# DIEGUEÑO PLURAL FORMATION*

The Yuman languages are characterized in part by a complex set of phonological processes signalling the plural of verbs. In Yuma, for example, Halpern (1946, p. 247) describes changes in the stem vowel of length, quality, or both length and quality for collective and distributive plural subjects, for distributive plural objects, and in some cases for an "adaptive" nominalization of verb stems. The changes may involve all simple vowels and some of the diphthongs. Diegueño, a western Yuman language spoken in San Diego and Imperial Counties, California, and in the adjacent areas of northern Baja California, exhibits many of the same characteristics, although the semantic correlates of particular plural markers are not as clearly defined as in Halpern's Yuma material. At this stage, it is not clear that plural verb stems can be divided into collective and distributive groups, at least in most cases, but the mechanisms of vowel change and affixation are highly similar to those in Yuma.

Before the Diegueño plural alternations are presented in detail, a few remarks on the classification of the Yuman languages may help to clarify some of the specific data discussed in terms of the general Yuman context. There are conflicting theories as to the development and spread of the whole Yuman family (see fig. 1), since one of the southernmost languages, Paipai,[1] exhibits similarities to the Arizona group which are not present in the intervening languages along the Colorado River or in the Colorado delta (see Joel, 1964). One could hypothesize either that the Paipai were relatively recent migrants to the south as Winter has done (see Winter, 1967) or that the intermediate languages were linguistically innovative due to various cultural influences (such as the agriculture practiced along the Colorado River, or increased inter-tribal contact because of ease of transportation), while the remote areas were cut off from these influences and remained more conservative. Joel adopts the latter position, postulating that "accelerated cultural change [ in the River, Delta, and Diegueño groups ] brought with it linguistic specialization, while cultural conservatism was accompanied by linguistic conservatism, and linguistic classification reflects this historical resumé" (1964, p. 105).

Recent study adds an additional complexity to the problem in the form of a dialect continuum. Langdon, in recent field trips, has found distinct similarities between Paipai and the Diegueño of La Huerta, Baja California.[2] Furthermore, the Campo dialect of Diegueño exhibits traits also found in Cocopa, and the northern dialects of Diegueño may be linked in certain respects to Yuma. Geographically, these similarities are compatible with the hypothesis of recent innovation. They would appear to argue against any recent southerly migration of Paipai, since if this were the case, one would expect to find connections between Paipai and northern Diegueño comparable to those between Yuma and northern

