ma'estrom-mu* ‘your teacher’ in (26c) are forms of possessor agreement, not subject-predicate agreement; see Section 4.3.)

- (26) a. *Diretchok-ku esti i para bai hu atyik hãyi para*
 right-AGR this the FUT AGR AGR choose who? FUT
asaguã-hu.
 spouse-AGR
 'It is my personal right to choose who my spouse will be.' (CD, entry for *diretchu*)
- b. *Ti ya-hu si Vicenta para u ayuda yu'sa' para*
 not like-AGR NM Vicenta FUT AGR help me because FUT
gatbesa ha'.
 decoration EMP
 'I don't like Vicenta to help me because she's just going to act like (lit. be) a decoration.' (CD, entry for *gatbesa*)
- c. *Kao un tungu' hãyi para maestrã-mu?*
 Q AGR know who? FUT teacher-AGR
 'Do you know who will be your teacher?' (CD, entry for *tungu'*)

If a predicate “noun” is inflected for subject-predicate agreement, the result is ill-formed:

- (27) **Ti ya-hu para bai hu asaguã-mu.*
 not like-AGR FUT AGR AGR spouse-AGR
 ('I wouldn't like to be your wife.')

Although other morphosyntactic patterns could be cited, the three patterns just surveyed should be enough to demonstrate that “nouns” are differentiated from other lexical categories in Chamorro.

4.3 “Verbs” versus other lexical categories

Evidence that Chamorro differentiates “verbs” from other lexical categories – “adjectives” in particular – is harder to come by. But the language does have one subtle distributional pattern that draws this distinction. The pattern involves the ability of a *bare indefinite* to serve as the subject of the clause.

A bit of background to begin with. Determiners in Chamorro occur at the left edge of DP. The two determiners relevant here are the definite article *i* and the null indefinite (nonspecific) article, which are exemplified in (28).

- (28) a. *i patgun*
 the child
 ‘the child’
 b. *pátgun*
 child
 ‘a(ny) child’

DP’s headed by the null indefinite article are property-denoting; they must have narrowest scope. I will refer to these DP’s as *bare indefinites*.¹¹

In addition to the determiner, a DP can also contain a possessor, which surfaces to the right of the possessed noun. The possessors in the examples below are surrounded by brackets; notice that pronominal possessors are always null.

- (29) a. *i idât-ña [i bihu]*
 the age-AGR the old.man
 ‘the age of the old man’ (CD, entry for *ansiãnu*)
 b. *patgon-ña [si Dolores]*
 child-AGR NM Dolores
 ‘a(ny) child of Dolores’
 (30) a. *i sabanas [neni] siha*
 the blanket.L baby PL
 ‘the baby’s blankets’ (CD, entry for *sãbanas*)
 b. *doktu-n [nanã-mu []]*
 doctor-L mother-AGR
 ‘a(ny) doctor of your mother’s’

¹¹ In Chung and Ladusaw’s (2004) system, bare indefinites are among the arguments that must have their meaning combined with the meaning of the predicate by the non-saturating composition operation Restrict.

The possessed noun either agrees with the possessor in person and number (see (29)) or else is joined to the possessor by the inflection known as the linker (see (30)). Importantly, a DP with a possessor can be headed by any determiner at all, including the definite article *i* (in the (a) examples above) or the null indefinite article (in the (b) examples). Chamorro permits bare indefinite DP's to have a possessor, in other words.

With this information in hand, we are ready to proceed. Like many other languages, Chamorro imposes specificity requirements on the subjects of clauses. I state a preliminary version of the Chamorro requirement as follows: subjects that are external arguments must be specific (Chung 1998: 102–117, 2008: 198–200). One consequence of this requirement is that subjects that are external arguments (underlined below) cannot be bare indefinites. This holds true whether the predicate is a “verb”:

- (31) a. **Ha li'i yommuk na pátgun i aksidenti.*
 AGR see fat L child the accident
 ('A fat child saw the accident.')
- b. **Ha tungu' hit ma'estra.*
 AGR know us teacher
 ('A teacher knows us.')
- c. ?**Ginin k(um)ekuentus dângkulu na haggan.*
 IMPERF <AGR> speak.PROG big L turtle
 ('A large turtle was speaking.')

An “adjective”:

- (32) a. **Man-dângkulu rueda siha.*
 AGR-big wheel PL
 ('Wheels are big.')
- b. **Bunitu chinina.*
 AGR.pretty shirt
 ('A shirt is nice.')

Or a “noun”:

- (33) a. **Kao mâolik na tâotao ma'estru?*
 Q good L person teacher
 ('Is a teacher a good person?')
- b. **Nipa átuf.*
 nipa.palm roof
 ('A roof is nipa palm.')

All of these clauses become grammatical if the bare indefinite subject is replaced by the corresponding definite DP. This is expected if the only issue with the original clauses is that they violate the specificity requirement.

What we are interested in is how this distributional pattern interacts with the ability of bare indefinites to have a possessor. One might think it should make no difference for specificity purposes whether a bare indefinite subject is possessed. That is, in fact, the case when the predicate is a “verb”. Compare the ungrammatical examples in (31), in which the subjects are not possessed, with the equally ungrammatical examples in (34), in which they have possessors (shown in brackets).

- (34) a. **Ha li'i' yu' che'lu-n [Antonio] gi nigap.*
 AGR see me sibling-L Antonio LOC yesterday
 ('A brother of Antonio's saw me yesterday.')
- b. **Ha tungu' i ansa ma'estrâm-mu [].*
 AGR know the answer teacher-AGR
 ('A teacher of yours knows the answer.')
- c. ?**Ginin k(um)ekuentus amiga-n [i patgun palão'an].*
 IMPERF <AGR> speak.PROG friend-L the child.L female
 ('A friend of the girl was speaking.')

However, the presence of a possessor does make a difference when the predicate is not a “verb”. More precisely, when the predicate is an “adjective” or a “noun”, the specificity requirement can be satisfied by a *possessor* of the subject (Chung 2008).

This possessor dominance can be seen at work in the examples below, which are parallel to (32–33) except for the fact that the bare indefinite subject is possessed. When the possessor is specific – a pronoun, a name, or a definite DP, – the specificity requirement is satisfied and the clause is well-formed. The examples in (35) illustrate this for clauses whose predicate is an “adjective”:

- (35) a. *I heavy equipment na klâsi-n trâk man-dângkulu*
 the heavy equipment L kind-L truck AGR-big
ruedan-ñiha [].
 wheel-AGR
 'As for the heavy equipment kind of trucks, they have big wheels on them.' (CD, entry for *rueda*)
- b. *Bunitu maru' [Josephine].*
 AGR.nice box.kite.L Josephine
 'Josephine's box kite is pretty.' (CD, entry for *mârû*)

- c. *Anåkku' patås-ña [i chiba].*
 AGR.long leg-AGR the goat
 'The goat has long legs.' (CD, entry for *påtas*)

The examples in (36) make the same point for clauses whose predicate is a “noun”.

- (36) a. *Kao måolik na tåotao ma'estrom-mu []?*
 Q good L person teacher-AGR
 'Is your teacher a good person?'
 b. *Nipa atof-ña [i gima' piknik] gi kantu-n tåsi.*
 nipa.palm roof-AGR the house.L picnic LOC edge-L ocean
 'The thatch roof of the picnic house at the beach is nipa palm.' (CD, entry for *nipa*)
 c. *Såsimi' chesan-måmi [] gi paingi.*
 sashimi chaser-AGR LOC last.night
 'Our chaser last night was sashimi.' (CD, entry for *såsimi*)

But when the possessor is itself a bare indefinite with an existential interpretation, the clause is deviant:¹²

- (37) *?*Bunitu che'chu' [famagu'un].*
 AGR.pretty work.L children
 ('Work of some children is nice.')

The contrast between the ungrammatical (34) and the completely natural (35–36) argues that Chamorro has two different specificity requirements that affect the subjects of clauses. One of these requirements specifically targets the external arguments of “verbs”; the other is directed at the external arguments of “nouns” or “adjectives”, or *their possessors*. Much more could be said about the fact that the second specificity requirement reduces to a familiar definiteness effect (Milsark's generalization; see Chung [2008]). For current purposes, the key

¹² Some speakers of Chamorro allow bare indefinites to have a generic interpretation in some contexts. (This may be due to interference from English bare plurals; Chamorro more commonly expresses generics via definite DP's.) For these speakers, (37) is well-formed when *famagu'un* 'children' is interpreted generically, but not when it is interpreted existentially. I have no explanation for why generic interpretation does not save examples like (31–33), which are simply ungrammatical.

observation is that the two Chamorro requirements succeed in differentiating “verbs” from other lexical categories. The external arguments of “verbs” must be specific; the external arguments of other lexical categories – including “adjectives” – must satisfy a similar but less stringent restriction.¹³

4.4 The lexical categories revisited

The findings of the previous subsections can be recapitulated as follows. Lexical categories in Chamorro differ from prepositions (more precisely, prepositional phrases) in their ability to serve as predicates of infinitive clauses. “Nouns” differ from other lexical categories along various dimensions: they can undergo incorporation and combine with *mí-* to form denominal adjectives, but they do not exhibit subject-predicate agreement. “Verbs” differ from other lexical categories in that their external arguments must be specific, whether or not they are possessed. In chart form:

(38) Lexical categories in Chamorro

| | infinitive | incorporation | <i>mí-</i> | subj-pred agreement | specific external arg |
|--------------|------------|---------------|------------|------------------------|--------------------------|
| “nouns” | + | + | + | – | – |
| “verbs” | + | – | – | + | + |
| “adjectives” | + | – | – | + | – |

The chart makes it clear that Chamorro does, after all, distinguish three lexical categories: what I have called “nouns”, “verbs”, and “adjectives”. All that remains is to verify that these categories are indeed the familiar trio of nouns, verbs, and adjectives (without scare quotes).

