

“Verbal Adjectives” as Adjectives without Phi-features

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1. Why do adjectives seem particularly “verbal” in Japanese?

Japanese adjectives such as *utsukushi* ‘beautiful’ have some unusual properties, as compared to Indo-European languages like English. These properties make them seem like they are somewhat verbal, rather than being “pure” adjectives. In recognition of this, researchers like Miyagawa (1987) and Murasugi (1990) place them in a fourth lexical category, the features of which are nondistinct from both verbs and “true adjectives” (often known as nominal adjectives) like *kirei* ‘beautiful’. This system is summarized in (1).

- (1) verb = +V, -N
 noun = +N, -V
 “true A” = +N, +V
 utsukushi = +V

Perhaps the most important similarity between *utsukushi*-type adjectives and verbs is that the adjectives must bear a tense marking suffix when they modify a noun in Japanese:

- (2) *utsukushi-*(i)* onna, *utsukushi-katta* onna
 beautiful-PRES woman beautiful-PAST woman
 ‘a beautiful woman’ ‘a woman that was beautiful’

In this respect, *utsukushi*-type adjectives are like verbs:

- (3) *hashi-ru* onna
 run-PRES woman ‘a woman who will run’

Japanese is clearly different from English in this respect, where attributive adjectives never bear tense inflections:

- (4) a. a beautiful woman
 b. *a beautifuled woman
 c. *a beautifuls woman

The tensed attributive form of the adjective in Japanese is, however, identical to the predicative form of the adjective. Here the suffix can naturally be considered a fusion of a predicative/copular head with a normal tense marker:

- (5) Hanako-wa utsukushi-i
 Hanako-TOP beautiful-PRES
 'Hanako is beautiful.'

Suppose, then, that *-i* is also a fusion of a copular element and a tense marker in the noun-modifying construction in (2). This implies, in essence, that (2) is a type of relative clause, just as (3) is; its proper literal translation into English is not 'a beautiful woman', but rather 'a woman who is beautiful'. (Note that this construction requires tense marking in English too.)

Further evidence supporting this conclusion comes from word order phenomena. When more than one adjective modifies a noun in English, the order is usually relatively fixed; (6) is a fairly typical example.

- (6) a. the small square house
 b. *the square small house

This contrast presumably has something to do with the compositional semantics of how attributive adjectives combine with nouns, although its exact nature is not well understood. Similar effects are found in many languages, but not in Japanese, where the two possible orders of modifiers are more or less equivalent (Sproat and Shih 1991).

- (7) a. maru-i aka-i e or aka-i maru-i e
 round red picture red round picture

- b. chiisa-na shikaku-i ie or shikaku-i chiisa-na ie
 small square house square small house

Sproat and Shih point out that this difference between Japanese and English follows if Japanese adjectives do not form true attributive modification structures, but rather are relative clauses. Relative clauses can be stacked onto noun phrases in any order even in English:

- (8) a. the house that's small that's square
b. the house that's square that's small

A third relevant fact about adjectival modification in Japanese concerns the distribution of so-called nonintersective readings. The predicate nominal in the English example in (9) is ambiguous between two readings. It can have the intersective reading, in which Olga is both a dancer and someone who is beautiful in the usual way (i.e., she has an attractive face). But it can also have a nonintersective reading, in which Olga is beautiful in a special way that is relevant only to dancers—i.e., she dances beautifully. This reading is compatible with there being nothing beautiful about Olga that would be noticed in an ordinary still photograph (Siegel 1980).

- (9) Olga is a beautiful dancer.
(she is beautiful or she dances beautifully)

Similar-looking constructions in Japanese are not ambiguous in this way. (10) has only the intereseptive reading (Mika Kizu and Hironobu Hosoi, personal communications).

- (10) utsukushi-i kashu/ utaite
beautiful-PRES singer
'A singer who is beautiful' * as 'someone who sings beautifully'

Once again, this difference between the two languages can be explained by saying that Japanese adjectives do not enter into relationships of true attributive modification with nouns, but only modify nouns indirectly, by forming relative clauses. This works because adjectives in relative clauses do not receive nonintersective readings in English either.

(11) Olga is a dancer that is beautiful.

(does not naturally mean that Olga is a dancer who dances beautifully)

So far, then, we have three sources of evidence that adjectives cannot be merged directly with nouns in Japanese to form a construction that has the distinctive syntax and semantics that is usually associated with attributive modification. They can only modify nouns indirectly, by combining with predicative/copular elements and tense to form a relative clause construction. In this respect, adjectives in Japanese are like verbs in both English and Japanese, which cannot modify nouns directly (**a hunger child*, **a shine light*) but must form relative clauses (*a child who hungers*, *a light that shines*). Yet on many functionalist accounts, the ability to modify nouns is the defining, characteristic property of adjectives (Croft 1991; Bhat 1994). So then we must ask whether words like *utsukushi* are really adjectives at all. Perhaps they are verbs that have a funny inflectional paradigm. Or if that is going too far, perhaps they are ‘verby’—a bit more like verbs than adjectives in Indo-European languages are. This seems like a possible case in support of the wide-spread functionalist view that there is a continuum of possible lexical categories and different languages divide up this continuum in different ways.

