Historical phonology of Proto-Northern Jê *

This is the first paper in a planned series on the historical phonology of Macro-Jê languages. The Jê languages constitute the largest and the most diverse family within the Macro-Jê stock; for this reason, all comparative Macro-Jê studies depend heavily on Jê data. However, the only attempt at a systematic reconstruction of Proto-Jê phonology and lexicon (Davis 1966) has been severely criticized in subsequent works (Ribeiro and Voort 2010, Nikulin 2015b). In this paper, I propose a reconstruction of the proto-language of Northern Jê, the largest branch of the family.

Keywords: Jê languages, Macro-Jê languages, language reconstruction, comparative method.

1. Jê family

The Jê family¹ comprises ten extant languages, all of which are spoken in Brazil, and approximately four extinct, poorly attested languages (one of which was spoken in the Misiones province of Argentina and in the extreme east of Paraguay). Preliminary lexicostatistical calculations and the distribution of sound changes, lexical and morphological innovations point to the following phylogenetic structure of the family:

Cerrado²
Northern Jê
Panará³ (PAN)
Core Northern Jê
AMT: Apinayé (Apinajé, API), Kayapó (Mëbëngôkre, KAY), Timbira (TIM)
Tapayúna (TAP), Suyá (Kisêdjê, SUY)
Central Jê: Xavânte (XAV), Xerénte (XER), Acroá (†), Xakriabá (†)
Southern Jê
Ingain (†)
Kaingáng (KGG), Xokléng (XOK)
(?) Jeikó (†)

* I am grateful to CAPES (Coordenação de Aperfeiçoamento de Pessoal de Nível Superior) for providing a scholarship to carry out the present study.

¹ Traditionally the term ‘family’ is used in South American linguistics to refer to low-level phyla (roughly equivalent to the term ‘group’ in European linguistics), while deeper phyla are commonly referred to as ‘stocks’ (roughly equivalent to ‘families’ in European linguistics).

² This phylum has been previously called Amazonian Jê (Ribeiro and Voort 2010: 549) and Northern Jê (Ramirez, Vegini and França 2015: 261); the latter source inappropriately treats what we call Northern Jê as if it were a dialect continuum of a sole language (“Proper Jê”). The choice of the term Amazonian Jê is infelicitous, since the geographical distribution of these languages corresponds much better to the region of Cerrado than to the Amazon.

³ Called Southern Kayapó in older sources.
Of these, Timbira is actually a dialect continuum with at least six divergent dialects: Pykobjê, Ramkokamekrá, Krahô, Apâniêkrá, Pará Gavião (Parkatéjê), Krikati. Kaingáng is subdivided into five dialects: Paraná, Central, South-Western, South-Eastern and São Paulo (the latter is considered an independent language in some sources). Minor dialectal differences have also been described for Kayapô as spoken by the Kayapô and Xikrí ethnic groups.

A comprehensive overview of the state of affairs in comparative and synchronic studies in Jê is offered by Rodrigues (2012).

All data are cited using UTS (Unified Transcription System), based on the IPA with minor differences and currently used as the default standard for the Global Lexicostatistical Database (http://starling.rinet.ru/new100). Broad phonetic transcription is preferred over phonemic representation or practical orthography with the exception of Timbira, for which a normalized supradialectal phonemic representation (Nikulin 2016b) is used. The data used in this paper are extracted from the following sources:

- **Panará**: Dourado 2001, Bardagil-Mas et al. 2016, Lapierre et al. 2016a
- **Apinayé**: Oliveira 2005, Ham et al. 1979
- **Pykobjê**: Sá 1999, Amado 2004
- **Ramkokamekrá**: Popjes and Popjes 1971
- **Krahô**: Miranda 2014
- **Apâniêkrá**: Alves 2004
- **Parkatéjê**: Araújo 2016, Ferreira 2003
- **Tapayúna**: Camargo 2010, Rodrigues and Ferreira-Silva 2011
- **Suyá**: Santos 1997, Nonato 2014, Guedes 1993

Old (late XVIII–early XX century) sources cover some Southern Kayapó, Kayapó, Timbira and Xavánte dialects which are now extinct. The most remarkable of them are:

a) the dialect of Southern Kayapó once spoken in Paranaíba and Triângulo Mineiro, unique in that it retained r (r > y before back vowels in the dialect of Vila Boa, which apparently evolved into Panará) (Vasconcelos 2014);

b) the variety of Xavánte recorded by Ehrenreich (1895), peculiar in that it had undergone the sound changes *c > θ, *-kw- > -ŋw- and *r > y, w, r (Nikulin 2015a: 27–29);

c) Timbira varieties called “Menren” and “Krao” and the Kayapó variety called “Gorotiré” by Loukotka (1963), where r is found in place of earlier *ɬ (in modern Timbira h is found, whereas in Kayapó it yielded ʔ or disappeared) (Nikulin 2015a: 25–27).

Akroá-Mirim, Xakriabá, Ingain and Jeikó data are limited to low-quality wordlists. They might eventually turn out to be important for further comparative Jê studies (at least Xarkiabá and Ingain show some interesting phonological retenions); however, their data are not taken into account in the present series.

---

4 Since back and central unrounded vowels do not contrast in any Jê language, back unrounded vowels a, x, ui, are written here as ɔ, ɔ, i in order to facilitate the reading.
2. Overview

The first and only work dedicated to the reconstruction of Proto-Jê phonology is (Davis 1966). Davis considers data from five languages (Apinayé, Timbira, Suyá, Xavante and Kaingang) and proposes a reconstruction of the Proto-Jê phonological system. Even though he recognizes that Kaingang and Xokléng are the most divergent members of the family, he does not attempt to postulate any phonological differences between Proto-Jê, Proto-Cerrado and Proto-Northern Jê. He reconstructs a system of 11 consonant phonemes, 9 oral and 6 nasal vowel phonemes. He also reconstructs 112 lexical items, whose distribution varies from Northern Jê to Jê (in my terminology). Davis’ reconstruction relies on false cognates, especially when it comes to Kaingang (cf. 35, 55, 59, 86, 100) and fails to account for many sound correspondences, treating many developments as unexplained splits. Other shortcomings in Davis’ work include listing multiple unrelated roots under one etymology (cf. 49) and absence of systematic treatment of Jê morphophonology (e.g. relational prefixes, long verb forms, utterance-internal allomorphs in Xavante). The correspondences postulated by Davis are presented below as Tab. 1–2 (the notation is modified for Apinayé, Timbira, Xavante and Kaingang to match UTS).

Table 1. Proto-Jê consonants according to Davis (1966).

<table>
<thead>
<tr>
<th>PJ</th>
<th>API</th>
<th>TIM</th>
<th>SUY</th>
<th>XAV</th>
<th>KGG</th>
</tr>
</thead>
<tbody>
<tr>
<td>*p</td>
<td>p</td>
<td>p</td>
<td>w - hw - p, h before r</td>
<td>p - b / m - w</td>
<td>p</td>
</tr>
<tr>
<td>*t</td>
<td>t</td>
<td>t</td>
<td>t, t³, r, n</td>
<td>t - d / n, θ before w</td>
<td>t, &quot;d / n, r</td>
</tr>
<tr>
<td>*c</td>
<td>č, θ before w</td>
<td>c, -y</td>
<td>t, y, n</td>
<td>c - 3 - y, ʔ before w</td>
<td>y, ą&quot; in coda</td>
</tr>
<tr>
<td>*k</td>
<td>k</td>
<td>k - k⁸</td>
<td>k - k⁸</td>
<td>ʔ, h (₃), sometimes u, w (₃), θ (C₃)</td>
<td>k, &quot;g, θ word-finally</td>
</tr>
<tr>
<td>*m</td>
<td>m / ph</td>
<td>m / p</td>
<td>m</td>
<td>p - b / m</td>
<td>&quot;b / m, p (g) / θ, -d²</td>
</tr>
<tr>
<td>*n</td>
<td>n / n</td>
<td>n / t</td>
<td>n</td>
<td>t - d / n</td>
<td>&quot;d / n, t</td>
</tr>
<tr>
<td>*ŋ</td>
<td>ŋ / ŋ</td>
<td>ŋ / ŋ</td>
<td>ŋ / ŋ</td>
<td>ŋ / ŋ</td>
<td>ŋ / ŋ</td>
</tr>
<tr>
<td>*w</td>
<td>w</td>
<td>w</td>
<td>w</td>
<td>w, θ</td>
<td>θ, -ŋ</td>
</tr>
<tr>
<td>*r</td>
<td>r</td>
<td>r</td>
<td>r</td>
<td>r, θ (C₃)</td>
<td>r, -n</td>
</tr>
<tr>
<td>*z</td>
<td>ʔ, y, ɲ</td>
<td>h, y</td>
<td>s, y</td>
<td>c, 3 / n, h, θ word-finally</td>
<td>ɸ, y, h, θ (C₃), n (₃)</td>
</tr>
</tbody>
</table>

Table 2. Proto-Jê vowels according to Davis (1966).

<table>
<thead>
<tr>
<th>PJ</th>
<th>API</th>
<th>TIM</th>
<th>SUY</th>
<th>XAV</th>
<th>KGG</th>
</tr>
</thead>
<tbody>
<tr>
<td>*a</td>
<td>a</td>
<td>a</td>
<td>a</td>
<td>a</td>
<td>a, ě</td>
</tr>
<tr>
<td>*o</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o, o</td>
</tr>
<tr>
<td>*i</td>
<td>i</td>
<td>i</td>
<td>i</td>
<td>a</td>
<td>i, i, e</td>
</tr>
<tr>
<td>*u</td>
<td>u</td>
<td>u</td>
<td>u</td>
<td>u</td>
<td>u</td>
</tr>
<tr>
<td>*e</td>
<td>e</td>
<td>e</td>
<td>e</td>
<td>e</td>
<td>e</td>
</tr>
<tr>
<td>*ɛ</td>
<td>e, e</td>
<td>e</td>
<td>e</td>
<td>e</td>
<td>e</td>
</tr>
<tr>
<td>*i</td>
<td>i</td>
<td>i</td>
<td>i</td>
<td>i</td>
<td>i</td>
</tr>
</tbody>
</table>
The reconstruction by Davis has been heavily criticized, notably by Ribeiro and Voort (2010) and Nikulin (2016a). However, an alternative detailed description of Proto-Jê phonology has never been proposed to date.

