

Российский государственный гуманитарный университет  
Russian State University for the Humanities



# RSUH/RGGU BULLETIN

№ 3 (14)

Academic Journal

Series:

Philology. Journal of Language Relationship

Moscow 2016

ВЕСТНИК РГГУ

№ 3 (14)

Научный журнал

Серия

«Филология. Вопросы языкового родства»

Москва 2016

Редакционный совет серий «Вестника РГГУ»

Е.И. Пивовар, чл.-кор. РАН, д-р ист. н., проф. (председатель)

Н.И. Архипова, д-р экон. н., проф. (РГГУ), А.Б. Безбородов, д-р ист. н., проф. (РГГУ), Х. Варгас (Ун-т Кали, Колумбия), А.Д. Воскресенский, д-р полит. н., проф. (МГИМО (У) МИД России), Е. Вятр (Варшавский ун-т, Польша), Дж. Дебарделебен (Карлтонский ун-т, Канада), В.А. Дыбо, акад. РАН, д-р филол. н. (РГГУ), В.И. Заботкина, д-р филол. н., проф. (РГГУ), В.В. Иванов, акад. РАН, д-р филол. н., проф. (РГГУ; Калифорнийский ун-т Лос-Анджелеса, США), Э. Камия (Ун-т Тачибана г. Киото, Япония), Ш. Карнер (Ин-т по изучению последствий войн им. Л. Больцмана, Австрия), С.М. Каштанов, чл.-кор. РАН, д-р ист. н., проф. (ИВИ РАН), В. Кейдан (Ун-т Карло Бо, Италия), Ш. Кечкемети (Национальная Школа Хартий, Сорбонна, Франция), И. Клюканов (Восточно-Вашингтонский ун-т, США), В.П. Козлов, чл.-кор. РАН, д-р ист. н., проф. (ВНИИДАД), М. Коул (Калифорнийский ун-т Сан-Диего, США), Е.Е. Кравцова, д-р психол. н., проф. (РГГУ), М. Крэмер (Гарвардский ун-т, США), А.П. Логунов, д-р ист. н., проф. (РГГУ), Д. Ломар (Ун-т Кельна, Германия), Б. Луайер (Ин-т геополитики, Париж-VIII, Франция), С. Масамичи (Ун-т Чуо, Япония), В.И. Молчанов, д-р филос. н., проф. (РГГУ), В.Н. Незамайкин, д-р экон. н., проф. (Финансовый ун-т при Правительстве РФ), П. Новак (Ун-т Белостока, Польша), Ю.С. Пивоваров, акад. РАН, д-р полит. н., проф. (ИНИОН РАН), Е. ван Поведская (Ун-т Сантьяго-де-Компостела, Испания), С. Рапич (Ун-т Вупперталь, Германия), М. Сасаки (Ун-т Чуо, Япония), И.С. Смирнов, канд. филол. н. (РГГУ), В.А. Тишков, акад. РАН, д-р ист. н., проф. (ИЭА РАН), Ж.Т. Тощенко, чл.-кор. РАН, д-р филос. н., проф. (РГГУ), Д. Фоглесонг (Ун-т Ратгерс, США), И. Фолтыс (Политехнический ин-т г. Ополе, Польша), Т.И. Хорхордина, д-р ист. н., проф. (РГГУ), А.О. Чубарьян, акад. РАН, д-р ист. н., проф. (ИВИ РАН), Т.А. Шаклеина, д-р полит. н., проф. (МГИМО (У) МИД России), П.П. Шкаренков, д-р ист. н., проф. (РГГУ)

Серия «Филология. Вопросы языкового родства»

Редакционная коллегия серии

В.А. Дыбо, гл. ред., акад. РАН, д-р филол. н. (ИнСлав РАН / РГГУ), Г.С. Старостин, зам. гл. ред., канд. филол. н., доц. (РГГУ), Т.А. Михайлова, отв. сек., д-р филол. н., проф. (МГУ им. М.В. Ломоносова), А.В. Дыбо, д-р филол. н., член-корр. РАН (ИЯз РАН), А.С. Касьян, д-р филол. н. (ИЯз РАН), С.В. Кулланда, канд. ист. н. (ИВ РАН), М.А. Молина (ИЯз РАН), И.С. Якубович, д-р филол. н. (Марбургский университет имени Филиппа)

Ответственные за выпуск: Г.С. Старостин, А.С. Касьян



УДК 800(05)  
ББК 80/84я5

Вопросы языкового родства: Международный научный журнал / Рос. гос. гуманитар. ун-т; Рос. акад. наук. Ин-т языкознания; под ред. В. А. Дыбо. — М., 2016. — № 3(14). — x + 70 с. — (Вестник РГГУ. Серия «Филология. Вопросы языкового родства»: Научный журнал).

Journal of Language Relationship: International Scientific Periodical / Russian State University for the Humanities; Russian Academy of Sciences. Institute of Linguistics; Ed. by V. A. Dybo. — Moscow, 2016. — No. 3(14). — x + 70 p. — (RSUH/RGGU Bulletin. Series: Philology. Journal of Language Relationship: Academic Journal).