The quasi-continuous view of lexical categories does not fit well with formal generative theories, however, which depend on discrete features of various kinds. If adjectives are +N,+V and verbs are +V,-N (Chomsky 1970), then there is no clear possibility of a category that lies between the two. (Miyagawa’s trick of saying that *utsukushi* is +V, 0N is an attempt to avoid this, but it is not clear what theoretical meaning there is to having a zero value for this kind of feature.) This is even more clear in my own, more substantive theory of lexical categories (Baker 2003). I define verbs as lexical categories that have a specifier, nouns as lexical categories that bear a referential index, and adjectives as lexical categories that have neither. If these definitions are on the right track, then there clearly can be no literal theoretical meaning to a term like ‘verby adjective’. We would have to interpret that as a lexical category that has some percentage of a specifier—which is absurd. Generative methodology thus forces us to be very suspicious of claims that there are intermediate or hybrid lexical categories.

In the rest of this paper, I argue that the suspicion is warranted. First I argue that words like *utsukushi* behave exactly like adjectives in English and unlike verbs in every way other than attributive modification. Then I claim that there is a simple reason why adjectives cannot form attributive modification structures with nouns in Japanese. A reasonable

formulation of the fundamental linguistic operation Merge (Chomsky 1995) says that Merge can only apply when there is a feature checking relationship between the two merged items. Since lexical selection features are not relevant to attributive modification, there must be phi-feature checking between the adjectives and the nouns. But adjectives in Japanese and various other languages are different from Indo-European languages in that they do not have phi-features. That is why adjectives cannot modify nouns directly in those languages, I claim. This provides an explanation for the phenomena that have been used to say that Japanese adjectives are ‘verby’, but it is entirely compatible with a discrete formalist theory of the lexical category distinctions.

2. Japanese ‘verbal adjectives’ are really adjectives

The first step, then, is to be sure that words like *utsukushi* are adjectives in every respect except for their inability to form attributive constructions by merging directly with a noun. Ohkado (1991) and Nishiyama (1999) have already argued that there is no major category difference between ‘verby adjectives’ and ‘nominal adjectives’ in Japanese. In what follows, I basically repeat some of their arguments, briefly reviewing how they are underwritten by the general theory of lexical categories presented in Baker (2003).

The theory of lexical categories in Baker (2003) was developed explicitly to be able to give a principled theoretical way to compare categories across languages. The theory is built around the definitions in (12), together with the axioms in (13).

(12) The typology of lexical categories:

	Has criterion of identity/ referential index	No criterion of identity/ referential index
Has a (θ -marked) specifier	***	Verbs
Has no (θ -marked) specifier	Nouns	Adjectives

... with adpositions treated separately, as part of the functional category system.

(13) Basic axioms:

- a. All the θ -roles of a head must be coindexed with a maximal projection immediately dominated by a projection of that head.

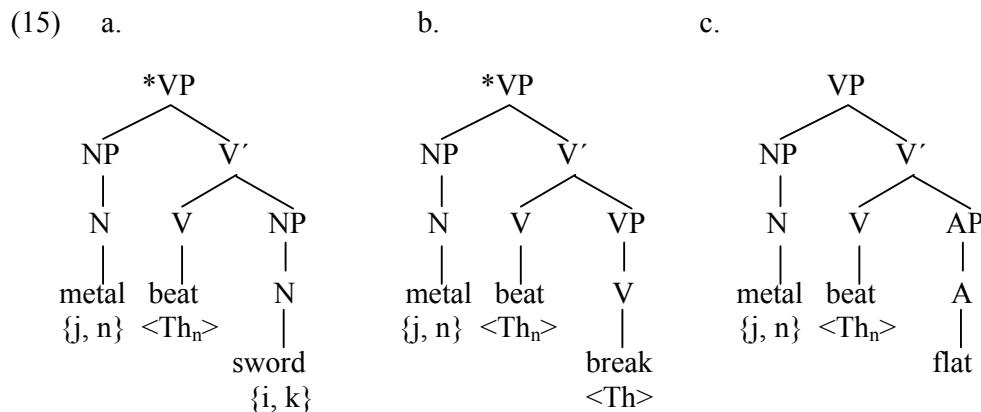
- b. A referential index must be coindexed with a dependent element that it c-commands (a theta-role, a bound pronoun, or a trace of movement).
- c. No syntactic node can bear both a referential index and a theta role.

Unlike Chomsky's (1970) familiar feature system based on the arbitrary and meaningless features $+/‐N$ and $+/‐V$, the features in (12) play into important syntactic principles—particularly those in (13). Simplifying somewhat, (13a) says that verbs must assign a theta-role to phrases inside their maximal projection, including the specifier position that only verbs license. This is half of the traditional Theta Criterion. (13b) says roughly that nouns (because they have a referential index) must receive a theta role (or enter into an equivalent binding relationship). This is the other half of the Theta Criterion. Adjectives have neither property; they are the only lexical category that need not assign a theta role and may not receive one. It follows that adjectives appear in all and only those constructions in which there is no theta-role to give or to receive.