Many stems in Cerrado languages have two allomorphs: one is used when the word immediately follows its syntactic dependant, another is found in non-contiguous position. The difference between these allomorphs usually affects the initial consonant or the initial syllable. In synchronic descriptions it is practically useful to treat these alternating segments as independent morphemes (‘relational prefixes’, as described by Rodrigues (1952, 1953, 2010 [1981]). In comparative work, however, it is more appropriate to consider entire stems for the following reasons: (a) bare (prefix-less) roots do not occur; (b) the shape of the prefixes is very diverse in individual languages and this diversity can be traced back to PNJ and further; (c) in some instances the prefixes are fossilized and no longer segmentable. Henceforth the stems containing relational prefixes will be notated as follows: “non-contiguous allomorph / = contiguous allomorph”.

All verbs in Jê languages can be nominalized (so-called ‘long form’). Since the allomorphy of the nominalization suffix is lexically determined, I systematically provide both the finite (‘short’ and the nominalized forms of the verbs when this information is available. This is notated as follows: “short form(-nominalization suffix)”. Whenever the addition of the suffix causes alternations to the stem, both forms are written separately: “short form / long form”.

Finally, in most Jê languages words may surface differently in utterance-final position. In Northern Jê languages the differences are restricted to the presence of echo vowels and are not written out. In Central Jê the differences are sometimes very noticeable (cf. XAV tu // nɔmɔ ‘belly’) and not entirely predictable; both allomorphs will be systematically written out separated by a double slash. In Southern Jê languages the vowels of certain roots are affected. I have shown that this phenomenon was present in PSJ and involved lowering of oral close-mid and open-mid vowels in final open syllables with an optional continuant coda (Nikulin 2015b). In the daughter languages (Kaingáng and Xokléng) this process was obscured by a number of sound changes. PSJ syllables containing low, high or nasal vowels, as well as syllables with a nasal coda, were not affected. For roots that match said conditions, I systematically mark whether they were subject (#) or prone (ʔ) to this phenomenon.

3. Proto-Northern Jê

3.1. Syllable structure and echo vowels.

The maximal syllable structure of most Northern Jê languages is CRVC, where R is a liquid or a glide. An interesting phenomenon found to a varying extent in all Core Northern Jê languages is the existence of so-called echo vowels. Echo vowels (EV) occur after the coda consonants of final (stressed) closed syllables, mostly in utterance-final position. Their quality depends on the vowel in the syllable nucleus (V₁) and on the syllable coda:

<table>
<thead>
<tr>
<th>Language</th>
<th>Condition</th>
<th>Description</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>Apinayé</td>
<td>V₁ = i</td>
<td>after palatal -č; i in finite verb forms only after -ar; suppressed in non-finite verb forms</td>
<td>Oliveira 2005: 78–79: 191</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Kayapó</td>
<td>V₁ = i</td>
<td>if V₁ = e; o ~ u if V₁ = o; i after dⁿ, dⁿ; i if V₁ = a; i after -č if V₁ is not rounded</td>
<td>Stout and Thomson 1974</td>
</tr>
<tr>
<td></td>
<td>V₁ = (i if V₁ = a, ɔ, ɔ in non-finite verb forms, a in nouns), only if the coda is r</td>
<td>Salanova 2001</td>
<td></td>
</tr>
</tbody>
</table>
Ramkokamekrá: $EV = V_1$ ($i$ if $V_1 = a$)  
Krahô: $EV = V_1$, only if the coda is $\bar{c}$  
Tapayúna: $EV = V_1$  
Suyá: $EV = V_1$ ($i/i$ if $V_1 = a$ or after $m, n, y$ if $V_1$ is oral; $i$ in some words following $\dot{e}n$; $i$ occurs after coronals and $i$ elsewhere)  

Echo vowels are sometimes manifested as a final $i$ in Panará, but Core Northern Jê languages appear to be much more conservative in this respect. Apparently word-final echo vowels were present in all PNJ stems ending in a consonant, except for non-finite verb forms (hence different outcomes in Apinayé and Kayapô and a different correspondence in Central Jê, see below). Thus the presence of echo-vowels was marginally phonemic or quasi-phonemic in PNJ. It should be noted that they may have been suppressed in utterance-internal position for prosodic reasons. In most cases, its quality must have been identical to the quality of the syllable nucleus vowel. The dissimilation with $a$ was apparently operative already in PNJ and persisted in Apinayé, Kayapô, Ramkokamekrá and Suyá; $i$ must have surfaced after palatals and voiced post-nasalized codas.

Several rhymes may be optionally analyzed as a sequence of a vowel and a glide (followed by an echo vowel) or a sequence of two vowels. These will be treated in the Vowels section.

Syllable-initial clusters involving a liquid (CR) always have a labial or a velar onset in all Northern Jê languages (except for Tapayúna and Suyá, where $h\bar{c}, h\bar{l} < *p\bar{r}$). It is practically useful to treat them as independent onsets for our purposes.

Syllable-initial clusters involving a glide (Cw, Cy; in some languages $y$ yielded a fricative) have a much more restricted distribution: Cw sequences occur mostly before $a$ or $\bar{a}$ (Pykobjê $i$, Suyá $a$, Panará $i, a$, $i$), whereas Cy sequences are relatively frequent only before $e$ (Pykobjê $i$). For this reason, the glides are better analyzed as parts of raising diphthongs (like Chinese medials). Note that the glides still do interact with the syllable onsets in some cases (while plain vowels do not).

In Core Northern Jê languages final syllables are stressed, except certain suffixes (which might be better nalyzed as clitics for this reason). This stress pattern can be securely traced back to PNJ.

3.2. Onset.

Many voiced consonant phonemes had two allophonic realizations: one surfaced in oral syllables, another in nasal syllables (the syllable nasality was, and still is, governed by the nucleus vowel). This system is maintained in Apinayé and Kayapô, Tapayúna and Suyá with minimal changes. The following pairs of PNJ consonants occurred in complementary distribution: $*m ~ *n, *n ~ *d, *y ~ *g$. In addition, $*h$ did not contrast with any other voiced palatal ($*y, *d$ and $*d$). Since the allophony in question undeniably existed in PNJ (it is paralleled by very similar phenomena in other Jê languages as well as in related Maxakalian, Krenák and Jabuti language families), I chose to represent these allophones in my reconstructions. See Tab. 3 for the summary.

Major differences between Davis’ reconstruction of PJ onsets and my reconstruction of PNJ onsets include the reconstruction of a voiced stop series and of a richer set of palatal consonants (four phonemes, five allophones).  

5 Except for one very specific environment (namely, before a secondarily nasalized vowel), in which a minimal pair involving $*d$ and $*h$ is attested, see 3.3.
Table 3. Onset consonants in Northern Jê languages.

<table>
<thead>
<tr>
<th>PNJ</th>
<th>PNR</th>
<th>API</th>
<th>KAY</th>
<th>TIM</th>
<th>TAP</th>
<th>SUY</th>
</tr>
</thead>
<tbody>
<tr>
<td>*p</td>
<td>p</td>
<td>p</td>
<td>p</td>
<td>p</td>
<td>hʷ, h†</td>
<td>hₜ, h†</td>
</tr>
<tr>
<td>*pr</td>
<td>py, pr‡</td>
<td>pr</td>
<td>pr</td>
<td>pr</td>
<td>hᵣ</td>
<td>h₁</td>
</tr>
<tr>
<td>*t</td>
<td>t</td>
<td>t (*ty &gt; č)</td>
<td>t (*ty &gt; č)</td>
<td>t (*ty &gt; č)</td>
<td>tʰ (*ti &gt; č, *ty &gt; č)</td>
<td>tʰ (*ti &gt; č, *ty &gt; s)</td>
</tr>
<tr>
<td>*tʰ</td>
<td>s</td>
<td>? , Ø</td>
<td>? , Ø</td>
<td>h (*tʰ &gt; w)</td>
<td>t</td>
<td>t</td>
</tr>
<tr>
<td>*k</td>
<td>k</td>
<td>k</td>
<td>k</td>
<td>kʰ, k§</td>
<td>k (*ky &gt; č, *uka &gt; *ua)</td>
<td>k(³)</td>
</tr>
<tr>
<td>*kr</td>
<td>ky, kr‡</td>
<td>kr</td>
<td>kr</td>
<td>kᵣ, kᵣ⁸</td>
<td>kᵣ</td>
<td>k(³)u, k ⁴</td>
</tr>
<tr>
<td>*b</td>
<td>p</td>
<td>p</td>
<td>b</td>
<td>p</td>
<td>w (oral), m (nasal)</td>
<td>p, w§</td>
</tr>
<tr>
<td>*g</td>
<td>m</td>
<td>m</td>
<td>m</td>
<td>m</td>
<td>m</td>
<td>m</td>
</tr>
<tr>
<td>*mr</td>
<td>mr</td>
<td>mr</td>
<td>mr</td>
<td>r</td>
<td>r</td>
<td></td>
</tr>
<tr>
<td>*n</td>
<td>n, =ń-</td>
<td>n</td>
<td>n</td>
<td>n</td>
<td>n</td>
<td>n</td>
</tr>
<tr>
<td>*n̥</td>
<td>y</td>
<td>y</td>
<td>y</td>
<td>y</td>
<td>y</td>
<td>y</td>
</tr>
<tr>
<td>*n̥r</td>
<td>k</td>
<td>η</td>
<td>η</td>
<td>η - ̬g</td>
<td>η</td>
<td>η</td>
</tr>
<tr>
<td>*n̥r̥</td>
<td>y</td>
<td>ηr</td>
<td>ηr</td>
<td>ηr</td>
<td>ηr</td>
<td>ηr</td>
</tr>
<tr>
<td>*n̥br</td>
<td>*p</td>
<td>*p</td>
<td>m</td>
<td>[m]p</td>
<td>*b - m</td>
<td>*b (**by &gt; my - m Así)</td>
</tr>
<tr>
<td>*n̥br̥</td>
<td>*br</td>
<td>mc</td>
<td>[mc]p</td>
<td>nr</td>
<td>nr</td>
<td>*bI</td>
</tr>
<tr>
<td>*n̥d</td>
<td>*d</td>
<td>n</td>
<td>[n]t</td>
<td>*d - n</td>
<td>*d</td>
<td></td>
</tr>
<tr>
<td>*n̥d̥</td>
<td>*s</td>
<td>ĭ</td>
<td>j</td>
<td>[n]e</td>
<td>*t - ˇd</td>
<td>*t - ˇd</td>
</tr>
<tr>
<td>*n̥g</td>
<td>*k</td>
<td>*k</td>
<td>η</td>
<td>[ŋ]k</td>
<td>*g</td>
<td>*g</td>
</tr>
<tr>
<td>*n̥g̥</td>
<td>*ky, kr‡</td>
<td>ky</td>
<td>nj</td>
<td>[ŋ]kr</td>
<td>*ge</td>
<td>*g₁</td>
</tr>
<tr>
<td>*y</td>
<td>y</td>
<td>z</td>
<td>y</td>
<td>y</td>
<td>ˇj - y</td>
<td>ˇj - y</td>
</tr>
<tr>
<td>*r</td>
<td>y, r‡</td>
<td>r</td>
<td>r</td>
<td>r</td>
<td>r</td>
<td></td>
</tr>
<tr>
<td>*w</td>
<td>v</td>
<td>w</td>
<td>w</td>
<td>w</td>
<td>w</td>
<td></td>
</tr>
</tbody>
</table>