One way of supplying this verification is to examine how these categories behave in the larger combinatorics of the clause. For instance, the ability to combine with numerals is characteristic of nouns as opposed to verbs or adjectives. Chamorro “nouns” can combine with numerals, but “verbs” cannot, and out of context, adjectives cannot either (e.g. *dos táotao* ‘two people’, but **dos li’i* ‘two

¹³ One might wonder whether (35–36) are grammatical because the possessor of the subject has undergone possessor raising. The answer is no. In clauses of type (35–36) the possessor does not act as the subject for the purposes of subject-predicate agreement, control, or word order; see Chung (2008) for some of the evidence. Moreover, even if (35–36) *did* involve possessor raising, the contrast between (34) and (35–36) would still differentiate “verbs” from the other lexical categories, since then possessor raising could occur when the predicate was an “adjective” or a “noun”, but not when the predicate was a “verb”.

see' and – out of context – **dos dāngkulu* 'two big').¹⁴ This is what we expect if “nouns” are just nouns. Similarly, the ability to combine with a direct object is characteristic of verbs (and prepositions) as opposed to nouns or adjectives. Transitive “verbs” in Chamorro can combine with a direct object (underlined below), but “nouns” and “adjectives” cannot:

- (39) a. *Ānima si Maria anai ha li'i' si Juan.*
 AGR.elated NM Maria when AGR see NM Juan
 'Maria was elated when she saw Juan.' (CD, entry for *ānima*)
- b. **Anākku' i kattāk-ku si Julia.*
 AGR.long the letter-AGR NM Julia
 ('My letter Julia was long.')
- c. **Ma'ā'ñao yu' si Miguel.*
 AGR.afraid I NM Miguel
 ('I'm afraid Miguel.')

Again, this is expected if “verbs” are just verbs.

Another verification method involves appeal to the markedness conditions that govern the mapping between lexical categories and conceptual categories. Jackendoff (1990) observes that “an NP can express almost any conceptual category” (1990: 44) but “in the unmarked case, NP expresses Thing” (1990: 23). Both observations hold true for Chamorro “nouns”. The incorporation constructions in (40) (from Chung and Ladusaw [2004: 83]) reveal that “nouns” can pick out e.g. objects, relations, events, and abstract concepts.

- (40) *gai tali* 'have rope'
gai hugeti 'have toys'
tai tanu' 'have no land'
gai nana 'have a mother'
tai familia 'have no family'
gai giput 'have a party'
gai malinik 'have a headache'
tai rispetu 'have no respect'
gai madduk 'have a hole'
tai bali 'have no value'

At the same time, in the typical situation, a Chamorro “noun” picks out an object.

¹⁴ In context, it is possible for an adjective to combine with a numeral in the Chamorro version of NP ellipsis, e.g. *dos dāngkulu* 'two big (ones)'. Thanks to Beth Levin and Dan Kaufman for pointing out this possibility.

In contrast to Jackendoff, Wierzbicka (2000) claims that words that lexicalize particular semantic concepts are universal exemplars of nouns, verbs, and adjectives. For her, words that lexicalize the concepts PEOPLE and THING are universally nouns; words that lexicalize SEE, SAY, DO, and MOVE are verbs; and words that lexicalize BIG and SMALL are adjectives. Her approach too leads to the desired outcome. The investigation earlier in this Section made crucial use of the Chamorro “nouns” *tãotao* ‘person’ and *kosas* ‘thing’, the “verbs” *li’i* ‘see’, *sãngan* ‘say’, *kuentus* ‘speak’, and *hãnao* ‘go’, and the “adjective” *dãngkulu* ‘big’. The way that these words align with Wierzbicka’s semantic concepts suggests that Chamorro “nouns”, “verbs”, and “adjectives” are exactly the familiar trio of lexical categories.

I take all this to establish that Chamorro has the familiar system of lexical categories: nouns, verbs, and adjectives.

4.5 Topping’s evidence again

Once this is granted, it becomes obvious how to handle Topping’s formal criteria for differentiating his Chamorro-specific lexical categories, Class I and Class II. His criteria draw a line between *transitive* verbs and *intransitive* predicates of all lexical categories, whether nouns, verbs, or adjectives. I restate his observations as follows:

- Only transitive verbs can be used to form passive predicates.
- Only intransitive predicates (whether nouns, verbs, or adjectives) can serve as the predicate of a clause whose subject is a weak pronoun.

What Topping’s evidence shows, in other words, is that the lexical categories of Chamorro are cross-classified for transitivity, in the completely unsurprising way shown in (41).

(41) Lexical categories in Chamorro

| | | |
|--------|--------|--------|
| N | V | A |
| [intr] | [intr] | [intr] |
| | [tr] | |

This amounts to saying that his formal criteria do not differentiate among lexical categories, but rather among different subtypes of verbs.

Chamorro exhibits additional patterns of this type. For instance, in the realis mood, subject-predicate agreement is spelled out differently on transitive verbs than on intransitive verbs and adjectives: the transitive forms of agreement

register person and number, whereas the intransitive forms register number alone. These features are noted in the morpheme-by-morpheme glosses in (42).

- (42) a. *K(um)âti anai ha li'i i apayu'ak.*
 <AGR[S]>cry when AGR[3S] see the spider
 'He cried when he saw a spider.' (CD, entry for *apayu'ak*)
- b. *Anai d(um)âdangkulu yu'hulu', ni unu gi guellok-ku*
 when <AGR[S]>big.PROG I up no one LOC grandparent-AGR
hu li'i.
 AGR[1S] see
 'When I was growing up, I never see any of my grandparents.' (CD, entry for *guellu*)

This difference in the realis agreement paradigms will prove useful below.

5 Deconstructing multifunctionality

5.1 The issue

The Chamorro category system just defended is welcome news for the universalist position that every language has the same three lexical categories. As a matter of fact, it is not particularly surprising news. Similar conclusions have been reached for many other languages with supposedly unusual category systems; see e.g. Richards (2009a) and Sabbagh (2009) on Tagalog, Bauer (1997) on Maori, Evans and Osada (2005) on Mundari, Coon (2009) on Mayan languages, and Koch and Matthewson (2009) on Salish languages. (Some of these authors discuss only nouns and verbs; on the status of adjectives, see Baker [2003] and Dixon and Aikhenvald [2004].)

However, before considering the Chamorro question settled, we must first deal with Topping's other evidence for a differently organized category system. This is his observation that many content words seem to function as nouns, verbs, or adjectives depending on the context – an observation with a long history in discussions of monolithic category systems.

Chamorro undeniably has words that are multifunctional, in the sense that they are associated with more than one lexical category. Many nouns in the language also function as verbs. For instance, *se'si* 'knife', *go'naf* 'scale', and *asagua* 'spouse' satisfy the criteria for nouns discussed in 4.2, including the ability to undergo incorporation.

- (43) a. *Håyi gai se'si' ha guåsa' si Antonio?*
 who? AGR.have knife AGR sharpen NM Antonio
 'Whose knife did Antonio sharpen?'
- b. *I ba'yak na guihan tai go'naf.*
 the trumpet.fish L fish AGR.not.have scale
 'The trumpet fish has no scales.' (CD, entry for *ba'yak*)
- c. *Man-måttu todú siha i mang-gai asagua.*
 AGR-arrive all PL the AGR-have spouse
 'All those who had wives came.' (Cooreman 1983: 65)

But these words also have a life as verbs, in which case they satisfy the criteria for transitive verbs discussed in 4.3 and 4.5. In the realis clauses in (44), for instance, they exhibit the transitive forms of subject-predicate agreement:

- (44) a. *Ma se'si' i babui para u ma-punu'.*
 AGR knife the pig FUT AGR PASS-kill
 'They stabbed the pig so it would die.' (CD, entry for *se'si'*)
- b. *Hu go'naf i kåhao.*
 AGR scale the fish.sp
 'I took the scales off the kahao.' (CD, entry for *kåhao*)
- c. *I asaguã-ña ha asagua i asaguã-hu, lao ti dinanchi esti.*
 the spouse-AGR AGR marry the spouse-AGR but not AGR.right this
 'His wife married my husband, but this is not right.' (CD, entry for *asagua*)

Similarly, Chamorro has nouns that also function as adjectives. The word *mantika* 'fat, grease' satisfies the criteria for nouns, including the ability to combine with *mí-*.