What are such positions? One canonical one is the resultative secondary predicate position. In English, APs can function as resultative secondary predicates but nouns and verbs cannot:

- (14) a. I beat the metal flat. (AP)
 b. *I beat the metal break/broke/breaking (VP)
 c. *I beat the metal (a) sword. (NP)

Structurally speaking, syntactic constituency tests show that resultative secondary predicates are complements of the verb (see Baker (2003) for details; in (15) I express this using Larsonian shell structures, although this is not crucial):



This is exactly the right configuration for using an adjective. A verb like *beat* has only a single internal theta-role, but appears with two phrases in its maximal projection. Thus, the two phrases cannot both be nouns; the ungrammaticality of (14c)/(15a) follows from (13b). A verb like *break* is impossible as the second complement of *beat*, because the first phrase *metal* is not in the right configuration to receive its theta-role (which would give the intended interpretation). Thus, barring some kind of complex-predicate formation (which happens in languages with serial verb constructions), (14b)/(15b) is ruled out by (13a). However, the AP in (14a)/(15c) does not need to receive a theta-role not to give a theta-role, so it violates no principle of grammar, and is acceptable. (See Baker (2003) for further discussion.)

Importantly for our purposes here, *utsukushi*-class adjectives can act as resultative secondary predicates in Japanese (Ohkado 1991; Washio 1997). They differ in this respect from verbs:

- (16) a. Taroo-ga kami-o mizika-ku kit-ta.
 Taro-NOM hair-ACC short-AFF cut-PAST
 ‘Taro cut the hair short.’
- b. #Taroo-ga kami-o ochi(-te) kit-ta
 Taro-NOM hair-ACC fall-AFF cut-PAST
 ‘Taro cut the hair so that it fell.’

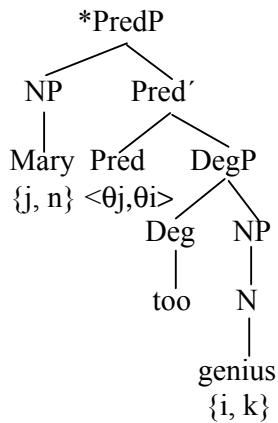
Thus, the account that I just sketched for English can carry over to Japanese with no special difficulties. But we must conclude that *utsukushi*-class adjectives are not halfway between normal adjectives and verbs in this respect; rather they are exactly like adjectives and not at all like verbs. Here we see nothing verby about them.

Another syntactic position that allows only adjectives in English is the complement position of a dedicated degree word like *too*, *so*, *as*, or *how*. Adjectives are possible there, but nouns and verbs are not, even when they denote states that can hold to varying degrees.

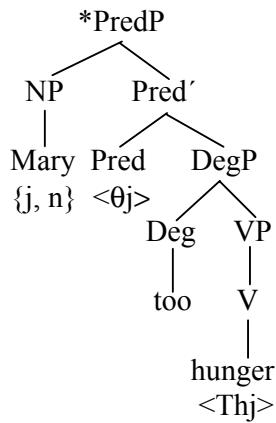
- (17) a. Mary is *too* smart (to make such a mistake).
 b. *Mary is *too* (a) genius (to make such a mistake).
 c. *Mary *too* hungers (to think straight).

The logic is similar to what we saw above. A noun phrase can be the direct complement of a copular element, from which it would get a theta role; this is the source of predicate nominal constructions in my theory. But once the noun phrase is embedded in a Degree Phrase, it is no longer close enough to the theta-role assigning element to receive a theta-role. Thus (17b) violates (13b) under the analysis in (18a). Similarly, if a verbal projection is embedded under a Degree head it is too far from the subject to assign its theta-role to it. Thus, (17c) violates (13a) under the analysis in (18b). Adjective phrases, however, do not receive or assign theta-roles, so they alone are unaffected by being embedded under an inert functional element like a Degree head. This explains the grammaticality of (17a) in English (again, see Baker (2003) for important details).

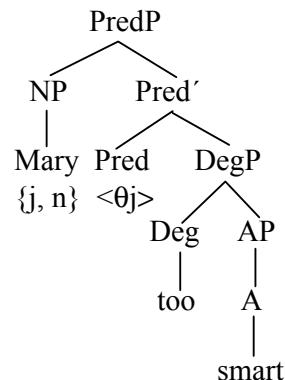
(18) a.



b.



c.



This analysis can also be carried over to Japanese. Ohkado (1991) shows that Japanese has degree-like elements such as *totemo* ‘very’ that can combine with adjectival predicates, but not with nominal or verbal ones:

(19) a. Hanako-ga totemo utsukusi-i. (A) (Ohkado 1991)

Hanako-NOM very beautiful-PRES.

‘Hanako is very beautiful.’

b. *Hanako-ga totemo sensei-da. (N)

Hanako-NOM very teacher-COP

‘Hanako is very (much a) teacher.’

- c. *Hanako-ga totomo okasi-o tabe-ru. (V)
 Hanako-NOM very sweets-ACC eat-PRES
 ‘Hanako very (much) eats sweets.’

