

**Yuman plurals:
From derivation to inflection to noun agreement**

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A number of recent articles (Mithun 1988a,b; Frajzyngier 1985; Durie 1986) have raised questions relating to the nature of the grammatical marking of plurality. In particular, they have pointed out that verbal plurality cannot uniformly be treated as obligatory agreement with nominal arguments. The evidence for these observations includes a large number of native languages of the Americas which, as Mithun 1988a has discussed, often exhibit similarities in their grammatical categories which cross-cut genetic boundaries and include prominently the following characteristics which will be further discussed in this paper for a single family.

- a verb form can constitute a grammatical sentence by itself,
- verbs can be marked for more than one plural notion, while nouns (if they have plural forms at all) normally only have a single plural form,
- the presence of a plurally marked subject or object noun does not require a verb marked for plurality of these arguments, and conversely a verb marked for plurality of subject or object (if it has an overt nominal argument at all) does not require the appropriate nominal to be marked for plurality.

In this paper, I propose to discuss the role of plurality in the grammars of Yuman languages.¹ In addition, I wish to raise the question of the historical developments underlying the situation in these languages, but most particularly in Hualapai, a member of the Upland division of the Pai subgroup. The particular nature of the changes involved and their effect on the grammar of Hualapai and other Pai languages are discussed. The distribution of plural forms in texts is also addressed.

Before identifying the problem, some general remarks about the morphology of plurality are in order. Some Hokan language families (of which Yuman is one) share a peculiar trait in the marking of plurality, i.e. it is maddeningly irregular and complex in its morphological expression. This is particularly true in Seri, Chontal, and Yuman, and to some extent in Pomoan. Some comments on the morphology of Yuman plurality are therefore in order.

Nouns rarely have overt expression of plurality. The only nominals to have distinct plural forms are typically derived from verbs and denote humans. They may therefore be assumed to owe the overt marker of plurality to their underlying or historical verbal origin.

Pronouns and demonstratives are the only word types which are not of verbal origin to exhibit plural forms. Neither nouns nor pronouns are required to produce an acceptable sentence.

Verbs mark plurality by a great variety of modifications of the verb stem which are totally distinct from the expression of person. The latter is regularly indicated by prefixes to the stem which refer to subject and object for first, second, and third person with no reference to number.

1. Morphology

Morphological modifications to the verb stems are bewilderingly complex and in general unpredictable, so that plural stems must be listed in the lexicon. However, the types of modifications are finite and plural elements can in fact be reconstructed for Proto-Yuman. They are:

- length ablaut of the (obligatorily stressed) root vowel, i.e. a basic short vowel is replaced by a long one and vice versa (V → V:, V: → V),
- infixation of *č (with various reflexes č, c, t, ʈ, s, or ʃ depending on the language) into the prefix structure of the stem,
- suffixation of *č (with reflexes č, c, t, or ʃ depending on the language),
- suffixation of *p (with reflexes p or v depending on the language),
- prefixation of *n to some verbs of motion and position,
- suppletion,
- infixation of *-u:- immediately preceding the root; this is attested only in the River and Delta-California subgroups because in the Pai languages unstressed long vowels have been reduced to ə or deleted.

In addition to the above modifications to the verb stem, all languages except those of the Delta-California subgroup have a prefix denoting plural object which precedes the person markers (*nʔi:-* or some reduced form thereof in the River languages, and *pa(:)-* in the Pai languages).

The problem is that not only is it impossible to predict which verbs will require which process, but plural stems can be formed using a combination of plural markers (up to four in a single stem), and it is generally impossible to give each of these morphemes a distinct meaning though minor subregularities exist in some languages. In addition, many verbs have more than one plural form; distinctions, depending on the language, include collective and distributive subject, distributive and plural object, habitual/repeated action, paucal and multiple subject, dual and plural subject.

Furthermore, when comparing plural forms across languages (or even across dialects of the same language) the forms of the plural don't necessarily match even in what are otherwise excellent cognates. One sometimes gets the feeling that speakers have a list of processes at hand and, when deciding to produce a plural form, they almost randomly select some and produce a word which other speakers will recognize as a plural form. As Munro (1976:228) succinctly put it: "you can't reconstruct plural verbs, just plural markers."

An example of a nice cognate set where a full stem can be reconstructed (a fairly rare situation) is given below. Note that sound correspondences are exemplary although they will not be discussed here in detail (for a full chart of regular sound correspondences in Yuman, see Langdon & Munro 1977). In addition to the non-plural and plural stems, I have given next to each entry the skeleton of plural markers it exhibits, in their reconstructed Proto-Yuman form. Since this is not a paper on the history of Yuman phonology, this device allows the identification of the plural morphemes at a glance.

Proto-Yuman *mšya:y 'to be afraid' (root *ya:y)

Language	Non-plural form	Plural form	Plural markers
DImg	məxəya:y	məχəyay	..-č-..ablaut
DIja	məʃəya:y	məstuyay	..-č-..-u:-..ablaut
DIlh	šmiya:y ²	štəmyay	..-č-..-u:-..ablaut
CO	mšya:	mščyayp	..-č-..ablaut..-p
MO	masdey	mastu:ɬawv	..-č-..-u:-..ablaut..-p
YU	mašade	maštada:v	..-č-..ablaut..-p
MA	msdi	mstda:v	..-č-..ablaut..-p
YAtol	mše:	mšayv	..ablaut..-p
HA	mse:	msa:y	..ablaut..
HU	mise:	misayč	..ablaut..-č
PA	mše:	mše:y	..ablaut..