- (45) *Månngi' i guihan bakalão sa' mi-mantika.*
 AGR.delicious the fish.L cod because AGR.having.lots.of-fat
 'Cod fish is delicious because it has lots of fat.' (CD, entry for *bakalão*)

But *mantika* also has a life as an adjective, in which case it participates in subject-predicate agreement (unlike nouns; see (46a)) and allows the possessor of its external argument to satisfy the specificity requirement (unlike verbs; see (46b)).

- (46) a. *Ti debi di u mantika i empanáda.*
 not ought.to COMP AGR fat the empanada
 'The empanada shouldn't be greasy.'

- b. *Ti gef mantika na'ñiha* [].
 not very AGR.fat food-AGR
 'Their food isn't that greasy.'

It should be emphasized that not all content words in Chamorro are multifunctional. The language has many verbs and adjectives that cannot serve as nouns, and many verbs that cannot serve as adjectives or nouns; this was shown earlier in Sections 4.2 and 4.3. The language also has many nouns that cannot serve as verbs or adjectives. Consider the nouns *chetnut* 'wound', *guma* 'house', *håyu* 'stick', *nåna* 'mother', and *tåta* 'father', which could be viewed as plausible candidates for nouns that might also function as transitive verbs (more on this below). Although these words are indeed nouns, they are not transitive verbs; see (47).

- (47) a. **Ha chetnut yu*'.
 AGR wound me
 ('He wounded me.')
- b. **Ha guma' i istudiånti siha*.
 AGR house the student PL
 ('He housed the students.')
- c. **Ha nåna yu*'.
 AGR mother me
 ('She mothered me.')
- d. **Ha tåta yu*'.
 AGR father me
 ('He fathered me.')

All this is expected, of course, if Chamorro differentiates among nouns, verbs, and adjectives. The challenge is to construct an account of the apparently quite different patterns in (43–46), which might seem to call the tripartite category system into question. I turn to this challenge next.

5.2 A parallel

We do not have to go far to find another language that has nouns, verbs, and adjectives as well as a significant amount of multifunctionality. English is such a language. Many English nouns also have a life as verbs, as can be seen from the list below:

| | |
|----------------|---------------------------------------|
| (48) Noun | Verb (illustrated in verb phrases) |
| <i>bottle</i> | <i>bottle the wine</i> |
| <i>cork</i> | <i>cork the wine bottle</i> |
| <i>hammer</i> | <i>hammer the nail into the board</i> |
| <i>filet</i> | <i>filet the fish</i> |
| <i>xerox</i> | <i>xerox the memo</i> |
| <i>iron</i> | <i>iron the shirts</i> |
| <i>cook</i> | <i>cook the dinner</i> |
| <i>embrace</i> | <i>embrace them</i> |
| <i>waltz</i> | <i>waltz gracefully</i> |
| <i>run</i> | <i>run swiftly</i> |

The morphological process responsible for the noun-verb pairs shown in (49) is called *conversion* in traditional grammar. Bauer and Huddleston (2002: 1640) define it as “changing a word’s syntactic category without any concomitant change of form”.¹⁵

The classic discussion of conversion is Clark and Clark’s (1979) detailed analysis of the lexical semantics and pragmatics of English denominal verbs. Clark and Clark identify a very large number of English verbs that are derived from concrete nouns by conversion and develop a semantic classification for them. Their classification forms the starting point for many subsequent treatments of the semantics of English verbs. (On Clark and Clark’s theoretical proposals, see Aronoff [1980].) What matters here is the profile of noun-verb conversion that emerges from their investigation. That profile has three components.

First of all, noun-verb conversion in English is productive: new denominal verbs are constantly entering the language. For instance, the derived verbs *polyurethane* (as in *polyurethane the floor*) and *wait-list* (as in *wait-list the traveler*) were identified as innovations by Clark and Clark over thirty years ago (1979: 770, 772), but are now well-established in many varieties of American English. Similarly for the derived verbs *google* (as in *google me*) and *twitter* (as in *twitter him your support*) – verbs that, obviously, did not exist in 1979.

Second, noun-verb conversion is innovative. Speakers of English can make creative use of conversion to form denominal verbs that hearers are unfamiliar with but can assign a meaning to. The derived verbs that Clark and Clark identified

¹⁵ This process has also been called conflation (Hale and Keyser 2002) and zero-derivation. Note that the first six examples in (48) are denominal verbs formed by conversion (see the discussion in the text). I assume that *cook*, *embrace*, *waltz*, and *run* are deverbal nouns formed by conversion.

as innovations include some that would still be considered novel today, such as *shag-rug* (as in *shag-rug the floor*) and *sick-list* (as in *sick-list the patient*).

Third and finally, noun-verb conversion involves appeal to nonlinguistic knowledge. To see this, consider three particularly robust classes of Clark and Clark's denominal verbs: location verbs, locatum verbs, and instrument verbs. These verbs are exemplified in (49).

(49) a. Location verbs:

beach, bottle, box, can, corral, jail, pocket, wait-list

b. Locatum verbs:

blanket, butter, cork, panel, powder, polyurethane, roof, saddle

c. Instrument verbs:

bomb, club, drill, glue, lock, mop, nail, tape

Clear semantic and pragmatic generalizations relate the members of each verb class to the concrete nouns from which they are derived – generalizations that are formulated in different ways by e.g. Clark and Clark, Hale and Keyser (1993), Levin (1993), and Kiparsky (1997). Levin's (2008: 2) statement, quoted in (50), is particularly succinct.

(50) a. Location verbs:

If N names a container, V means 'put something in that container'.

b. Locatum verbs:

If N names a thing/stuff, V means 'put that thing/stuff someplace' / 'provide someplace with that thing/stuff'.

c. Instrument verbs:

If N names an instrument, V means 'use that instrument for its purpose'.

The point is that the meaning of a denominal verb depends on world knowledge and broader cognitive principles – what Kiparsky (1997) calls “conceptual knowledge” – in two ways. (a) The precise meaning of the denominal verb depends on whether its base noun is taken to name a location, a thing/stuff, or an instrument – an issue for conceptual knowledge to resolve. (It is a matter for conceptual knowledge, not linguistic semantics, that *bottle* is canonically taken to name a location (a container) but *blanket* is canonically taken to name a thing). (b) Throughout, the derived verb names an action that involves a canonical use of the type of entity named by the base noun (Kiparsky 1997). Location verbs, for instance, mean to cause something to be at that type of location; locatum verbs mean to cause that type of thing or stuff to be somewhere; instrument verbs mean to do something with that type of instrument. This information is represented

below in Levin and Rappaport Hovav's (2005) event schemas, using italics for the information contributed by the meaning of the noun. ((51a) and (51c) are taken from Levin [2008].)

- (51) a. Event schema for location verbs:
 [x CAUSE [y BECOME AT (<CONTAINER>)]]
 b. Event schema for locatum verbs:
 [x CAUSE [<(THING/STUFF)> BECOME AT y]]
 c. Event schema for instrument verbs:
 [x ACT (*INSTRUMENT*)]

These three types of denominal verb formation are only the tip of the iceberg. English has many other types of noun-verb conversion documented by Clark and Clark. The language also has noun-verb pairs in which the noun is derived from the verb by conversion (arguably including e.g. *miss*, *move*, *play*, *run*, *sleep*, *wants*, and – in some current varieties – *asks*), as well as noun-verb pairs in which the direction of derivation is unclear (see Section 5.3.4). But this much of an introduction to conversion will suffice for our purposes.

5.3 Chamorro revisited

I claim that the multifunctionality observed by Topping (1973) follows from the fact that Chamorro too makes extensive use of conversion. Some types of Chamorro conversion are highly similar to English; others have no productive English parallel. The point is that in both languages, the evidence for positing word formation processes that “chang[e] a word’s syntactic category without any concomitant change of form” (to quote Bauer and Huddleston again) is essentially the same. My argument in a nutshell is that the evidence should lead to essentially the same conclusions in the two languages. There is no justification for taking the so-called multifunctionality of content words to be compatible with the familiar category system in English, *but not in Chamorro*.

The argument proceeds in several stages. Section 5.3.1 discusses denominal verb formation in Chamorro, highlighting its similarities to English denominal verb formation. Section 5.3.2 discusses denominal adjective formation. Section 5.3.3 deals with the issue of whether the relevant Chamorro verbs and adjectives are derived from nouns or merely share a common root with them. Section 5.3.4 concludes.

5.3.1 Noun-verb conversion

The majority of Chamorro content words that appear to be multifunctional are concrete nouns that also function as transitive verbs.¹⁶ The meaning relations that hold between the members of these pairs provide an initial indication that they are related by noun-verb conversion.