My explanation is essentially the same as for English.¹ But again we must conclude that *utsukushi* is exactly like an adjective and not all like a verb in this domain.

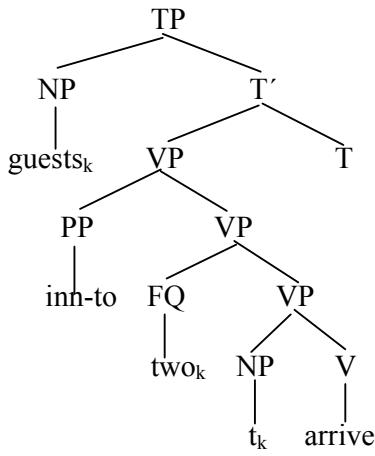
A third consideration is that adjectives do not pattern with thematically similar (i.e., nonagentive) verbs with respect to unaccusativity diagnostics. The best-known unaccusativity diagnostic in Japanese is Miyagawa’s (1989) floated quantifier test. A numerical quantifier can be separated from the subject by an adverbial expression if the verb is an unaccusative one ((20a)), but not if it is an unergative. If *utsukushi*-type adjectives were really ‘verby’ in Japanese, one would expect them to behave like unaccusative verbs in this respect. But that is not the case; a floated quantifier cannot naturally be separated from the subject by an adverbial element when the predicate of the clause is adjectival, as shown in (20b) (Mika Kizu and Koichi Nishitani, personal communication).

- (20) a. Kyaku-ga ryokan-ni (2-ri) tsui-ta. (V)
 guests-NOM inn-to 2-CL arrive-PAST
 ‘Two guests arrived at the inn.’ (Miyagawa 1989: 662)
- b. Kodomo-ga eeyoo-busoku-de (*san-nin) yowa-kat-ta. (A)
 children-NOM malnutrition-from three-CL weak-PRED-PAST
 ‘Three children were weak from malnutrition.’

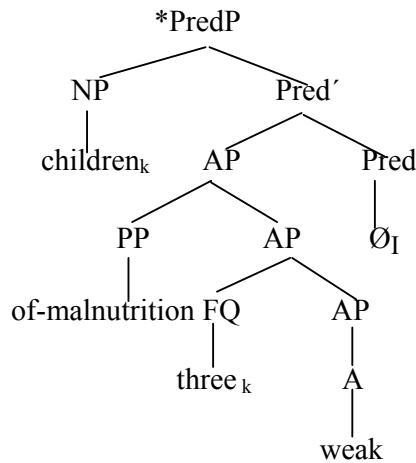
Baker (2003) accounts for this contrast with two assumptions: (i) the floated quantifier must m-command the associated NP or its trace (cf. Miyagawa 1989), and (ii) PPs can only be adjoined to lexical projections. By (ii), we know that the floated quantifier in (20a) is inside the VP. However, the subject is also generated inside VP, as the specifier of V. Hence condition (i) is satisfied; see the structure in (21a). By similar reasoning, we know that the floated quantifier in (20b) is generated inside AP. The surface subject cannot, however, be generated in AP; adjectives are not intrinsic theta-markers, and they do not license specifier positions by definition (see (12)). Rather, the subject of a predicate adjective is generated outside AP, in Spec, PredP in my theory (following Bowers (1993)). Hence the floated

quantifier does not m-command the subject of the adjective or its trace (see (21b)), and (20b) is ruled out (the subject might move on to Spec, TP in (21b), but this is irrelevant).

- (21) a. Unaccusative verb:



- b. Adjective:



As usual, *utsukushi*-class words pattern with adjectives in other languages in ways that clearly distinguish them from verbs.

3. Why are there attributive adjectives in Japanese?

But if adjectives in Japanese are not in any sense verbal, then why can't they merge directly with nouns to form true attributive modification structures?

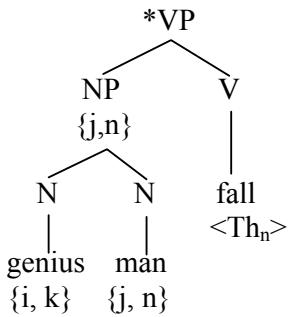
In Baker (2003), I proposed an account of why adjectives but not verbs (or nouns) can be attributive modifiers in English. Examples illustrating this generalization are given in (22).

- (22) a. a rich man; a shiny coin
 b. *a wealth man: a genius man
 c. *a shine coin; a hunger man

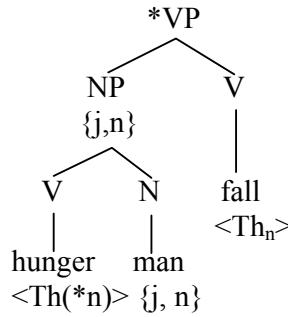
In fact, my analysis was exactly parallel to the analysis of resultative secondary predicate constructions and degree phrase constructions reviewed in the previous section. When a noun is directly merged with another noun to form a noun phrase, there is no distinct theta-role for the second noun to receive; therefore the structure is ruled out by (13b) (see (23a)). When a verb is directly merged with another noun to form a noun phrase, there is no NP that the verb

can assign its theta-role to. In particular, there is no NP in the projection of the “attributive verb”, because by hypothesis the merged constituent is a projection of the noun, not the verb. Therefore (13a) is violated. When an adjective is merged with a noun, however, it need not give or receive a theta-role. The adjective has no positive qualities, so there is no condition that it is at risk of violating. There is nothing to rule out (23c), which is therefore grammatical in English.

