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## COMPARATIVE JÊ PHONOLOGY \*

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0. A careful comparative study of groups of obviously related languages and dialects is a prerequisite to the demonstration of more remote relationships and to the establishing of a reliable classification of such languages. Large agglomerations of little-known languages such as the indi-

genous languages of South America are especially in need of basic comparative studies. In this paper I propose to outline the comparative phonology of the languages which are generally recognized as belonging to the Jê language family and to present a vocabulary of reconstructed Proto Jê items that can serve as a basis for wider comparisons.

Of the five languages included in this comparison, four have always been placed within the Jê family proper: Apinayé (Ap), Canela (Ca), Suyá (Su), and Xavante (Xa). The fifth, Kaingang (Ka), has sometimes been classified as belonging to the Jê family and sometimes as constituting a coordinate family within the Macro-Jê stock.<sup>1</sup> When compared with the traditional Jê languages, Kaingang shows about 40% cognates in the basic 100-word voca-

\* Due to typographical limitations the following changes were made in the original phonemic writing employed by the author of this paper: (1) vowel letters with a tilde (nasal vowels) were replaced by same letters followed by a raised small *n*; (2) sequences of two vowel letters with a tilde on each (long nasal vowels) were replaced by the two letters followed by a single raised small *n*; (3) the letter *i* crossed by a bar (high central unrounded vowel) was replaced by *y*; (4) the letter *y̥* (nonsyllabic high front unrounded vocoid) was replaced by *j*; (5) the letter *ñ* with a tilde (alveopalatal nasal) was replaced by *n* followed by a raised small *y*; (6) the letter *s̃* with a small *v* on it (alveopalatal grooved fricative) was replaced by *ʃ*. [ADR]

1. See Cestmir Loukotka, "Klassifikation der südamerikanischen Sprachen", *Zeitschrift für Ethnologie* 74. 1-69 (1942). J. Alden Mason, "The languages of South American Indians", *Handbook of South American Indians (Bureau of American Ethnology, Bulletin 143)* 6. 157-317 (1950). Sol Tax, "Aboriginal languages of Latin America", *Current Anthropology* 1. 430-436 (1960) [Greenberg's classification]. Mauricio Swadesh, *Mapas de clasificación lingüística de México y las Américas (Universidad Nacional Autónoma de México, Cuadernos del Instituto de Historia, Serie antropológica, No. 8)*, México, 1959.

Only in Swadesh's classification is Kaingang grouped with the traditional Jê languages to form a unit within the Macro-Jê stock.

bulary. This would place it within the Jê family according to Swadesh's suggested classification scale.<sup>2</sup> It nevertheless remains, on the basis of lexical similarity, a rather divergent member of the family, as cognate counts among the traditional Jê languages yield percentages generally in excess of 60%.

For the purposes of phonological reconstruction Kaingang belongs more logically within the Jê family than as a separate family within the Macro-Jê stock. It is obviously more closely related to the traditional Jê languages than are other Macro-Jê languages as Maxakalí, and in many respects it shows closer conformity to Proto Jê phonology than does Xavante, an undisputed member of the family.

The above five languages were chosen partly to provide a sample representative of the more diverse branches of the Jê family and partly because of the reliability of the available data. The Apinayé, Xavante and Kaingang data are the result of a number of years of field work on the part of the respective investigators and can be considered as reliably phonemicized. The Canela data are somewhat less reliable, being the result of a very short period of investigation. Nevertheless, they are probably in near-phonemic form. The Suyá data are the least complete and the least reliable; many of the phonemic structure are as yet in doubt.<sup>3</sup>

2. Morris Swadesh, "Towards a satisfactory genetic classification of Amerindian languages", *Anais do XXXI Congresso Internacional de Americanistas* 1001-1012 (1955).

3. The Apinayé, Canela, Xavante and Kaingang data were collected by members of the Summer Institute of Linguistics working under the auspices of the Museu Nacional, Rio de Janeiro. The Apinayé material was obtained by John Callow and by Pa-

Most of the Jê languages not included in this comparison exhibit phonological developments nearly identical to one or another of the five that have been chosen. Thus Apinayé, in its relationship to Proto Jê, is in most respects also representative of the Northern Kayapó dialects. Kayapó data indicate a single important phonological feature that is not shared with Apinayé: a contrast between voiced non-nasal stops and voiceless stops has apparently developed in restricted environments in the former language (cf. Kayapó *ga you* and *ka skin*, but Apinayé *ka* and *ka* respectively).

The languages usually classified as Eastern Timbira (Gavião, Krinkati, Krenyé, Krahó, etc. together with Canela) form a close-knit subgroup within the Jê family.<sup>4</sup> Most of the facts concerning Canela outlined in this paper are apparently also true of the other members of the Eastern Timbira subgroup. There is, however, some indication of a difference among these languages in the way in which Proto Jê \*k is reflected. Incomplete data indicate that the contrast between the aspirated and unaspirated velar stops is lacking in Krinkati and

tricia Ham. Some of this has appeared in Callow's *The Apinayé language: phonology and grammar*, an unpublished doctoral dissertation submitted to the University of London. The Canela vocabulary was collected by Sarah Gudschinsky. The Xavante data are from Eunice Burgess, Ruth McLeod and Joan Hall, while the Kaingang material was collected by Gloria Kindell and Ursula Wiesemann. I am also indebted to the latter for collaboration in outlining preliminary Kaingang-Jê comparisons. The Suyá word lists from which the present data were obtained were collected by Harald Schultz and by Vaughn Collins. Most of the Jê material used in the present study is archived at the Museu Nacional in Rio de Janeiro.

4. Curt Nimuendajú, *The Eastern Timbira*, University of California Press, 1946.

Gavião, while in Krahó the affricate [kx] appears in place of the aspirated stop. Similarly, in Krenyé a velar fricative corresponding to the aspirated stop has sometimes been recorded.

So far as is known, Suyá constitutes in itself a subdivision of Jê lacking other members, while Xavante with its several dialects plus Xerente forms another distinct subgroup. There is insufficient evidence, however, to determine the degree of similarity among the latter.

In addition to the Paraná dialect of Kaingang represented in this study, there are other Kaingang dialects of nearly identical phonological structure.<sup>5</sup> Also included is Xokleng, either a somewhat divergent Kaingang dialect or a separate but closely related language. The data for Xokleng are meager, but they do indicate a few unique phonological features such as the existence of the fricative /ð/ corresponding to Kaingang /f/.

Not considered in this paper are a number of extinct Jê languages and dialects, some of which can be identified as belonging to known Jê subgroups, while others are of doubtful affiliation. Some Eastern Timbira local groups are now extinct, but there is no reason to believe that any of these showed important deviations from the group of dialects still spoken in the same general area. Farther to the south, the extinct Akroá and Xakriabá doubtless belonged to the Xavante subgroup. The position of the Southern Kayapó is problematical, as the existing linguistic data are extremely meager. Jeikó, often classified as a Jê language, is also known only by a fragmentary vocabulary. It is doubtful

whether this language actually belonged within the Jê family proper, although it was no doubt a member of the Macro-Jê stock.

Any complete comparative study of the Jê languages must also take into consideration the possible existence of Jê languages that are yet unknown. There are a few isolated groups of Indians in the state of Mato Grosso which have had no direct contact with civilization but which show similarity to Jê tribes in certain aspects of their material culture.

