Language universals without universal categories

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1 Syntactic argumentation and parts of speech in Chamorro and in syntactic theory

Chung's article critiques an analysis of lexical categories (word classes) in Chamorro by Topping (1973). Topping argues that there are only two lexical categories, which he describes as Class I and Class II. Chung restates Topping's criteria for defining these two word classes as follows:

(1) a. Class I words form predicates of passive clauses with the infix *-in-* or the prefix *ma-*; Class II words do not.
   b. Class II words serve as predicates of clauses whose subject is a weak pronoun (*yo'*-type pronoun); Class I words do not.

Chung notes that these lexical categories correspond roughly to "transitive verbs" (Class I) and "everything else" (Class II). Chung argues against this analysis of the lexical categories of Chamorro, and instead argues for a division into Noun, Verb and Adjective.[1] Chung's criteria for the traditional three-way division are given in (2):

(2) a. Nouns can undergo incorporation into the verbs *gai* 'have' and *tai* 'not have' when in the role of the possessed item; Verbs and Adjectives cannot.
   b. Nouns can be combined with the stressed prefix *mí-* to form Adjectives with the meaning 'having lots of [Noun]'; Verbs and Adjectives cannot.

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1 In this commentary, as in much typological work, language-specific categories (e.g. Noun) are capitalized, while universal categories (e.g. noun) are in lower-case.

c. Verbs and Adjectives trigger Subject indexation (agreement); Nouns do not.

d. Nouns and Adjectives allow a Bare Indefinite phrase containing a Possessor phrase to serve as Subject; Verbs do not.

In addition, Chung distinguishes these three major lexical categories from other lexical categories by the criterion in (3):

(3) Major lexical categories can serve as predicates in infinitive form in a non-finite embedded clause; other categories cannot.

Both Topping and Chung appeal to distributional facts about words in Chamorro. Why do they come to different conclusions? The answer, of course, is that Topping and Chung use different constructions to define lexical categories, and the different constructions define different distributions. How can we decide which analysis offers a better description of Chamorro? Do we have any reason to believe that Chung's constructions reveal the "real" parts of speech of Chamorro – or that Topping's do?

This question cannot be answered. The methodological and theoretical problem is found in remarks at the beginning and end of Chung's paper:

> The *evidence* for identifying the lexical categories of a language is language-particular (p. 2) . . . 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 1999). 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 [sic] be discovered' (p. 49).

In other words, there is no direct link between theoretical concept and empirical fact. This assumption is widespread in generative grammar, though not ubiquitous; Chung cites Culicover (1999) in particular. The effect, however, is that there is therefore no theoretical reason to choose the language-particular constructions in (2a–d) over those in (1a–b) in deciding on the lexical categories of Chamorro – or vice versa. Instead, the analyst looks for those constructions that fit their theoretical expectations. In Chung's case, the theory is the traditional division into three parts of speech; we do not know what motivated Topping's decision.

Chung argues in favor of her analysis over Topping's at the end of her article. After acknowledging that the distributional facts in (1a–b) are "true observations about the language", she argues that "these observations covered far too small a slice of Chamorro morphology, syntax, and lexical semantics to lead to robust conclusions" (p. 50).

Chung's critique focuses on the fact that Topping's analysis is what Croft (2001: 32) calls a "lumping" approach to lexical categories, because Topping's Class II lumps together what she calls Nouns, Adjectives and (intransitive) Verbs (we will return to Class I below). Chung's analysis is a "splitting" analysis: she finds other constructions in Chamorro that distinguish what she calls Nouns, Adjectives and Verbs.