ISSN 2073-6320

<http://www.jolr.ru/>  
[journal@jolr.ru](mailto:journal@jolr.ru)

Дополнительные знаки: С. Г. Болотов  
Add-on symbols by S. G. Bolotov

Подписано в печать 15.10.2016. Формат 60×90/8.  
Бум. офсетная.  
Печать офсетная. Тираж 1050 экз.  
Заказ №53

Издательский центр  
Российского государственного гуманитарного университета  
125993, Москва, Миусская пл., 6  
[www.rgggu.ru](http://www.rgggu.ru)  
[www.knigirgggu.ru](http://www.knigirgggu.ru)

# Table of Contents / Содержание

Table of Contents / Содержание . . . . .	vii
Contributors / Сведения об авторах . . . . .	viii
Note for Contributors / Будущим авторам . . . . .	ix

## Articles / Статьи

<i>Eugene Helimski</i> . <i>S</i> -singulatives in Ket . . . . .	157
[ <i>Е. А. Хелимский</i> . Сингулятивы на -s в кетском языке]	

<i>Andrey Nikulin</i> . Historical phonology of Proto-Northern Jê . . . . .	165
[ <i>А. В. Никулин</i> . Историческая фонетика северной ветви семьи же]	

## Discussion Articles / Дискуссионные статьи

<i>H. Craig Melchert</i> . Initial * <i>sp-</i> in Hittite and <i>šip(p)and-</i> ‘to libate’ . . . . .	187
[ <i>Крейг Мелчерт</i> . Начальный кластер * <i>sp-</i> в хеттском языке и глагол <i>šip(p)and-</i> ‘жертвовать’]	

<i>Ilya Yakubovich</i> . Response to C. Melchert . . . . .	196
[ <i>И. С. Якубович</i> . Ответ К. Мелчерту]	

## Reports / Хроника

Towards Proto-Niger-Congo: Comparison and Reconstruction, Paris, LLACAN, September 1–3, 2016 ( <i>Galina Sim</i> ) . . . . .	207
---	-----

## Book Reviews / Рецензии

<i>С. В. Кулланда</i> . Скифы: язык и этногенез [ <i>Sergei KULLANDA</i> . The Scyths: language and ethnogenesis], 2016 ( <i>П. В. Башарин</i> ) . . . . .	211
---	-----

<i>Carlotta Viti</i> (ed.). Perspectives on historical syntax, 2015 ( <i>Maria A. Molina</i> ) . . . . .	217
--	-----

## Contributors

*Pavel Basharin* — candidate of sciences (Philosophy), senior lecturer, Russian State University for the Humanities (Moscow), pbasharin@yandex.ru

*H. Craig Melchert* — PhD, professor of Indo-European studies & professor of linguistics, Emeritus, University of California, melchert@humnet.ucla.edu

*Maria Molina* — junior researcher, Institute of Linguistics, Russian Academy of Sciences (Moscow), maria.lakhuti@gmail.com

*Andrey Nikulin* — Laboratório de línguas e literaturas indígenas, University of Brasilia, andre.n.guzman@gmail.com

*Galina Sim* — postgraduate student, Institute of Linguistics, Russian Academy of Sciences (Moscow), galjasim@gmail.com

*Ilya Yakubovich* — doctor of sciences (Philology), Philipps-Universität Marburg; Institute of World Cultures, Lomonosov Moscow State University, sogdiana783@gmail.com

## Сведения об авторах

*Башарин, Павел Викторович* — канд. филос. наук, ст. преп. РГГУ (Москва), pbasharin@yandex.ru

*Мелчерт, Крейг* — профессор индоевропеистики и лингвистики, Калифорнийский университет, melchert@humnet.ucla.edu

*Молина, Мария Александровна* — младший научный сотрудник Института языкознания РАН (Москва), maria.lakhuti@gmail.com

*Никулин, Андрей Владимирович* — сотрудник лаборатории по изучению индейских языков и литератур, Бразильский университет, andre.n.guzman@gmail.com

*Сим, Галина* — аспирант Института языкознания РАН (Москва), galjasim@gmail.com

*Якубович, Илья Сергеевич* — доктор филол. наук, Марбургский университет имени Филиппа; Институт мировой культуры МГУ (Москва), sogdiana783@gmail.com



## Note for Contributors

*Journal of Language Relationship* welcomes submissions from everyone specializing in comparative-historical linguistics and related disciplines, in the form of original articles as well as reviews of recent publications. All such submissions should be sent to the managing editor:

G. Starostin  
Institute for Oriental and Classical Studies  
Russian State University for the Humanities  
125267 Moscow, Russia  
Miuskaya Square, 6  
E-mail: [journal@jolr.ru](mailto:journal@jolr.ru)

Articles are published preferably in English or Russian, although publication of texts in other major European languages (French, German, etc.) is possible. Each article should be accompanied with an abstract (not exceeding 300 words) and keywords.