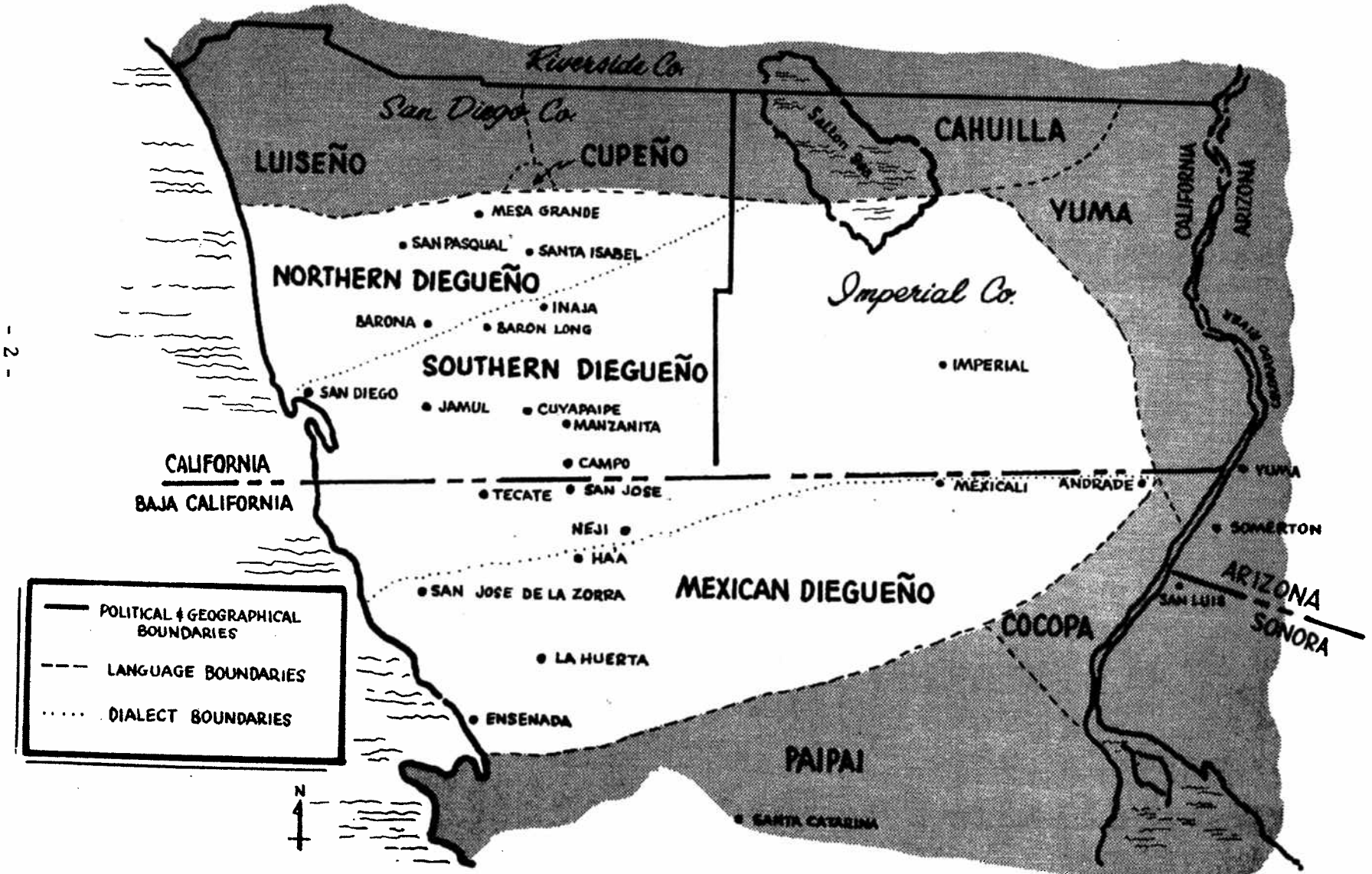


Fig. 1 (from Langdon, 1966)

Diegueño. Linguistic innovation alone, however, is not enough to explain the affinity between Diegueño and the contiguous languages (notably Paipai). Subsequent to the innovation that presumably split off the River, Delta, and Diegueño groups, there must have been a certain amount of close contact resulting in the present connections. The Yuman situation shows, in other words, the inadequacy of a family-tree model to explain linguistic relationships when there is complex interaction over extended time periods.

The importance of Diegueño as a transition between the Arizona and Baja California languages is reflected in its internal development. Diegueño is the only Yuman language to show clear internal dialect diversity. Moreover, the different dialect areas that must be recognized number at least five: Northern (Mesa Grande), Baron Long, Campo, Imperial Valley, and Southern (Tipai). Joel (1964) recognized two major areas, Tipai and Ipai, while Wares (1969) recognizes three. The dialect areas are differentiated not only phonologically[3] and lexically, but morphologically as well, in ways that will be made clear below. There is widespread awareness among the Indians of the different dialects, remarks such as "That's how they say it up north" being frequent. In certain situations, speakers from the Campo reservation (near the border) tease those from Baron Long about dialect differences. The same speakers experience certain difficulties of comprehension when in La Huerta, though not to an extent that seriously impairs communication. There is, in addition, widespread variation at the level of the individual speaker. One speaker may have different plural forms from another in terms of affixation or ablaut, and there is considerable variation with respect to the presence or absence of overt pronominal prefixes on the verb, even among inhabitants of the same reservation.