But why choose those constructions? There is much more to the grammar of Chamorro than the constructions in (1a–b) and the constructions in (2a–d), a total of just six constructions. There are many, many more constructions in Chamorro (in the modern, broad sense of 'construction' in Construction Grammar) that could be used to define lexical categories. In fact, we would expect that bringing in all the constructions of Chamorro – the empirically most honest approach – to define lexical categories would lead to splitting the lexicon of Chamorro into a very large number of very small categories. For example, Gross' grammar of French found that no two lexical items had exactly the same distribution (Gross 1979: 859–60; see Croft 2001: 36 and other references cited therein). Chung's analysis is only a "splitting" analysis in comparison to Topping's. But there is no *a priori* reason to stop splitting at any point, because of the separation of theory from fact encapsulated in the quotations above. Instead, Chung – and Topping – choose the constructions that lead to the conclusions they are interested in. This is METHODOLOGICAL OPPORTUNISM (Croft 2001, chapter 1; Croft 2010): choose the constructions that make the theoretical point that you want to make. This is the real problem, not the fact that Chamorro or other languages are understudied.

One consequence of methodological opportunism is that one is left without an explanation as to why the constructions that one does NOT include in the definition of lexical categories have the distributions that they do. Chung's critique makes it clear that Topping's "lumping" theory cannot explain why his Class II words divide up in the way they do for the constructions in (2a–d). But this argument cuts both ways. Chung's "splitting" analysis cannot explain why predication of Nouns, (intransitive) Verbs and Adjectives is identical in Chamorro (no copula, weak subject pronouns). Nor can it explain why both Adjectives and Verbs have the same Subject agreement. Chung assumes that criterion (2d) is sufficient to distinguish Verbs and Adjectives; but many linguists would treat Chamorro Adjectives as a subclass of Verbs, based on criterion (2c). (And Chung herself treats Topping's Class I as a subclass of Verbs, so she is not systematically rejecting subclasses of lexical categories.) How does one know when one is dealing with a lexical category, or just a subclass of a more inclusive lexical category? Again, there is no answer to this question, because of the disconnect between theory and empirical evidence in Chung's syntactic argumentation, and in most

of the syntactic argumentation found in not only the generative but the structuralist and even the typological traditions (Croft 2001, 2005, 2007a, 2009).

Can generative theory help here? In fact, no. In section 2.1, Chung points out that Distributed Morphology is a generative theory that does not require a set of lexical categories, let alone the set of the traditional three categories. The traditional three categories do not fall naturally out of generative grammar. At the end of her article Chung writes, "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" (p. 49). In fact, it is only by employing methodological opportunism in a particular way that leads to the conclusion that all languages have three major lexical categories. Chung appeals to Baker (2003) in this passage, but Baker is equally methodologically opportunistic; for a critique of Baker's analyses, see Croft (2009).

Even if we were to ignore the methodological problems with Chung's (or Topping's) analysis of Chamorro, and conclude with Chung that there are three lexical categories in that language, how do we know that they are noun, verb and adjective in a universal sense? Chung recognizes this problem, and addresses it in section 4.4. She first refers to syntactic combinations: numerals combine with nouns, in Chamorro and in English, and direct objects combine with verbs, in Chamorro and in English. But these arguments make some significant assumptions. How do we know that Chamorro Numerals are the same category as English Numerals, and that Chamorro Direct Objects are the same category as English Direct Objects? Again, one would have to use distributional evidence to identify the Chamorro categories in the first place, and one would fall again into the trap of methodological opportunism. And then one would have to find a way to identify Chamorro Numerals with English Numerals, and Chamorro Direct Objects with English Direct Objects – the same problem we have with equating Chamorro and English Nouns, Verbs and Adjectives.

Chung then appeals to semantic evidence explicitly, saying that "in the typical situation, a Chamorro 'noun' picks out an object" (p. 26; no criteria are given to determine typicality of situations). She also appeals to Wierzbicka's conceptual primitives, showing that the words for PEOPLE and THING are what she calls Nouns in Chamorro, and correspondingly for SEE, SAY, DO and MOVE (her Verbs) and BIG and SMALL (her Adjectives). Yet at the beginning of the article, she writes that there is "a kind of consensus that lexical categories are not semantically defined; they are structural categories which, within a given language, are differentiated by formal patterns of inflection, morphological derivation, and syntactic distribution" (p. 2). Are the putative universal lexical categories noun, verb and adjective syntactic, semantic, both or what? Chung does not provide a theory that can answer this question.