2. Grammar

The presentation so far was intended simply to demonstrate the complexity of plural forms in Yuman. The major topic to be addressed, however, is the proper characterization of the role of plural forms in the grammar of these languages. Expectations from more familiar languages would suggest that, in spite of all the semantic and lexical complications, an analysis in terms of verb agreement might still be maintained. I believe such an account would be at best awkward, and at worst misleading for the following reasons.

First of all, only in the most abstract view of syntax could there be anything for the verb to agree with when a sentence consists of only a verb. Appeal to deleted elements only relegates the problem to invisible entities, the characterization of which would raise enormous complications. As already noted, overt noun-phrase subjects and objects are never required; but the strongest argument against an agreement analysis is that plural verb forms are never obligatory: the same semantic content can be expressed using the non-plural or the plural form. Therefore, if a plurally marked noun is present, the verb need not be marked for plurality; if a plurally marked verb form is present, the nominal triggering the putative agreement need not be marked for plurality, and unmarked overt nouns with unmarked verbs can also be interpreted as plural. This does not mean that there are no sentences where a plurally marked noun functions as subject (or object) of a plurally marked verb, simply that this state of affairs does not appear to be governed by regular syntactic rules.³

Perhaps inflection is a better term to characterize this phenomenon, since it does not require an overt element to agree with. Inflection is in fact a fine term to characterize person marking, which is quite regular in Yuman, and which determines to some extent which nominal arguments may appear with a particular verb form, i.e. verbs marked for first person subject may have as subject a first person emphatic pronoun, but not a third person one, etc. The plural facts, however, with all their irregularity of morphology and syntactic behavior, are more compatible with a description in terms of derivation, and I have described the plural stems of Diegueño as derived from their non-plural counterparts (Langdon 1970:107-124). Other Yumanists have used different terminology including agreement although the use of that term is not usually further justified, but all concur that plural forms must be listed in the lexicon and few have addressed even casually the issue of their syntactic behavior.

The earliest description of a Yuman language, that of Halpern (1946,1947) for Yuma also was the first to note the complexity of the plural formations; they are discussed under the heading of "conjugation" of the verb theme. This is a nice old-fashioned term which seems quite apt. I looked it up in my several dictionaries of linguistics and found it only in Pei and Gaynor (1954)

who define it as follows: "the scheme of the modifications of the verb, by means of inflection, prefixes, auxiliaries, etc. to express various tenses, moods, voices, persons, and number", vs. "inflection" which they say denotes "grammatical relationships and function and aspect." Conjugation somehow straddles the line between inflection and derivation and as such seems to capture the facts fairly well.

Regardless of what label is decided upon, however, plural forms in Yuman languages have to be lexically specified and so far no syntactic rules have been proposed to account for their behavior. Only Kendall (1976:8-15) has pointed out that the situation in Yavpe Yavapai presents a problem for the early 1970's generative-transformational framework, and she attempts to account for the facts using an interpretive approach.

3. Semantics

It seems appropriate at this point to characterize each language not in terms of the complexities of the morphology, but in terms of the semantic distinctions of plurality identified in the descriptive literature. Note that the existence of several semantic categories of plurals does not imply that they each necessarily have a distinct form in the languages under discussion. The order of presentation is by subgroup, River, Delta-California, Pai, Kiliwa.

River:

Yuma (Halpern 1947:92-107, 148) distinguishes collective vs. distributive plural subject, distributive object, plural object and habitual/repeated action. Collectives most often are dual or paucal, as opposed to distributives, which are multiple.

Maricopa is believed to have been a dialect of Yuma whose speakers moved from an earlier location along the Colorado River to their present location close to Phoenix, Arizona. The basic distinctions of plurality are dual vs. plural subject, plural object, as well as repeated/habitual action (Gordon 1986: 22-23, 90-102). Another dialect (Alpher n.d., Hinton 1971ms) has dual/paucal vs. multiple distinctions instead of dual only.

Mojave (Munro 1976:14-16; 224-228) distinguishes plural subject, plural object, and plural action, with one instance of paucal vs. multiple subject.

Delta-California:

Cocopa (Crawford 1966:70-76) marks collective subject, distributive subject, distributive object, plural action. However, Crawford (1989:4) also notes **duals (rare) and paucals**.

Diegueño has a number of dialects for which information is available in varying degrees of detail.

- Mesa Grande (Langdon 1970:107-124) has traces of the collective vs. distribute plural subject distinction, and also differentiates plural object and plural action. Many verbs only have one plural stem.

- La Huerta (Hinton 1971) distinguishes plural subject, plural object (probably), and multiple/habitual action, though it is not clear whether verbs may have more than one plural form.

- Jamul (Amy Miller, p.c.) very rarely has more than one plural form, but plural forms can denote plural subject, plural object, and repeated action.