For the purpose of consistency some changes have been made in the original orthographies of the source data. The symbols m, n, n' and ŋ are used to represent the series of phonemes, the allophones of which vary from voiced stops or affricates to pre-nasalized or post-nasalized stops, to nasal continuants, depending on the environment and on the language. In some of the original data the symbols b, d, j and g were used to symbolize these phonemes. The symbols w and j represent phonemes that may be either non-syllabic vocoids or fricatives. These sometimes appear in the data as v and ʒ or z or as u and i, respectively. The symbol c is used to indicate a voiceless affricate that may be either alveolar or alveopalatal. High unrounded non-front vowels, sometimes recorded as i, are written here as y, while mid central vowels are written as ə. Nasalized mid to low front vowels are written as e<sup>n</sup> and the corresponding back vowels as o<sup>n</sup>, although symbols for more open vowels are used in some of the original data. Long vowels are written uniformly as double vowels. Stress is not indicated in the present data.

5. Ursula Wiesemann, *Notas sobre o Proto-Kaingang: estudo de quatro dialetos*. To be published.

1. The Proto Jê phonemic system is reconstructed as follows:

Consonants	Oral vowels	Nasal vowels
p t c k	i y u	i <sup>n</sup> y <sup>n</sup> u <sup>n</sup>
m n n <sup>r</sup> ŋ	e ə o	e <sup>n</sup> a <sup>n</sup> o <sup>n</sup>
w r z	ɛ a ɔ	

No suprasegmental features have been reconstructed. Stress placement is predictable or nearly so in present-day Jê languages and probably was not phonemic in Proto Jê. Vowel length and possibly consonantal length are phonemic features in some of the Jê languages. Although the conditions for their development are not clear, there is insufficient evidence for postulating either as a Proto Jê feature.

1.1. Reflexes of Proto Jê consonants are outlined below.

\*p is reflected consistently as p in Ap, Ca and Ka (see comparative vocabulary items 38, 49, 74-86, 89, 94). In Su it is reflected as h preceding r (83, 84), and in other environments as w (74, 85, 94), as hw (78, 80, 86), or as p (75, 89). The conditions for the latter developments are not known, nor is it certain that these sounds are all phonemically distinct. Reflexes of \*p in Xa are p (74, 76, 78, 79, 82, 94), m (38, 77, 80, 83, 85, 94), and w (75, 81). Item 94 indicates a morphophonemic alternation in Xa between p and m, a pattern of alternation that is paralleled by that of t with n and of c with n<sup>r</sup>. The alternates m, n and n<sup>r</sup> often appear following double (i.e., long) vowels. Most occurrences of Xa m as a reflex of \*p can be explained either on the basis of a preceding double vowel or a following nasal vowel, although other occurrences of m and the appearance of w in at least two items remain unexplained.

\*t is regularly retained in both Ap and Ca (3, 36, 51, 53, 65, 66, 79, 85, 91-

102). It is also retained in Ka except in items 66 and 98 which show an unexplained n, and in item 65 which has r. In Su t is most often retained (36, 51, 66, 92, 94-96, 100) but sometimes appears as t<sup>h</sup>, especially in initial position or following the prefix ii- (91, 93, 101, 102). In item 53 it appears as r and in one form of item 92 as n. In Xa it becomes zero before w (102). Otherwise it is doubly reflected as either t (3, 65, 66, 79, 91, 93, 94, 100) or n (3, 36, 51, 53, 65, 79, 92, 96, 98-101), with some items showing a morphophonemic alternation between the two. The n reflex in some items is apparently the result of a preceding double vowel.

\*c is reflected consistently as c in Ap (2-5, 7, 19, 45, 69, 85, 110) except that initially before w it is zero (4). In Ca it is reflected as c in syllable-initial position (2-4, 7, 85) but as j in syllable final position (19, 45). In Su it appears most often as t (4, 7, 45, 85), but as j in item 19 and as n in item 110. Before w it appears as ʔ in Xa (4, 7), but in other environments is doubly reflected as either c (2, 3, 45, 85, 110) or n<sup>r</sup> (2, 3, 19, 69, 111). In Ka it becomes n<sup>r</sup> in word-final position or before another consonant (5, 19, 20) and j in other positions (2, 4, 49, 69, 110, 111).

\*k is retained in Ap in all environments (6-41, 62, 63, 86, 100, 101, 103, 104, 108). In Ca and in Su it is doubly reflected as k and k<sup>h</sup>, although the conditions for the development of k<sup>h</sup> are different in the two languages. The distribution of k (6-8, 10, 11, 14, 16, 19, 25, 33, 35, 36, 39, 40, 101, 104) and k<sup>h</sup> (8, 17, 19-22, 24-30, 32, 34-37, 41, 62, 63, 103, 108) suggests that stress has been the determining factor. With few exceptions, k<sup>h</sup> occurs in the onset of word-final syllables (the syllable that is normally stressed),

while *k* appears in the onset of other syllables and in word-final position. The few occurrences of long consonants *kk* and *kk<sup>h</sup>* (103, 104) in Ca are unexplained. In Su \**k* is retained most often in medial position (19, 28, 30, 35, 36, 62, 63, 86, 101, 103, 108), but occasionally in initial position (6, 19, 35). At the same time *k<sup>h</sup>* has developed most often in initial position (7, 10, 11, 13, 14, 17, 21, 25, 32, 33, 35-37, 40, 41), although a few examples (22, 24, 26, 35) show this sound in word-medial, but morpheme-initial position. Item 25 shows *g* as a medial reflex of \**k* in Su, but the phonemic status of this sound is uncertain. One Xa example (19) indicates that \**k* is lost in a very restricted medial environment, i.e., between other consonants. In other positions it is triply reflected as *w*, *h* or *ʔ*. \**k* becomes *w* in Xa initially before *a* (8, 10-12, 14-16). Before *ə* it is regularly reflected as *h* (17-19, 32, 33, 36, 108). This includes several examples in which a consonant, \**r* or \**w*, has been lost between the *k* and *e*. One item (34) is apparently an example of the development of *h* preceding *u*. All other examples show *ʔ* as the reflex of \**k* (8, 20, 21, 23, 27, 31, 35, 36, 38-40, 62, 63, 86, 100, 101, 103, 104). Ka shows *k* as a quite regular reflex of \**k* (12, 13, 16, 19, 20, 22, 23, 25, 27-35, 37, 62, 104, 108), although a few items show an unexplained *ŋ* (8, 24, 86) and items 25 and 101 suggest that word-final \**k* is lost.

\**m* in Ap and in Su is consistently reflected as *m* (2, 9, 10, 24, 37, 42-54, 77, 91, 92, 102). In Ca and Xa it is doubly reflected as either *m* or *p*. \**m* is retained in Ca before nasal vowels and in word-final position (37, 47, 48, 77, 91, 102), otherwise it has become *p* (10, 42, 43, 45, 49-54). The one example of *pp* (52) is unexplained. The conditions for the development of Xa *p* (2, 9, 10, 42, 43, 45, 46, 49, 98, 102) as opposed to the retention of

*m* (2, 44, 48, 50-53, 77) are not known. In Ka most occurrences of word-final \**m* have become *ŋ* (2, 91, 98, 102), although \**m* is retained in item 37 and has apparently become *n* in item 24. In other positions \**m* has been regularly retained (42, 43, 46-49, 52, 54) except that item 44 shows an unexplained *p*.