But such a theory exists, namely Radical Construction Grammar (Croft 2001, 2007a, 2009). Radical Construction Grammar eschews methodological opportunism and applies the distributional method rigorously and consistently. It recognizes that the 'criteria' and 'tests' for categories are actually syntactic constructions themselves. (Note that syntactic argumentation, in using 'criteria' and 'tests' for theoretical categories, presupposes the existence and identifiability of constructions in the process, even in those theories that deny a theoretical status to constructions.) The grammatical facts that are attributed to categories (including lexical categories) in other theories, are in fact characteristics of the constructions used by the analysts. If we accept this, then there is no longer a disconnect between empirical fact and theory.

Constructions, including words, can be identified crosslinguistically, in terms of the functions or meanings that they express. Thus we can compare words and constructions across languages, including Chamorro and English, and see if there are universals that are associated with what are traditionally called 'parts of speech'. Also, the functions of constructions give us a principled basis for choosing particular constructions whose distributions we can compare across languages, and setting aside other constructions. In the case of parts of speech, the relevant constructions are the information-structure constructions described as the major propositional act constructions in Croft (1990, 1991, 2001, 2007a, b): reference, predication and modification. This is the explanation as to why there are three major parts of speech and why they are universal: speakers in all languages employ these propositional acts, and they appear to be the manifestation of a general model of the verbalization of experience (Chafe 1977a, b; Croft 2007b).[2]

But the universals are not lexical categories. The way to a universal theory of parts of speech is to dissociate parts of speech from word classes/lexical categories (this is why the first author shifted terms from "syntactic categories" in Croft 1991 to "parts of speech" in Croft 2001). The reason is that the relationship between lexical class – defined semantically – and propositional act function is not simple or one-to-one. Instead, there are properties of formal expression of lexical semantic categories in propositional act functions that conform to a small set of well-established typological universals that constrain crosslinguistic variation. These universals are manifested in Chamorro as well as English and provide the foundations for a truly universal grammar.

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2 Major propositional acts are differentiated by function from minor propositional acts in Croft (1990, 2007b); the latter correspond to minor categories or grammatical affixes, since the minor propositional acts are those that undergo grammaticalization.

2 Universals of lexical categorization without universal lexical categories: theoretical preliminaries

As remarked in (our) Section 1, Chung acknowledges in (her) Section 2.2 (quoting Jackendoff 1990: 23) that "the mapping between conceptual categories and syntactic categories is not random, but rather 'subject to markedness conditions' ". Here she cites Croft's (2000) work, but misinterprets it, or at least seriously underrepresents it by leaving out the cross-linguistic universals that he proposes.

It is true that Croft identifies unmarked combinations of pragmatic functions and semantic classes, as represented in Table 1 below. However, the prototypical verb, noun, and adjective in Table 1 do not correspond to lexical classes of any individual language. Rather, the relative conceptual (non-)prototypicality of these meaning-function combinations correlates cross-linguistically with patterns of morphosyntactic marking.

Specifically, Croft (2001: 90–91) identifies two such cross-linguistic universals of relative formal markedness. The first, in (4a) below, pertains to *structural coding*, i.e. dedicated formal markers in a specific language that indicate a lexeme's syntactic function; the second, in (4b), pertains to *behavioral potential*, i.e. formal markers in a specific language that express categories, such as tense or number, that are associated with a specific function, but do not mark it as such:[3]

(4) a. In any language, a non-prototypical combination of lexical meaning and grammatical function is marked by at least as much structural coding as a prototypical combination.

		FUNCTION		
		predication	**reference**	**modification**
MEANING	**action**	prototypical verb		
	object		prototypical noun	
	property			prototypical adjective

Table 1: Cross-linguistic prototypes of verb, noun, and adjective (adapted from Croft 2001: 88)

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3 In van Lier (2009: 14) *structural coding* is characterized as a formal "condition" for using a specific word in a specific function, whereas *behavioral potential* is the formal "consequence" of using it in that function.

    b. In any language, a prototypical combination of lexical meaning and gram-
       matical function displays at least as much behavioral potential as a non-
       prototypical combination.