- Imperial Valley (Walker 1970) has plural stems which seem to be used indiscriminately to mark **the distinctions of other dialects**.

Pai:

Paipai (Joel 1966:21, 41-47) has many plural distinctions morphologically; their semantic functions are unclear.

Havasupai (Hinton 1984:122-127) makes distinctions of plural subject, plural object, multiple/habitual or intensive action. A few verbs distinguish paucal from multiple subjects.

Yavapai has several dialects which have been discussed by several investigators.

- Shaterian (1983:95-96), who worked on several dialects of Yavapai, notes special verb forms for plural subject and plural object; a few verbs have dual vs. plural distinctions.

- Verde Valle--a Yavpe subdialect--(Kendall 1976:8-15) has plural and multiple plural subject, plural or intensive action, plural object. Semantically plural verbs are obligatorily marked for plurality, nouns optionally so.

- Tolkapaya (Hardy 1979:15-18) exhibits distinctions of plural subject, plural object, and a few verbs have dual vs. plural subject forms. Hardy states emphatically that the use of plurally-marked verbs is obligatory with plural semantics, that of plural nouns optional.

Kiliwa (Mixco 1971) has plural subject and plural object and some traces of the collective vs. distributive distinction.

4. Historical semantics

Historically speaking, it seems clear that the more complex distinctions are of an archaic nature. Note in particular that the description of Yuma is based on the speech of conservative speakers and was collected in the 1930's. It is not possible to decide whether the distinctions in Yuma were also present in Proto-Yuman but something somewhat like this must have existed for some time, given the existence of the reconstructible morphological markers, although their initial function may have been slightly different from any of the attested ones.

The differences among the various languages are not major and some general remarks can be made. Note that Maricopa (Gordon 1986) is stated to be the only language which systematically has dual forms. While this is true synchronically at least for Gordon's consultants (since Alpher found instances of paucals corresponding to Gordon's duals), the differences are more of degree than absolute. Remember that Yuma and Maricopa were recently dialects of the same language and that Yuma collectives often denote dual or paucal entities. The semantic association of collective with paucal or dual is very plausible and it seems that Maricopa has simply generalized the dual pole of the semantic range.

Most other languages share the four basic distinctions of collective/dual/paucal subject, distributive/multiple subject, distributive/plural object, and iterative/habitual action (though they do not often have distinct plural forms for all categories). Languages like Imperial Valley Diegueño and Paipai can thus be seen to have simply lost some of the semantic contrasts.

5. Hualapai

We now come to the remaining language, Hualapai, a member of the Upland branch of the Pai subgroup, which is often stated to be similar to Havasupai in almost all respects. It has been described by Redden (1966), Winter (1966), and a team consisting of a number of investigators associated in various capacities with the Hualapai Bilingual/Bicultural Education Program (Watahomigie, Bender & Yamamoto 1982). The descriptive part of Winter (1966) consists of introductory grammatical notes to a text and recognizes two distinct plural markers respectively called 'disjunctive' and 'plural', while Redden (1966) recognizes paucal and multiple categories (presumably corresponding to Winter's disjunctive and plural), as well as a distributive-iterative. He states: "If the subject is plural, the verb is always marked for plural; but the independent

subject may or may not be marked for plural, or there may be no independent subject." (Redden 1966:150). In this respect, Redden's Hualapai is like Yavapai. The data on which Redden bases his description were collected beginning in 1959 and differ in some respects from the material found in the Hualapai Reference Grammar to be discussed in detail below. He notes that there were originally six separate Hualapai settlements which merged into a single community in 1873. Some remnants of dialect variation might therefore survive.

The following observations are based on an interpretation of the facts as described in the Hualapai Reference Grammar [HRG] (Watahomigie, Bender & Yanamoto 1982). This work is characterized by detailed presentation of many aspects of the grammar, abundantly illustrated by relevant examples. This is particularly useful for the topic of pluralization, where only Halpern's description of Yuma contains equally exhaustive lists of plural forms, although few examples of usage are given.

What we find described in HRG is a situation not only different from that of all other Yuman languages but even distinct from that described by others for Hualapai. We learn that transitive verbs may have as many as five different plural forms (including a reduplicated one which is absent or not systematically subsumed under plurality in other languages), distinguishing between dual/paucal subject, plural subject, plural object, multiple plural (both subject and object are plural), and repeated action. While these semantic distinctions are noted for other Yuman languages, few verbs in languages other than Hualapai ever have more than two plural stems. The Hualapai plural paradigms show a remarkable degree of regularity (though not sufficient to allow the generation of forms by regular rules). However, very few verbs in fact have five plural forms. An example of one that does is:

ji'a:lk	one to look over one thing
ji'a:ljk	two/few to look over one thing
jij'a:lk	one to look over many things
jij'a:ljk	many to look over one thing
jij'a:lvk	many to look over many things
ji'a:l-jj'a:lk	to keep looking over one/many(?) [HRG:327]

A large number of transitive verbs have four plural stems. For example:

dagwank	one to beat up someone
dagwanjk	two/few to beat up someone
dadgwanjk	many to beat up someone
dadgwanjk	many to beat up many
dagwan'-dagwank	keep beating up someone ⁴ [HRG:329]

Intransitive verbs typically only have two plural forms. Thus:

a:mk	one to pass by
a:mjk	few/many to pass by
a:m a:mk	to keep passing by [HRG:285]

A few intransitive verbs, however, have more distinctions. The most elaborate is the verb 'to stand' which has the following paradigm:

skwi:k	one to stand
daskwi:k	two to stand
gige:vk	few to stand
gijgaeyvk	several to stand
gigaeyvk	lots to stand
skwi:k skwi:k	to keep on standing [HRG:348]

Note that this set (as well as others like it) includes suppletive stems, a not uncommon phenomenon in Yuman (Langdon 1988).