Its inter-relationships with the rest of the Yuman family and its unique dialectal variation combine to give Diegueño an important position in comparative Yuman studies.[4] A necessary prerequisite to such studies, however, is the description of individual dialects. This paper is concerned with a description of plural formation in one dialect, Imperial Valley,[5] and with certain minimal comparisons to corresponding features in other areas, mainly that described in Langdon (1966). Transcriptions will be in terms of the following segmental inventory, all elements of which have the usual phonetic interpretation, except for [ t̤ ], which is

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| p | t | ṭ | č | k | $k^w$ | ' | i | i: | u | u: |
| | | s | š | x | $x^w$ | | | | | |
| | | | | | | | ə | | | |
| | | | | | | | a | a: | | |
| m | n | | ñ | | | | | | | |
| | l | | $l^y$ | | | | ´ - indicates stressed | | | |
| | L | | $L^y$ | | | | vowel | | | |
| | | r | ř | | | | | | | |
| | | w | y | | | | | | | |

not a retroflexed but a retracted alveolar stop compared to [ t ] which is dental and occasionally even interdental; [ ř ] which is a flapped liquid opposed to [ r ] which is retroflexed; and [ č] which represents [ tš ]. The four contrastive laterals (there is a fifth, dark [l˜ ] in a few pre-consonantal positions) also require some comment. There are two parameters involved, voicing and palatalization, which combine to yield the maximum four contrasts, with both voiceless "l's" also being strident. For a full description of Mesa Grande phonemics, see Langdon (1966).[6]

The Diegueño verb[7] is inflected for three persons, first, second, and third, and two numbers, singular and plural, although in the latter case, these are perhaps not totally accurate designations. If the subject or the object (or both) is a plural noun (the verb may agree with plural objects as well as plural subjects), the verb may occur in the plural, but need not, unless a numeral accompanies either the subject or the object noun, or the plurality is emphasized.[8] The plurality of the verb indicates ambiguously that either the subject, the object, or the action (or all three) is plural, without necessarily specifying which, since (at least in my data) there are no separate inflectional categories for plural subject as opposed to plural object.[9] In other words, what I will for convenience call singular could instead be called unmarked for number, with the marked category, plural, being required overtly only on those occasions when the plurality of the subject or object is being emphasized.

The method of forming plural stems in Imperial Valley Diegueño is rather complicated, involving five rules which specify overt plural markers,[10] plus complex lexical cross-classifications as to which of the rules apply. The rules may be called č-suffixation, n-prefixation, č-infixation, u:-prefixation, and ablaut; and are exemplified in the following singular-plural pairs:[11] i:ma: - i:ma:č, 'to dance'; čan - nčan, 'to step'; u:$x^w$ay- u:č$x^w$ay, 'to kill'; wiw - u:wiw, 'to see'; and muL - mu:L, 'to gather'. With the exception of the first two rules, which are predictable on phonological and semantic grounds respectively, the cross-

classification of verbs as to which of the latter rule(s) applies is totally idiosyncratic, with some verb stems taking more than one process. There are, in addition, dialectal differences as to which rules apply to particular stems. Given a complex plural system, one would like to predict wherever possible which of the five rules is to apply. In the Imperial Valley data, unfortunately, only two of the five rules are predictable, č-suffixation and n-prefixation.

(1) č-suffixation

The rule of č-suffixation is the most transparent of the plural rules in Diegueño, applying automatically to all plural verb stems that end in a vowel, regardless of which other rules, if any, have applied:[12]

| Singular | Plural | |
|---|---|---|
| tu:ña: | tu:ña:č | 'to pound' |
| i:ma: | i:ma:č | 'to dance' |
| si: | sič | 'to drink' |
| ma: | mač | 'to eat soft things' (the latter two with ablaut, see below) |

(2) n-prefixation

While the previous rule was predictable depending on whether or not the verb stem ended in a vowel, the rule of n-prefixation is predictable in terms of the semantic class of "verbs of motion."[13] All verbs of this class take an [n] prefix immediately preceding the stem, as in:

| Singular | Plural | |
|---|---|---|
| /a:m/ | /n + a:m/[14] | 'to go' |
| /čan/ | /n + čan/ | 'to step' |

Other verbs in the class (cited in the singular, since there are further complications in the plural) are pšk$^{w}$ak a:m 'to walk', a:k$^{w}$i:n 'to go around in a circle', makan 'to follow', xap 'to enter', čan 'to descend', a:k$^{w}$ay 'to come back', and i:yiw 'to come'. As with the common verbs in many languages, most members of this class exhibit irregularities of one type or another that simply have to be idiosyncratically marked.