Two points are important to emphasize here. Firstly, contrary to what Chung
claims, it is not the case that Croft "denies the existence of [...] categories with
discrete boundaries" (Chung, p. 7; cf. Croft 2007, where he criticizes Aarts' (2004)
prototype approach to lexical categories). Taking into account the full set of
distributional properties of words – both across the different constructions of a
single language, and in functionally identical constructions across different
languages – yields a myriad of different form classes, but each of these classes in
itself is discrete. The prototype structure of a category is independent of bound-
ary (Croft 2001: 103; Croft & Cruse 2004: 89–91). Although Croft (2001: 103) allows
for the possibility of fuzzy or sharp boundaries, Croft and Cruse (2004: 93–95)
argue that apparent instances of fuzziness are actually variable construals of cat-
egory boundaries. The semantic map model (Haspelmath 2003; Croft 2003; Croft
& Poole 2008) relies solely on category boundaries in order to infer universals of
linguistic categories.

    Secondly, the language- and construction-specific nature of lexical categories
does not spell the end of language universals. On the contrary: the correlations
between the distributional behavior of such categories and the meaning and
function of their members reveal universal patterns of the type in (4) above. These
universal patterns are based on the real diversity found in and across human lan-
guages, rather than being stipulated on the basis of only part of the relevant data.
Moreover, these universals reflect principled tendencies in "human cognition or
human interaction" (Chung, p. 2), namely the propositional act functions and the
lexical semantic classes prototypically associated with them. Structural coding
and behavioral potential define the same asymmetries among values of a category,
which are called *typological markedness asymmetries* (Croft 2003; not to be con-
fused with markedness as a theoretical concept in generative grammar or other
syntactic theories).

    The approach just sketched out casts a radically new light on the wording
that Chung chooses in the context of the postulated presence of universal catego-
ries of nouns, verbs, and adjectives, such as "familiar" and "unsurprisingly", as
well as her choice for "unusual" in the context of categories identified through
language-specific distributional analysis. These formulations, and the character-
ization of "discovering" universal lexical categories in Chamorro as a "routine
contribution" (p. 4) and "a very small point" (p. 47) indicate that what is consid-
ered (un)surprising is dictated by a general requirement of the theoretical frame-
work, namely to maintain universal categories. In reality, the available evidence

shows that every language, Chamorro just as much as English, is "unusual" in the sense of having unique lexical categories, and at the same time "familiar" in that correlations between the meaning, function, and morphosyntactic patterning of these categories are restricted by implicational universals. In other words: Language universals exist because of language diversity, not in spite of it.

It would be truly unusual to find counterevidence to generalizations such as those in (4) above. Just to give some examples of such potential counterevidence: It would be surprising to find a language where an overt derivational marker is used on a group of property-denoting words when they are used for modification, but not when the same words are used for reference (counterexample to (4a)). Also, it would be unexpected to find a language with a class of action-denoting words that do not express tense in predicative function, but a class of thing-denoting words that do (counterexample to (4b)).

3 The universal character of Chamorro's language-specific lexical categories

Chung presents a range of distributional facts about distinct lexical categories in Chamorro. In this section, we will recast these data from the perspective of Croft's theory, that is, by considering the formal patterns exhibited by specific groups of words, in terms of their semantic meanings and syntactic functions.

Croft argues that the universals of parts of speech that are empirically valid across languages are universals of encoding lexical semantic classes into constructions encoding propositional act functions and their associated behavioral potential. The first observation to make is that several of the constructions used by Chung, and by Topping, for their language-specific word classes do not encode propositional act functions, and hence are not relevant to universals of parts of speech; they are instead relevant to universals of other grammatical phenomena.

Topping's criteria pertain to argument encoding and argument structure, namely voice (1a), and choice of what Chung calls a weak pronoun (1b). There is an enormous literature on crosslinguistic universals of argument structure (including alignment and voice). The distributional facts in (1a–b) are relevant to universals of argument structure, not universals of parts of speech.