Obviously, Hualapai has a different set of plural stems from other Pai languages, although the semantic distinctions are familiar from Yuman languages in general. Another even more radical aspect of the structure of Hualapai is that, in startling contrast to other Yuman languages (including the other members of the Northern Pai group) most nouns in Hualapai have plural forms, including those denoting inanimate objects. Long lists of noun plurals can be found in HRG. They use some of the same morphological markers as verbs and the particular plural form of a particular noun cannot be predicted on either phonological or semantic grounds.

This situation suggests that in fact the syntax of plurality might have different properties in Hualapai than in other Yuman languages, a topic which will be addressed in some detail below. This situation is not easy to investigate, for here as elsewhere nominal arguments are not obligatory. Because of the paucity of examples, I will limit the discussion to plural (or paucal) subjects rather than other plural distinctions. In addition, when scanning example sentences in HRG, I found that sentences with plural verbs (or nouns for that matter) are rare. Sentences with overt nominal subjects and plurally marked verbs and nouns are of two kinds:

(a) comitative conjunction, a construction shared by all Yuman languages where the first member of a conjoined set is marked as the subject of the sentence, and the second is in the comitative case (Munro 1980).⁵ The verb of such sentences is always marked for plural although syntactically only one of the conjoined nouns is the subject; I have not found an example of a plural noun in this position.

(b) sentences with semantic plural subjects, where the verb is marked for plural, and the overt subject is either marked for plural or not. There are of course other plural types attested as well as the usual set of sentences with no overt subject. The question then is whether the syntax of plurality in Hualapai is different from that of other Yuman languages.

Note first an example of comitative plural (1) and an example of apparent agreement (2).

- (1) HU ba:-h-ch hme:-h(a)-m swa:d-j(i)-k-i⁶
 man-dem-subj boy-dem-with 3=sing-pl-ss-aux
 The man and the boy are singing (together). [HRG:55]

- (2) HU baqu:y-ya-ch gwe muwid-j-k-wi
 woman=pl-dem-subj things 3/3=prepare-pl-ss-aux
 The women prepare everything. [HRG:80]

A less clear case is sentence (3):

- (3) HU misi: qach(a)-ch jikmi:-m vo:-j(i)-k-yu-ny
 girl little=pl-subj wash-by 3=walk-pl-ss-aux-past
 The little girls walked by the wash. [HRG:58]

This sentence has a subject noun phrase where the noun *misi*: 'girl' is unmarked for plurality and its modifier *qach(a)-ch* is plural. This is actually a nominalized clause, since adjectival notions in

Yuman languages are encoded in verbs. The underlying predication means 'girls are small' and the whole phrase is marked as the subject of the verb 'walk' by the suffix *-ch*. This might then be a special case of a construction noted in HRG (p.201), which allows a plural nominal concept to be expressed by a noun unmarked for plurality followed by a verb with plural meaning *de* 'to be many'. The suggestion I am making here is that this construction may not be limited to only this one verb. Whatever the analysis, it is clear that some aspect of the subject noun phrase is marked for plurality.

Consider now sentence (4):

- (4) HU wal-ch nya mako-l disha-j(i)-v(i)-k-yu
 feather-subj my back-in 3=hang-pl-state-ss-aux
 The feathers are hanging on my back. [HRG:63]

This example has a semantically plural noun not marked for plurality acting as subject of a plurally marked verb. This might be interpreted to mean that in spite of the prevalence of nominal plurals, they are still not obligatory, which is in fact what Redden noted in material he collected in the early 1960's. HRG does not discuss the word *wal* 'feather', but lists another word *gwewal* also meaning 'feather' which has a plural form *gwewalj*. The matter would have been unresolved were it not for the fact that a class on Yuman languages I taught at the LSA Linguistic Institute in the summer of 1989 was attended by one of the authors of the Hualapai Reference Grammar, Jorigine Bender. She feels very strongly that if nouns with plural meanings are present, they should be used in their plural form. In discussing this particular sentence, it turned out that the word *wal* has no plural form and belongs to the "collective" noun class (HRG 200), which is the only class of nouns not to have plural forms. It seems therefore that *gwewal* means 'a member of the class feather' (literally *gwe* 'thing' + *wal* 'feather'), its plural form meaning 'several members of the class feather'; *wal*, on the other hand, is a collective noun. Sentence (4), therefore is probably more idiomatically translated as 'There are feathers hanging on my back'.