Of the three remaining plural rules, no predictions can at this stage be made as to which rules apply to which stems, except of an indirect kind. č-infixation applies only to stems with prefixes, but not all these

stems take č-infix. Further, č-infix is the least common of the plural rules.

(3) č-infixation

Strictly speaking, this plural morpheme belongs to the prefix structure of the verb, but is termed an infix because of the requirement that it be inserted following the first stem prefix. The č-infix is the rarest of the plural processes discussed here, and is the only plural affix to exhibit morphophonemic variation. The underlying form of the morpheme is, of course, /č/:

| Singular | Plural | |
|---|---|---|
| /u: + x$^{w}$ay/<br>[u:x$^{w}$ay] | /u: + č + x$^{w}$ay/<br>[u:čx$^{w}$ay] | 'to kill' |
| /a: + ku: + xap/<br>[a:ku:xáp] | /a: + č + ku: + xap/<br>[a:čku:xá:p] | 'to catch up with' (plus ablaut) |

The principal morphophonemic alternation involves the change from [č] to [t] when the infix is contiguous to coronal sibilants:

| | | |
|---|---|---|
| /u: + saw/<br>[u:saw] | /u: + č + saw/<br>[u:tsa:w] | 'to feed' (plus ablaut) |
| /u: + ša:/<br>[u:sa:] | /u: + č + ša: + č/<br>[u:tša:č] | 'to stick' |

This alternation may be accompanied by metathesis of the infix and the following consonant, but the latter change is rare, and unlike the change of [č] → [t] must be idiosyncratically specified:

| | | |
|---|---|---|
| /m + š + iya:y/<br>[məšiya:y] | /m + č + š + iyay/<br>[məštiyay] | 'to fear' (plus ablaut) |

(4) u:-prefixation

The rule of u:-prefixation is more fequently applied than the infix rule, particularly when considered in conjunction with other rules. It involves the prefixation of a long [u:] immediately preceding the stressed syllable (that is, the final syllable of the stem, which has the shape cv(c)):

| Singular | Plural | |
|---|---|---|
| /a: + č + pay/<br>[a:čəpáy] | /a: + č + u: + pay/<br>[a:ču:páy] | 'to believe' |

| | | |
|---|---|---|
| /š + may/<br>[šəmáy] | /š + u: + may/<br>[šu:máy] | 'to find' |
| /wiw/<br>[wíw] | /u: + wiw/<br>[u:wíw] | 'to see' |
| /š + ma:/<br>[šəmá:] | /š + u: ma:p/[15]<br>[šu:má:p] | 'to sleep' |

(5) Ablaut

The most common plural process in Diegueño is length ablaut of the stressed stem vowel. A short vowel in the singular becomes long in the plural and vice versa:

| Singular | Plural | |
|---|---|---|
| L$^{y}$ap | L$^{y}$a:p | 'to burn' |
| muL | mu:L | 'to gather' |
| ču:puL | ču:pu:L | 'to boil' |
| šu:pi:t | šu:pi:t | 'to close' |
| sa:w | saw | 'to eat' |
| si: | sič | 'to drink' |
| ma: | mač | 'to eat soft things' (the last two with automatic č-suffix) |

These are the five major plural processes in Imperial Valley Diegueño, a somewhat complex situation in that all of the rules (with the possible exception of č-infix) are quite common. The applicability of the first two rules, č-suffix and n-prefix, is predictable given phonological and semantic criteria as discussed above, but there seems to be no way, at this stage of the analysis, of determining when any of the latter rules apply, and verbs must be idiosyncratically marked for these rules. As indicated in some of the examples above, the situation is still more complicated, since more than one of the lexically marked rules may apply to a particular verb stem. Multiple application of plural rules is, in fact, quite common.

Of the three rules for which verbs must be lexically marked, ablaut, u:-prefix, and č-infix, all possible combinations occur.[16] There are, for example, verbs which take ablaut and u:-prefix (a large group): pap - u:pa:p 'to bake', 'ux - u:'u:x 'to cough', naL - u:na:L 'to fall'; ablaut and č-infix: u:saw - u:tsa:w 'to feed', a:ku:xap - a:čku:xa:p 'to catch up with'; u:-prefix and č-infix: a:sip - a:ču:sip 'to smoke', a:yiw - a:ču:yiw 'to bring'; and some stems with three marks of the

plural, ablaut, č-infix, and u:-prefix: a:řap - a:ču:řa:p 'to hit', a:$x^w$as - a:ču:$x^w$a:s 'to beat'.