Of Chung's four criteria in (2), only (2c) pertains to propositional act function, namely the behavioral potential to index the Subject argument in predication. Criterion (2b) is a derivational affix (*mí-*) that adds semantic content over and above a simple shift in propositional act function (in that case, from reference to modification). We are not aware of typological studies of the universals of deriva-

tional morphology, at least not for the semantic shift 'having lots of X', in which to situate the Chamorro distribution. Criterion (2a) pertains to incorporation. There have been some studies of the typology of incorporation (e.g. Mithun 1984), which focuses primarily on the topicality and referentiality of the incorporated argument; to our knowledge, there has not been discussion of the semantic class of incorporated arguments. Criterion (2d) pertains to the definiteness of subjects. As with incorporation, crosslinguistic universals about this construction have focused on the topicality (and referentiality) of the subject argument, but to our knowledge, there has not been discussion of the lexical semantic class of the predicate associated with a less definite subject (apart from predicates found in existential/presentative constructions). The Chamorro distributional facts for Chung's criteria (2a), (2b) and (2d) are intriguing, and suggest new directions to hunt for universals of derivational morphology, incorporation and subject information status. But they are not relevant to the universals of parts of speech associated with propositional act constructions.

In order to situate the grammatical facts of Chamorro in the context of universals of parts of speech, we turn to some relevant facts which are found in Chung's article, Topping (1973) and Chung (1998). The data is incomplete, but we can evaluate the facts that are given. We begin with predication, the most often discussed propositional act construction in the parts of speech literature, and then turn to modification and reference.

We start with action-denoting words (henceforth 'action words'). When Chamorro action words are used in predication, they do not require structural coding and they do exhibit subject indexation (a behavioral potential), as in example (5) (= Chung's (4a)):

(5) *Mumu   i   dos   ch⟨um⟩e'lu   nigap*
    AGR.fight the   two   ⟨AGR⟩sibling   yesterday
    'The two brothers fought yesterday.'

Chamorro thing/person-denoting words (henceforth 'object words') can also be used in predicative function without structural coding, but in that case display less behavioral potential (no agreement), unless they are lexically converted. They do, however, combine with tense marking. This is shown in (6) (= Chung's (4d)):

(6) *Para   batångga-n   karabåo   esti.*
    FUT   shed-L   carabao   this
    'This is going to be a carabao shed.'

Example (6) (and cf. Chung's examples (8c) and (26)) shows that the semantic interpretation of object words in predication requires a minimal though significant semantic change, from a referent of a class (a nonrelational concept; Langacker 1987: 214–17) to the assertion of class membership (a relational concept; Croft 1991: 69–71).

Note that the lack of difference between the amount of structural coding and behavioral potential used for action words and object words in predication is not counterevidence for the universals of parts of speech. What matters for the universals of parts of speech is that at least action words display this behavioral potential, and at least action words have the minimum of structural coding in the predication function.

Chamorro property words behave the same as action words with respect to the distributional facts described above. As shown in (7) (= Chung's (4c)), they index subjects when predicated.

(7) *Mala'it   kurason-ña ennao   na   tåoatao*
    AGR.bitter   heart-AGR that   L   person
    'That man has a bitter heart.' (lit. 'That man's heart is bitter.')

Chamorro's subject indexation construction therefore defines a different word class than subject indexation in English (action+property words vs. action words only). Nevertheless, both Chamorro and English instantiate the universals of predication in Table 1, and in fact, a stronger hypothesis: object predication is typologically more marked than property predication, which in turn is typologically more marked than action predication (Croft 1991: 130, 2001: 96; Stassen 1997: 127). This universal, supported by Stassen's 410 language sample, is obscured if one simply posits the traditional three lexical categories in all languages.

Turning now to reference: object words occur without structural coding in referential function, as shown in (8) (= Chung's (10a)):

(8) *Malingu   i   patgun*
    AGR.disappear   the   child
    'The child disappeared.'