\**n* generally parallels \**m* in the manner in which it is reflected in the Jê languages. It is retained in Ap and in Su (21, 26, 54-59). In Ca it is reflected as *n* before nasal vowels and word-finally (21, 26, 56, 57), and as *t* in other environments (55, 58, 59). It is, however, apparently lost in item 54. In Xa \**n* becomes either *t* (21, 55, 58, 59), or else is retained as *n* (21, 56, 57) under conditions that are not clear. In Ka \**n* is most generally retained (54, 56-58), but appears as *t* in items 55 and 59.

\**n*<sup>ʔ</sup> has been reconstructed word-finally in alternate forms of a number of items. It is reflected in this position regularly as *n*<sup>ʔ</sup> in Ap and Xa and as *ŋ* in Ka (8, 28, 39, 44, 47, 50, 86, 99, 107). Data, for the most part, are lacking in Ca and Su, although item 50 indicates Ca *n* as a reflex of this final "removable" *n*<sup>ʔ</sup>. One item (46) has been reconstructed with a final \**n*<sup>ʔ</sup> that apparently does not alternate with zero. This item shows *n*<sup>ʔ</sup> in Ap, but *n* as the reflex in both Su and Xa, and *ŋ* in Ka. Item 11 shows \**n*<sup>ʔ</sup> in what is apparently morpheme-medial position. Here the reflexes are *n*<sup>ʔ</sup> for Ap, *c* for Ca and Xa, and *n* for Su. All other occurrences of \**n*<sup>ʔ</sup> are in morpheme-initial position (60-67). In this position the Ap, Ca and Xa reflexes show morphophonemic alternation. In Ap *n*<sup>ʔ</sup> alternates with zero (or with *ʔ* in items 62 and 63), while in Ca the alternation is between *c* (before an oral vowel) or *j* (before a nasal vowel) and *h*. In Xa the alter-

nation is between  $n'$  and  $c$ . A description of the conditions for the morphophonemic alternation is beyond the scope of the present paper, but it can be seen from the data that Ap zero or  $ʔ$  and Ca  $h$  occur most often initially. Morpheme-initial  $*n'$  is reflected by  $n'$  in Su (61-63, 66). In Ka it appears as  $j$  before  $e^n$  (60, 63, 64) and as  $n$  elsewhere (61, 63, 65-67).

$*\eta$  is consistently retained in Ap and Su (12-14, 65, 68-73). In Ca it is reflected as  $k$  (14, 68-73) except before a nasal vowel, in which case  $\eta$  is retained (65). In Xa  $*\eta$  is reflected regularly as  $ʔ$  (12, 14, 68-72), while in Ka it appears as  $\eta$  (12, 68, 69, 71-73) except for an unexplained  $k$  in item 13.

$*w$  reconstructs to a very limited distribution. In one item (59) it is reconstructed in word-final position; in all other cases (4, 7, 19, 41, 102, 108) it appears following a voiceless stop. It is reflected regularly as  $w$  in Ap, Ca and Su. In Xa it remains  $w$  except in items 59 and 108, where it is reflected as zero. In Ka it is zero in all cases except in its word-final occurrence. The single example indicates  $\eta$  as a possible Ka reflex in the latter position.

$*r$  in prevocalic position (8-10, 14, 15, 27-33, 36, 49, 62, 63, 70-73, 83, 84, 87-90, 105-107) remains in all of the languages in all environments except that in Xa following a stop and preceding  $\text{ə}$  it is reflected as zero (32, 33, 36, 84). In word final position  $*r$  occurs most often in alternate forms of certain verbs (3, 16, 18, 29, 34, 43, 48, 57, 60, 65, 67, 72, 76, 81, 88, 97, 100, 104), but occasionally in other kinds of words (41, 78). In either case it is reflected as  $r$  in Ap and Ca, and in most Su and Xa items. Exceptions are the appearance of  $n$  in Su item 78 and Xa item 29. In Ka it is reflected most often as  $n$ , but appears as  $r$  in item 100.

$*z$  exhibits a great variety of reflexes and its original phonetic characteristics are not known. In Ap it is reflected as  $ʔ$  in initial position (103-112), but shows a morphophonemic alternation to  $j$  (103-109) or to  $n'$  (110). It is also reflected as  $j$  in word-final position (33,35) and medially following a consonant (54). Other items indicate a zero reflex (16) or  $ʔ$  (39) in intervocalic position and a zero reflex preceding another consonant (108). Item 40 shows  $w$  in the position of  $*z$ , but this may be another example of a zero reflex plus the development of a  $w$  from the preceding high back vowel. In Ca  $*z$  is generally reflected initially and in intervocalic position as  $h$  (16, 39, 40, 103-106, 109, 111, 112), with some evidence of a morphophonemic alternation to  $j$  (103, 108). Following a consonant or in syllable final position it is reflected as  $j$  (33, 35, 54), except that in item 108 (which is of problematical reconstruction) syllable final  $*z$  appears as  $r$ . In Su the regular reflex of  $*z$  in initial and in intervocalic position is  $s$  (40, 103, 105, 106, 109-111), although item 108 shows  $j$  in this environment. In other positions the regular reflex is  $j$  (33, 35, 54, 108).  $*z$  in Xa has become either  $c$  (16, 39, 104, 111) or  $n'$  (40, 105, 107, 108, 110, 112) in most environments. In Proto word-final position it has become zero (33, 35), while item 109 shows  $h$  as an unexplained reflex. In Ka  $*z$  has become either  $j$  (104, 106, 108, 110) or  $f$  (39, 105, 111, 112) in initial position and either  $h$  (16) or  $j$  (35) in intervocalic position. The conditions for the differential development are not clear. Following a consonant it is reflected as zero (54) and preceding a consonant as  $n$  (33, 108).

A few items in the present data show consonants that are apparently not direct reflexes of any Proto Jê phoneme. These

include the appearance of a glottal stop in Xa and Ka preceding what is reconstructed as an initial vowel (1, 5), and in Ap and Ca preceding certain medial consonants (39, 62, 66). In addition, bilabial consonants, m or p, appear in certain Xa items before another medial consonant (16, 39, 57, 62). Finally, a w has apparently developed in Ap items 33 and 40 and in Su item 35. The data are insufficient for any conclusions regarding these developments.

1.2. Reflexes of Proto Jê vowels are outlined below.

In spite of numerous examples of seeming random reflexes, as well as unexplained cases of the development or loss of nasalization, the data taken as a whole indicate a fair degree of regularity in the vowels. The predominant pattern of vowel development is outlined here without reference to unexplained aberrations. Double vowels, which occur in the Ca, Su and Xa data, are also disregarded in the following observations.

\*i and \*i<sup>n</sup> are retained unchanged in each of the Jê languages in a large majority of cases (5, 22, 47, 61-63, 73, 80, 81, 85, 95, 109, 110).

\*e and \*e<sup>n</sup> remain unchanged in most cases (8, 9, 11, 29, 44, 46, 88, 92, 106, 107), although there is a scattering of examples of an ε reflex in several of the languages (Xa 9, Ap. 46, Su 92 and 106) as well as a number of examples in which \*e is reflected in Xa as i under unknown conditions (11, 46, 88).