It is this situation which dictates that every verb stem must be marked with rule features for each of the latter three plural rules, rather than being placed in a conjugational or declensional class like Latin verbs or nouns. This is the case because unlike Latin, Diegueño verb stems can belong simultaneously to more than one plural category, and the use of separate classes would result in a great proliferation of ad hoc groupings, for example a) ablaut, b) ablaut and u-prefix, c) ablaut and č-infix, d) ablaut, u:-prefix and č-infix, e) u:-prefix, f) č-infix, etcetera. The situation is comparable to that involved in the subcategorization of nouns, where cross-classification is handled by means of features (for example, ± common, ± count etc.) rather than by rewrite rules. In the Diegueño case, there are three plural rule features: [± ablaut], [± č-infix], and [± u:-prefix].

In summary, then, there are five ways of pluralizing verb stems in the dialect under consideration. Two of these processes, n-prefix and č-suffix, and predictable on semantic and phonological grounds respectively. For the other three, ablaut, u:-prefix, and č-infix, verbs must be lexically specified as to which rules or combinations of rules apply. [+ablaut] plurals form the largest class, followed by the combination [+ablaut, +u:-prefix], and then by [+u:-prefix] alone. There are important dialect differences that occur with respect to these lexical specifications.

The dialect differences with which we are concerned here, in other words, are not phonological or lexical in nature, but involve instead the idiosyncratic specifications as to which plural rules apply to which stems, and the semantic correlates of the particular plural processes. Phonologically the relevant plural rules are identical in the dialects under consideration.[17] The subclassification of verb stems in Imperial Valley differs in a number of respects from that in Mesa Grande described in Langdon (1966): a) Langdon lists a number of Mesa Grande verbs with no overtly different plural forms whose cognates in Imperial Valley take ablaut or u:-prefix (plus č-suffix, if applicable):

| Mesa Grande | Imperial Valley | |
|---|---|---|
| $k^w$a: - $k^w$a: | $k^w$a: - $k^w$a:č | 'to crochet' |
| ta:ñiL$^y$ - ta:ñiL$^y$ | ta:ñiL$^y$ - ta:ñi:L$^y$ | 'to make black' |
| ta:$x^w$aṭ - ta:$x^w$aṭ | ta:$x^w$aṭ - ta:$x^w$a:ṭ | 'to make red' |
| məwas - məwas | məwas - məwa:s | 'to be soft' |
| $k^w$i:č - $k^w$i:č | $k^w$i:č - u:$k^w$i:č | 'to tattoo' |
| wəL$^y$i:m - wəL$^y$i:m | wəL$^y$i:m - wu:L$^y$i:m | 'to buck' |

In addition, there are verbs which belong to Langdon's regular class (class VI, see Langdon, 1966, pp. 148-153) taking ablaut and occasionally č-infix, plus č-suffix where applicable, [18] which are differently classified in Imperial Valley:

| Mesa Grande | Imperial Valley | |
|---|---|---|
| pap - pa:p | pap - u:pa:p | 'to bake' |
| wir - wi:rč | wir - wi:r | 'to be hard' |
| pəṣuw - pəčəṣuw | pəšaw - pu:šaw | 'to wait' |
| i:ma: - čəma:č | i:ma: - i:ma:č | 'to dance' |
| pəni: - čəpəni:č | pəni: - čəpu:nič | 'to pull ' |

Finally, there are a number of verbs in the u:-prefix class in Mesa Grande (perhaps plus other rules) which are differently classified in Imperial Valley:

| Mesa Grande | Imperial Valley | |
|---|---|---|
| ačə pay - ačəpa:yp | ačəpay - aču:pay | 'to believe' |
| xəču:r - xu:čurp | xəču:r - xəču:r | 'to be cold' |
| mərəyi: - mərču: yi:p | məriyu:y - mərčiyu:y | 'to be ashamed' |
| ču:kuw - čəču:kawp | ču:kaw - ču:ka:w | 'to bite' |

There is also minimal field data (in the form of field notes recorded by Leanne Hinton and myself) that the same rules but with different lexical subcategorizations apply in the Campo and La Huerta dialects. These differing classifications of verbs with respect to plural processes form one aspect of dialect differentiation in Diegueño.