What this means is that the following generalizations can be made for Hualapai so far. As in other Yuman languages, plural verb forms are required with comitative subjects even when the only noun marked for subject is not plural; the plurality is semantic but not syntactic. Elsewhere, when appearing with overt nominal subjects, both nouns and verbs are marked for plural, unless the noun does not have a distinct plural form or is overtly modified by a word denoting plurality. The presumption that this is subject agreement is therefore a strong possibility. This will be discussed in more detail below.

6. Usage in Hualapai texts

In an effort to gain more information on the question of the function of plural forms in natural discourse, I undertook to look at textual material. While there is a good deal of textual material available on Hualapai (in particular Hinton & Watahomigie 1984), very little is available in fully analysed form and time did not permit the painstaking task of processing a large amount of unsegmented text. I therefore limited myself to two analyzed texts, "Robber's Roost" [RR] (Winter & Jarr Butcher 1966) and an unpublished analyzed text "When the frog got stepped on" [Frog] (Bender 1980), a copy of which was kindly supplied to me by the Hualapai language team.

This pilot study was confined to the expression of plural subject. The more ambitious aim of trying to test for agreement could not be achieved in view of the paucity of overt plural nominals in the texts. Only one unambiguous noun subject of a plural verb was found; it was marked for plurality.

- (5) HU Gud ba:-j va-m gu-wa:-v-a-ch ...yima-j-k...
 long=ago man-pl this-at who-roam-pl-def-subj... dance-pl-ss...
 Long ago, the people who lived here danced [Frog]

Note, however, that this is not as clear a case as one would like since *ba:-j* 'men' is unmarked for case, and is the subject of a relative clause (i.e. a nominalized clause); it is the whole clause that is marked for subject of the main verb 'dance'.

Robber's Roost [RR] actually did not have a single overt plural nominal denoting the subject of a plural verb. The only nominal plural form found in this text is again in a relative clause, but here it is clearly a nominalized verb form and it occurs in a peculiar construction meaning 'one of them' in which the relative clause is the subject of the non-plural verb 'to be one':

- (6) HU nyə-ha' wampor-k-wi:-čə-č sit-k kye-k kwan-k
 dem-dem train-rel-belong-pl-subj be=one-ss 3=shoot-ss 3=kill-ss
 One of the men belonging to the train shot and killed him. [RR:62]

The strategy was therefore of necessity to look at verbs only and ascertain whether semantically plural verbs were actually marked for plurality. The procedure was simply to match plural subject contexts of the English translation to the corresponding verb forms and to compare the total number of possible plural subject forms with the actual number of overtly plurally marked verbs.

I found the following. Not all verbs in a plural context are marked for plural, but within stretches of relevant discourse, at least one verb, typically the last (or higher one) was marked for plurality, and all other cases show verbs with plural morphology. I have deliberately avoided here the use of the term "sentence" when discussing textual material, since it is very difficult to identify sentence boundaries in Hualapai texts (this is also true for other Yuman languages in various degrees). The basic unit of discourse thus appears to be the clause or clause group. Thus:

- (7) HU 'u:-čə-k ti-kwi:v-čə-m ... [plural plural]
 3=see-pl-ss caus-go=along-pl-ds ...
 They saw him; they gave chase to him... [RR:63]

- (8) HU mi-si-k yo:-čə-k [non-plural plural]
 foot-name-ss take-pl-ss
 They tracked him and captured him. [RR:64]

- (9) HU her-čə-k wa:mə-k [plural non-plural]
 jail-pl-ss transport-ss
 They arrested him and took him away.. [RR:64]

- (10) HU be:v-j-a da'op-k hinya: jagji:-j-o-k-wi-ny [plural plural]
 3/3=believe-pl-def 3=neg-ss frog 3/3=step=on-pl-appl-ss-aux-past
 They did not believe him and stepped on Frog. [Frog]

- (11) HU hinya: jagji'-k gwan-j(i)-di-m [non-plural plural]
 frog 3=step=on-ss 3/3=kill-pl-temp-ds ...
 They stepped on Frog and killed him... [Frog]

The exact conditions under which plural marking may be omitted must of course be investigated in more detail. Note for example, as a comment on sentence (8) that on the previous page of the text the verb 'to track' appears in a fully marked plural form:

- (12) HU mi-si:-č-tə-k kavyu:čə-č čə-'alə-m
 foot-name-pl-perf-? part=of=him-sub cause-show-ds
 They tracked him and then some part of him was showing. [RR:63]

I do not claim to understand the details of the syntax of this sentence, it is given only to illustrate the plural verb, which is here made prominent in the discourse by more complex syntactic morphology, i.e. the -*tə* suffix. The instances of non-plurally marked verbs in sentences (8), (9), and (11) lack such complexity and are all unambiguous cases of strings of clauses with the same subject, in fact with no intervening word between them, in constructions reminiscent of serial verbs.

7. Hualapai plural syntax

If the few non-plurally marked verbs found in text can be accounted for, as is suggested here, as being allowed in a clause linking construction somewhat akin to serial verbs, it would lead me to conclude that paralleling the more regular morphological behavior, there is in Hualapai some systematic syntactic behavior which may qualify plural verb marking as inflection.