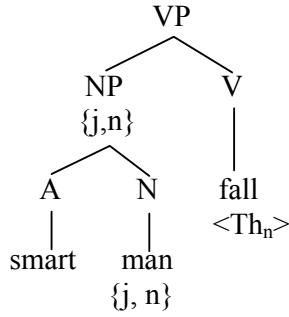
(23) a.



b.



c.



But now this pattern of explanation gets us into trouble. If there is nothing to rule out (23c), then why is (23c) bad in Japanese? Why can't a word like *utsukushi*, which we know to be adjectival, merge directly with a noun like *onna*? Why is the additional predication-and-tense-marking structure realized as *-i* needed? Why does it have the semantic character of a relative clause, and not of an attributive modifier?

- (24) *utsukushi-*(i)* *onna*
 beautiful-PRES woman
 ‘a beautiful woman’ (A)

I realized this problem already in Baker (2003), and offered a stipulative answer in the form of the parameter in (25).

- (25) In some languages, A must be in the minimal domain of a Pred.

This basically captured the fact in question by brute force. Predicative adjectives are always the complements of a Pred head that theta-marks the subject in my system (see, for example,

(21b)). But attributive adjectives are not, as shown in (23c). So (25) does rule out a structure like (23c) in Japanese directly.

There are pluses and minuses to this suggestion. On the plus side, it is independently motivated. The Athapaskan language Slave is another language in which adjectives can be used predicatively but not attributively, as shown by the contrast in (26).

- (26) a. Yenene (be-gho) sho hili (Rice 1989: 389-90)
woman 3-of proud/happy 3-is
'The woman is happy/proud (of him/her).'
- b. *yenene sho (Keren Rice, personal communication)
woman proud/happy
'a proud/happy woman'

The only way to say 'a proud woman' in Slave is to use a relative clause construction that is the equivalent of 'a woman who is proud'. (Indeed, the fact that it is a relative clause is more obvious in Slave than in Japanese, because the copula is separate from the adjective (as in (26a)) and there is an overt complementizer in Slave relative clauses.) The South American language Ika is yet another language of this general kind, where 'big' cannot merge with a noun like 'animal' unless it is supported by a copular verbal element (Frank 1990).

- (27) aná?nuga [awʌn? *(kawa)] guákʌ-ža
animal big seem kill-MED
'It kills big animals.'

So there are other languages to which (25) would apply.

On the negative side, (25) is clearly stipulative, and does little more than recapitulate the facts. It is also theoretically deficient. It is common in linguistic theory to say that such and such a linguistic item must select a category of a particular type as its complement. Examples of this are abundant: complementizers select clauses, determiners select NPs, Tense heads select VPs, and so on. But (25) is the opposite: it says that a particular category must be selected by a given head. That is a kind of stipulation that is without clear theoretical precedent or rationale; hence it is a dubious extension of the theory.

Even worse, (25) does not work perfectly. Strictly speaking, it is violated in a construction in which the AP merges with a Degree head before combining with Pred to form a nonverbal predication structure like ‘is too smart’ (see (18c)). Then the adjective is not in the minimal domain of Pred, because it is properly contained in another phrase (DegP) which is in the domain of Pred. Yet such structures seem to be possible even in languages that disallow direct attributive modification; at least it is in Japanese (see (19a)). (25) could be patched to fix this problem, but that will hardly increase its attractiveness. If one is going to tolerate a naked stipulation in the theory, at least it should work well.

4. Toward a Fuller Theory of Attributive Adjectives

It is doubly desirable, then, to see if we can derive something like (25) from more plausible theoretical principles. In this section, I suggest that this is indeed possible, and considering how Japanese contrasts with other languages can help to show us how to do it.

I begin with the familiar observation that nominal modifiers show agreement with the phi-features (number, gender, and perhaps case) of the modified head in many languages, including Romance languages, Slavic languages, Bantu languages, some Australian languages, New Guinean languages, Eskimoan languages, and so on. Adjectives in particular are included in this generalization. Some simple illustrations are given in (28).

- (28) a. este libro; estas mesas (Demonstratives, Spanish)
 this(M.SG) book(M.SG); these(F.PL) tables(F.PL)
- b. el libro rojo; las mesas rojas (Adjectives)
 the(M.SG) book(M.SG) red(M.SG) the(F.PL) tables(F.PL) red(F.PL)
- c. Maria anz-ire eri-tunda ery-o Kambale a-gul-a.
 Mary like-ASPCL5-fruit CL5-that Kambale 3sS/T-buy-FV
 ‘Mary likes the fruit that Kambale bought.’ (Relative clause, Kinande)

A disagreeing modifier cannot be adjoined to a nominal projection in these languages (e.g., *el libro rojas, *las mesas rojo in Spanish). Indeed, even nonagreeing modifiers cannot be adjoined to nominal projections in these languages. For example, the Bantu language Kilega has two small classes of adjectives, exemplified by *soga* ‘nice’ and *lugali* ‘lying, prone’. In

predicative contexts, *soga*-class adjectives agree with the subject of the clause in number and noun class, but *lugali*-class adjectives do not ((29a,b)). This correlates with the fact that *soga*-class adjectives can be direct attributive modifiers of the noun ((29a')) but *lugali*-class adjectives cannot be ((29b')) (data and generalizations from Kinalolo (personal communication)).