\*ε is reflected with few exceptions as e in Xa and as ε in the other languages of the sample (20, 21, 30, 45, 54, 63, 71-73, 93, 94).

\*y is reflected with considerable regularity as ə in Xa and as y in the other languages (32, 33, 36, 40, 41, 52, 53, 59, 84-86, 90, 100, 101, 112), although there are several examples of Ka front vowels as a reflex of \*y (33, 85, 100). The single example of \*y<sup>n</sup> (67) indicates that it is retained in Ap, but becomes ə<sup>n</sup> in Ca, a<sup>n</sup> in Xa and i<sup>n</sup> in Ka.

\*ə shows a variety of reflexes, mostly central vowels (3, 17-19, 49, 70, 102). The evidence is insufficient for any general conclusions, and the vowel reconstruction in a number of these items is problematical.

\*a is reflected as e<sup>n</sup> in many Ka items under conditions that are not clear (2, 27, 42, 43, 60, 63, 74, 78, 105, 108); otherwise it generally remains unchanged (1, 2, 4, 6-16, 19, 27, 42, 43, 55, 60, 62, 63, 74-76, 78, 79, 86, 91, 103-108). \*a<sup>n</sup> (13, 28, 56, 77, 87) is retained in Xa but becomes ʌ<sup>n</sup> in Ap and generally e<sup>n</sup> in the other languages.

\*u and \*u<sup>n</sup> are retained unchanged in most cases (34-40, 50, 51, 98, 99), although there is only one example of the latter.

\*o and \*o<sup>n</sup> are in most cases retained in Ap, Ca and Su (10, 15, 16, 23-26, 39, 48, 57, 64-66, 68, 69, 83, 96, 104, 111). In Xa \*o<sup>n</sup> is usually retained, but \*o is most often reflected as u. In Ka \*o<sup>n</sup> is most often reflected as u<sup>n</sup> (48, 65, 66, 83) or a<sup>n</sup> (30, 57), while \*o has such a variety of reflexes that no conclusions can be drawn.

\*ɔ (14, 31, 35, 49, 58, 66, 82, 89, 97) remains unchanged with very few exceptions in each of the languages except Ka. In Ka it is most often reflected as e<sup>n</sup> (49, 58, 66, 97).

In a large number of items which have been reconstructed with a final consonant there appears in individual languages

a vowel following the consonant. It is not clear how many of these vowels represent an actual phonemic development and how many are the result of differing perception and interpretation of phonetic data on the part of the various investigators. Many occurrences of final vocoids in the Jê languages are of doubtful phonemic status.

The data indicate a final vowel in nearly every Su and Xa item, irrespective of whether the item has been reconstructed with a final vowel or a final consonant. Items that reconstruct to a final consonant show in Xa either a final i (34, 43, 48, 60, 76, 79, 104) or a repetition of the vowel preceding the consonant (3, 18, 21, 29, 36, 45, 46, 51, 53, 57, 65, 77, 78, 81, 94, 100, 101). Su shows somewhat less consistency, but this may be the result of less reliable data. A number of items indicate either the development of i (21, 33, 46, 53, 54, 78) or a repetition of the vowel that precedes the consonant (25, 36, 41, 51, 59, 65, 94), while others show irregular vowels in the final position (26, 35, 37, 102). Ka shows the development of a final vowel following w, j and r that is identical to the vowel immediately preceding the consonant (49, 65, 69, 100, 111). Several items show the possible development of a final vowel in Ca (41, 53, 59, 91).

2. In this section the phonemic structure of each of the five languages of the sample is presented, together with a summary of the derivation of each phoneme.

2.1. Apinayé phonemes are as follows:

<i>Consonants</i>	<i>Oral vowels</i>	<i>Nasal vowels</i>
p t c k ?	i y u	i <sup>n</sup> y <sup>n</sup> u <sup>n</sup>
m n n <sup>y</sup> ŋ	e ə o	e <sup>n</sup> ə <sup>n</sup> o <sup>n</sup>
w r j	ɛ ʌ ɔ	a <sup>n</sup>
	a	

/p t k/ are either voiced or voiceless unaspirated stops depending on their environment and are derived respectively from Proto Jê \*p, \*t and \*k. /c/ is either voiced or voiceless unaspirated and is either a stop or an affricate at the alveopalatal point of articulation. It is derived from \*c.

/ʔ/ is a glottal stop and is derived from either Proto Jê n<sup>y</sup> or \*z, or is a special development not representing a reflex of any specific Proto Jê phoneme.

Members of the series /m n n<sup>y</sup> ŋ/ are, in various environments, either voiced prenasalized stops, voiced postnasalized stops, or nasal continuants. /m n ŋ/ are derived from corresponding Proto Jê consonants, while n<sup>y</sup> is a reflex of either \*n<sup>y</sup> or \*z.

/w/ varies from a non-syllabic high back rounded vocoid to a bilabial or labiodental fricative. It is generally a reflex of \*w, but in some occurrences does not represent a reflex of any Proto Jê phoneme.

/r/ is either an alveolar flap or a lateral and is consistently a reflex of \*r.

/j/ is either a nonsyllabic high front unrounded vocoid or a voiced alveopalatal grooved fricative. It is descended from Proto Jê \*z.

The system of ten oral vowels has developed from the original nine-vowel system. Both /a/ and /ʌ/ are reflexes of \*a, while the other vowels are quite regularly derived from the corresponding Proto Jê vowel phonemes. The seven nasal vowels have likewise developed from a previous six-vowel system. Although no examples of /a<sup>n</sup>/ are to be found in the comparative vocabulary, it is probable that both /a<sup>n</sup>/ and /ʌ<sup>n</sup>/ have developed from \*a<sup>n</sup>.

2.2. The Canela data are only tentatively phonemicized and a number of pho-

netic features are not fully accounted for in the following inventory of phonemes:

Consonants	Oral vowels	Nasal vowels
p t c k ʔ k <sup>h</sup>	i y u e ə o ɛ a ɔ	i <sup>n</sup> y <sup>n</sup> u <sup>n</sup> e <sup>n</sup> a <sup>n</sup> o <sup>n</sup>
m n n <sup>ʔ</sup> ŋ w r j h		

/p t k/ are normally voiceless unaspirated stops, but may be voiced in some environments. They are reflexes respectively of \*p or \*m, \*t or \*n, and \*k or \*ŋ. /c/ is an alveopalatal affricate and is derived from either \*c or \*n<sup>ʔ</sup>. The glottal stop /ʔ/ has developed at certain morpheme boundaries and does not reflect any Proto Jê segmental phoneme. /k<sup>h</sup>/ is a voiceless aspirated stop and is a reflex of \*k.

/m n ŋ/ are either nasal continuants or voiced stops with pre- or postnasalization. They are derived from \*m \*n and \*ŋ respectively, although a single item suggests n as a reflex of final \*n<sup>ʔ</sup>. /n<sup>ʔ</sup>/ does not appear in the comparative vocabulary, but it does appear in Gudschinsky's data and probably reflects Proto Jê \*n<sup>ʔ</sup>.