Notes:  † Before rounded vowels.  ‡ Before front vowels.  § In unstressed syllables.

Major differences between Davis’ reconstruction of PJ onsets and my reconstruction of PNJ onsets include the reconstruction of a voiced stop series and of a richer set of palatal consonants (four phonemes, five allophones).

3.2.1. Panará. Non-trivial developments in Panará include:

- *r > y before back vowels (did not affect the southernmost dialects of Southern Kayapó):
  - PNJ *ka="go' warm' > PNR = ř₃=ky Suggestions
  - PNJ *ř₃ ‘flower’ > PNR iỵ;  
  - PNJ *kr₃ ‘hand’ > PNR kỵ;  
  - PNJ *c̣p=kra / *ų̣p=kra ‘hand’ > PNR si=kyə / ỵ=kyə;  
  - PNJ *kõi ‘cold’ > PNR kỵ;  
  - PNJ *cara / *yara ‘wing, feather’ > PNR saya ‘flight feather’;
  - PNJ *ka"bro ‘blood’ > PNR = ř₃pyu;
Historical phonology of Proto-Northern Jê

PNJ *kukriti ‘tapir’ > PNR kyiti;
PNJ *ɾɔ ‘anaconda’ > PNR yɔ-ti;
PNJ *ɾɔ(צ) ‘to cover’ > PNR pyo-ɾi;
PNJ *‘bro-ti ‘Genipa americana’ > PNR pyu-ti, etc.

This change did not take place before front vowels:
PNJ *krɛ(צ) ‘to eat’ > PNR krɛ;
PNJ *=krɛ ‘house’ > PNR ku=krɛ;
PNJ *krɛ ‘short (of height), child’ > PNR ku=krɛ, etc.

• There are reasons to suspect that PNJ (and Proto-Cerrado) *k in unstressed syllables was phonetically voiced, at least before *a (this is still the situation in Apinayé and Tapayúna; the reflexes are distinct in Central Jê). Panará seems to corroborate this hypothesis:

  o *ka [ga] > nɔ in unstressed syllables before prenasalized consonants with subsequent flapping of n in intervocalic position:
    PNJ *ka=grɔ ‘warm’ > PNR nɔ=’kyɔ / =ɾɔ=’kyɔ;
    PNJ *ka”bro ‘blood’ > PNR nɔ=’pyu / =ɾɔ=’pyu;
    PNJ *kanɔ ‘blood’ > *ka’gɔ > PNR nɔkɔ;
    PNJ *amu=kɑ’ga ‘lazy’ > PNR s=wa’ka, etc.;

  o *ka [ga] > a in unstressed syllables before voiceless consonants:
    PNJ *kadɔtɔ ‘cotton’ > PNR asɔtī ‘cord’;
    PNJ *katɔwɔ ~ *katɔw ‘mortar’ > PNR asuɔ ‘pestle’;
    PNJ *kapɔt ‘sad’ > PNR apr=pe;
    PNJ *kapɔt ‘turtle’ > PNR apɔt, etc.

  o *ku > i in unstressed syllables before voiceless consonants:
    PNJ *kuti ‘fire’ > PNR isi;
    PNJ *kukriti ‘tapir’ > PNR ikityi;  
    PNJ *kubɛ ‘barbarian’ > PNR ipɛ;
    PNJ *kumbɔd ‘capybara’ > PNR inti, etc.

• Voiced stops (both plain and prenasalized) underwent devoicing. Intervocalic prenasalized stops seem to have nasalized preceding vowels. In case of monosyllabic roots i was added word-initially (probably for prosodic reasons, as proposed by Lapierre et al. 2016b):
    PNJ *’ba ‘liver’ > PNR ti’pa;
    PNJ *’bitt ‘sun’ > PNR ti’pit;
    PNJ *’do ‘eye’ > PNR ti’jo, etc.

• Since CCC onsets are not allowed in Panará, such PNJ clusters were simplified:
    PNJ *’growɔ ~ *’gruwa ‘moriche palm’ > PNR ti’kwa ~ kwa–.

• A sole example of PNJ *ŋr is available, in which ŋ disappears:
    PNJ *ŋɾɔCɔ ‘toucan’ > PNR yɔ-kwekwe, yɔ-so.

It is unclear whether the phonemes g and w existed in Proto-Northern Jê or whether they emerged in Proto-Core Jê after the split of Panará.
3.2.2. Apinayé, Kayapó and Timbira. These languages are relatively conservative phonologically.

- PNJ *t* yielded ? or disappeared in Apinayé and Kayapó (the distribution is not clear); the Timbira reflex is h (θ before w):
  - PNJ *ti* ‘seed’ > API i ~ ñ, KAY ñi, TIM hi;
  - PNJ *to* ‘leaf, bodily hair’ > API o, KAY ño, TIM ho;
  - PNJ *kut* ‘fire’ > API kuvi, KAY kuvi, TIM kuhi;
  - PNJ *ćwa / *=ćwa ‘tooth’ > API wa / =ćwa, KAY wa / =źwa, TIM wa / =cwa;
  - PNJ *kahuwa ~ *katwa ‘mortar’ > API kawë ~ kaʔu ~ kauri, KAY kawa, TIM kahuwê, etc.

- Another development that affected all these languages is the affricatization of PNJ *ty* (API, KAY č, TIM c), though only one example is currently known:
  - PNJ *tyetĕ ‘to burn’ > API četĕ, KAY čet / čeɾĕ, TIM cet.

- The voiced stop series remains unchanged in Kayapó; in Apinayé and Timbira all of them were devoiced (which is probably why Davis does not reconstruct it for PJ):
  - PNJ *bitĭ ‘only’ > API pič, KAY bit, TIM pit;
  - PNJ *bošt ḍ ‘to arrive’ > API poy, KAY boyć, TIM poy;
  - PNJ *kašt ḍ ‘cotton’ > API kačštō, KAY kažst, TIM kacst;
  - PNJ *ćwa / *=ćwa ‘tooth’ > API wa / =ćwa, KAY wa / =źwa, TIM wa / =cwa;
  - PNJ *ga ‘thou’ > API ka, KAY ga, TIM ka;
  - PNJ *ga / *=ga ‘to fry’ > API =ka / =sra ~ =sre, KAY =ga / ǯs-ra / ǯs-ra-ɲ, TIM ka / h3-ra / c3-ra.

- In Kayapó voiced prenasalized consonants became fully nasal. This has no consequences for the phonologic representation, since nasal and prenasalized consonants were allophones already in PNJ (as well as in PJ and probably in PMJ). However, in some exceptional cases the nasality propagated to the following vowel:
  - PNJ *bra(-r) ‘to walk’ > KAY mɾã(-yɲ);
  - PNJ *ka’bro ‘blood’ > KAY kamɾo ‘blood’, kamro ‘spleen’;
  - PNJ *‘da(-r) ‘to bite’ > KAY nã(-yɲ).

One case of nasality assimilation is attested:
- PNJ *yudă ‘hummingbird’ > KAY myu’dă” (instead of expected *yuyă").

- After prefixes ending in -m (< *m, *p) in Kayapó *(*)d > y:
  - PNJ *am=do ‘rat’ > KAY am=yo;
  - PNJ *am=dì ‘bumblebee’ > KAY am=yì;
  - PNJ *=m=’da(-r) ‘to chew, to gnaw’ > KAY =m=yã / =m=yã-m, etc.
  - PNJ *’d sometimes yield my through analogy:
  - PNJ *’dop=do̞ ‘itchiness’ > KAY myymyop (analogy with the next syllable);
  - Proto-Core Jê *pi=’dawâ / *pi=’daw-r ‘to put vertically.PL’ > KAY pi=myuwâ / pi=myã-rã
    (analogy with ?u=m=yuwâ / ?u=m=yã-rã < *tu=m=’dawâ / *tu=m=’daw-r).