For instance, Chamorro evidently has location verbs. If a noun names a location, the related transitive verb means to put something in that location. A few examples are cited below; more are given in Appendix A.

(52) Some Chamorro location verbs

| Word | Noun meaning | Verb meaning |
|----------------------|----------------|------------------------|
| <i>â'fi</i> | 'sling' | 'put in a sling' |
| <i>apâga</i> | 'shoulder' | 'carry on shoulder' |
| <i>botsa</i> | 'pocket' | 'put in pocket' |
| <i>letchin niyuk</i> | 'coconut milk' | 'cook in coconut milk' |

Chamorro also evidently has locatum verbs. If a noun names a thing or stuff, the related transitive verb means to put that thing or stuff somewhere. See the examples in (53) and Appendix B.

(53) Some Chamorro locatum verbs

| Word | Noun meaning | Verb meaning |
|----------------|--------------|-----------------------|
| <i>adâba</i> | 'padlock' | 'put a padlock on' |
| <i>âtuf</i> | 'roof' | 'put a roof on' |
| <i>châ'lak</i> | 'small cut' | 'make a small cut in' |
| <i>kandâlu</i> | 'lock' | 'put a lock on' |
| <i>sâdi'</i> | 'diaper' | 'put a diaper on' |

Finally, as might be expected by now, Chamorro appears to have instrument verbs. If a noun names an instrument, the related transitive verb means to use that instrument for its purpose. See (54) and Appendix C.

(54) Some Chamorro instrument verbs

| Word | Noun meaning | Verb meaning |
|----------------|--------------|-------------------------|
| <i>bâlas</i> | 'whip' | 'hit with a whip' |
| <i>châchak</i> | 'saw' | 'cut with a saw, slice' |

¹⁶ The sorts of evidence that classify these words as nouns and transitive verbs was presented earlier in Sections 4 and 5.1, and will not be repeated here.

| | | |
|--------------|----------------|------------------------------|
| <i>etgui</i> | ‘toilet paper’ | ‘wipe with toilet paper’ |
| <i>paini</i> | ‘comb’ | ‘arrange (hair) with a comb’ |
| <i>tupak</i> | ‘fishing line’ | ‘catch with a fishing line’ |

These meaning relations are highly systematic. They are also remarkably similar to English denominal verb formation in the details of their appeal to conceptual knowledge. The meaning of the verb depends on whether the base noun is taken to name a location, a thing/stuff, or an instrument; at the same time, the verb invariably names an action involving a canonical use of the type of entity named by the base noun. All this would make sense if Chamorro has the same three robust types of noun-verb conversion as were discussed for English in Section 5.2.

The hypothesis that verbs of types (52–54) are derived by conversion leads to some expectations. We might expect this type of complex word formation to be productive and innovative, as it is in English. At the same time, we might expect it to display more or less arbitrary lexical gaps. In English not every concrete noun that can be taken to name a location, a thing/stuff, or an instrument gives rise to a plausible denominal verb, even an innovative one (e.g. *bottle the wine* but **cup the milk*, *pot the plants* but **vase the flowers*). If so-called multifunctionality in Chamorro is the result of conversion, there should be arbitrary lexical gaps in this language, as well.

These expectations are realized. Noun-verb conversion is productive in Chamorro, as can be seen from the patterning of loans. Three and a half centuries of foreign domination of the Mariana Islands has led to the presence in Chamorro of a significant number of borrowed words (Borja et al. 2006; Rodríguez-Ponga 2009). The vast majority of borrowings are from Spanish, although words have also been borrowed from Japanese (in the CNMI) and, increasingly, from English.¹⁷ What we are interested in is that some words that are (only) nouns in the source language serve as both nouns and verbs in Chamorro. For instance:

(55) Some Chamorro borrowings and their sources

| Word | Noun meaning | Verb meaning | Spanish source |
|----------------|--------------|------------------|-----------------------|
| <i>atkiya</i> | ‘hairpin’ | ‘put up (hair)’ | <i>horquilla</i> (n.) |
| <i>âtbidun</i> | ‘starch’ | ‘add starch to’ | <i>almidón</i> (n.) |
| <i>botsa</i> | ‘pocket’ | ‘put in pocket’ | <i>bolsa</i> (n.) |
| <i>buelu</i> | ‘ruffle’ | ‘put ruffles on’ | <i>vuelo</i> (n.) |

¹⁷ It should be emphasized that Chamorro is not a creole, but rather an Austronesian language in which the Hispanization is superficial (Stolz 2003).

This is the anticipated outcome if these words were originally borrowed as nouns and, once borrowed, became available for conversion.

Further, noun-verb conversion is innovative in Chamorro. Speakers can creatively form new verbs that hearers are unfamiliar with but can assign a meaning to. In the examples in (56), which one speaker spontaneously produced in the course of a field session, the (borrowed) nouns *machetti* ‘machete’ and *tubaifã* ‘2-by-4’ are used as novel transitive verbs.

- (56) a. *Ha machetti yu’*.
 AGR machete me
 ‘He threatened me with a machete.’
 b. *Ha tubaifã yu’*.
 AGR 2-by-4 me
 ‘He hit me with a 2-by-4.’

Notice that in such innovative uses, it is invariably the verb that provokes a reaction of surprise, not the corresponding noun. This is expected if the morphological process responsible for the innovations is one that turns nouns into denominal verbs.

Finally, noun-verb conversion in Chamorro exhibits arbitrary lexical gaps. Not every noun that can be taken to name a location, a thing or stuff, or an instrument can be used to form a denominal verb. For instance, one might imagine that *baina* ‘sheath’ could be taken to name a location, *hãyu* ‘stick’ an instrument, and *tali* ‘rope’ a thing or stuff. But *baina* and *hãyu* cannot be used as transitive verbs at all; *tali* apparently can be used to form an instrument verb but not a locatum verb.

- (57) a. **Ha baina i paki / se’si’*.
 AGR sheath the gun / knife
 (‘He sheathed the gun / knife.’)
 b. **Ha hãyu yu’ si Juan*.
 AGR stick me Juan
 (‘Juan hit me with a stick.’)
 c. *Ha tali i guaka*.
 AGR rope the cow
 ‘He hit the cow with a rope/He whipped the cow.’ (Not: ‘He put a rope on the cow’.)

All this evidence points to the conclusion that the multifunctionality of Chamorro content words is an epiphenomenon, created in part by the fact that the language has noun-verb conversion.

5.3.2 Noun-adjective conversion

Over and above this, Chamorro has noun-adjective conversion: it permits nouns to be turned into denominal adjectives with no concomitant change in form. The generality of this process differentiates Chamorro from English, which exhibits only sporadic instances of noun-adjective conversion (e.g. *fun*, *key*, *genius*).

Readers should by now be familiar with the types of evidence that can be used to demonstrate that noun-adjective pairs in Chamorro are related by conversion. To begin with, the meaning relations holding between the members of these pairs are quite systematic. If the noun names a distinctive feature of the body, then the adjective means to be characterized by that bodily feature; see (58) and Appendix D.

(58) Some Chamorro physiological adjectives

| Word | Noun meaning | Adjective meaning |
|--------------------|---------------------|-----------------------------------|
| <i>busu'</i> | 'lump' | 'lumpy' |
| <i>dãdu'</i> | 'cleft palate' | 'having a cleft palate' |
| <i>do'ak</i> | 'white spot in eye' | 'having a white spot in the eye' |
| <i>matan âmku'</i> | 'old face' | 'old-looking, having an old face' |
| <i>paladang</i> | 'scar' | 'scarred, characterized by scars' |

If the noun names a disease or other medical condition, then the adjective means to be infected by that disease or to exhibit that condition; see (59) and Appendix E.

(59) Some Chamorro disease adjectives

| Word | Noun meaning | Adjective meaning |
|--------------|--------------|-----------------------------|
| <i>ga'ut</i> | 'gout' | 'having gout' |
| <i>mañum</i> | 'cold, flu' | 'having a cold, having flu' |
| <i>râbia</i> | 'rabies' | 'having rabies' |

Various other concrete and abstract nouns can be used to form adjectives that mean to be characterized by the thing or notion named by the noun; see (60) and Appendix F.

(60) More Chamorro adjectives

| Word | Noun meaning | Verb meaning |
|---------------|-----------------------|--------------------|
| <i>châtku</i> | 'stain' | 'stained' |
| <i>getmun</i> | 'crunchy sound' | 'crunchy-sounding' |
| <i>odda'</i> | 'dirt' | 'dirty' |
| <i>potbus</i> | 'dust' | 'dusty' |
| <i>pusâda</i> | 'curve (in the road)' | 'curvy' |

Throughout, the semantic relation between the noun and the denominal adjective is one of inalienable possession: if the noun names a thing or notion, the adjective means to have the property of inalienably possessing that thing or notion. Essentially the same semantic relation has been documented for English denominal adjectives formed with the suffix *-ed* (e.g. *brown-eyed*, *red-headed*, *three-toed*; see Hirtle 1969).