But is it agreement? For the same reasons that I rejected agreement in the general discussion of Yuman languages above, I must reject it here, since in the vast majority of cases there is nothing to agree with, even when stretches of discourse longer than a sentence are allowed to function as the domain of agreement. However, a non-standard kind of agreement analysis might in fact be maintained if the agreement is conceived of as emanating from the verb and determining the plurality of the noun if present. Let me call this 'subject noun number agreement', or 'noun agreement' for short. This is not a frivolous suggestion and seems much more in keeping with an approach which gives prominence to what the language under investigation gives prominence to and emphasizes language internal argumentation (Nichols & Woodbury 1985:5). Like many other American Indian languages, Yuman languages are verb oriented and sentences may consist of just a verb. The proposed analysis is also compatible with recent proposals allowing "agreement" markers on verbs to be recognized as arguments in their own right, with the possibility of their being specified optionally by overt nominal adjuncts (e.g. Jelinek 1984). Hualapai plurality is inherent in the verb, is obligatorily marked (with some minor exceptions) and the appropriate nominal argument when present agrees in plurality with the verb.

This position has an additional important advantage. Remember that verbal plurality denotes a rather wide variety of plural notions (dual, paucal, or plural subject, plural object, multiple subject and object, multiple action), not all of which can be expressed in a nominal adjunct. Furthermore even those that can be expressed in a nominal adjunct are not differentiated in this nominal, since nouns have at most one all-purpose plural form. In other words, the multiplicity of plural distinctions overtly marked on the verb are neutralized in the noun, which therefore cannot be the source of such distinctions.

We could then summarize the syntactic situation in Hualapai as follows. When appropriate semantically, plurality (of various kinds) is overtly marked on the Hualapai verb form (under some still unspecifiable conditions, some verbs in clause sequences may be exempt). The language also has noun agreement such that when a subject adjunct to a plural verb is present, it must also be marked for plurality unless it is a collective noun. The interpretation of the plural morphology of the verb, however, is lexically determined as, even in Hualapai, the same marker may refer to various plural notions, and, even though certain regularities are apparent in the formation of plural forms, these are not sufficient to be stated by rules at the present stage of the analysis.

8. Usage in Yuman languages in general

It is useful at this point to address however sketchily the question of the usage of plural forms in other Yuman languages to see whether the Hualapai situation can be further clarified.

Detailed analysis of discourse structure has not been performed in Yuman languages and there is an urgent need for this kind of investigation. Nevertheless, for the purposes of this paper, texts in various languages were surveyed for the same feature described above for Hualapai, namely the relative frequency with which semantically plural verb forms actually are marked overtly for plurality. Here again I will limit myself to cases of plural subject. The paucity of overt nominal subjects once again does not allow any conclusions to be drawn with respect to nouns.

Texts were selected from fully analyzed material. The selection was based on two criteria: 1) the availability of interlinear glosses which specifically tag plural forms, and 2) appropriate content, i.e. texts describing events with a sufficient number of participants to require repeated use of semantically plural verbs. It must be emphasized once more that this is a preliminary investigation and that the variation encountered may be due to a number of factors, such as discourse genre, the idiosyncracies of narrators, and much more.

Since this is not a definitive study, I will limit myself to giving a rough percentage of overtly plural forms among all the possible instances of semantically plural forms based on the English translation. This clearly also has many pitfalls which should also be kept in mind. For example, a single English verb may have as equivalent a series of independent verbs in the Yuman material; I have tried to adjust for this as much as possible. The sample texts are from all subgroups, including several dialects of Diegueño and Yavapai. They are:

Mesa Grande Diegueño (DI_{mg}): Acorn gathering and preparation (Langdon 1970:190-200),

La Huerta Diegueño (DI_{lh}): The tar baby story (Hinton 1976:101-106),

Iñaja Diegueño (DI_{in}): The rabbit and the coyote (Jacobs 1976:107-112),

Jamul Diegueño (DI_{ja}): The orphan boy (Miller 1988ms),

Mojave (MO): Going to school for the first time (Munro 1976:43-48),

Yuma (YU): Kukumat became sick (Halpern 1976:5-25),

Paipai (PA): The earthquake of '57 (Joel 1976:84-91),

Tolkapaya Yavapai (YA_{tol}): Molly Fasthorse's story of the great wrestling match (Munro 1978:149-154),

Yavpe Yavapai (YA_{ya}): Coyote's spite backfires (Kendall 1978:155-156),

Havasupai (HA): The bears and mountain lion (Kozlowski 1976:55-60),

Hualapai Bilingual Program (HU_{fr}): When the frog got stepped on (Bender 1980ms),

Hualapai from Winter (HU_{rr}): Robber's roost (Winter & Jarr Butcher 1976:61-67).

I have charted below the percentage of plural verb forms in each text based on semantic expectations of plural content. For reasons that will be obvious at a glance, I have made two charts: one for the River and Delta-California groups, the other for Pai languages.

Percentage of plural verb forms in Delta-California and River

DImg	DIlh	Dlin	DIja	MO	YU	Average
40%	33%	75%	80%	45%	75%	70%

Percentage of plural verb forms in Pai

PA	YAtol	YAya	HA	HUfr	HUrr	Average
100%	100%	100%	100%	95%	70%	95%

Again much caution must be used and the figures should not be taken to be representative for all speakers or for all styles of discourse. Nevertheless, some distinct trends emerge, the most startling of which is a dramatic difference between Pai and the other subgroups. In fact, most Pai texts show close to 100% plural marking, while the highest percentage for Delta-California and River is 80%, and some texts show as little as 33%.