/w/ is either a nonsyllabic high back rounded vocoid or a labial fricative and is descended from \*w. /r/ is either an alveolar flap or lateral and is derived from \*r. A single item suggests that it might be a rare reflex of \*z as well. /y/ is sometimes a nonsyllabic high front unrounded vocoid and sometimes an alveopalatal fricative. It is a reflex of Proto Jê \*c, \*n<sup>ʔ</sup> or \*z. /h/ is a glottal fricative that is derived from either \*n<sup>ʔ</sup> or \*z.

The Canela vowel system is identical in all major respects to the Proto Jê system. Each vowel is ordinarily a reflex of the

corresponding Proto Jê vowel, although there are some irregular developments that are unexplained.

2.3. No phonemic analysis is available for the Suyá. However, the data suggest the following phonemic system:

Consonants	Oral vowels	Nasal vowels
p t c k t <sup>h</sup> k <sup>h</sup>	i y u e ə o ɛ ʌ ɔ	i <sup>n</sup> y <sup>n</sup> u <sup>n</sup> e <sup>n</sup> ʌ <sup>n</sup> o <sup>n</sup> a <sup>n</sup>
m n n <sup>ʔ</sup> ŋ w r j s h		

/p t k/ are normally voiceless unaspirated stops. It is not clear from the data whether or not they include voiced allophones. /p k/ are derived from \*p and \*k respectively, while /t/ is a reflex of either \*t or \*c. /c/, an alveopalatal affricate, is not represented in the comparative vocabulary. There is some evidence suggesting that it may be merely an allophone of /t/, and as such would probably be a reflex of either \*c or \*t. /t<sup>h</sup> k<sup>h</sup>/ are voiceless aspirated stops and are derived from \*t and \*k respectively.

/m n n<sup>ʔ</sup> ŋ/ appear in the data as nasal continuants, as voiced stops, and as voiced stops with pre- or postnasalization. /m n<sup>ʔ</sup> ŋ/ are reflexes of the corresponding Proto Jê phonemes, while the data indicate that /n/ can be a reflex of \*t, \*c, \*n, \*n<sup>ʔ</sup> or \*r.

/w/ is a nonsyllabic high back rounded vocoid and is descended from either \*p or \*w, or is a special development not reflecting any Proto Jê phoneme. /r/ is an alveolar flap which reflects \*r, and possibly \*t in rare cases. /j/ is a nonsyllabic high front unrounded vocoid reflecting either \*c or \*z.

/s/ is an alveolar grooved fricative and is regularly derived from \*z. /h/ represents a glottal fricative that is apparently labial-

ized in at least some environments. It has been recorded at times with bilabial friction. What is written in the data as hw may be an allophone of this phoneme. It is a reflex of Proto Jê \*p.

The Suyá vowel system is apparently the same as that of the Apinayé. The low central oral vowels /ʌ/ and /a/, and the corresponding nasal vowels /ʌ<sup>n</sup>/ and /a<sup>n</sup>/ are probably reflexes of \*a and of \*a<sup>n</sup> respectively. Other vowels are most often direct descendants of equivalent Proto Jê vowels.

2.4. The Xavante phonemes are as follows:

Consonants	Oral vowels	Nasal vowels
p t c ʔ	i y u	i <sup>n</sup> u <sup>n</sup>
m n n <sup>ʔ</sup>	e ə o	e <sup>n</sup> a <sup>n</sup> o <sup>n</sup>
w r h	ɛ a ɔ	

/p t/ are voiceless stops which may be aspirated or unaspirated depending on the environment. They are reflexes of \*p or \*m and of \*t or \*n respectively. In addition, p occurs at times as a special medial development not reflecting any Proto Jê segmental phoneme. /c/ includes as allophones voiceless grooved fricatives and affricates at alveolar and alveopalatal points of articulation. It is derived from \*c, \*n<sup>ʔ</sup> or \*z. /ʔ/ is a glottal stop and is usually a reflex of either \*k or \*ŋ. Rarely it is a reflex of \*t or \*c, or represents a special initial development that does not reflect any Proto Jê phoneme.

/m n/ are nasal continuants, voiced stops, prenasalized voiced stops. They reflect \*p or \*m and \*t or \*n respectively. In addition, n is a rare reflex of \*r and of n<sup>ʔ</sup>, while m may be a special medial development not directly descending from any

Proto Jê phoneme. /n<sup>ʔ</sup>/ exhibits a variety of allophones, including voiced alveolar or alveopalatal grooved fricatives, a nonsyllabic high front unrounded vocoid, and an alveopalatal nasal continuant. It is a reflex of \*c, \*n<sup>ʔ</sup> or \*z.

/w/ is a nonsyllabic high back rounded vocoid and is descended from \*p, \*k or \*w. /r/ is a voiced alveolar flap and is a reflex of \*r. /h/ is a glottal fricative that ordinarily reflects \*k, but sometimes \*z.

Although Xa exhibits the same type of an oral vowel system as Proto Jê, all Xa vowels are not direct descendants of their Proto Jê counterparts. While most occurrences of /i/ reflect \*i, there are a number that reflect \*e. Xa /e/, as far as the data show, is derived from either \*e or \*ɛ, while each occurrence of /ɛ/ in the comparative vocabulary is apparently a reflex of a different Proto Jê vowel.

Examples are lacking for Xa /y/, but the data indicate that /ə/ is a reflex of both \*y and \*ə. Xa /a/ is quite regularly derived from \*a, and /ɔ/ from \*ɔ. Xa /u/ is a reflex of both \*u and \*o, while examples are lacking for oral /o/. Nasal vowels in Xavante appear to have descended quite regularly from corresponding Proto Jê nasal vowels.

2.5. The Kaingang phonemes are as follows:

Consonants	Oral vowels	Nasal vowels
p t k ʔ	i y u	i <sup>n</sup> u <sup>n</sup>
m n n <sup>ʔ</sup> ŋ	e ə o	e <sup>n</sup> ə <sup>n</sup>
f ʃ h	ɛ a ɔ	e <sup>n</sup> a <sup>n</sup>
w r j		

/p t k/ are voiceless unaspirated stops and are derived most often from the corresponding Proto Jê phonemes. Rarely they

reflect \*m, \*n and \*ŋ respectively. The glottal stop /ʔ/ is a special development that apparently never reflects a Proto Jê segmental phoneme.

The series /m n nʳ ŋ/ represent nasal continuants in some environments and, in other environments, complex segments composed of nasal and voiced stop combinations. The phoneme m is regularly a reflex of \*m, while n can be a reflex of \*n, \*t, \*nʳ, \*r, \*z and possibly \*m. The alveopalatal nasal nʳ, on the other hand, is apparently always a reflex of \*c. The velar nasal ŋ can be a reflex of \*ŋ, \*k, \*m, \*nʳ and possibly \*w.

/f/ is a bilabial fricative and reflects \*z. /ʃ/ is an alveopalatal grooved fricative which is not represented in the comparative vocabulary. Its derivation is not known. /h/ is a glottal fricative which seems to be a rare reflex of \*z.

/w/ is a bilabial semivowel, but is not represented in the comparative vocabulary. /r/ is an alveolar flap and is most often derived from \*r, although it may also represent a rare reflex of \*t. /j/ is an alveopalatal semivowel and is derived from \*c, \*nʳ or \*z.

The Kaingang oral vowel system is the nine-vowel system typical of Jê languages. The front and central vowels, with the exception of /ə/, for which there is little data, are generally derived from corresponding Proto vowels. There are, however, several examples of /a/ derived from \*o. The back vowels /u o ɔ/ are attested by very few examples and it is not possible to state their derivaton, other than that they are derived from either corresponding or adjacent Proto vowels.