- All instances of *rw were subject to metathesis in Apinayé and Timbira; interconsonantal w was removed in Timbira. In some cases the metathesis was blocked in Timbira via vowel epenthesis:
Table 4. Velar k and kʰ in Timbira lects. Cases with variation or unexpected reflexes are shadowed.

<table>
<thead>
<tr>
<th>PNJ</th>
<th>Common TIM</th>
<th>Krahô</th>
<th>Ramkokamekrá</th>
<th>Pykobjê</th>
</tr>
</thead>
<tbody>
<tr>
<td>*/ŋɾ/ ‘toucan’</td>
<td>/ŋɾ/oc ˜˘</td>
<td>ka</td>
<td>ka</td>
<td>ka</td>
</tr>
<tr>
<td>*/ŋɾ/ ‘stone’</td>
<td>/ŋɾ/en</td>
<td>kʰen</td>
<td>kʰen</td>
<td>kʰen</td>
</tr>
<tr>
<td>*/ŋɾ/ ‘offspring’</td>
<td>/ŋɾ/ra</td>
<td>kʰra</td>
<td>kʰra</td>
<td>kʰra</td>
</tr>
<tr>
<td>*/ŋɾ/ ‘hole’</td>
<td>/ŋɾ/re</td>
<td>kʰre</td>
<td>kʰre</td>
<td>kʰre</td>
</tr>
<tr>
<td>*/ŋɾ/ ‘skin’</td>
<td>/ŋɾ/a</td>
<td>kʰa</td>
<td>kʰa</td>
<td>kʰa</td>
</tr>
<tr>
<td>*/ŋɾ/ ‘thou’</td>
<td>/ŋɾ/</td>
<td>kʰa</td>
<td>kʰa</td>
<td>kʰa</td>
</tr>
<tr>
<td>*/ŋɾ/ ‘beak’</td>
<td>/ŋɾ/er</td>
<td>kʰer</td>
<td>kʰer</td>
<td>kʰer</td>
</tr>
<tr>
<td>*/ŋɾ/ ‘rib’</td>
<td>/ŋɾ-ʔi</td>
<td>kʰer</td>
<td>kʰer</td>
<td>kʰer</td>
</tr>
</tbody>
</table>

• PNJ *

Voiced prenasalized stops were devoiced in Timbira; the prenasalization was lost except at morpheme boundaries. Lapierre et al. (2016b) took this as evidence to group Timbira and Panará against other Northern Jê languages; however, the innovations shared by Core Northern Jê and not shared by Panará clearly outnumber the number of features common to Timbira and Panará.

• In most Timbira varieties there are two contrasting voiceless velars: k and kʰ (Sá 1999: 52–53, Popjes and Popjes 1971: 9, Miranda 2014: 30). This opposition is not rendered consistently in the transcriptions, which points to a considerable degree of variation already in Proto-Timbira. Apparently this opposition survives mainly in Pykobjê and Ramkokamekrá, whereas it is obsolescent in Krahô and non-existent in Apâniêkrá and Parkatêjê. Timbira kʰ goes back to PNJ *k in stressed syllables, while Timbira k goes back to PNJ *ŋɾ, *g and *k in unstressed syllables. A non-exhaustive list of Timbira etymologies illustrating this situation is provided in Tab. 4.

3.2.3. Tapayúna and Suyá. These two share some important innovations that suggest that these languages are very closely related (Rodrigues and Ferreira-Silva 2011):

PNJ *ŋɾ / *ŋɾ-k ‘to descend’ > API ɾɾ / ɾɾ, TIM ɾɾ / ɾɾ-k;
PNJ *ŋɾ / *ŋɾ ’moriche palm’ > API *ŋɾ, TIM kɾ/ocw ‘moriche log’;
PNJ *kɾ / *kɾ ‘beak’ > API kɾ / kɾ, TIM kɾ / kɾ;
PNJ *ɾ / *ɾ ‘rib’ > API ɾ / ɾ, TIM ɾ / ɾ-hi.

• PNJ *ŋɾ is preserved in Apinayé and Timbira; for Timbira, only two examples are available, in which ŋ disappears (note that no cognates outside Core Jê have been identified for any other words containing *ŋɾ in Proto-Core Jê):
PNJ *ŋɾ / *ŋɾ-ʔi ‘sprout’ > API ɾ / ɾ, TIM ɾ / ɾ-hi.

Summary:

- Velar k and kʰ are present in various Timbira languages.
- Voiced prenasalized stops (/ŋɾ/) are devoiced in Timbira, with prenasalization lost except at morpheme boundaries.
- Two contrasting voiceless velars (k and kʰ) are found in some Timbira varieties.
- The etymologies provided in Table 4 illustrate the situation in Timbira.
- Tapayúna and Suyá share important innovations that suggest close relatedness with Timbira and core Jê languages.
• debuccalization of *p (TAP hʷ, SUY hw) and further delabialization in complex onsets:
  PNJ *pa ‘arm’ > TAP hʷa, SUY hwa;
  PNJ *pur ‘field’ > TAP, SUY hullū;
  PNJ *pr ‘wife’ > TAP hr, SUY hļ;
  PNJ *pri ‘road’ > TAP hri, SUY hļi, etc.

• affricatization and optional prenasalization of PNJ *y (non-phonemic):
  Proto-Core Jê *yɔː̃ / *yɔː̃ ‘sweet potato’ > TAP yaɾɔ ~ ɹarɔ ~ *ɹarɔ, SUY yɔːɾɔ ~ *yɔːɾɔ ~ ɹarɔ, etc.

• alveolarization of PNJ *d and *d (TAP t and *t ~ *d, SUY t and *t ~ *d):
  Proto-Core Jê *tʰuːde / *tʰuːde ‘bow’ > TAP tute, SUY sute / =tute;
  PNJ *a=t3 / t3-t3 / *t3-t3 ‘to enter’ > SUY a=t3 / t3-t3 / s3-t3;
  PNJ *=t3a / *t3a-m / *t3-m ‘to stand’ > SUY =ta / tã-m / sã-m;
  PNJ *kaɾwa ‘salt’ > TAP kaɾwa, SUY k̑atwa;
  PNJ *=təw / *təw-ɾ / *təw-ɾ ‘to bathe’ > SUY tʰəw ~ twə;
  PNJ *kaɾde ‘star’ > TAP kaɾte-či ~ kaɾde-či, SUY kâte-či;
  PNJ *di ‘mother’ > TAP qui-re;
  PNJ *=tə ‘to bite’ > TAP kũ=ta, SUY "ta;
  PNJ *=tə ‘to hang’ > SUY "to / "to-lō;
  PNJ *depē ‘bat’ > TAP tewē, SUY dēwē;
  PNJ *dɔm̑dɔpɔ ‘itchiness’ > TAP "do"dowɓ, etc.

• affricatization of PNJ *t before *t (TAP či, SUY či):
  PNJ *akati ‘day’ > TAP agači, SUY akači;
  PNJ *=tɕi ‘augmentative’ > TAP =či, SUY =či, etc.

Individual straightforward developments in Tapayúnna and Suyá include:
• PNJ *t > TAP t, SUY tʰ:
  PNJ *tɛp ‘fish’ > TAP tɛwɛ, SUY tʰɛwɛ;
  PNJ *kaɾɔ / *kɔɾ ‘to leave / to be born’ > TAP kaɾɔ, SUY kaɾɔ / kaɾɔ / kɔɾɔ;
  PNJ *tikî ‘belly’ > SUY tʰikî, etc.

In one case, one can suspect Kayapó or Suyá influence in Tapayúnna:
  PNJ *tikî ‘black’ > TAP tigi, SUY tʰikî.

• PNJ *ʃ > TAP t, SUY s:
  PNJ *ʃ ‘seed’ > TAP ti, SUY si;
  PNJ *twakɔ ‘coati’ > TAP toakɔ, SUY swakɔ;
  PNJ *kut ‘fire’ > TAP kuti, SUY kwisi;
  PNJ *ʃkí ‘hawk, bird’ > TAP tɔgɔ, SUY s3kɔ, etc.

• PNJ *b > TAP w/m (per nasality), SUY p, w (in unstressed syllables?):
  PNJ *bɔ ‘grass’ > TAP mɔ, SUY pɔ;
  Proto-Core Jê *bɔ ‘forest’ > TAP wɔ, SUY pɔ ‘grass, bush’;
  PNJ *bɔ-ti ~ *bɔ-t ‘corn’ > TAP wɔ-ti ~ mɔ-ti, SUY wɔ-si;
  PNJ *boʔi ‘to arrive’ > SUY psyi / poro;

* Note that Guedes (1993) systematically writes y and yw where other authors write hr and hw.
The suggested distribution is violated in PNJ *biti ‘only’ > SUY wiri ‘always’, if the comparison is correct. In isolated cases TAP, SUY wi is found as an irregular reflex of other PNJ stops:

- PNJ *mr > TAP r; PNJ *br > TAP nr, SUY ‘bli’; PNJ *kr > TAP kχ, SUY k(‘)u; PNJ *ηr > TAP ηr, SUY ‘gχ’; PNJ *gr > TAP ‘gχ’, SUY ‘gχ’;
- PNJ *mriri ‘ant’ > TAP r̃wūɺ / rūm-;
- PNJ *kra ‘offspring’ > TAP kχa, SUY k‘a;
- PNJ *kukri ‘tapir’ > TAP kχiri, SUY k(k‘)iri;
- PNJ *νηθrη ~ *νηθ ‘green’ > TAP ηθηθri ~ ηθ ‘blue, green, yellow’, SUY ‘gur’‘gur-ni ‘yellow’;
- PNJ *grη ‘egg’ > TAP ‘gχe’, SUY ‘gχe’;
- PNJ *grηtē ‘Pleidaes’ > SUY ‘gαοδ’;
- PNJ *grη ‘to warm up’ > TAP ka=’gο ‘warm’, SUY ‘gɔ’, etc.