Chung does not discuss reference to properties. Topping describes reference to properties as overtly coded with the infix *-in-*, but gives just one example, *i b(in)aba-n taotao* 'the man's badness' (cf. *i baba na taotao* 'the bad man'; Topping 1973: 104–5). The infix *-in-* is also used for action nominalizations, but it appears that a shift in semantic type is often found, e.g. *i sinangan* 'the thing told' (cf. *sangan* 'tell'). These semantic shifts are discussed further below and in van

Lier (this issue). Reference to actions, or predicates more generally, is expressed with the complementizer *na* and the infinitive infix *-um-* (Topping 1973: 278–9, 185; Chung, pp. 13–16).

Property words use a linker in modification, as shown in (9) below (= Chung's (9c)); there is also a slightly different linker used when the property word follows (Chung 1998: 44–45).

(9) *Hu   li'i' i   dångkulu   na   tåotao*
    AGR   see the big   L   person
    'I saw the big person.'

Action words also use the *na* linker (Topping 1973: 208; no examples given), as well as the relativizers *na* and *nai* (Topping 1973: 149–50, 279–81). Object words functioning as modifiers must also be construed relationally, that is, involving a semantic relation between the modifying object concept and the referent object. It is difficult to find a semantically minimal object modifying construction because of this fact; Croft (1991, 2001) usually cites the attributive possessive construction. For possession, either the linker or an agreement suffix is used (Chung 1998: 48–50). According to Topping, Chamorro has a variety of other object modification constructions with varying degrees of semantic shift, including the linkers, an *-an* Attributive suffix, the infix *-in-* as an Adjectivizing infix, and possessive classifiers (Topping 1973: 208–9, 180, 187, 223–4).

Although Chamorro has many different constructions from English, and constructions that are similar (such as subject indexation) define different word classes, it appears that Chamorro confirms the universals of parts of speech proposed by Croft (1991, 2001) just as English does. This is the case even though, for instance, Chamorro predicates all three semantic classes (actions, properties and objects) without over structural coding, unlike English, and requires overt coding for modification of all three semantic classes, also unlike English. These differences in distribution would call for differences in word class membership for the relevant construction between Chamorro and English. But they do not call for reformulation of the universals of parts of speech.

4 Semantic shifts (conversion and multifunctionality) and the universals of parts of speech

Many of the examples that both Topping and Chung discuss (albeit with opposite conclusions as to their significance) involve the same word form being used in

different propositional act functions. In some cases, the meaning of the word form differs in the two functions in not entirely predictable ways, that is, the semantic alternation is not entirely regular across the entire semantic class. For example, *se'si'* means 'knife' when it is used in reference, but 'stab' when it is used in predication, as in (10):

(10) *Ma   se'si'   i   babui*
     AGR   knife   the pig
     'They stabbed the pig'.

Chung remarks that this alternation is *not* productive in that not all object words participate in it. This is illustrated in (11) (= Chung's (47b)):

(11) **Ha   guma'   i   istudiånti   siha*
     AGR   house   the student   PL
     'He housed the students.'

Chung argues that this pattern represents *conversion*, in part because it is unproductive. van Lier (this issue) contrasts conversion with *multifunctionality*, in which the occurrence of a word form with some sort of semantic shift is productive and regular.

For the purpose of the analysis of parts of speech here, the issue is the nature of the semantic shift. The analysis presented in Section 3 involves cases of minimal semantic shift, in which it can be argued that the word does not change major semantic class (object, property, action). The chief qualification to this statement is the construal of object words, which are semantically nonrelational, to relational concepts, in particular class membership in object predication but also the various sorts of semantic relationships found in object modification.

In this respect, the phenomenon illustrated in (10) differs from the phenomena illustrated in Section 3. Conversion involves a semantic shift of the word form from one major lexical semantic class (actions, properties, objects) to another. In some cases the semantic shift is more idiosyncratic and unproductive, in other cases it is less idiosyncratic and more productive. But in all cases there is a semantic shift in major lexical semantic class.