- | | | |
|-----------------------------------|-----------------------------|----------|
| (29) a. Ki-sumbi ki-(li) ki-soga. | a'. [ki-sumbi ki-soga] | (Kilega) |
| 7-chair 7-be 7-nice | 7-chair 7-nice | |
| ‘The chair is nice.’ | ‘the nice chair’ | |
| | | |
| b. Mu-ntu a-(li) lugali. | b'. *[mu-ntu lugali] | |
| 1-man 1-be lying | 1-man lying | |
| ‘The man is lying on his back.’ | ‘the lying on his back man’ | |

Lugali-class adjectives can only function as modifiers of nouns by appearing in relative clauses (the equivalent of ‘the man who is lying on his back’). So it is not enough to say that a modifier cannot conflict with the head it attaches to in phi-features; rather it must positively agree with the modified head in phi-features.²

Suppose that we take this empirical observation about some languages and elevate it to the status of a principle of Universal Grammar, as stated informally in (30).

- (30) Modifiers can be adjoined to N^x only if they agree with N^x in phi-features.

(30) is, I claim, the theoretical principle that replaces (25), explaining why some languages have adjectives that they do not use as attributive modifiers. But before seeing how this works, we can ask why (30) is true. I suggest tentatively that (30) might be a special case of the still-more-basic principle in (31).

- (31) Merge (X, Y) is allowed only if X checks a feature of Y or vice versa.

Chomsky (1995) presents Merge as the most basic grammatical operation, which freely combines items to form new syntactic objects. But suppose that there is no such thing as an unmotivated merge, but that merge always needs a local syntactic justification that can be modeled as feature checking of one sort of another. For complements, this requirement is

automatically satisfied by virtue of the selection relationship that generally holds between a head and its complement. We can say that the merger of a head and its complement checks the selection features of the head. Thus, there is no need for a head and its complement to agree in phi-features; they may (perhaps), but they need not. Similar considerations would hold for subjects and other theta-marked specifiers. But adjunct modifiers are not selected or theta-marked. Therefore, they can only merge with a head if they enter into some other, less semantically-motivated feature-checking relationship, such as phi-feature agreement. A lot of work would be required to develop (31) in full detail,³ but it seems like a promising way to derive (30) from more general considerations.

Additional independent motivation for (30) comes from Baker, Aranovich, and Golluscio's (2002) crosslinguistic study of noun incorporation. It has been known for a long time that languages with noun incorporation differ as to whether modifiers can be stranded by noun incorporation (Baker 1988). Some allow constructions like 'I basket-bought big' to mean 'I bought a big basket', while others do not. What we observed is that there is an implicational relationship between this property and the agreement properties of the noun incorporation construction. In languages that allow stranded modifiers, the incorporated noun triggers the same kind of object agreement on the verb that an unincorporated noun would, whereas in languages that don't allow stranded modifiers, the complex verb is inflected as an intransitive, which agrees only with its subject. The Australian language Mayali illustrates the positive side of this generalization. (32a) is a simple example of noun incorporation. (32b) shows that there is agreement with the incorporated noun: the prefix on the verb here is *bi-*, showing that the object is human, as opposed to the unmarked prefix *ba-* on the verb in (32a). (32c) is an example that contains an external adjective *al-daluk* 'female', which is interpreted as a modifier of the incorporated noun *yaw* 'child'.

- (32) a. Ngarradj *ba-warde-djobge-ng.* Simple noun incorporation
White.cockatoo 3S-rock-split-PP
'White cockatoo split the rock.' (Evans 1991:264)

- b. *Bi-yaw-ngune-nguneng ginga.* Agreement with incorp'ed N
3S/3OHUM-baby-eat-PP crocodile
'The crocodile ate the child.' (Evans 1991:291)

- c. Al-wakadj ka-yaw-karm-e al-daluk Stranded Adjective is OK.
 Al-wakadj 3/3-child-have-NP II-female
 ‘Al-wakadj has a female child.’ (Evans 1997:400)

Other languages that work like this are Southern Tiwa and Mohawk. In contrast, the Mapudungun language, spoken in Chile, illustrates the negative side of this generalization. (33a) is an ordinary transitive clause; note that the verb bears an object agreement marker *-fi-*, and the adjective *kme* ‘good’ modifies the object noun. (33b) is an example with noun incorporation; in this sentence, the third person object agreement marker *fi* is impossible. (33c) should be parallel to (32c); it shows that an external adjective cannot be interpreted as modifying an incorporated noun.