- PNJ *b > TAP ‘b ~ m, PNJ *d > TAP ‘d ~ n’;
- PNJ *ba ‘liver’ > TAP ‘ba ~ ma’;
- PNJ *biti ‘sun’ > TAP ‘bir ~ miri’;
- PNJ *de ‘giant otter’ > TAP ‘de ~ ne’;
- PNJ *da ‘rain’ > TAP ‘da ~ na’;
- PNJ *do ‘eye’ > TAP ‘do ~ n3, etc.

- PNJ Cw > TAP Cw:
- PNJ *kada ‘salt’ > TAP kat’u;
- PNJ *kwa ‘manioc’ > TAP k‘ań;
- PNJ *twa ‘sour’ > TAP t‘a-či, etc.

- PNJ *k > TAP č, PNJ *ty > TAP č, SUY s, PNJ *by > TAP y ~ z ~ ‘z’, SUY mž:
- PNJ *kye ‘thigh’ > TAP če;
- PNJ *tyetē ‘to burn’ > TAP čerē, SUY serē;
- PNJ *byed’i ‘husband’ > TAP yerē ~ zherē ~ ‘żerē, SUY mženē, etc.

In two words PNJ *k disappears in Tapayúna; in both cases, the root is preceded by the same prefix (TAP tu- < PNJ *tu):
- PNJ *tu=k’a ‘medicine’ > TAP tu=ane, SUY su=ka’dė;
- PNJ *tu=k’a ‘lazy’ > TAP tu=ēnəa.
According to Nonato (2014), $t^h$ and $k^h$ contrast with $t$ and $k$ in Suyá. This contrast is not recognized by Santos (1997) and Guedes (1993). Even throughout Nonato’s recordings the contrast is inconsistent (e.g., $i=t^h\tilde{e}-m\tilde{e} \sim i=t\tilde{e}-m\tilde{e}$ ‘my going’). As demonstrated above, SUY $t^h$ more often goes back to PNJ *t, whereas SUY $t$ usually goes back to PNJ *ȡ. I was not able to find any similar correlations for SUY $k^h$ and $k$:

PNJ *kükeȡ ‘agouti’ > SUY kükê; PNJ *twakê ‘coati’ > SUY swakê, etc.

Note that TAP k is realized as [ŋ] in unstressed syllables (this is reflected in my transcription) and is aspirated before back vowels (this is not reflected in my transcription). This is likely to be a retention from PNJ. However, this does not seem to be related to the aspiration contrast in Suyá. Further studies are needed to determine the status of the contrast in question in Suyá as well as its origins.

PNJ *g > SUY k (might have also happened in Tapayúna but the words in question are not attested in available sources on that language):

PNJ *ga ‘2SG.NOM’ > SUY ka;
PNJ *ga / *f3-r / *f3-r ‘to fry’ > SUY ka;
PNJ *gu ‘1INCL.NOM’ > SUY ku, etc.

In several isolated words, PNJ *kr > TAP, SUY k (Guedes: č) before front vowels:

PNJ *krĩ ‘village’ > SUY kĩ (Guedes: či);
PNJ *krit ‘pet’ > TAP, SUY kiri;
PNJ *krẽ ‘parakeet’ > TAP kχẽ, SUY kẽ (Guedes: čẽ);
PNJ *kriti ‘grasshopper, cricket’ > TAP kχit-či ~ kit-či.

Given that this irregular process affected different words in Tapayúna and Suyá, it must have taken place after their split. Note that in other words satisfying these conditions PNJ *kr developed normally:

PNJ *kře ‘hole’ > TAP kχ,e, SUY ke;
PNJ *kři (‘*kř-r’?) ‘to sit.PL’ > SUY kũ, etc.

Apparently rw-like clusters are not tolerated in Tapayúna:

PNJ *mɾua ~ *mɾuwà ‘moriche palm’ > TAP *mɾuwà;
PNJ *kɾwagỹ ‘Amazon parrot’ > TAP kχ yatkχỹ;
PNJ *akɾwĩtũ ‘cashew’ > TAP akχyo-ỹ.

3.3. Nucleus.

Northern Jê languages typically have large vowel inventories and little to no vowel allophony. I assume that PNJ vowels have been most faithfully preserved in Kayapó and Common Timbira. The correspondences are summarized in Tab. 5. Of these, *ũ and *ã were not phonemic, and *a and *i were very rare. *ye and *iy, as well as *wa and *uw, were frequently in variation, whose nature is yet to be discovered.

*ũ (~ *ĩ) and *ã were allophones of PNJ *u, *i and *a before nasal codas:7

PNJ *tũmũ ‘father (vocative)’ > PNR sũ, KAY źũn, TIM cũm ~ čũ, TAP tu-re;
PNJ *tũmũ ‘old’ > PNR =tũ, API tũmũ, KAY tũn, TIM tũm, TAP tũmũ, SUY tũmũ;

---

7 The marginal status of these phonemes in Kayapó has already been noted by Salanova (2001: 24).
Table 5. Vowels in Northern Jê languages.

<table>
<thead>
<tr>
<th></th>
<th>PNJ</th>
<th>PNR</th>
<th>API</th>
<th>KAY</th>
<th>TIM</th>
<th>TAP</th>
<th>SUY</th>
</tr>
</thead>
<tbody>
<tr>
<td>*a</td>
<td>a</td>
<td>a</td>
<td>a</td>
<td>a</td>
<td>a</td>
<td>a</td>
<td>a</td>
</tr>
<tr>
<td>*ə</td>
<td>ə</td>
<td>ə</td>
<td>ə</td>
<td>ə</td>
<td>ə</td>
<td>ə</td>
<td>ə</td>
</tr>
<tr>
<td>*ɛ</td>
<td>ɛ</td>
<td>ɛ</td>
<td>ɛ</td>
<td>ɛ</td>
<td>ɛ</td>
<td>ɛ</td>
<td>ɛ</td>
</tr>
<tr>
<td>*ɔ</td>
<td>ɔ</td>
<td>ɔ</td>
<td>ɔ</td>
<td>ɔ</td>
<td>ɔ</td>
<td>ɔ</td>
<td>ɔ</td>
</tr>
<tr>
<td>*œ</td>
<td>œ</td>
<td>œ</td>
<td>œ</td>
<td>œ</td>
<td>œ</td>
<td>œ</td>
<td>œ</td>
</tr>
<tr>
<td>*u</td>
<td>u</td>
<td>u</td>
<td>u</td>
<td>u</td>
<td>u</td>
<td>u</td>
<td>u</td>
</tr>
<tr>
<td>*i</td>
<td>ɨ</td>
<td>ɨ</td>
<td>ɨ</td>
<td>ɨ</td>
<td>ɨ</td>
<td>ɨ</td>
<td>ɨ</td>
</tr>
<tr>
<td>*a wâ</td>
<td>wa</td>
<td>wa</td>
<td>wa</td>
<td>wa</td>
<td>a Ꞃ</td>
<td>wa</td>
<td></td>
</tr>
<tr>
<td>*u wâ</td>
<td>uâ</td>
<td>uâ</td>
<td>uâ</td>
<td>uâ</td>
<td>uâ</td>
<td>uâ</td>
<td></td>
</tr>
<tr>
<td>*wâ</td>
<td>wâ</td>
<td>wâ</td>
<td>wâ</td>
<td>wâ</td>
<td>wâ</td>
<td>wâ</td>
<td></td>
</tr>
<tr>
<td>*ye</td>
<td>ye</td>
<td>ye</td>
<td>ye</td>
<td>ye</td>
<td>ye</td>
<td>y Ꞃ</td>
<td>y Ꞃ</td>
</tr>
<tr>
<td>*i ꞌyā</td>
<td>ꞌyā</td>
<td>ꞌyā</td>
<td>ꞌyā</td>
<td>ꞌyā</td>
<td>ꞌyā</td>
<td>ꞌyā</td>
<td></td>
</tr>
<tr>
<td>*a ꞌi</td>
<td>ꞌi</td>
<td>ꞌi</td>
<td>ꞌi</td>
<td>ꞌi</td>
<td>ꞌi</td>
<td>ꞌi</td>
<td>ꞌi</td>
</tr>
<tr>
<td>*i ꞌyă</td>
<td>ꞌyă</td>
<td>ꞌyă</td>
<td>ꞌyă</td>
<td>ꞌyă</td>
<td>ꞌyă</td>
<td>ꞌyă</td>
<td></td>
</tr>
<tr>
<td>*ã ꞌi</td>
<td>ꞌi</td>
<td>ꞌi</td>
<td>ꞌi</td>
<td>ꞌi</td>
<td>ꞌi</td>
<td>ꞌi</td>
<td>ꞌi</td>
</tr>
<tr>
<td>*ã ꞌi</td>
<td>ꞌi</td>
<td>ꞌi</td>
<td>ꞌi</td>
<td>ꞌi</td>
<td>ꞌi</td>
<td>ꞌi</td>
<td>ꞌi</td>
</tr>
</tbody>
</table>
| Notes:  † The onset becomes labialized. ‡ The onset becomes palatalized (see 3.2.).