The facts for Pai are not totally unexpected; remember that Kendall and Hardy for Yavpe and Tolkapaya Yavapai respectively noted obligatory plural verb marking in their grammars. This is fully confirmed by the texts, and is supported for the Pai subgroup as a whole by the figures for Paipai and Havasupai. The lower figures for Hualapai will be further discussed below.

9. More historical interpretation

The Pai languages all share a tendency to regularize the morphological markers of plural forms. Although most of the processes identified for other Yuman languages are attested, the most common way of forming plural stems is by suffixing *-t*, a process which in other subgroups is almost entirely phonologically predictable (after vowel-final stems or stems ending in resonants or nasals), but which seems to have spread to many other environments in Pai. In addition, some Pai languages are specifically described as having obligatory marking of plurality on verbs and the textual materials support this. One might well ask whether these two trends--morphological restructuring and (near)-obligatory use of plural verbs--are related.

Before attempting to address these questions it is necessary to review some non-controversial facts of Yuman history. The Pai languages are a distinct subgroup of Yuman characterized by a number of innovations: loss of distinctive vowel length in unstressed position with concomitant reduction or deletion of the resulting short vowel. As a result, a number of morphemes (including the plural marker *-u:-*) which can be reconstructed for Proto-Yuman as a long vowel, are not found in Pai though some unsystematic traces of them remain (Langdon 1978, 1985); the subject relativizer **kʷ* is reduced to *k-* in Pai, even though the *k/kʷ* contrast is retained in roots; the change from a basic three-vowel system to a five-vowel system (which Pai shares with River) is the result of different changes in Pai; some lexical cognates are shared only by Pai languages. Pai-internally, however, there is a clear clustering of the Upland languages (Havasupai, Yavapai, and Hualapai) as opposed to Paipai, the latter being the only representative of the Pai group in Baja California, separated from other Pai languages by Yuman languages of other subgroups. While the date of separation of Paipai from the other Pai languages is a matter of some dispute (Joel 1964, Winter 1967), it is clear that it antedates some changes attested only in Upland, and totally absent in Paipai, among which is a shift from **s* to *s* and from **s* to *θ*, which has been demonstrated to be of recent origin (Hinton 1979).

To come back to our original question regarding the reorganization of plural morphology and its obligatory use, since both trends are shared by the two branches of Pai, they must antedate

the split between the two. It can, however, be hypothesized that the more regular use of plural verbs may have triggered or at least favored the morphological restructuring to produce slightly more regular forms. Evidence for or against this proposal might be found by comparing plural forms of specific verbs across Pai languages. If the class of verbs marked only with *-t* has the same membership in most languages, the regularization in form may be concluded to precede the regularization in use. It should also be noted that Pai plurals retain a fair number of the idiosyncrasies of plurals in other subgroups, which is most likely due to the fact that morphological irregularities can be extremely tenacious over time, while not impeding regular usage (note that some English irregular verb forms have their origin as far back as Proto-Indo-European ablaut, but their usage is just as regular as that of regularly inflected verbs). Nor should this be interpreted to mean that the obligatory use of plural verbs was completely in place before the split of Paipai from Pai, simply that it was well advanced enough to lead to complete regularity in both branches of Pai. This latter point is important since, as noted above, Hualapai still does not mark all semantically plural verbs with plural morphology. Why this should be so can now be addressed.

Hinton (1979) has elegantly demonstrated that a series of sound changes affecting Upland Yuman can in fact be fairly accurately dated. These are the changes from **s* to *s* and from **s* to *θ* already mentioned. Using aspects of the history of the Hualapai people to support her argument, Hinton proposes that the change started in Hualapai during the 1870's when the Hualapais were incarcerated on the Colorado River reservation in close contact with Mojave, in which language the shift originated. After the Hualapais returned to their home territory, the shift spread to other Upland Pai languages, but not to Paipai with which there no longer was any direct contact.

But the influence of Mojave could also have been conservative in other respects. Note for our purposes that Mojave does not have obligatory use of plural verbs (only 45% in our text). The sequence of events outlined above would have us assume that by the time the Hualapais were forcibly moved to the Colorado River, the trend toward obligatorily marking plural verbs was well underway. The separation from other Pai speakers and the contact with Mojave may well have inhibited the full regularization of plural verb usage, allowing Hualapai to lag somewhat behind the other Pai languages in that respect.

The major difference between Hualapai and all other Pai languages, however, is the development (an obvious innovation) of plural noun forms for most nouns. What the impetus for this change might be is unclear, though the influence of English should not be discounted. The effect of this change on the grammar of Hualapai is considerable, since Hualapai becomes the only Yuman language which can be said to have a rule of plural subject noun agreement.