Each of the five nasal vowels exhibit more than one derivation. The vowel /iʳ/ is derived most often from a high front vo-

wel, but sometimes from a high central or other vowel. The lower front vowel /eʳ/ is derived most often from \*a or \*ɔ, but sometimes from eʳ. The mid central vowel /əʳ/ is generally derived from \*aʳ, while the lower central vowel /aʳ/ is derived either from the corresponding oral vowel \*a or any one of a variety of other Proto vowel phonemes. Finally, Ka /uʳ/ is derived from either \*uʳ or \*oʳ.

#### Comparative Vocabulary

1. \*a- *your*. Ap a-, Ca a-, aa-, Su a-, Xa ʔa-, Ka ʔaʳ-.
2. \*ca, *cam to stand*. Ap ca, caʳm, Ca ca, Xa nʳa, nʳam, nʳap, cam, Ka jeʳ, jeʳŋ.
3. \*cəʳ, *cət to burn*. Ap cet, cer, Ca (ka)cəʳ, Xa cata, nʳaana.
4. \*cwa *tooth*. Ap wa, -cwa, Ca (ii)cwa, Su (ii)twā, Xa ʔwa, Ka jaʳ.
5. \*i-, *ic- my*. Ap i-, ic-, Ca ii-, Su i-, Xa ʔiiʳ, Ka ʔinʳ (I).
6. \*ka *you*. Ap ka, Ca ka, Su ka.
7. \*ka-cwa *salt*. Ap kacwa, Ca kaacwa, Su kʳatwa, Xa (ʔiʳ)ʔwa(waahə).
8. \*ka-kre, -krenʳ *to scratch*. Ap kakre, kakrenʳ, Ca kaakʳre, kakʳri, Xa waʔre, Ka -ŋre.
9. \*ka-mrək, *mre red*. Ap kamrek, Xa pre.
10. \*ka-mro *blood*. Ap kamro, Ca (ii)ka-proo, Su kʳaamro, Xa waapru.
11. \*kanʳe *star*. Ap kanʳe(ti) Ca kacee (re), Su kʳane(ti), Xa waaci.
12. \*kaŋa *lazy*. Ap kaŋa, Xa waaʔa, Ka kaŋa (*sick*).
13. \*kaŋaʳ *snake*. Ap kaŋaʳ, Su kʳəʳŋyʳ, Ka kakə(wə).
14. \*kaŋrə *hot*. Ap kaŋrə, Ca kakrə, Su kʳaŋrə-, Xa waaʔrə.

15. \*ka-ro<sup>n</sup> *soul*. Ap karo<sup>n</sup>, Xa waaro<sup>n</sup>.
16. \*ka-zo, -zor *to suck*. Ap kao, kaor, Ca kaho, Xa wapco<sup>n</sup>, Ka ka<sup>n</sup>hun.
17. \*kə *skin, bark*. Ap kə, Ca (ii)k<sup>h</sup>ə, Su k<sup>h</sup>y, Xa hə.
18. \*kə, kər *to bellow, call*. Ap kə, kər, Xa hə, həəə.
19. \*kəckwa *sky*. Ap kackwa, Ca koj<sup>h</sup>wa, Su kaj<sup>h</sup>wa, Xa hən<sup>h</sup>wa, Ka kan<sup>h</sup>ka<sup>n</sup>.
20. \*kə, -kəc *left*. Ap (?ap)kə, Ca (aw)k<sup>h</sup>ə, Xa (nan<sup>h</sup>i<sup>h</sup>mi<sup>n</sup>)<sup>h</sup>ə, Ka (ja)ka<sup>n</sup><sup>h</sup>.
21. \*kən *stone*. Ap kə<sup>n</sup>, Ca k<sup>h</sup>ən, Su k<sup>h</sup>eni, Xa <sup>h</sup>əe<sup>n</sup>ne<sup>n</sup>, <sup>h</sup>e<sup>n</sup>te<sup>n</sup>.
22. \*ki *hair*. Ap ki<sup>n</sup>. Ca (ii)k<sup>h</sup>i<sup>n</sup>, Su (wa)k<sup>h</sup>i<sup>n</sup>, Ka (ky)ki (*fur*).
23. \*ko *horn*. Ap ko (*stick*), Xa <sup>h</sup>u, Ka (ni<sup>n</sup>)ka (*horn*), (ku)ka (*bone*).
24. \*ko<sup>n</sup>, -ko<sup>m</sup> *to drink*. Ap (ic)ko<sup>n</sup>, ko<sup>m</sup>, Ca -k<sup>h</sup>o<sup>n</sup>, Su -k<sup>h</sup>o<sup>n</sup>, Ka <sup>h</sup>ən (*to swallow*).
25. \*kok *wind*. Ap kok, Ca k<sup>h</sup>ook, Su k<sup>h</sup>ogo, Ka kə(hu).
26. \*ko<sup>n</sup> *knee*. Ap ko<sup>n</sup>, Ca (ii)k<sup>h</sup>o<sup>n</sup>, Su (i)k<sup>h</sup>ono.
27. \*kra *child*. Ap kra(re), Ca (a<sup>h</sup>)k<sup>h</sup>ra(re), Xa <sup>h</sup>ra, Ka kre<sup>n</sup>.
28. \*kra<sup>n</sup>, kra<sup>n</sup><sup>h</sup> *head*. Ap kr<sup>h</sup>, Ca (ii)k<sup>h</sup>rə<sup>n</sup>, Su (wa)krə<sup>n</sup>, Xa <sup>h</sup>ra<sup>n</sup>, <sup>h</sup>ra<sup>n</sup><sup>h</sup>, Ka kri<sup>n</sup>.
29. \*kre<sup>n</sup>, kre<sup>n</sup><sup>h</sup> *to eat*. Ap -kre<sup>n</sup>, -kre<sup>n</sup><sup>h</sup>, Ca -k<sup>h</sup>re<sup>n</sup>, Xa -<sup>h</sup>re<sup>n</sup>, <sup>h</sup>re<sup>n</sup>ne<sup>n</sup>, Ka (wa<sup>n</sup>)kre (*to fast*).
30. \*kre *house, burrow*. Ap (i)kre, Ca (ii)k<sup>h</sup>re, Su (k<sup>h</sup>i)kre, Xa <sup>h</sup>ri, Ka kre.
31. \*krə *rotten*. Ap krə, Xa <sup>h</sup>rə, Ka (kə)kre.
32. \*kry *cold*. Ap (?a)kry, Ca k<sup>h</sup>ry, Su k<sup>h</sup>ry-, Xa həə-, Ka (ku)kry(ry) (*frost*).
33. \*kryz *parrot*. Ap kwrəj, Ca kryj(ti), Su k<sup>h</sup>roji, Xa (wan<sup>h</sup>)həə(rə), Ka kri<sup>n</sup>(kri<sup>n</sup>ri<sup>n</sup>).
34. \*ku, kur *to eat*. Ap -ku, -kur, Ca k<sup>h</sup>uu, Xa huuri, Ka ko.
35. \*ku-kəz *monkey*. Ap kokoj, Ca kuk<sup>h</sup>oj, Su k<sup>h</sup>uk<sup>h</sup>oje, kukoj, Xa (?rə)<sup>h</sup>ə(re), Ka kaje<sup>n</sup>(re<sup>n</sup>).
36. \*ku-kryt *tapir*. Ap kukryt, Ca kuk<sup>h</sup>ryt, Su k<sup>h</sup>ukryty, Xa <sup>h</sup>uhəəə.
37. \*ku<sup>m</sup> *smoke*. Ap ku<sup>m</sup>, Ca (i<sup>h</sup>)k<sup>h</sup>u<sup>m</sup>, Su k<sup>h</sup>u<sup>m</sup>o<sup>n</sup>, Ka ku<sup>m</sup>.
38. \*kupu *to wrap*. Ap kupu, Xa <sup>h</sup>uumu.
39. \*ku-zo<sup>n</sup>, -zo<sup>n</sup><sup>h</sup> *to wash*. Ap ku<sup>h</sup>o<sup>n</sup>, ku<sup>h</sup>o<sup>n</sup><sup>h</sup>, Ca ku<sup>h</sup>o<sup>n</sup>, ka<sup>h</sup>o<sup>n</sup>, Xa <sup>h</sup>upco<sup>n</sup>, <sup>h</sup>upco<sup>n</sup><sup>h</sup>, Ka fa, fa<sup>n</sup>, fa<sup>n</sup><sup>h</sup>.
40. \*ku-zy *fire*. Ap kuwy, Ca kuhy, Su k<sup>h</sup>usy, Xa <sup>h</sup>un<sup>h</sup>i.
41. \*kwyr *manioc*. Ap kwər, Ca k<sup>h</sup>wyry, Su k<sup>h</sup>wyry.
42. \*ma *liver*. Ap ma, Ca (ii)pa, Su (ii<sup>n</sup>)ma, Xa pa, Ka (tə<sup>n</sup>)me<sup>n</sup>.
43. \*-ma, -mar *to hear*. Ap (ku)ma, mar, Ca (k<sup>h</sup>ə<sup>n</sup>)pa, Xa (waa)pa, -paari, Ka me<sup>n</sup>.
44. \*me<sup>n</sup>, me<sup>n</sup><sup>h</sup> *to throw*. Ap (ku)me<sup>n</sup>, me<sup>n</sup><sup>h</sup>, Xa me<sup>n</sup>, me<sup>n</sup><sup>h</sup>, Ka pe<sup>n</sup><sup>h</sup> (*to shoot*).
45. \*məc *good*. Ap məc, Ca-pej, Su mət-, Xa pece.
46. \*men<sup>h</sup> *honey*. Ap men<sup>h</sup>, Su meni, Xa pi<sup>n</sup>, pi<sup>n</sup>ni<sup>n</sup>, Ka mə<sup>n</sup><sup>h</sup>.
47. \*mi<sup>n</sup>, mi<sup>n</sup><sup>h</sup> *alligator*. Ap mi<sup>n</sup>(ti), Ca mii<sup>n</sup>, Su mii<sup>n</sup>(ti<sup>n</sup>), Ka mi<sup>n</sup><sup>h</sup> (*carnivorous animal*).
48. \*mo<sup>n</sup>, mo<sup>n</sup><sup>h</sup> *go, walk*. Ap mo<sup>n</sup>, mo<sup>n</sup><sup>h</sup>, Ca mo<sup>n</sup>, Xa -mo<sup>n</sup>, mo<sup>n</sup>ri, Ka mu<sup>n</sup>.
49. \*mrə, mrəc, prə *ashes*. Ap mrə (*ashes*), pr<sup>h</sup>(<sup>h</sup>cet) (*charcoal*), Ca prə, Su mrəə, Xa -prə (*charcoal*), Ka mre<sup>n</sup>je<sup>n</sup>.