PNJ *kũmtûm ū ~ *kũmtîm ū ‘capybara’ > PNR intûr, KAY kunûm, TIM kûmtûm, TAP koṭûn ū ~ koʃûwû, SUY kutûmû;
PNJ *kũm ū ‘smoke’ > API kûmû, KAY kûm, TIM kûm, SUY kûsi=kûmû;
PNJ *mrûmû ‘ant’ > API mrûmû, KAY mrûm, TIM prûm, TAP rûwû;
PNJ *nûmû ~ *nîmû ‘who’ > API ŋûmû (older speakers), ŋûmû (younger speakers) ‘another’, KAY ŋûm (Xikrîn), ŋûb" (Kayapô), TIM yûm, TAP ŋûmû, SUY ŋûmû;
PNJ *bûmû ‘other person’s father’ > API pûmû, KAY bûm, TIM a=pam, TAP mîmû, SUY pûmû;
PNJ *=ţû / *dû-m / *ţû-m ‘to stand’ > PNR sê ~ sav, API ča / čû-m ~ ča-r, KAY ža / žû-m / ā-m, TIM ca / ca-m / lu-m, SUY =tû / tû-m / sâ-mû;
PNJ *ţâmû / *ţûmû ‘chin’ > API ŋûmû, KAY ama, TIM hama;
PNJ *tâmû-ţo / *ţûmû-ţo ‘beard’ > API ŋûmû, KAY ama-ţo, TIM hama-ţo, TAP tam-ţo.

• Examples of PNJ *ŋ (outside the diphthong *wŋ):
  PNJ *tnţi ‘hard’ > PNR tati, API tayç / tayt, KAY tayç, TIM tay, SUY turû (t͡sɔ ŋ?);
  PNJ *tŋ / *tû ‘bitter’ > API ŋ / ŋ ñ, ’ča, KAY ŋ, TIM hŋ / cŋ, TAP ţa;
  PNJ *bûwû / *bûŋ ‘to cry’ > API ɦûwû ~ ɦûwû / ɦûŋ, KAY muʃ / mŋ-ŋû, SUY "bûŋ-lâ;
  PNJ *kuŋ ‘bad smell’ > KAY kuʒû, TIM kučs, TAP kûts;
  PNJ *kuŋ ‘smooth’ > API, TIM kûr.
The same correspondence is attested in a number of roots whose distribution is limited to Ap-inayé, Kayapó and Timbira:

PAMT *'b9 / *'b9-δ ~ *'b9-ɾ ‘to carry’ > API "b9 / "b9-ya~ "b9-ɾ, KAY =m9 / m9-ya~ "b9 ‘to grab’, TIM p9 / p9-ɾ-d” (may be related to PNR i.pi-ɾ ‘id.’);

PAMT *'ap9 / *'ap9-ɾ ‘to insult, to dishonor’ > API apr9 / yap9, KAY apr9 / yap9, TIM apr9 / yap9 ‘to name’;

PAMT *'p9 ‘corn husk’ > API p9 ‘feather’, KAY p9, TIM p9 ‘corn husk / feather’;

PAMT *'ub9bî ‘deep’ > API ıp9mî, KAY ub9b;

PAMT *'k9 ‘bad smell, fish smell’ > API, TIM k9, KAY k9, etc.

In one case the daughter languages disagree on the exact quality of Proto-Core Jê vowel: KAY y3t, TIM y3t, SUY y3r ~ *y3r ~ *y3 ‘sweet potato’ point to Proto-Core Jê *y3t3, whereas API ʒo3 and TAP yaɾ ~ ʒaɾ ~ ʒaɾ ‘id.’ reflect P NJ ʒot3.

- The sole reliable example of PN J *ɨ is:

  PN J *i+i / *i+i-r / *i+i-r ‘to sit’ > PNR s:i~ s:i / s:i, API s:i / s:i-r, KAY s:i / s:i-r, TIM h:i / h:i-r / yi / yi-r, SUY =s:i / s:i / s:i-Lh.

- The alternation between *ye and *iyã can be exemplified by the following etymologies (note that the sequence *r is regularly simplified to *y):

  PN J *kiɾiɾã / *kye-r ‘to raise’ > PNR kiy3-ɾi (?), KAY kriɾ / kye-rê.

  PN J *kukyã / *kukyã-r ‘to ask’ > PNR kۡiy3-ɾi (?), API kukža / kukže-r, TIM kuh-kîyã ‘to search’, SUY kukkîyã;

  PN J *kokiɾã / *kokyã-r ‘to split’ > PNR kye-ɾ ‘to cut’ (?), KAY kokyê ~ kokiɾã / kokyê-r (Xikrin: -r?), TIM kôk/yê / kokê-ɾ-d”;

Proto-Core Jê *a=kiɾiɾã / *a=kye-r ‘to yell, to argue’ > API a=kiɾ / ˈaj=kaɾ-, KAY a=kiɾã ~ a=ka / ʒ3=kaɾ-rê, TIM a=k/hsupe̱yê / a=ḻuyê, a=k/hsupe̱yê ‘angry’, SUY a=k/hsupe̱yê;

Proto-Core Jê *i=kiɾiɾã / *i=kye-ɾ ‘to enter.PL, to put into a deep container.PL’ > API "gye / "gye-ya", a=gye / ya=gye, KAY =niɾiɾã / =ne=ya, a=ne=ya, TIM a=ke=ya, SUY a=ne=ya / ne=ya-lê; Proto-Core Jê *i=kiɾiɾã ~ *=yetê / *yet ‘to hang.PL’ > API a=yetê / yet, KAY a=riɾã, SUY =yeɾ / a=yet, sariɾã / yariɾã;

In some other cases no such alternation is attested:

PN J *kye / *kye-d ‘to drag’ > PNR kɾ3-ɾi (?), API kɾe / kɾe-d, KAY kɾe / kɾe-d, TIM kɾe / kɾe-d;

Proto-Core Jê *kakye / *kakye-d ‘to scratch’ > API kakye, TIM kakۡye / kakۡye-d, SUY kak(”)e-ni;

PAMT *’ake / *'ake-d ‘to look for water’ > API akže / ˈaj=kaɾ / akže / ak-ɾ ‘to open a hole’, TIM hakۡye / yakۡye / yakۡye-d ‘to fetch water’;

Proto-Core Jê *kiɾiɾ ‘fire pit’ > API kiriɾ ~ kiɾ, TIM kîyã;

PN J ‘kê ‘thigh’ > API kê, KAY kye, TIM kê, TAP çe;

PN J ‘b защиты’ ‘husband’ > API "b泽a”, KAY myed, TIM pyed, TAP ‘zerê, SUY mʒenê;

PN J ‘yetê ‘to burn’ > PNR tiɾi, API çetê, KAY çet / čerê, TIM çet, TAP čerê, SUY serê.

The distribution, if it ever existed, must have been obscured by numerous paradigmatic analogies (which seem to have operated to a lesser extent in Kayapó). *iyã is restricted to open syllables, *ye is found both in open and closed syllables. It is possible that originally *ye was found exclusively in closed syllables.
The alternation between *wa, *w9 and *uwă can be illustrated with the following examples: Proto-Core Jê *kruwâ ~ *kraw ‘arrow’ > API kruů, KAY kruwô, TIM kruwâ, SUY kwa;
PNJ *gwa ~ *gwa ‘moriche palm’ > PNR t’kwa ~ kwa-, API *gwa, KAY ñrwa, TIM kruwâ ‘moriche log’, TAP *grawâ, SUY ñrawa;
PNJ *kaţuwâ ~ *katwa ‘mortar’ > PNR asių ‘pistle’, API kawâ ~ kaťu ~ kaurû, KAY kawa, TIM kahuwâ;
Proto-Core Jê *nuwâ / *nuw-k ‘to descend’ > API w9 / wri, KAY nwâ ~ nw9 / nw9-k, TIM w9 / w9-k, SUY lwâ / lw9-kâ;
PNJ *dwa / *dwa-k / *dwa-r ‘to bathe’ > PNR sw3-ř, API ċwa / wa-ř, KAY ḳiwwâ / w9-r / ḳ9w-r, TIM ċwâ / w9-r / sw9-r, SUY tw9 ~ t’w9, etc.

The medial -w- was (and still is) prohibited in syllables with labial onset. The following examples should be understood as result of elision of *w in the aforementioned environment:
PNJ *buvâ / *bu-r ‘to cry’ > API *buvâ ~ *bûd / *b9-ð, KAY muð / m9-ð, SUY *b9-ð;
Proto-Core Jê *pi=’duwâ / *pi=’dwa-r ‘to put vertically.PL’ > API =’dwa / =’dw9-ðd, KAY pi= m=yuwâ / pi=m=y9-ð, TIM pi=ćw9 / pi=ćw9-r / =m=c9 / =m=c9-r, SUY wi=ntw9 / wi=ntw9-ð.

Once again, the original distribution of these nuclei is obscure. *uwâ and *wa are restricted to open syllables, whereas *w9 is found both in open and closed syllable. I assume that originally *w9 was restricted to closed syllables; in open syllable, *uwâ and *wa would have occurred in free variation. This is corroborated by other cases of alternation in individual languages, such as TIM kwa / kw9-r ‘to take.PL’.

The reflexes of PNJ *w9 in Panará are uncertain. w3 is found in verbs (e.g. PNJ *tw9-r / *dwa-r ‘to bathe.NMLZ’ > PNR sw9-r) but is not attested in nouns:
PNJ *kw9ô ‘manioc’ > PNR kwî;
PNJ *dwa’di ‘snail’ > PNR pari=”tu;
PNJ *tw9ô‘fat’ > PNR łułâ, etc.

Their phonemic status is demonstrated by Oliveira (2005: 66–67). In most cases, ñ is found in phonetically open syllables, while 收官 is usually found in phonetically closed syllables (including long verb forms, in which echo vowels are typically absent). The issue is further complicated by the fact that Apinayé ñ may be realized as any of these in free variation: [ñ, ñ, ñ].  