- (33) a. Pedro ngilla-fi kme waka. Unincorporated sentence
 Pedro buy-3O good cow
 ‘Pedro bought a good cow.’
- b. Ngilla-waka-(**fi*)-n. Incorporation, object agreement lost
 buy-cow-3O-1sS
 ‘I bought a cow.’
- c. *Pedro ngilla-waka-i kme. Incorporation, stranded adjective is bad
 Pedro buy-cow-IND/3S good
 ‘Pedro bought good cows.’

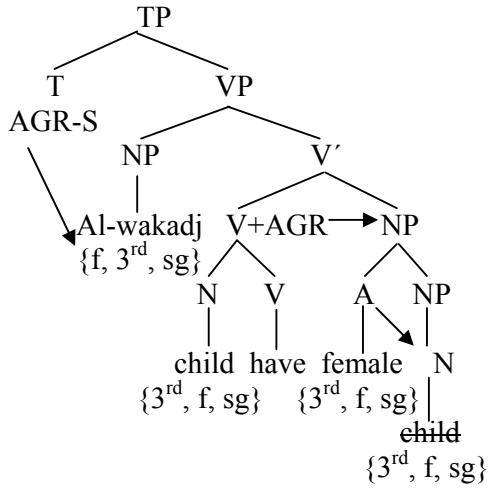
Other languages like Mapudungun in this respect are Nahuatl and Chukchee.

Our explanation for this empirical generalization was based on a combination of (30) and the principle of deletion stated in (34).

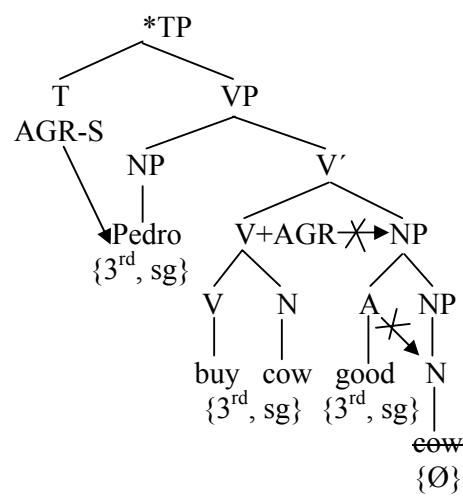
- (34) The deletion procedure which applies to copies of moved elements may:
- (i) preserve the phi-features of the copy, *or...*
 (Wh-traces: Yoruba, Arabic; NI-traces: S. Tiwa, Mayali)
 - (ii) eliminate phi-features entirely.
 (Wh-traces: Nupe, Berber; NI-traces: Mapudungun, Nahuatl, Chukchee)

Within the minimalist program, traces are really copies of a moved element that undergo a process of deletion. The idea behind (34) is that the process of deletion that removes phonological features in all languages also removes phi-features in some languages but not others. This has an immediate effect on object agreement: the direct object headed by the trace of noun incorporation may or may not trigger normal object agreement on the noun, depending on whether its phi-features survive the deletion or not. The crucial thing for current purposes is that this also has an effect on modification, because of (30). If the direct object retains its phi-features after deletion, then a modifier can agree with it in phi-features, and the merger of modifier and noun is possible. If the direct object's phi-features are deleted, then it is impossible for the adjective to agree with the noun, and merger is blocked. Schematic structures are given in (35).

(35) a. Mayali:



b. Mapudungun:



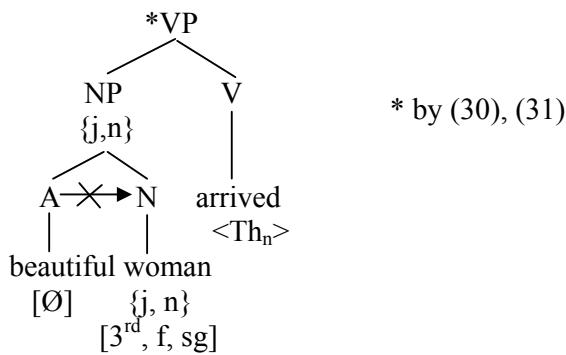
These examples complement the Kilega examples in (29). The Kilega examples present a language-internal contrast showing that the adjective must have phi-features for attributive modification to be possible; the Mapudungun examples present a language-internal contrast showing that the noun must have phi-features for attributive modification to be possible.

With all this as background, we now return to Japanese. The application is straightforward; all that needs to be said parametrically is (36).

(36) Adjectives in Japanese (and Slave, and Ika) have no phi-features.

Essentially what this says is that all adjectives in Japanese are like *lugali*-class adjectives in Kilega. They can be used predicatively; when they are, they are the complements of a Pred head (Baker 2003) and check the selection features of that head. It is not necessary that they agree with anything, and hence not necessary that they have phi-features. But they cannot be used attributively. Here there is no relationship of selection, so phi-feature agreement is required. Japanese adjectives simply do not have the features that they need to support this. The impossible structure is given in (37).