Many "lumping" analyses of lexical categories in a particular language, including Topping's analysis of Chamorro, ignore the semantic shifts found when a word form is used in different propositional act constructions. Since one and the same word form is used in multiple propositional act constructions, it is assumed that there is a single lexical category for the language. We do not discuss here issues of regularity and productivity of such semantic shifts (see van Lier,

this issue). Our sole point here is that the semantic alternations found in the Chamorro examples in Chung's article provide further evidence for the universals of parts of speech, namely the privileged correlation of reference with object concepts, predication with action concepts and modification with property concepts. That is, the semantic alternations conform to the universal in (12) (Croft 1991: 74–7; 2001: 73):

(12) If there is a semantic shift in zero coding of an occurrence of a word form in a propositional act construction, whether it is regular or idiosyncratic, it is always towards the semantic class prototypically associated with the propositional act function, that is, the semantic classes in Table 1.

For example, the relatively idiosyncratic semantic shift attested in (10) changes the object word to an action word, to "fit" the predication function of the construction in that example.

4 Concluding remarks: the empirical basis of language universals

Lexical categories are language-specific and in fact construction-specific (Croft 2001; Haspelmath 2007; Cristofaro 2009). This makes it impossible to construct universal, that is, crosslinguistically valid, lexical categories. Languages differ in the constructions that they possess. Even if there is a functionally comparable construction available in two languages, this construction may carve out a specific lexical class in one language, but a very different one in the next, as is the case with Chamorro subject agreement and tense marking. There are two choices that one can make. One can look for constructions that divide words into the classes that one expects to find. Methodologically, this often means comparing apples and oranges; this is not a rigorous way to conduct syntactic argumentation. Practically, this leads to unresolvable disputes, since different linguists expect to find different classes in a language, depending on their theoretical assumptions.

The other choice is to compare like with like: compare functionally equivalent constructions across languages. This route, while methodologically rigorous, leads to nonuniversal word classes: the word classes for functionally equivalent constructions differ from language to language. In fact, it leads to a myriad of word classes in a language, since the many constructions in each language define different word classes. Word classes cannot function as the building blocks of syntactic analysis (Croft 2001, ch. 1).

The variation that is revealed in empirical studies of individual languages, and in crosslinguistic typological analyses, may appear to undermine any possibility of universals of parts of speech. But all this variation is not random. We do not need to disregard variation in order to find universal patterns. In fact, if we do not take variation seriously, we miss the real universal patterns: namely that the formal behavior of language-specific and construction-specific word classes is largely regular and explainable from the degree of prototypicality of the combination of lexical semantic class and propositional act function (Croft 2001, 2007a).

The postulation of universal lexical categories ironically ends up blocking the discovery of genuine universals of parts of speech, which are grounded in functional principles of human cognition and communication. Thus, while Chung is right in stating that "the broad routes by which semantic categories can be packaged into lexical categories are universal" (p. 46), she fails to acknowledge that those routes do not lead to the same word classes, but neither do they lead to randomly diverse destinations in all languages.

Chung believes that "the best theory of lexical categories will affirm their status as universal, purely syntactic categories with discrete boundaries" (p. 49). But, as noted in Section 1, Chung believes that no explanatory theory of the three major parts of speech has been forthcoming. The reasons for this bad news are as follows:

- Lexical categories (word classes) cannot be universal parts of speech;
- Parts of speech are universal when understood as predicative and referential functions (expressed by language-specific constructions);
- Lexical categories are not universal – they are discrete, but language-specific ways of cutting up a conceptual space, in many different ways both within and across languages;
- Lexical categories are not random – they are constrained by universal patterns that reflect degrees of (non-)prototypicality of combinations of lexical semantic classes and propositional act functions.

In short: a fully explanatory syntactic theory of lexical categories does not exist, because universal lexical categories do not exist. Interestingly, as Chung notes, universal lexical categories are not a theoretical requirement of generative grammar. A theory of lexical categories only becomes fully explanatory when we match form with function. The good news is that such a theory already exists: the theory of universals of parts of speech outlined in Section 2. What is still much needed, however, is more empirical flesh on the bones of this theory.

We could not agree more with Chung's final point, namely that we should make our theoretical claims on the basis of more sophisticated empirical bases, in the form of full distributional analyses of individual languages. However, even

if we had such data available for all languages in the world, this would not help us to come to grips with language universals if we keep on postulating nouns, verbs, adjectives on the basis of only a subset of distributional properties.

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