As might be expected by now, noun-adjective conversion in Chamorro is productive. A number of Spanish or English loans that are nouns but not adjectives in the source language can serve as nouns and adjectives in Chamorro – a pattern that makes sense if these words were first borrowed as nouns and, once borrowed, became accessible to conversion.

(61) More Chamorro borrowings and their sources

| Word | Noun meaning | Adjective meaning | Source |
|----------------------|---------------|-------------------|-------------------------------|
| <i>daibitis</i> | ‘diabetes’ | ‘having diabetes’ | Eng. <i>diabetes</i> |
| <i>grānu matditu</i> | ‘boil’ | ‘having boils’ | Sp. <i>grano maldito</i> (n.) |
| <i>kānsit</i> | ‘cancer’ | ‘having cancer’ | Eng. <i>cancer</i> |
| <i>mantika</i> | ‘grease, fat’ | ‘greasy, fatty’ | Sp. <i>manteca</i> (n.) |

Further, noun-adjective conversion is innovative. Two apparent innovations are shown in (62). *Matan guaka* ‘cow-faced’ was produced as a joke by a speaker in the course of a field session. *Gof rilihon* ‘very religious’ is attested in the dictionary database. The novelty of this form is suggested by the fact that the degree word *gof* ‘very’ is required; without the degree word, *rilihon* serves as a noun but not as an adjective, as (63) shows.¹⁸

(62) a. *Mata-n guaka.*

face-L cow
‘She’s cow-faced.’

b. *Mang-gof rilihon esti siha i peregrinu na tāotao.*

AGR-very religion this PL the pilgrim L person
‘These pilgrims are very religious people.’ (CD, entry for *peregrinu*)

(63) a. *Mang-gai rilihon ennao siha na tāotao.*

AGR-have religion that PL L person
‘Those people have a religion.’

¹⁸ There is probably no pragmatic issue here, given that not everyone in contemporary Chamorro society is religious or officially affiliated with a religion.

- b. **Man-rilihon ennao siha na tãotao.*
 AGR-religion that PL L person
 ('Those people are religious.')

Finally, noun-adjective conversion exhibits arbitrary lexical gaps. Not every noun that names a thing that can be taken to be a distinctive property of its possessor can be used to form a denominal adjective. For instance, one might imagine that *asiga* 'salt', *asukat* 'sugar', and *tãnu* 'land' could undergo conversion to produce denominal adjectives that mean 'salty', 'sugary', and 'landed'. But this is not possible:¹⁹

- (64) a. *Asiga na'-mãmi.*
 AGR.salt food-AGR
 'Our food was salt.' (Not: *Our food was salty.)
- b. *Asukat na'-mãmi.*
 AGR.sugar food-AGR
 'Our food was sugar.' (Not: *Our food was sugary.)
- c. **Tãnu' si Maria.*
 AGR.land Maria
 ('Maria has land'.)

In short, Chamorro has noun-adjective conversion as well as noun-verb conversion. The fact that both types of conversion are productive heightens the impression that content words in this language are multifunctional.

5.3.3 Complex word formation or a common root?

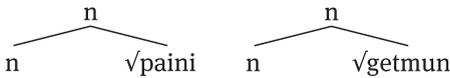
At this point one might wonder whether the verbs and adjectives discussed in Sections 5.3.1 and 5.3.2 really are complex words derived from nouns. Might they instead be noncomplex words that happen to be formed from the same roots as nouns? The question is important because derivation from a common root might offer a plausible alternative story for why content words appear to be multifunctional. If Chamorro roots could systematically combine with more than one

¹⁹ The existence of the adjectives *ma'asin* 'salty' and *mamis* 'sweet' might conceivably block conversion from applying to *asiga* and *asukat*. Note, though, that the existence of several Chamorro adjectives meaning 'dirty' (including e.g. *applacha*' and *kutchinu*) does not block conversion from applying to *odda* 'dirt(y)' or *fachi* 'mud(dy)'.

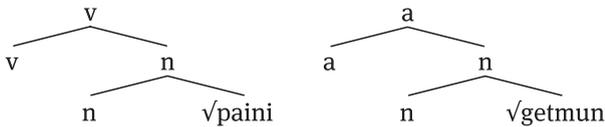
category-defining head, multifunctionality might follow without any need to appeal to conversion.

The contrast between the two hypotheses comes through particularly clearly in the syntacticized representations of DM. Consider (65a), which gives the DM representations for the nouns *paini* ‘comb’ and *getmun* ‘crunchy sound’. These nouns can undergo conversion to form the denominal verb *paini* ‘arrange with a comb’ and the denominal adjective *getmun* ‘crunchy-sounding’. Importantly, the representations of these forms are literally constructed from the representation of the base noun; see (65b). If the verb *paini* and the adjective *getmun* were not derived from nouns but merely built from the same roots as nouns, they would have the less elaborate representations shown in (65c).

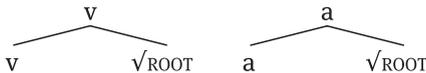
(65) a. Two Chamorro nouns



b. A verb and an adjective formed by conversion from a noun



c. A verb and an adjective that share a common root with a noun



We have already seen one piece of evidence that distinguishes between these two hypotheses: in innovative noun-verb or noun-adjective pairs, it is always the verb or adjective, not the noun, that provokes a reaction of surprise. This pattern falls out if the innovation consists of extending conversion to a noun that formerly could not undergo it. If the innovation were instead that a root restricted to the category-defining head *n* suddenly acquired the ability to merge with a wider range of category-defining heads, it would be mysterious why roots that cannot combine with *n* are systematically unable to overcome that limitation.

A more intricate type of evidence that differentiates the two hypotheses is presented by Kiparsky (1997: 485) in his discussion of English denominal verb formation (see also Kiparsky [1982]). Kiparsky observes that some (apparently) denominal “verbs retain the full force of the corresponding noun, others compromise it in one way or another”. One indication of this is the verb’s ability to take

adjuncts that have roughly the same semantic function as the canonical function of the corresponding noun.

Some English verbs can combine with adjuncts of this type only when the meaning of the adjunct overlaps with the meaning of the noun.²⁰ (By ‘overlap’ I mean that their property contents have a non-null intersection.) The location verb *box*, the locatum verb *fence*, and the instrument verbs *tape* and *screw* are verbs of this type, as can be seen from the examples in (66) (which are based on Kiparsky’s examples).

- (66) a. *We boxed their present in a gift box / in cardboard / #in a brown paper bag.*
 b. *The authorities fenced the entire area with barbed wire / #with land mines.*
 c. *She taped the poster to the wall with a strip of adhesive / #with a ribbon of dough.*
 d. *Screw the fixture to the wall with these screws / #these nails.*

The point is that the lexical semantics of these verbs includes the meaning of the corresponding noun – a natural outcome if they are, in fact, derived from the noun. In Chung and Ladusaw’s (2004) terms, the relevant semantic argument of the verb is restricted by the meaning of the noun and then saturated by the meaning of the adjunct. But these meanings must converge in order for the interpretation of the argument to be coherent.

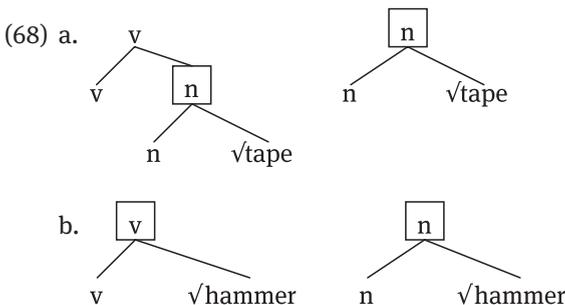
Other English verbs can combine with adjuncts that ‘double’ the canonical function of the corresponding noun even when the meanings of the adjunct and the noun do not overlap. These verbs include the location verbs *dump* and *ditch* and the instrument verbs *hammer* and *brush*; see (67) (based, again, on Kiparsky’s examples).

- (67) a. *They dumped their garbage on the stairs.*
 b. *She ditched her car in a vacant lot.*
 c. *He hammered the desk with his shoe.*
 d. *Emma brushed her coat with her hand.*

²⁰ Other characterizations of the relevant condition are offered by Kiparsky (1997) and by Arad (2003). Kiparsky (1997) says, “The additional syntactic adjunct or object is acceptable just in case the thing denoted by the incorporated noun can be said to be an instance of it, or to consist of it.” According to Arad (2003: 756): “The verbs in (23) [e.g. *tape*] entail the existence of the corresponding noun – there is no way to tape, chain, or button without using tape, a chain, or a button.”

Here, meaning provides no evidence for denominal verb formation. The lexical semantics of the verb does not include the meaning of the corresponding noun, but – at most – a distantly related manner specification. As Kiparsky (1997: 488) says, “There is in fact no evidence for a denominal analysis of these verbs at all . . . Morphologically, noun and verb could still be analyzed as related, but the relationship would be a matter of a derivation from a common root.”