A second important area of difference lies in the semantic correlates of particular plural processes. Only the class of verbs of motion functions similarly in both the Mesa Grande and Imperial Valley dialects, requiring an n-prefix in the plural (for example, the verbs a:m 'to go', yi:w 'to come', čan 'to go down', etc. are pluralized identically in both dialects). [19] For the notions of collective and distributive subject and object, however, Langdon was able to isolate, on the basis of a number of clear examples, specific plural morphemes in Mesa Grande for which there is no such correlation in Imperial Valley. In Mesa Grande, č-infix is associated with the collective and ablaut with the distributive. Langdon remarks that these semantic distinctions cannot always be correlated with particular phonological shapes, and that "the total system of plural stems therefore appears to be the result of two opposing trends, one of semantic differentiation and one of formal criteria tending to obscure the former" (p.131). In Imperial Valley, it appears that the distinction has disintegrated to the extent that the plural rules no longer correlate with the semantic categories

of collective and distributive. The disintegration appears in another area as well, since the u:-prefix plurals in Mesa Grande denote intellectual activity, states of mind, sensory perceptions, or self-induced actions (Langdon, 1966, p.145), while this plural process in Imperial Valley applies to verbs of any semantic class, and is much more general than in Langdon's material.

In historical terms, it appears that there may have been a strong correlation between syntactic/semantic categories in Proto-Yuman that has been and is being progressively lost in the development of the modern languages. This is all the more reason for comparative and dialectal studies, since much information relevant to the reconstruction of the structure of the proto-language is to be found here. Given what we have seen of the Mesa Grande and Imperial Valley dialects, it is particularly important to note that the dialectal variation takes place primarily in the non-predictable rules. The č-suffix and n-prefix rules show great similarity inter-dialectally. If verb stems must be idiosyncratically marked for the ablaut, č-infix, and u:-prefix rules, it is just in this area that we would expect to find dialectal variation.

Let us return now to the most common plural rule, ablaut, and consider one or two questions of general theoretical interest. First, note that the most general expression of this rule in formal terms involves the use of $\alpha$-variables:

$$[\alpha\ \text{long}] \rightarrow [-\alpha\ \text{long}] / \overset{V}{[+\text{stress}]} \ ] \begin{bmatrix} \text{Verb} \\ +\text{plural} \end{bmatrix}$$

While the use of $\alpha$-switching or flip-flop rules in phonology has been called into question in some cases (see, for example, Wang's 1968 criticism of the vowel shift rule in The Sound Pattern of English), all of these questionable uses involved only phonological environments in the rules. Inasmuch as the conditioning factor here is the syntactic feature [+plural], this alpha-rule appears to lead to none of the difficulties associated with phonological $\alpha$-rules, and indeed, captures the alternation in an insightful way.

There is, however, a peculiarity in the ablaut rule as it now applies. If we examine the singular-plural pairs related by this rule, we see the following general pattern:

| Singular | Plural | | |
|---|---|---|---|
| -VC | -V:C | məwas - məwa:s | 'to be soft' |
| -V:C | -VC | sa:w - saw | 'to eat' |
| -V: | -Vč | si: - sič | 'to drink' |

But there are no pairs of the form:

-V -V:č

so there is a gap in an otherwise regular and productive system. There are plural stems that do end in -V:č, but we find that the singular stem ends not in V, but in V: (i:ma: - i:ma:č 'to dance', tu:ña: - tu:ña:č 'to pound'), so that on the surface the only mark of the plural is the č-suffix. Perhaps it is these stems that fill the gap in the ablaut pattern. If the long vowel in the plural - i:ma:č, for example, were the ablauted form of a short vowel in the singular, this would force us to set up an underlying short vowel in the stem. When this is done, however, the supposed gap in the paradigm is accounted for, and the derivation of these plurals parallels that of the rest of the plural stems that undergo ablaut. It appears that there is a complexity added, however, that of a later rule to lengthen all stem-final vowels in the singular, since these vowels are long on the surface.