(37)



Japanese adjectives can only modify nouns indirectly, by forming relative clause structures in the same way that a verb would. This explains the range of differences between modification in English and modification in Japanese surveyed in section 1.⁴

The parametric statement in (36) is of course very plausible for Japanese, because Japanese is famous for being a language with little or no agreement. But its truth is perhaps even more striking in a richly inflected language like Slave. We saw in (26) above that Slave is like Japanese in that adjectives can be used predicatively but not attributively. Unlike Japanese, verbs in Slave agree with their subjects and objects in phi-features. Nouns in Slave also agree in phi-features with their possessors. So phi-features are definitely active in this language, and are an important grammatical concern (which is not clear in Japanese). Slave is, for the most part, a head-marking language. But adjectives in Slave are strikingly different from the other two lexical categories; they do not agree with anything, but have a single invariant form. The difference is illustrated in the partial paradigm in (38), based on Rice (1989).

(38) Inflection of lexical categories in Slave:

Subject/Poss'er	'eat' (verb)	'hand' (noun)	'happy' (adjective)
1 st sing	shée- <i>h-tí</i>	<i>sí-lá</i>	<u>sódi</u>
2 nd sing	<i>ne-?á</i>	<i>ni-lá</i>	<u>sódi</u>
3 rd sing	shé-Ø- <i>tí</i>	<i>bi-lá</i>	<u>sódi</u>
1 st , 2 nd plural	<i>hit-‘á</i>	<i>naxi-lá</i>	<u>sódi</u>
2 nd plural	shé- <i>ah-tí</i>	<i>naxi-lá</i>	<u>sódi</u>
3 rd plural	shé-Ø- <i>tí</i>	<i>go-lá</i>	<u>sódi</u>

This is good independent typological motivation for the framework of assumptions I have presented here, culminating in the principle in (30) and the parameter in (36).

5. Conclusion

Words like *utsukushi* apparently cannot enter into direct attributive modification in Japanese, but rather form relative-clause-like structures. This could be interpreted as evidence that they are “more verbal” than adjectives in languages like English. But I have shown that in other contexts they behave exactly like ordinary adjectives, and not at all like verbs—a result that is consistent with a generative commitment to discrete category distinctions. Instead, the fact that these adjectives cannot modify nouns directly can be attributed to an independent factor: the lack of phi-features on adjectives in Japanese. Phi-feature agreement is needed to bind together a noun projection and an adjective into a coherent phrase, as expressed in (30)/(31). This analysis fits the Japanese facts into an attractive typological picture that relates them to properties of attributive modification in other languages, including the contrast between agreeing and nonagreeing adjectives in Kilega, the contrast between incorporated and unincorporated nouns in Mapudungun, and the contrast between inflected nouns and verbs and invariant adjectives in Slave.

Notes

¹ One minor difference in the analysis is called for. *Totemo* does not seem like a functional head; if it were, then it should follow the adjective in a systematically head-final language like

Japanese. The problem is easily fixed: we can assume that Japanese has a phonologically null degree head, and that *totemo* is generated as a specifier (or adjunct) within the Degree Phrase it heads. The same results follow. I tentatively assume that this is the case.

² Not all adjectives in Spanish show agreement in phi-features as fully as *rojo* ‘red’ does. For example, *inteligente* ‘intelligent’ inflects for number, but not for gender; it shows up as *inteligente* with both masculine and feminine nouns. My proposal implies that these adjectives do agree with the modified noun in the syntax in exactly the same way that *rojo* does, but the agreement is only partially spelled out in the surface morphology. The idea that theme vowels in Spanish realize gender on the surface sometimes but not always is needed also for nouns in the language; all nouns clearly have gender features (since they trigger gender agreement on adjectives) but not all nouns have a suffix that shows that gender.

This possibility of a partial disconnection between the features that are active syntactically and those that are spelled out in the surface morphology, while well-motivated, makes it harder to check simple typological predictions. In what follows, I will assume that adjectives in Japanese, Slave, and Ika lack phi-features in the syntax, whereas adjectives in English and Mapudungun have phi-features in the syntax but don’t spell them out in surface morphology. For Mapudungun, this abstractness is justified empirically by the noun incorporation paradigm in (33). For English, I have no direct evidence of adjective-noun agreement in the synchronic language, but agreement was visible in its earlier stages.

³ Probably the most urgent question would be to determine how (31) would be satisfied by adverbs and other adjuncts to VP. There are languages like Karyardild (Australian) where adverbs agree with VPs in tense, but this seems rare compared to the phenomenon of adjective-noun agreement and one may not want to project this onto all other languages.

⁴ The question remains of why relative clauses can be NP-modifiers in Japanese, when adjective phrases are not. Relative clauses would also have to agree with the NP they are adjoined to by (30), a requirement that is satisfied overtly in the Kinande example in (28c). One plausible answer would be to say that Japanese relative clauses have a null NP operator in the specifier of the relative clause’s CP projection. NPs have intrinsic phi-features in all languages, we may assume, because phi-features are interpretable on nouns (Chomsky 1995). Therefore, the phi-features on the relative operator can agree with the phi-features of the head of the relative clause, even in Japanese. This is only one possibility; the exact structure of relative clauses in Japanese is a matter of debate which I will not pursue here.

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