Building partly on Kiparsky’s observations, Arad (2003) develops a DM account of word formation in Hebrew that recognizes two types of verbs: verbs that share a common root with a noun and verbs that are derived from a noun. She shows that Hebrew verbs that share a common root with a noun can differ semantically from the noun in numerous, seemingly arbitrary ways, whereas Hebrew denominal verbs must incorporate the semantics of the noun from which they are derived. In her account, these contrasting semantic patterns follow from two claims. First, roots can have multiple semantic interpretations. Second, the initial category-defining head that merges with a root determines a phase, and therefore fixes the root’s interpretation. The Phase Impenetrability Condition prevents any head that merges later with the structure from “looking back” to retrieve the other interpretations associated with the root. The result is that a noun and a verb derived from a common root can differ semantically in ways that are attributable to different interpretations of the root. But a verb derived from a noun has the same initial category-defining head as the noun – namely, *n* – and no semantic difference attributable to the interpretation of the root is possible. The analysis is schematized below for the English verbs *tape* and *hammer* and their corresponding nouns, with boxes surrounding the categories that are phases.



How does Chamorro fare with respect to all this? In most of the Chamorro noun-verb pairs under discussion here, the meaning of the verb includes the meaning of the noun. Consider, for instance, *apåga* ‘shoulder’, *adåba* ‘padlock’, *åtbidun* ‘starch’, *atkiya* ‘hairpin’, and *bareta* ‘crowbar’. These verbs can combine with adjuncts that “double” the canonical function of the noun only when the

meaning of the adjunct overlaps with the meaning of the noun. Violating this requirement leads to anomaly, as (69) shows.

- (69) a. *Bai hu apâga i hayu gi apagâ-hu/ #lomu-hu.*
 AGR AGR shoulder the wood LOC shoulder-AGR thigh-AGR
 ‘I’m going to shoulder the wood on my shoulder / #my thigh.’
- b. *Hu adâba i aparadot ni adâba / ni ?#tali.*
 AGR padlock the cabinet OBL padlock OBL rope
 ‘I padlocked the cabinet with a padlock/?#a rope.’
- c. *#Bai hu âtbiduni magâgu ni waks.*
 AGR AGR starch the clothes OBL wax
 (‘I’m going to starch the clothes with wax.’)
- d. *Hu atkiya i gaputilu-hu ni atkiya-mu / #ni goma.*
 AGR hairpin the hair-AGR OBL hairpin-AGR OBL rubber.band
 ‘I pinned up my hair with your hairpin / #the rubber band.’
- e. *#Hu bareta i petta ni atchu’.*
 AGR crowbar the door OBL rock
 (‘I crowbarred the door with the rock.’)

However, Chamorro also has noun-verb pairs in which the verb’s semantic relation to the noun is bleached; for instance, *aketyu* ‘topknot’, *asâda* ‘plow’, *bâlas* ‘whip’, and *guâfi* ‘fire (n.), make angry (vt.)’. These verbs can combine freely with adjuncts that ‘double’ the canonical function of the noun, even when there is no semantic overlap. See (70).

- (70) a. *Hu aketyu’ i gaputilu-hu ni goma.*
 AGR topknot the hair-AGR OBL rubber.band
 ‘I knotted my hair with the rubberband.’
- b. *Hu asâda ni atchu’.*
 AGR plow OBL rock
 ‘I plowed it with the rock.’
- c. *Ha bâlas yu’ ni hayu.*
 AGR whip me OBL stick
 ‘He whipped me with a stick.’

The situation is similar for noun-adjective pairs. In the vast majority of these pairs, the adjective includes the meaning of the corresponding noun: it means to have the property of inalienably possessing the physiological feature, disease, thing, or notion named by the noun. This can be demonstrated via the standard test for synonymy: it is contradictory to assert that an individual has the property

named by the adjective but does not possess what is named by the noun. The examples in (71) make this point for *mañum* ‘fever(ish)’, *mantika* ‘fat(ty), greas(y)’, and *oksu* ‘hill(y)’.

- (71) a. #*Mañum* si Antonio, lao tai mañum.
 AGR.fever NM Antonio but AGR.not.have fever
 (‘Antonio is feverish, but he has no fever.’)
- b. ?#*Mantika* i empanada, achuka’ tai mantika.
 AGR.fat the empanada although AGR.not.have fat
 (‘The empanada is fatty, although it has no fat.’)
- c. #*Oksu*’ i tano’-mu, lao tai oksu’.
 AGR.hill the land-AGR but AGR.not.have hill
 (‘Your land is hilly, but it has no hills.’)

However, Chamorro also has noun-adjective pairs for which this semantic relation is bleached. One such pair is *kâskara* ‘shell (e.g. of a turtle) (n.), empty (adj.)’, whose different uses are illustrated in the naturally occurring examples below.

- (72) a. *Kana*’ ha’ tod*u* i mang-gai kâskara na gâ’ga’
 almost EMP all the WH[NOM].AGR-have shell L animal
gi tasi man-mahettuk go’naf-ñiha.
 LOC ocean AGR-hard scale-AGR
 ‘Almost all the shellfish (lit. the animals that have shells) in the ocean have hard scales.’ (CD, entry for *go’naf*)
- b. *I asaitera kâskara sa’ si Florine ha latchai um-usa*
 the cruet AGR.empty because Florine AGR finish.up INFIN-use
i laña.
 the oil
 ‘The cruet is empty because Florine used all the oil in it.’ (CD, entry for *asaitera*)

Here the meaning of the adjective does not include the meaning of the noun. Therefore, one can assert without contradiction that an individual does not have the property named by the adjective (‘empty’), but possesses what is named by the noun (‘shell’).

- (73) *Ti kâskara i botsâm-mu, sa’ guaha kâskara-n*
 not AGR.empty the pocket-AGR because AGR.exist shell-L
gâ’ga’ tâsi.
 animal.L ocean
 ‘Your pocket isn’t empty, because it has a sea shell in it.’

The overall architecture of these semantic patterns is essentially the same as what Arad documents for Hebrew. This means that Arad's account can do some work for us in Chamorro. Suppose, following Arad, that roots can have multiple semantic interpretations and the first category-defining head to merge with a root determines a phase. Then the fact that the meanings of the verbs and adjectives in (69) and (71) include the meaning of the corresponding noun is evidence that they are derived from the corresponding noun by conversion. Further, the fact that no such semantic relatedness holds between the verbs and adjectives in (70) and (73) and the corresponding noun argues that these pairs merely share a common root. The upshot is that Chamorro, like Hebrew, countenances both denominal forms and derivation from a common root. The difference is that derivation from a common root is the more usual option in Hebrew (Arad 2003: 745), whereas conversion is the more usual option in Chamorro.²¹

One might wonder whether this conclusion is necessary. What, exactly, precludes the alternative in which *all* Chamorro noun-verb and noun-adjective pairs merely involve derivation from a common root? The answer is that such an alternative, though conceivable, comes at a cost. Arad's account offers a principled explanation for why verbs and adjectives that have the same form as nouns fall into two semantic classes: those whose meaning incorporates the meaning of the corresponding noun, and those whose meaning does not. An alternative that imposes a uniform morphosyntactic analysis on these forms would be forced to treat their bifurcation into two semantic classes as accidental.

To summarize: evidence from lexical semantics argues that there are two sources for Chamorro verbs and adjectives that have the same form as nouns. Typically these verbs and adjectives are derived by conversion from the corresponding noun; in some well-defined cases they merely share a common root with the noun. The overall situation is comparable to what has been documented by Kiparsky for English and by Arad for Hebrew. I take it to affirm that Chamorro does indeed have productive processes of denominal verb formation and denominal adjective formation.

5.3.4 Multifunctionality explained

In the end, the multifunctionality of Chamorro content words is not at odds with the claim that this language has nouns, verbs, and adjectives. Rather, this

²¹ Chamorro has numerous noun-verb pairs borrowed from Spanish in which the verb ends in /a/ and the corresponding noun ends in /u/; e.g. *abusa* 'abuse (vt.)', *abusu* 'abuse (n.)'. These pairs may well be best analyzed as involving derivation from a common root.

phenomenon flows from the fact that Chamorro has multiple routes for constructing words of different syntactic categories that do not differ in form. Verbs and adjectives can be derived from nouns by conversion; verbs and adjectives can also be created from roots that are used separately to create nouns. The productivity of these different pathways, combined with the fact that each is restricted to particular roots, creates an intricacy that is thoroughly familiar from the lexicons of better-studied languages (e.g. English). That this level of intricacy is also present in the Chamorro lexicon should surprise no one. It is just what we expect if lexical categories are universal, and the broad routes by which semantic and phonological material can be packaged into lexical categories are universal as well.

Together with the evidence from morphosyntactic patterning discussed in Section 4, the conversion evidence poses a formidable challenge for anyone who would maintain that Chamorro had just one monolithic lexical category. In some appeals to monolithic category systems, the multifunctionality of content words is claimed to follow from the vagueness of individual word meanings. But the patterns of lexical semantics uncovered here are far more precise and more tightly regulated than what one would expect to find from vague lexical items construed in context. A hypothesis that claimed that Chamorro had just one monolithic category would be unable to give a satisfactory account of these patterns.