While the facts of the Pai languages are quite different from those of other subgroups in terms of their synchronic grammar, the changes required to proceed from a non-Pai language type to a Pai-language type like Paipai are not dramatic. For while it cannot be predicted when a plural verb form will be used in other Yuman languages, it is nevertheless the case that the use of plurally marked verb forms is quite common as indicated by the statistics presented above, where a text in Jamul Diegueño showed as much as 80% of semantically plural verbs actually marked for plurality. Other subregularities in non-Pai languages should be noted. For example, almost without exception, auxiliary verbs of the positional class (for a discussion of the various types of auxiliaries in Yuman, see Langdon 1978) are obligatorily pluralized in non-Pai languages, even if the main verb they modify is not so marked. Verbs of motion which form their plural with the prefix *n-* also seem to have obligatory plural marking in the appropriate contexts and comitative conjunction constructions invariably have their main verb in plural form. On the other hand, behavioral auxiliaries ('be, do, say') never are marked for plural, even in Upland Yuman, where they are part of a clitic complex and are often destressed and reduced in other ways.

From the point of view of a typology of language changes, the Pai facts are a clear case of grammaticalization proceeding from a localized derivational process to a more general rule of

inflection for most Pai languages, and finally to an actual agreement rule in Hualapai following a direction described by Lehmann (1982:112ff) under the heading 'From functional sentence perspective to syntax.' They are also a fine example of a series of step by step changes each of which is not of great magnitude, but whose effect on the synchronic grammar of the languages is profound.

10. Conclusion

I have in this paper begun an investigation in the use and history of plural marking in Yuman languages. The complexity of the facts and the dearth of analysis of the use of the plural in individual languages makes it evident that much more detailed work needs to be done before any of the proposals made above can be either fully supported or replaced by more appropriate ones. Some of the specific points which this topic could profit from are: a comparison of plural verb forms in the Pai languages to see to what extent the regularizing trends noted above are shared across the languages or to what extent each one has restructured its plural forms individually; a detailed study of sub-regularities in plural usage in the Delta-California, River languages, and in Kiliwa. Similar questions should be researched for the semantics of these forms. These studies should take into account not only the existing descriptions of the languages, but also the uses in discourse. This is part of the larger question of the organization of discourse in Yuman languages, a topic I hope to address in the future.

Notes

1. A preliminary version of this paper was read at the 1988 meeting of the American Anthropological Association in Phoenix, Arizona. I am grateful for comments by participants at this meeting, in particular Ives Goddard and Eric Hamp. I also wish to thank Amy Miller for many discussions on the topic of this paper, and Suzanne Kemmer for introducing me to Lehmann (1982). My research on Yuman languages has been supported by the Survey of California Indian Languages (UC Berkeley), the American Philosophical Society, the National Science Foundation, and the Committee on Research at UCSD.

The Yuman family of languages consists of 10 languages spoken in contiguous areas of Southern California, Northern Baja California, Northern Sonora, and Western and Northern Arizona. Language names (and their abbreviations) as well as dialect divisions discussed in this paper (with their abbreviations) are as follows. They are listed under the subgroups recognized by Yumanists.

1) Pai:

a. Upland Yuman: Havasupai (HA), Hualapai (HU), Yavapai (YA), Yavpe Yavapai (YAYa), Tolkapaya Yavapai (YAtol).

b. Paipai (PA).

2) River: Mojave (MO), Maricopa (MA), Yuma (YU).

3) Delta-California: Cocopa (CO), Diegueño (DI), Mesa Grande Diegueño (DI_{mg}), Iñaja Diegueño (DI_{in}), Jamul Diegueño (DI_{ja}), La Huerta Diegueño (DI_{lh}), Imperial Valley Diegueño (DI_{iv}).

4) Kiliwa.

2. Note metathesis of the first two consonantal prefixes. See Langdon (1976) for a discussion of the role of metathesis in Yuman languages. For ease of comparison, the forms in this table have been given in the standard Yuman orthography developed for the Comparative Dictionary of the Yuman Languages project. The forms in this chart are from the computerized database for this project which contains the data from all the lexical sources for Yuman languages. All symbols have their standard phonetic values. *d* is the interdental voiced fricative *d*.

3. These general statements are valid for most languages except as further qualified in this paper.

4. This list does not include probable additional forms overtly marked with the plural object prefix *ba-* with putative meanings 'one to beat up several', 'two/few to beat up several'. They are not attested for this verb, but an example from another verb should support the plausibility of this proposal: *ba-he:r-j-a* (plural=object-put=in=jail-pl-def) 'they put them in jail' (Hinton & Watahomigie 1984:76).

5. In most Yuman languages, comitative sentences also require a verb 'be two', in a construction whose core meaning is literally 'X being two with Y, they did...'. The verb 'be two' is not required in Hualapai as example (1) demonstrates. Other unrelated languages have a comitative construction paralleling the Hualapai one; for a recent account see Aissen (1989) and references therein.

6. Examples of Hualapai sentences are in the orthography of the sources. Note that in the Hualapai practical orthography, the symbol *d* stands for a dental voiceless unaspirated stop, *d* is a voiced alveolar flap. Conventions and abbreviations used in glossing the morphemes are as follows: a hyphen separates the glossing of the constituent morphemes, the equal sign separates English words which correspond to a single entity in Hualapai. Abbreviations for grammatical categories should be self-explanatory; ss is 'same subject', ds is 'different subject'. I have modified some morpheme glosses from the sources for ease of interpretation.

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