To digress for a moment, we can explain on another level the absence of the -V / -V:č ablaut alternation in the ablaut pattern in terms of a general phonotactic constraint in Diegueño: short stressed vowels never appear in final position in any forms. But since this constraint would have to be expressed in the grammar at some level, we have not really added any complexity in our final vowel-lengthening rule. We have just chosen to express the generalization as a phonological rather than as a morpheme structure rule. There is, in other words, independent motivation for the final vowel lengthening rule, and it does not result in a complication of the grammar. Making use of the final vowel lengthening rule, we give here the derivations of 'to dance' and 'to drink' illustrating the effect of the rules:

| | Singular -V | Plural -V:č | Singular -V: | Plural -Vč |
|---|---|---|---|---|
| Underlying | /i:ma/ | /i:ma/ | /si:/ | /si:/ |
| Stress | i:má | i:má | sí: | sí: |
| Ablaut | - - - | i:má: | --- | sí |
| č-suffix | - - - | i:má:č | --- | síč |
| Final Length | i:má: | ------ | --- | --- |
| Surface | [i:má:] | [i:má:č] | [sí:] | [síč] |

The device of setting up a contrast between long and short final vowels violates what Kiparsky (1969) has called the alternation condition, a metatheoretical constraint which prohibits the establishment of underlying contrasts which are never phonetically manifested on the surface. (In our example, /i:ma/ violates the alternation condition, because the final short vowel never contrasts, on the surface, with a long vowel.)

Instead of using abstract short underlying vowels, one should use diacritic features to indicate (in this case) which vowels undergo ablaut. This poses an interesting problem. Even disregarding Kiparsky's arguments against abstract phonology, which have recently been strongly countered,[20] we are still left with the task of motivating the proposed solution.

One argument in favor of the abstract solution, implicit in the solution itself, is the regularization of the ablaut paradigm as well as the regularization of the distribution of long and short vowels in the lexicon. Looking further as well, we see that if the abstract solution were not chosen, there would be two types of final long vowels, those which ablaut to short vowels in the plural (si: - sič), and those which do not (i:ma: - i:ma:č). This would obviously necessitate the marking of stems in the lexicon as to whether or not the ablaut rule applies. If the abstract solution is chosen, on the other hand, it is possible to write a redundancy rule predicting that all stems ending in vowels, whether long or short, undergo ablaut, as well as take a č-suffix. That is, we can expand the number of plural rules that can be predicted to include not only n-prefix and č-suffix, but ablaut as well, for all stems ending in vowels, a significant increase when it is remembered that ablaut plurals form the largest class in Diegueño.[21] This means that now verb stems must be idiosyncratically specified for the ablaut rule only if they end in a consonant.

Finally, there is the possibility of stronger synchronic evidence for the abstract solution from the area of nominalized verb stems. In the Mesa Grande dialect, nominalizations in /$k^w$-/ (meaning roughly "the one who") sometimes have a stem vowel corresponding to the short underlying vowel postulated for the abstract stems, and not to the long vowel that appears on the surface. Data from the Imperial Valley dialect is not yet available, but if comparable alternations take place there, they are fully compatible with the abstract solution, but introduce additional complexity into the system if underlying long vowels are chosen.[22]

Since the abstract solution makes use of independently needed rules, regularizes the plural paradigm and the distribution of vowels in underlying representations, allows for the prediction of rule application which is unavailable in a non-abstract formulation, and corroborates better with certain dialectal information, its inclusion in the phonology of Diegueño plural formation is clearly well motivated.

## FOOTNOTES

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[1] The most southerly language, Kiliwa, remains most divergent, even from Paipai, providing some evidence for an earlier migration. Its relation to the rest of the family remains unclear.

[2] In the use of the demonstrative [ sa:], for example.

[3] Mesa Grande, for example, has a shift from [ s̄ ] to [ x ] not present in the other dialects, and the further south one moves, the greater is the tendency to drop unstressed vowels, with concomitant modifications of the resultant consonant clusters.

[4] Important for the reconstruction of Proto-Diegueño and ultimately Proto-Yuman; for evidence of contact between different tribes and cultures; for theoretical implications concerning models of historical relationships, etc.