Much more could be said about the types of conversion that Chamorro employs. For instance, like English, Chamorro also has noun-verb pairs in which the noun is arguably derived from the verb. In (74), for instance, the verb is an intransitive verb that names an activity and the corresponding noun names an instance of that activity.

(74) Some Chamorro activity verbs

| Word | Noun meaning | Verb meaning |
|---------------|--------------|----------------|
| <i>baila</i> | ‘dance’ | ‘dance’ |
| <i>buruka</i> | ‘noise’ | ‘make noise’ |
| <i>guput</i> | ‘party’ | ‘have a party’ |
| <i>mumu</i> | ‘fight’ | ‘fight’ |

But unlike English, Chamorro does not generally use conversion to form transitive verbs that are the causative counterparts of intransitive verbs or adjectives – possibly because it has a productive causative prefix, *na’-*, which attaches to verbs or adjectives to form derived transitive verbs (Gibson 1980). A detailed study of the types of conversion in the two languages and its interplay with overt derivational morphology would be fascinating in its own right. Meanwhile, because Chamorro conversion turns e.g. nouns into verbs or adjectives, its workings

strengthen the case that the language does indeed have these three lexical categories.

6 Conclusion

Where does this leave us with the respect to the larger issue of whether every language has nouns, verbs, and adjectives? The conclusion that yet another language – Chamorro – has this familiar category system is, in one sense, a very small point. But the demonstration leading up to it has the potential to be more broadly significant. By that I mean the following.

Many of the languages that have been claimed to have unusual category systems have also been claimed to have multifunctional content words. These claims are linked; so that if multifunctionality in a given language turns out to result from conversion – or, for that matter, from derivation from a common root – the evidence that the language lacks the familiar lexical categories could well dissolve.

This line of thought is given a boost by Vonen's (1994, 1997) research on lexical categories in Tokelau.²² Tokelau is a member of the Polynesian subfamily of the Austronesian languages. Like other Polynesian languages, it is an isolating language with very little derivational morphology and apparently multifunctional content words. Vonen (1997) first gives formal distributional evidence that Tokelau distinguishes between nouns and verbs. He then investigates the types of semantic relatedness that hold between members of noun-verb pairs that do not differ in form. As he says,

It will be clear that the semantic relationship between a nominal and a verbal occurrence of a form may be so remote that there is doubt whether any synchronic relation should be assumed at all between the two. And also in numerous cases in which there is an evident semantic relationship between the two form/function combinations, the relationship is so idiosyncratic and non-predictable that lexical identity is out of the question. In other cases, such as the relation between a temporary property and the carrier of this property (e.g. *pelehitene* 'be president; president'), the relation is so productive and the semantic differences so subtle that a more detailed investigation is called for. (1997: 15)

The third set of cases – the productive types of semantic relatedness – he analyzes in terms of conversion. In his account, noun-verb conversion in Tokelau creates

²² Vonen's works on Tokelau (1994, 1997) became available to me only in the final stages of this project. Despite differences in the languages investigated and the theoretical approaches employed, the similarities between his findings and mine are substantial.

instrument verbs, location verbs, locatum verbs, or result verbs (Vonen 1994: 165, 1997: 161–64); verb-noun conversion creates nouns that name the agent, instrument, theme, or result of the action named by the verb, an instance of the activity named by the verb, or an entity with the property named by the verb (Vonen 1997: 155–57).

The semantic effects that Vonon attributes to conversion in Tokelau are strikingly similar to those documented for English and Chamorro. Noun-verb conversion produces denominal verbs that name an action that involves a canonical use of the thing named by the noun (cf. English *whip*, Chamorro *paini* ‘comb’); verb-noun conversion produces deverbal nouns that name an instance of the activity named by the noun (cf. English *move*, Chamorro *baila* ‘dance’), or a participant in, or the result of, the action named by the noun (cf. English *cook*, *roast*). These parallels suggest that the semantic-pragmatic effects of conversion are relatively stable across languages, even when the details diverge. If so, some intriguing analytic possibilities open up.

Take Tagalog, for instance. In his initial discussion of the proposal that Tagalog “lacks a verbal category altogether”, Kaufman (2009: 9) observes that most uninflected simplex words in the language are entity-denoting, and therefore arguably nouns (e.g. *káin* ‘eating, meal’, *patay* ‘corpse’, *súnog* ‘fire’); in contrast, words that are the translation equivalents of English verbs are inflected with voice morphology (e.g. *k(um)áin* ‘eat’, *p(um)atay* ‘kill’, *ma-súnog* ‘burn’). He observes further that voice morphology is regularly attached to borrowings that were originally Spanish nouns (e.g. *mag-trabaho* ‘work’) and to English nouns in code-mixing (e.g. *mag-ice-cream* ‘eat ice cream’). Kaufman takes these patterns to indicate that Tagalog has nouns but no verbs. Words corresponding to English verbs, such as *k(um)áin* ‘eat’, he analyzes as nouns that have merged with a higher voice head (2009: 31–33).

However, a look at Kaufman’s illustrative list of uninflected simplex words and their verb-like counterparts reveals semantic regularities that are reminiscent of conversion. Verbs that name an activity correspond to nouns that name an instance of that activity; verbs that name an action correspond to nouns that name the result of that action; nouns that name an instrument correspond to verbs that name an action involving a canonical use of that instrument; and so on (Kaufman 2009: 12–14). These regularities suggest that Tagalog may well have the familiar trio of lexical categories but make extensive use of conversion – a possibility Kaufman does not consider. This is not the place to flesh out such an alternative, or to assess the full range of Kaufman’s evidence for his nouns-only proposal (but see the commentaries on Kaufman’s article in *Theoretical Linguistics* 35.1). My point is that an appeal to conversion would eliminate one kind of support for the claim that Tagalog has an unusual category system.

In short, systematic exploration of the lexical semantics of complex word formation, and conversion in particular, could well strengthen the case that lexical categories are universal. Continuing in this speculative vein, let me pose two concluding questions.

Why has it proved to be so hard to resolve the issue of whether lexical categories are universal? From a universalist perspective, lexical categories present a kind of conundrum. They are syntactic labels that cannot be defined semantically. But almost every aspect of their (morpho)syntax exhibits language-particular variation – their morphological signatures, aspects of their external syntactic distribution, the other formal criteria used to differentiate them, the extent to which they are populated, etc. The language-specific character of the *evidence* for lexical categories has led some to deny that there are any universal syntactic categories at all (e.g. Culicover 1997). But this is to confuse a theoretical notion with the grammatical generalizations that make use of that notion (or, from the analyst's perspective, to confuse a theoretical notion with the evidence that allows that notion can be discovered). The very careful research of Baker (2003) and others has done much to support the idea, widely held among generative linguists, that lexical categories *are* universal. Nonetheless, no syntactic theory of lexical categories has yet emerged that is fully explanatory, in the sense that it explains why lexical categories are universal and why there are exactly three of them. My own belief is that the best theory of lexical categories will affirm their status as universal, purely syntactic categories with discrete boundaries. But the explanation of why there are exactly three such categories will go beyond linguistics proper to appeal to broader principles of human cognition – much as the best accounts of conversion refer not only to syntactic categories and lexical semantics but also to conceptual knowledge.

Second, what are we make of the fact that almost all of the putative evidence against the universality of lexical categories comes from understudied languages?²³ This is a delicate issue. Understudied languages have an enormous amount to contribute to our understanding of the nature of human language. But precisely because they are not well studied, it can be a tricky matter to assess the significance of what is put forward as their empirical testimony. Consider

23 Chinese might be thought to provide a counterexample. But Chinese was arguably understudied in the Western world when Bloomfield (1933: 199) identified its parts of speech as full words (i.e. one monolithic lexical category) and particles (functional categories). Newmeyer's (1998: 195) perspective on the issue is instructive. He says, "in inflection-poor languages the same root will often be assigned to more than one category . . . For these very reasons there has been a long-standing debate over whether Chinese even *has* distinguishable syntactic categories . . . nobody would take the negative side of this debate today."

Topping's reasons for claiming that Chamorro has an unusual lexical category system. These reasons were based on true observations about the language. But those observations covered far too small a slice of Chamorro morphology, syntax, and lexical semantics to lead to robust conclusions. It would be disingenuous to object that the same holds true of many unsuccessful analyses of e.g. English syntax. The point is that the empirical bar is set much higher in linguistic investigations of the better-studied languages.

How are we to react to this? The only solution, in my opinion – and the obvious one – is for understudied languages to be investigated more intensively and in greater depth, applying the same high standards of research as are applied in the study of better-studied languages (most of which happen to be associated with socio-political and economic power). Only then will we uncover the full richness and intricacy of understudied languages. And only then will we be able to come to grips with the full potential of universal grammar.