50. \*-mu, mun' to see. Ap (ɔ)mu, (pu)mu, -mun', Ca (-ho'm)pu, (pu)pun, Xa (caa)mu.
51. \*mut neck. Ap mut, Ca (ii)put, Su -mutu, Xa muunu.
52. \*my tail. Ap (?a)my, Ca (ha)ppy, Su myy, Xa mə, Ka my.
53. \*myt sun. Ap myt, Ca pyt, pyty, Su myri, Xa məənə.
54. \*mzɛn husband. Ap mjen, Ca (ii)pje, Su mjeni, Ka mɛn.
55. \*na rain. Ap na, Ca taa, Su naa, Xa ta', Ka ta.
56. \*na' mother. Ap na', Ca -nə', Xa na', Ka nə'.
57. \*no', no'r to lie. Ap no', no'r, Ca no', Xa no', no'mro', Ka na'.
58. \*nɔ eye. Ap nɔ, Ca (ii)tɔ, Su (waa)nɔ, Xa tɔ, Ka (ka)ne'.
59. \*nyw new. Ap nyw, Ca -tuwa, Su nywy, Xa -tɛ, Ka ta'ŋ.
60. \*n'a, n'ar to bite. Ap (ka)n'a, -n'ar, Ca (-ku)ca, Xa -ca, -cari, Ka (ka)je' (to chew).
61. \*n'i' meat. Ap i', -n'i', Ca hi', Su -n'i', Xa n'i', Ka ni'.
62. \*n'i'-kra hand. Ap ɔi'kra, -n'i'kra, Ca hu'ɔk'ra, Su ni'kra, Xa n'i'p'raa(na), ci'p'raa(na), Ka kra (pestle).
63. \*n'i'-n'a-kre nose. Ap ɔi'akre, -n'i'akre, Ca -ji'jak're, Su (wa)n'in'akre, Xa n'i'ci're, cici're, Ka ni'je'.
64. \*n'o' food. Ap o', n'o', Xa n'o', Ka ye'(n) (to eat).
65. \*n'o't, ɲo'r to sleep. Ap o't, -n'o't, ɲo'r, Ca -ɲo'r, Su ɲoro, Xa n'oo'no', co'to', Ka nu'ru'.
66. \*n'o'-tɔ tongue. Ap o'ɔtɔ, -n'o'ɔtɔ, Ca -jo'ɔtɔ, Su (wa)n'otɔ, Xa co'tɔ, Ka nu'ne'.
67. \*n'y', n'y'r to sit. Ap n'y', y'r, n'y'r, Ca jə', Xa n'a'(bra-), ca-', Ka ni'.
68. \*ɲo louse. Ap ɲo, Ca (ii)ko, Su (ii)ɲo, Xa ʔu, Ka -ɲa, -ɲa'.
69. \*ɲo, ɲoc water. Ap ɲo, ɲoc, Ca ko, Su ɲo, Xa -ʔə, ʔu, ʔən', Ka ɲojo.
70. \*ɲrə dry. Ap ɲra, Ca krə, Su ɲry(rɛ), Xa ʔrɛ.
71. \*ɲrɛ egg. Ap ɲrɛ, Ca (in)krɛ, Su -ɲrɛ, Xa ʔrɛ, Ka ɲrɛ (penis).
72. \*ɲrɛ, ɲrer to sing. Ap ɲrɛ, ɲrer, Ca -krɛ, Xa (n'o')ʔrɛ, (con')ʔrɛ, Ka ɲren (to dance).
73. \*ɲri-rɛ small. Ap ɲri, Ca (i'n)krirɛ, Su ɲrirɛ, Ka ɲi'ri' (child).
74. \*pa arm. Ap pa, Su (wa)wa, Xa pa, Ka pe'.
75. \*pa I. Ap pa, Ca pa, Su pa, Xa wa.
76. \*pa, par to finish. Ap pa, par, Xa pa, pari, Ka pan (to throw out).
77. \*pa'm father. Ap pa'm, Ca -pa'm, Xa maa'ma'.
78. \*par foot. Ap par, Ca, (ii)par, Su (i)hwani, Xa paara, Ka pe'n.
79. \*pat ant-eater. Ap pat, Xa paani, pati.
80. \*pi' tree, fire-wood. Ap pi', Ca pii', Su hwi', Xa mi', Ka pi'.
81. \*pi', pi'r to kill. Ap (ku)pi', -pi'r, Xa wi', wi'ri', Ka pin.
82. \*pɔ wide. Ap pɔ, Ca (i?)pɔ, Xa (ʔə)pɔ(rɛ).
83. \*pro' wife. Ap pro', Ca (ii)pro', Su hro', Xa mro', Ka pru'.
84. \*pry path. Ap pry, Ca pryy, Su hryy, Xa mə, Ka (ja)pry.