[5] Data were obtained from Mr. George Hyde of Alpine, California, a native speaker of the Imperial Valley dialect who also speaks "a little" (i.e. fluently) Cocopa, Mojave, Yuma, and Spanish, as well as English. I would like to acknowledge the friendly and able assistance of Mr. Hyde, without whose help this paper would have been impossible.

[6] It appears that the same underlying segments must be postulated in all dialects. In Imperial Valley, however, there is considerably less allophonic variation in the vowels than occurs in Mesa Grande.

[7] This sidesteps the interesting question of what constitutes a verb in Diegueño, since this category certainly does not correspond to the Indo-European notion of verb. For example, many "nouns" and "adjectives" take the same number, person, and stem-forming affixes as verbs, and clear-cut tests of "verbness" are hard to find. Langdon (1966, p. 97) uses the possibility of combining with the syntactic affixes [ ña- ] 'when' and [-s ] 'mild emphtic' as criteria for identifying verbs.

The person endings are ' -first person, m -second person, and Ø~w -third person. They will not be discussed here; for some treatment, see Walker (1969).

[8] There are several areas (person inflection, plural agreement, syntactic affixes, for example) where formally expressible categories are not obligatory. This optionality is very characteristic of Diegueño, and the amount of variation, even within single dialect areas, is considerable.

[9] A close check of Halpern's data on Yuma (1946, p. 257) shows that these different categories are not always distinguished there either.

[10] The same rules occur with varying distributions in all dialects. There is also a considerable number of verbs which show no overt change from singular to plural. All these verbs have stems which end in consonants.

[11] Unless otherwise specified, all Diegueño forms cited are stems.

[12] There are a few exceptions to this rule, of two kinds: stems which end in vowels but take no suffix (mi: - mi: 'to cry'), and those which end in consonants but do take the suffix (nap - na:pč 'to braid').

[13] Strictly speaking, this is not a refined enough definition of the class, since there are verbs of motion which do not take this prefix (i:ma: 'to dance, naw 'to run'). Langdon (1966, p.139) restricts the class to verbs of directed motion.

[14] The stress rule applies very early in phonological derivations, and stresses the final vowel of the stem (although there may be unstressed syntactic affixes, separated by a special boundary, following the stem). A second early rule, exemplified in the plural form 'ənáːm 'we go' inserts a schwa vowel between all members of underlying consonant clusters. This schwa may subsequently be deleted, depending on stylistic and dialectal considerations.

[15] There are a few stems which have a p-suffix in the plural. In Mesa Grande, Langdon was able to correlate this suffix with the u:-prefix denoting intellectual activity, but no such relationship exists in Imperial Valley, where the suffix is much more rare.

[16] In addition to the plural processes which must be marked in the lexicon, the phonologically determined rule which suffixes [č] may also be operative, meaning that certain verbs may be marked for the plural in four ways: pəni: - čəpu:nič 'to pull toward oneself', a:šəwi: - a:štu:wič 'to scrape' (both with metathesis).

[17] The dialects of Imperial Valley and Mesa Grande, with certain minimal information from Campo and La Huerta, B. C.

[18] It should be noted in addition that the č-suffix rule applies to a number of Mesa Grande stems ending in glides, while it does not apply to the corresponding stems in Imperial Valley.

[19] Collective plurals involve several subjects collectively performing an action on one or a collectivity of objects, or one subject performing an action on a group or objects. It is the group rather than the individual members of the group that is emphasized. Distributive plurals indicate that the subjects are considered to be acting individually and/or that the objects are affected individually or repeatedly, rather than as a group.

[20] For a critical discussion of Kiparsky's proposal, see Hyman (1969), King (1969) and Kisseberth (1969).

[21] The abstract solution requires one complication in the lexicon, since final vowels must now be marked [ ± long ]. This is offset, however, since the verb stems no longer have to be marked with the feature [± ablaut], and although I know of no concrete proposals to the effect, I suspect that morphological features are more costly than phonological ones. For some preliminary discussion, see Postal, Aspects of Phonological Theory, p. 135.

[22] This solution also receives considerable support from historical evidence. Cognates in other languages, for example, have short vowels corresponding to the short underlying form but not to the long surface form in Imperial Valley. None of this evidence, however, is relevant to a strict synchronic analysis.

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