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Appendix A. Some representative location verbs

| Word | Noun meaning | Verb meaning |
|----------------------|-------------------|------------------------------|
| <i>âfi</i> | ‘sling’ | ‘put in a sling’ |
| <i>apâga</i> | ‘shoulder’ | ‘carry on shoulder’ |
| <i>balutan</i> | ‘wrapper’ | ‘wrap’ |
| <i>botsa</i> | ‘pocket’ | ‘put in pocket’ |
| <i>butsiyu</i> | ‘bag’ | ‘put in a bag’ |
| <i>châhan</i> | ‘underground pit’ | ‘cook in an underground pit’ |
| <i>letchin niyuk</i> | ‘coconut milk’ | ‘cook in coconut milk’ |
| <i>paketi</i> | ‘package’ | ‘pack’ |
| <i>pâstu</i> | ‘pasture’ | ‘pasture’ |
| <i>presu</i> | ‘prison’ | ‘put in prison’ |

Appendix B. Some representative locatum verbs

| Word | Noun meaning | Verb meaning |
|-----------------|--------------|----------------------|
| <i>achai</i> | ‘chin’ | ‘lean the chin on’ |
| <i>adâba</i> | ‘padlock’ | ‘put a padlock on’ |
| <i>âtbidun</i> | ‘starch’ | ‘add starch to’ |
| <i>atkiya</i> | ‘hairpin’ | ‘pin up (hair)’ |
| <i>âtuf</i> | ‘roof’ | ‘put a roof on’ |
| <i>âtuf sin</i> | ‘tin roof’ | ‘put a tin roof on’ |
| <i>bâtnis</i> | ‘varnish’ | ‘put varnish on’ |
| <i>be’i</i> | ‘bandage’ | ‘put a bandage on’ |
| <i>bendas</i> | ‘blindfold’ | ‘put a blindfold on’ |
| <i>beni’</i> | ‘lipstick’ | ‘apply lipstick to’ |
| <i>besti</i> | ‘decoration’ | ‘decorate’ |
| <i>buelu</i> | ‘ruffle’ | ‘put ruffles on’ |

| | | |
|----------------|--------------------|-----------------------------|
| <i>châ'lak</i> | 'small cut' | 'make a small cut in' |
| <i>goma</i> | 'rubber band' | 'put a rubber band on' |
| <i>ha'fi</i> | 'brace or splint' | 'put a brace or splint on' |
| <i>hãfyi</i> | 'protecting cover' | 'put a protecting cover on' |
| <i>hentu</i> | 'bandana' | 'put a bandana on' |
| <i>kandãlu</i> | 'lock' | 'lock' |
| <i>kollat</i> | 'fence' | 'fence' |
| <i>korona</i> | 'crown' | 'put a crown on' |
| <i>onsi</i> | 'harness' | 'put a harness on' |
| <i>pañãlis</i> | 'diaper' | 'put a diaper on' |
| <i>pãtdit</i> | 'concrete' | 'put cement on' |
| <i>sãdi'</i> | 'diaper' | 'put a diaper on' |
| <i>sãtgi</i> | 'floor' | 'put a floor on' |
| <i>tãmpi</i> | 'cover' | 'cover' |
| <i>tatu</i> | 'tattoo' | 'tattoo' |

Appendix C. Some representative instrument verbs

| Word | Noun meaning | Verb meaning |
|-----------------|---------------------|------------------------------|
| <i>asãda</i> | 'plow' | 'plow' |
| <i>bãfa</i> | 'buffer' | 'buff' |
| <i>bãlas</i> | 'whip' | 'hit with a whip' |
| <i>bãm</i> | 'bomb' | 'bombard' |
| <i>bareta</i> | 'steel hoe' | 'hit, dig' |
| <i>barohu</i> | 'drill' | 'drill' |
| <i>boha</i> | 'fan' | 'ventilate' |
| <i>bomba</i> | 'pump' | 'pump' |
| <i>butdosa</i> | 'bulldozer' | 'bulldoze' |
| <i>chãchak</i> | 'saw' | 'cut with a saw, slice' |
| <i>dekka'</i> | 'pole' | 'poke or pick (with a pole)' |
| <i>dinamita</i> | 'dynamite' | 'blow up with dynamite' |
| <i>etgui</i> | 'toilet paper' | 'wipe with toilet paper' |
| <i>galuti</i> | 'club or bat' | 'hit with a club or bat' |
| <i>gãnchu</i> | 'hook' | '(get with a) hook' |
| <i>gãoli</i> | 'pole' | 'pick with a pole' |
| <i>guãksi</i> | 'scouring brush' | 'scour' |
| <i>ispiyu</i> | 'carpenter's plane' | 'plane' |
| <i>kãmma'</i> | 'sickle' | 'cut with a sickle' |
| <i>lampãsu</i> | 'mop' | 'mop' |

| | | |
|------------------|----------------|------------------------------|
| <i>lânsa</i> | ‘spear’ | ‘spear’ |
| <i>mattiyu</i> | ‘hammer’ | ‘hammer’ |
| <i>pachingku</i> | ‘spear gun’ | ‘shoot with a spear gun’ |
| <i>paini</i> | ‘comb’ | ‘arrange (hair) with a comb’ |
| <i>penchi</i> | ‘pliers’ | ‘hold with pliers’ |
| <i>rora</i> | ‘roller’ | ‘smooth with a roller’ |
| <i>sakapiku</i> | ‘pick’ | ‘use a pick on (soil)’ |
| <i>se’si</i> | ‘knife’ | ‘cut with a knife’ |
| <i>timón</i> | ‘rudder’ | ‘steer’ |
| <i>tumu</i> | ‘dye’ | ‘dye’ |
| <i>tupak</i> | ‘fishing line’ | ‘catch with a fishing line’ |

Appendix D. Some representative physiological adjectives

| <i>Word</i> | <i>Noun meaning</i> | <i>Adjective meaning</i> |
|----------------------|---------------------|-----------------------------------|
| <i>busu</i> | ‘lump’ | ‘lumpy’ |
| <i>dâdu</i> | ‘cleft palate’ | ‘having a cleft palate’ |
| <i>do’ak</i> | ‘white spot in eye’ | ‘having a white spot in eye’ |
| <i>dondun</i> | ‘freckle’ | ‘spotted’ |
| <i>grânu matditu</i> | ‘boil’ | ‘having boils’ |
| <i>haduk</i> | ‘dimple’ | ‘dimpled’ |
| <i>matan âmku</i> | ‘old face’ | ‘old-looking, having an old face’ |
| <i>matan pângun</i> | ‘young face’ | ‘young-looking’ |
| <i>mulidu</i> | ‘bruise’ | ‘bruised’ |
| <i>paladang</i> | ‘scar’ | ‘scarred, characterized by scars’ |

Appendix E. Some representative disease adjectives

| <i>Word</i> | <i>Noun meaning</i> | <i>Adjective meaning</i> |
|------------------------|---------------------------------|--|
| <i>daibitis</i> | ‘diabetes’ | ‘having diabetes’ |
| <i>ga’ut</i> | ‘gout’ | ‘having gout’ |
| <i>gine’hin châlan</i> | ‘fever acquired away from home’ | ‘having fever acquired away from home’ |
| <i>kalentura</i> | ‘fever’ | ‘having fever’ |
| <i>kânsit</i> | ‘cancer’ | ‘having cancer’ |

| | | |
|----------------|----------------------|--|
| <i>kalik</i> | ‘dizziness’ | ‘dizzy, having a feeling of dizziness’ |
| <i>måkpung</i> | ‘frequent urination’ | ‘having frequent urination’ |
| <i>mañum</i> | ‘cold, flu’ | ‘having a cold, having flu’ |
| <i>råbia</i> | ‘rabies’ | ‘having rabies’ |
| <i>såtna</i> | ‘rash, sores’ | ‘having rash, having sores’ |

Appendix F. Representative other adjectives

| <i>Word</i> | <i>Noun meaning</i> | <i>Adjective meaning</i> |
|----------------|-----------------------|--------------------------|
| <i>bokka’</i> | ‘bump’ | ‘hilly’ |
| <i>bo’an</i> | ‘foam’ | ‘foamy’ |
| <i>chåtku</i> | ‘stain’ | ‘stained’ |
| <i>fachi’</i> | ‘mud’ | ‘muddy’ |
| <i>getmun</i> | ‘crunchy sound’ | ‘crunchy-sounding’ |
| <i>måncha</i> | ‘stain’ | ‘stained’ |
| <i>mantika</i> | ‘fat’ | ‘greasy’ |
| <i>odda’</i> | ‘dirt’ | ‘dirty’ |
| <i>oksu’</i> | ‘hill’ | ‘hilly’ |
| <i>onnu’</i> | ‘blanket’ | ‘covered with a blanket’ |
| <i>potbus</i> | ‘dust’ | ‘dusty’ |
| <i>pusåda</i> | ‘curve (in the road)’ | ‘curvy’ |