Irregular nasalization in Kayapó has been treated in 3.2.2.

The reflexes of PNJ *w9 in Panará are uncertain. w3 is found in verbs (e.g. PNJ *tw9-r / *dwa-r ‘to bathe.NMLZ’ > PNR sw9-r) but is not attested in nouns:
I have already discussed possible irregular vowel splits (especially *ɔ > ɔ ~ ɔ; *i > i ~ i) in Suyá (Nikulin 2015a: 12–14). However, the analysis in question was based on Guedes’s data. Once Santos’s and Nonato’s recordings are taken into account, the problems discussed in the cited work are no longer valid: these authors consistently record ɔ where Guedes writes ɔ ~ ɔ and i where Guedes writes i ~ i.

In the proto-language of Tapayúna and Suyá, PNJ *o > *(w)o before y:
PNJ *bot̪i ‘to arrive’ > SUY pay̪i / por̪̪;
PNJ *kukoyi ‘monkey’ > TAP kuko̪̪y, SUY kukw̪̪y̪̪.

In extremely rare cases the medial -w- is found before front vowels. These words have no known cognates outside Core Jê (like the words having w in the onset position):
Proto-Core Jê *kwey̪̪i ‘bird, feather’ > API kwey̪̪ “bird”, KAY kwey̪̪ “bird”, TIM kuwey̪̪i “bird”, TAP t̪3=gwey̪̪ ‘feather’, etc.

3.4. Coda.

Except for syllables whose rhymes go back to PNJ *iyá or *uwá in PNJ, the codas of modern Northern Jê languages reflect PNJ codas. The reflexes sometimes differ phonetically depending on whether the coda was followed by an echo vowel (in utterance-internal position) or not (in utterance-final position, long verb forms in any position). These differences are noted here for Tapayúna and Suyá, where they are absolutely regular and systematic. For other languages they are written out as long as they are phonemic. See Tab. 6–7.

Basic correspondences can be illustrated with the following examples:

PNJ *tep̪e ‘fish’ > PNR t̪e̪pi, API tep̪e, KAY, TIM tep̪e, TAP t̪eu̪e, SUY t̪eu̪e;
PNJ *bii̪ ‘sun’ > PNR t̪ip̪i̪, API bii̪, KAY mi̪̪t, TIM pi̪̪t, TAP *biri ~ mir̪̪, SUY *biri;
PNJ *tʃiţ ‘hard’ > PNR t̪iţ, API t̪y̪̪c / t̪y̪̪t, KAY t̪y̪̪c, TIM t̪y̪̪, SUY t̪u̪u̪ (tʃu̪u̪ ?);
PNJ *beţi ‘good’ > PNR t̪̪e, API beţ, KAY meĉ, TIM pey, TAP *beyz- ~ mey-, SUY *beţi;

PNJ *t̪sk̪ ‘hawk, bird’ > PNR sa, API ʃk̪i, KAY ʃk̪i, TIM hsk̪, TAP t̪3g̪̪, SUY sk̪3̪;
PNJ *t̪ob̪i ‘flour, powder’ > API ʃob̪ “îkom, KAY ob̪ / Job̪̪, TIM hob̪ “cîob”;

PNJ *t̪sbiţ ‘raw’ > API ʃsb̪ / t̪3mĩ, TIM t̪s̪b̪, SUY t̪3mũi;
PNJ *nyed̪ ‘husband’ > API beţ, KAY meĉ, TIM pey, TAP *iţe, SUY m̪eši;

Proto-Core Jê *t̪od̪ ‘armadillo’ > API tod̪ “îton, KAY, TIM tod̪, TAP por̪, SUY m̪eši;
PNJ *beđiţ ‘honey’ > PNR n̪̪=pey̪i, API *beyd̪, KAY meyd̪, TIM ped̪, TAP wey, “bey-ti ‘bee’, SUY beni;
PNJ *kukoyi ‘monkey’ > PNR ikoc, API kukoy, KAY kukoñ, TIM kukuñ, TAP kukuñ, SUY kukuñy;
PNJ *puruţ ‘field’ > PNR pu, API pur, KAY purû, TIM purû, TAP hurû, SUY hułu;
PNJ *diwō ‘field’ > PNR t̪tu, API diwï, KAY ni, TIM [ni]tuw̪, TAP, SUY *diwî.

Cf. also PNJ, Proto-Core Jê or PAMT *kop̪ ‘fly (insect)’, *t̪̪=k̪̪̪ / *p̪̪=p̪̪̪ ‘claw, nail’,
*t̪̪ep̪e ‘bat’, *t̪̪o ç ‘jaguar’, *t̪̪yet̪ ‘to burn’; *k̪̪iţ ‘cicada’, *k-document type, ‘zipper’, *kubiiţ ‘howler monkey’,
*b̪̪iţi ‘neck’, *ketiţ ‘not’; *k̪̪a̪ j ‘cotton’, *wet ‘lizard’, *p̪̪iţ ‘southem tamandua’, *y̪̪iţ ‘sweet potato’, *t̪̪uţi ‘pigeon’, *k̪̪a̪ız ‘night’, *t̪̪=k̪̪̪ = / *iţ=k̪̪̪ ‘chest’, *grotiţ ‘Pleades’; *botiţ ‘to arrive’,
*botiţ ‘courbaril’, *t̪̪etiţ / *detiţ ‘to deceive’, *petiţ ‘to make’, *kaĉ ‘cough’, *tiké ‘black’, *k̪̪ekeviţ ‘vein’,
*t̪̪iţ ‘stomach’, *k̪̪a̪reke ‘red’, *pokó ‘to ignite’; *kokó ‘wind’; *ak̪̪iţ ‘forest surrounding the village’,
*pè ‘to far’, *t̪̪i-k ‘to die’, *t̪̪a̪b̪a-k / *y̪̪=ba-k ‘to listen’, *t̪̪=w̪̪-k ‘to descend’, *bakiţ ‘scorpion’, *t̪̪=w̪̪ ‘fat’, *b̪̪d̪iţ ‘macaw’, *a̪=b̪̪d̪iţ ‘piranha’, *a̪d̪iţ / *a̪d̪iţ ‘sweet’, *y̪̪adj ‘hummingbird’, *kwey̪̪i ‘bird, feather’, *kukek̪iţ ‘agouli’, *x̪̪l̪iţ ‘grugru palm’, *bañiţ ‘snake sp.’,
*adj ‘woodpecker’, *roţ ‘termité’, *b̪̪a̪ ‘tree’, *k̪̪a̪r ‘manioc’, *p̪̪iţ ‘foot’, *t̪̪erī ‘Enterop sp.’; *a̪x̪̪iţ ‘tinamou’, *ka̪beré ‘Turu palm’, etc.
Table 6. Coda consonants in Northern Jê languages after non-nasal vowels.

<table>
<thead>
<tr>
<th>PNJ</th>
<th>PNR</th>
<th>API</th>
<th>KAY</th>
<th>TIM</th>
<th>TAP (internal)</th>
<th>TAP (final)</th>
<th>SUY (internal)</th>
<th>SUY (final)</th>
</tr>
</thead>
<tbody>
<tr>
<td>*p</td>
<td>pl</td>
<td>p</td>
<td>p</td>
<td>p</td>
<td>p</td>
<td>wV</td>
<td>p</td>
<td>wV</td>
</tr>
<tr>
<td>*t</td>
<td>t</td>
<td>t</td>
<td>t</td>
<td>t</td>
<td>t</td>
<td>rV</td>
<td>t</td>
<td>rV, rVC</td>
</tr>
<tr>
<td>*k</td>
<td>k</td>
<td>k</td>
<td>k</td>
<td>k</td>
<td>k</td>
<td>gV</td>
<td>k</td>
<td>kV, kVC</td>
</tr>
<tr>
<td><em>k</em></td>
<td>b</td>
<td>b</td>
<td>b</td>
<td>b</td>
<td>b</td>
<td></td>
<td>m</td>
<td>m</td>
</tr>
<tr>
<td><em>d</em></td>
<td>d</td>
<td>d</td>
<td>d</td>
<td>d</td>
<td>d</td>
<td>rV</td>
<td>n</td>
<td>n</td>
</tr>
<tr>
<td><em>d</em></td>
<td>y</td>
<td>y</td>
<td>y</td>
<td>y</td>
<td>y</td>
<td></td>
<td>n</td>
<td>n</td>
</tr>
<tr>
<td><em>e</em></td>
<td>e</td>
<td>e</td>
<td>e</td>
<td>e</td>
<td>e</td>
<td></td>
<td>y</td>
<td>y</td>
</tr>
<tr>
<td><em>r</em></td>
<td>r</td>
<td>r</td>
<td>r</td>
<td>r</td>
<td>r</td>
<td>r</td>
<td>rV, rVC</td>
<td>rV, rVC</td>
</tr>
<tr>
<td><em>w</em></td>
<td>i</td>
<td>w</td>
<td>θ</td>
<td>w</td>
<td>w</td>
<td>w</td>
<td>wV</td>
<td>p</td>
</tr>
</tbody>
</table>

Notes: † Internal = in the middle of an intonational phrase, final = immediately preceding a pause. ‡ After i. § After a. ¶ After e.

Table 7. Coda consonants in Northern Jê languages after nasal vowels.