85. \*py-ci, py-cit *one*. Ap pyci, Ca pycit, Su wyti-, Xa mi<sup>ci</sup>, Ka pi(ri).
86. \*py-ka, -kan<sup>r</sup> *earth*. Ap pyka, Su hwyka, Xa (ti)<sup>a</sup>, -<sup>a</sup>an<sup>r</sup>, Ka ŋa.
87. \*ra<sup>n</sup> *flower*. Ap rA<sup>n</sup>, Ca (ii)rə<sup>n</sup>, Xa (ci)raa<sup>n</sup>(ra<sup>n</sup>). Ka rə<sup>n</sup> (*ripe*).
88. \*re, rer *to swim*. Ap re, rer, Ca ree, Xa (n<sup>ə</sup>)ri, rii(mi), Ka re (*flow*).
89. \*rɔp *dog*. Ap rɔp, Ca rɔp, Su rɔp-.
90. \*ry *long*. Ap ry, Ca (i)ryy, Su -ry(re).
91. \*ta, tam *third person pronoun*. Ap tA<sup>m</sup>, Ca tamə<sup>n</sup>, Su (ii)t<sup>h</sup>a, Xa taa-, Ka (ti)tə<sup>n</sup>, tɔŋ.
92. \*te<sup>n</sup>, te<sup>m</sup> *come, go*. Ap te<sup>n</sup>, te<sup>m</sup>, Ca -te<sup>n</sup>, Su te, -nə, Xa ne<sup>n</sup>, Ka ti<sup>n</sup>.
93. \*tə *leg*. Ap tə, Ca (ii)tə, Su (ii)t<sup>h</sup>e, Xa tə.
94. \*tɛp *fish*. Ap tɛp, Ca tɛp, Su tewe, Xa teeme, tepe.
95. \*-ti<sup>n</sup> *heavy*. Ap (u)ti<sup>n</sup> (-py)ti<sup>n</sup>, Ca (huu<sup>n</sup>)ti<sup>n</sup>, (py)ti<sup>n</sup>, Su (u)ti<sup>n</sup>-.
96. \*to<sup>n</sup> *younger brother*. Ap to<sup>n</sup>, Su -to<sup>n</sup>, Xa -no<sup>n</sup>.
97. \*tɔ, tɔr *to fly*. Ap tɔ, tɔr, Ca tɛe, Ka tɛ<sup>n</sup>.
98. \*tu, tum *belly*. Ap tu, Ca (ii)tu, Xa nu, nup, Ka nuŋ.
99. \*tu, tun<sup>r</sup> *grass*. Ap tu, Ca (a<sup>ɔ</sup>)tuu, Xa nu, nun<sup>r</sup>, Ka tu (*variety of plant*).
100. \*ty, tyk, tyr *to die*. Ap ty, tyk, Ca tyy, Su -ty, Xa tə, nə<sup>ɔ</sup>, nəə<sup>r</sup>, Ka tere.
101. \*tyk *black*. Ap tyk, Ca (i<sup>ɔ</sup>)tyk, Su t<sup>h</sup>yk(re), Xa (ʔra<sup>n</sup>)nə<sup>ɔ</sup>, Ka (ku)ty (*dark*).
102. \*twəm *fat, grease*. Ap twəm, Ca (i<sup>ɔ</sup>)twym, Su t<sup>h</sup>wəmy, Xa wa, wap, Ka ta<sup>n</sup>ŋ.
103. \*za-ka *white*. Ap ʔaka, -jaka, Ca hakk<sup>h</sup>a, jak<sup>h</sup>aa, Su saaky(ire), Xa ʔa.
104. \*zako, zakor *to blow*. Ap ʔako, -jako, -jakor, Ca hakkoo, Xa ca<sup>ɔ</sup>u, ca<sup>ɔ</sup>uuri, Ka ja<sup>h</sup>ka.
105. \*za-ra *wing, feather*. Ap ʔara, -jara, Ca haaraa, Su saara, Xa -n<sup>ʔ</sup>eere (*hair*), Ka fe<sup>n</sup>re<sup>n</sup>.
106. \*za-re *root*. Ap ʔare, -jare, Ca haare, Su saare, Ka ja<sup>h</sup>re.
107. \*za-re<sup>n</sup>, -re<sup>n</sup> *to tell*. Ap ʔare<sup>n</sup>, ʔare<sup>n</sup>, -jare<sup>n</sup>, Xa n<sup>ʔ</sup>o<sup>n</sup>re<sup>n</sup>.
108. \*zaz-kwa *mouth*. Ap ʔakwa, -jakwa, Ca -jark<sup>h</sup>wa, Su -jajkwɔɔ, Xa n<sup>ʔ</sup>an<sup>h</sup>ə, Ka je<sup>n</sup>nky.
109. \*zi *bone*. Ap ʔi, -ji, Ca -hi, Su -si, Xa hi.
110. \*zici *name*. Ap ʔici, -n<sup>ʔ</sup>ici, Su siini, Xa n<sup>ʔ</sup>ii<sup>ci</sup>, Ka jiji.
111. \*zo, zoc *leaf*. Ap ʔo, Ca (i<sup>ɔ</sup>)ho, Su -so, Xa (we)cun<sup>r</sup>(ra<sup>n</sup>), Ka feje.
112. \*zy *seed*. Ap ʔy, Ca (i<sup>ɔ</sup>)hyy, Xa n<sup>ʔ</sup>a, Ka fy.

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## RESUMO

O presente artigo é um estudo genético-comparativo da família lingüística Jê do Brasil indígena, para reconstruir a fonologia do Proto-Jê. O autor focaliza 5 dessas línguas, reunindo a 2 muito próximas entre si (Apinayé e Canela) o Suyá que apresenta importantes traços próprios específicos, o Xavante, que pertence a outro ramo

da família e o Kaingang, que alguns indigenistas não consideram Jê e outros colocam ao lado da família Jê estritamente dita para com ela entrar num bloco mais amplo Macro-Jê. Ao contrário desses pontos de vista, o autor vê no Kaingang uma língua mais ligada ao Jê *stricto sensu* do que o Xavante.