<table>
<thead>
<tr>
<th>PNJ</th>
<th>PNR</th>
<th>API</th>
<th>KAY</th>
<th>TIM</th>
<th>TAP (internal)</th>
<th>TAP (final)</th>
<th>SUY (internal)</th>
<th>SUY (final)</th>
</tr>
</thead>
<tbody>
<tr>
<td>*t</td>
<td>t</td>
<td>t</td>
<td>t</td>
<td>t</td>
<td>t</td>
<td>n</td>
<td>nV</td>
<td>nV</td>
</tr>
<tr>
<td>*k</td>
<td>k</td>
<td>k</td>
<td>k</td>
<td>k</td>
<td>k</td>
<td></td>
<td>nV</td>
<td>nV</td>
</tr>
<tr>
<td>*m</td>
<td>m</td>
<td>m</td>
<td>m</td>
<td>m</td>
<td>m</td>
<td>mV, wV</td>
<td>m</td>
<td>mV</td>
</tr>
<tr>
<td>*n</td>
<td>n</td>
<td>n</td>
<td>n</td>
<td>n</td>
<td>n</td>
<td>nV, rV</td>
<td>n</td>
<td>nV</td>
</tr>
<tr>
<td>*y</td>
<td>y</td>
<td>y</td>
<td>y</td>
<td>y</td>
<td>y</td>
<td></td>
<td>n</td>
<td>n</td>
</tr>
<tr>
<td>*r</td>
<td>r</td>
<td>r</td>
<td>r</td>
<td>r</td>
<td>r</td>
<td>r</td>
<td>rV, rVC</td>
<td>rV, rVC</td>
</tr>
</tbody>
</table>

Notes: † Internal = in the middle of an intonational phrase, final = immediately preceding a pause. ‡ After e, i.

Except in long verb forms, where much variation with *ὴ* and *r* is attested, the examples are not very numerous. No secure etymologies with a nasal nucleus followed by *p* are known, though this syllable pattern might have existed, cf. KAY ṃp / ṃp ṃp of unknown origin. The most reliable etymologies are:

Proto-Core Jê *pr̥ti*  ‘to run’ > API pr̥ní, KAY pr̥∗ni, SUY kr̥n;  
Proto-Core Jê *t̥ti*  ‘sister’ > API t̥tí, KAY t̥̄tí, ‘brother’, TIM t̥y, SUY t̥̄ni;  
PNJ *kat̥k̥i*  ‘firearm’ > PNR at̥, API kat̥kī, KAY kat̥̄ki, TIM kat̥k̥;  
Proto-Core Jê *k̥̄k̥i*  ‘lizard’ > API k̥̄k̥̄, KAY k̥̄k̥̄, TIM k̥̄k̥̄, TAP k̥̄k̥̄-či;  
PNJ *k̥̄n̥i*  ‘stone’ > PNR k̥̄ni, API k̥̄nī, KAY k̥̄nī, TIM k̥̄n̥̄, TAP k̥̄n̥̄, TAP k̥̄n̥̄-či;  
PNJ *tīnī* / *tīn̥ī*  ‘faeces’ > PNR s̄ī / ȳī, API tīnī / tīn̥ī, KAY īnī / n̥īnī, TIM h̄īn / ȳīn, TAP tīči;  
Proto-Core Jê *k̥̄n̥i*  ‘articulation, knee’ > API k̥̄n̥, KAY k̥̄n̥, TIM k̥̄n̥, TAP k̥̄n̥-či, SUY k̥̄n̥-či;  
PNJ *kapr̥nī*  ‘turtle’ > PNR ap̥̄nī, API kapr̥nī, KAY kapr̥ni, TIM kapr̥ni, TAP kahr̥m̥-či, SUY kahr̥m̥-či;  
PNJ *kut̥̄yi*  ‘worm, blind snake’ > API kut̥̄yi, KAY kut̥̄, TIM kut̥̄, TAP kływ;  
PNJ *r̥̄dr̥̄*  ‘Attalea speciosa coconut’ > API r̥̄dr̥̄, KAY r̥̄n̥, TIM r̥̄;  
Proto-Core Jê *tīrī*  ‘alive’ > API tīrī, KAY tīni, TIM tīr, SUY tīlī.

181
3.4.1. Notes on echo vowels.

1. The syllables containing the nucleus *a must have contained a high unrounded echo vowel. This is still the case in some Kayapó and Timbira varieties as well as in and Suyá (Stout and Thomson 1974, Popjes and Popjes 1971, Nonato 2014: 129). This vowel must have triggered palatalization of *t (in Apinayé and Kayapó) and of *ɾ (in Tapayúná and Suyá):

- PNJ *krati ‘base, stem, lower part of the body’ > API kratā ‘waist, leg, beginning, medial part of a long object’ ~ krayē ‘wall, stem, stalk’, KAY krayē ‘trunk, stump, pelvis’ (cf. SUY kʰarī);
- PNJ *pari ‘foot’ > TAP hʰay, SUY hwayī (cf. KAY pārī);
- PNJ *ba / *ba-ɾ ‘to know’ > *ba / *ba-ɾi > SUY *ba / *ba-yi (cf. KAY ma-rī);
- PNJ *kapa / *kapa-ɾ ‘to pull out’ > *kapa / *kapa-ɾi > SUY kapa-yī.

Note that the same echo vowel must have existed in syllables with the vowel *i, but in this case it triggered palatalization in Apinayé:

- PNJ *biti ‘only’ > API pič, but KAY bit (cf. TIM pīt, maybe SUY wiɾi ‘always’);
- PNJ *kriti ‘pet’ > API kritī ~ krič, but KAY krit (cf. TAP, SUY kiri);  
- PNJ *=ći / *ći-ɾi / *ći-ɾi ‘to put’ > SUY =tǐ / sǐ-li / ti-li (cf. KAY =ʒi / ʒi-ɾi), etc.

This does not necessarily suggest that the echo vowels of these two groups of words were phonetically distinct: it is common for palatalization to be blocked when the consonant is both preceded and followed by palatalizing vowels (this is precisely what happens in languages like Paresi (Brandão 2014: 46)).

2. There are numerous reasons to believe that PNJ long verb forms did not contain echo vowels, as it happens today in Apinayé (Oliveira 2005: 191). They are listed below.

- Although echo vowels are present in Kayapó long verb forms, they are chosen in a special way for syllables whose underlying rhyme is /eopenrevɾ/ or /ocɾ/. While in nouns with these rhyme the echo vowel is [i] (b/eopenrevɾĭ ‘tree, horn’), in long verb forms it copies the nucleus (ak3-r3 / yak3-r3 ‘to cut’). This suggests that these words did not rhyme at an earlier stage.

- The correspondences in Central Jê languages are different for nouns and long verb forms ending in PNJ *r. Compare the following pairs:
  - PNJ *pa / *pa-ɾ ‘to finish, to kill’, Xavanté pa / pa-ɾi ‘to finish, to erase’;
  - PNJ *pari ‘foot’, Xavanté paca ‘id.’.

What matters here is not the quality of PNJ echo vowel but its presence or absence. The Proto-Cerrado forms of these words would have been *pa / *pa-ɾ ‘to finish’ and *pacă ‘foot’ (the dissimilation seems to have occurred in the independent history of PNJ).

- Some Suyá alternations are explainable if we assume that the echo vowels were suppressed in PNJ long verb forms:

  - SUY pgyi / pot ‘to arrive’ < *boṭi / *bot < *boṭi / *bot;
  - SUY =yerē / a=yet ‘to hang.PL’ < *=yetē / *=yet, etc.

The depalatalization of PNJ *t through suppression of an echo vowel is attested in API layē / layt ‘hard’.
It is uncertain whether this phenomenon affected PNJ long verb form suffixes other than *ɾ. As a preliminary solution, I reconstruct forms like PNJ *tê-m ‘to go.SG’, *kê-m ‘to drink’, *pe-k ‘to fart’, *ti-k ‘to die’, *taʾba-k / *ya=ba-k ‘to listen’, *ɾaw-k ‘to descend’ (with the unproductive suffixes *-m and *-k also found in a handful of other verbs). However, it has not been proven conclusively that these particular suffixes occurred without an echo vowel. The same applies to the productive suffix *-ɲi.

4. Conclusion

For the first time, a phonological reconstruction of Proto-Northern Jê has been proposed. Some issues still remain to be clarified, including:

— the emergence of long vowels in Timbira;
— the status and sources of syllable-final glottal stops in Timbira and preaspiration in Apinayé (Oliveira 2005: 78);
— the status and sources of the k / kʰ opposition in Suyá;
— the status of stem-initial alternations of palatal consonants and *ɡ (*ɣ in nasal syllables), first observed by A. P. Salanova (p.c.);
— the status and sources of word-initial unstressed syllables without an onset.

Now that a reconstruction of PNJ is available, we are in position to proceed to the reconstruction of Proto-Cerrado and, subsequently, Proto-Jê and Proto-Macro-Jê. The importance of such intermediate-level reconstructions as demonstrated, e.g., by S. Starostin (1999), cannot be underestimated; ignoring this stage has led to absence of reliable reconstructions of Proto-Jê, which in turn makes further comparative studies in Macro-Jê impossible.

I am planning to propose a reconstruction of Proto-Jê in a forthcoming article.

References


Nikulin, Andrey. 2016b. Fonologia segmental do conjunto dialetal Timbíra (Jê Setentrional) m.s. Brasília.


А. В. Никулин. Историческая фонетика северной ветви семьи же.

Статья является первой в планируемой автором серии публикаций по исторической фонологии языков южноамериканской макросемьи макро-же. Поскольку в рамках этой макросемьи самой большой и разнообразной семьей являются собственно языки же, сравнительные исследования по макро-же в первую очередь зависят от степени исторической обработанности данных по семье же; при этом единственная известная на сегодня попытка системной реконструкции фонологической системы и лексического инвентаря пра-же (Davis 1966) подверглась обстоятельной критике в целом ряде работ (Ribeiro and Voort 2010, Nikulin 2015b). В настоящей статье предлагается промежуточная реконструкция для прасеверного же, представляющего крупнейшую из ветвей семьи же.

Ключевые слова: языки же, языки макро-же, языковая реконструкция, сравнительно-исторический метод.