For more detailed guidelines on article submission and editorial policies, please see our website at: <http://www.jolr.ru> or address the editorial staff directly at [journal@nostratic.ru](mailto:journal@nostratic.ru).

## Будущим авторам

Журнал *Вопросы языкового родства* принимает заявки на публикацию оригинальных научных статей, а также рецензий от всех, кто специализируется в области сравнительно-исторического языкознания и смежных дисциплин. Рукописи можно высылать непосредственно заместителю главного редактора по адресу:

125267 Москва  
Миусская площадь, д. 6  
Российский государственный гуманитарный университет  
Институт восточных культур и античности  
Г. Старостину  
E-mail: [journal@jolr.ru](mailto:journal@jolr.ru)

Предпочтительные языки публикации — английский или русский, хотя возможна также публикация статей на других европейских языках (французский, немецкий и т. п.). К каждой статье обязательно прилагается резюме (не более 300 слов) и список ключевых слов.

Подробнее о требованиях к оформлению рукописи, редакционной политике журнала и т. п. вы можете узнать на нашем сайте по адресу: <http://www.jolr.ru> или же непосредственно, обратившись к редакции по электронной почте ([journal@nostratic.ru](mailto:journal@nostratic.ru)).



## S-singulatives in Ket\*

The paper focuses on an interesting aspect of synchronic and historical morphology of the Ket language and its implications for the reconstruction of Proto-Yeniseian. Based on relic evidence, it is suggested that the component -s' in some Ket nominal stems should be analyzed as a desemantized singulative marker, possibly still productive at an earlier time stage; internal and external evidence for this hypothesis is presented and discussed.

*Keywords:* Yeniseian languages, Ket language, fossilized morphology, singulatives.

*To the memory of Sergei Starostin*

### 1. Introduction

An etymological comment to Yen. \*ʷksi (~ x-) 'tree' (Ket *ōks'*, pl. *aʷq*; Kott *atče, atči*, pl. *ak, ax, āx*) in Sergei Starostin's *Comparative Vocabulary of the Yeniseic Languages* reads as follows:

The form of the plural in this case goes back undoubtedly to Proto-Yen. \**xaʷq* 'trees, forest' (q.v.). If so, it can be assumed that Proto-Yen. \**xksi* developed from the original compound \**xaʷq-sV* or \**xaʷq-xusa*, lit. 'tree single' (a similar compound being present e.g. in \**de-s* 'eye', etc.). (Starostin 1995: 198)

The idea of decomposing some Yeniseic stems with singling out the morpheme \*-s(V) with singulative meaning can be found, explicitly or implicitly, also in several other entries of this vocabulary, see s.v. \**de-s* 'eye', \**pa* (> Ket *hās*) 'time (= occurrence)', \**χu-sa* 'one' (Starostin 1995: 220, 244, 306).

The analysis suggested by Starostin differs from the treatment of the pair *ōks'* — *aʷq* in many earlier (and later) publications. They are often mentioned as merely suppletive — presumably unconnected — stems, on a line with *keʷt* 'person, man' — *deʷŋ* 'men, people' (Kreino-vich 1968: 82; Vall, Kanakin 1985: 13). T. I. Porotova also views them as suppletive, adding a comment according to which the last consonant in *o-q-s* (= *ōks'*) must be a verbal marker of state corresponding to German *ist* (sic! — “глагольный показатель состояния, соответствующий немецкому ‘ist’”) which is absent in plural as long as it denotes a singular state (Porotova 1990: 48).<sup>1</sup> In the publications by H. Werner one can find both a mention of supple-

---

\* This paper must have been written in 2005 or 2006 and was intended to be published in a volume dedicated to the memory of Sergei Starostin that was being planned in the USA, but has never been completed. The paper was accessible on the internet as a pdf-file with some technical shortcomings — namely, most special symbols were missing. Here they were restored and checked against the published sources; also, a handful of missing references have been added. This publication is a part of the project on publishing the etymological legacy of Eugen Helimski (RFH project No 14-04-00496a). — *Valentin Gusev*.

<sup>1</sup> See fn. 4 on backgrounds of this peculiar comment.

tivism (Werner 1997a: 68) and classifying *o'ks'* – *a'q* under a big group of words in Ket in which the opposition singular : plural is manifested through a consonant alternation and/or an epenthesis (Werner 1995: 89–90). His comprehensive Yeniseic dictionary contains no statements concerning the kind of relationship between <sup>1</sup>*o'ks'* and <sup>2</sup>*a'q* (and even no reference from the latter entry to the first one), see VWJS 1: 86, 2: 50.

It has been known since Castrén's times that the category of number in Yeniseic (both in Ket with Yug and in Kott) abounds in irregularities; using a plural suffix (*-ŋ* or *-n*, with phonetically and lexically determined distribution) is a typical, but by no means the only way of differentiating between singular and plural forms. I would dare to assert that the numerous treatments and materials published in the last decades, including a special monograph by Porotova (Porotova 1990), added a lot to listing such irregularities but, as long as explanations and attempts at formulating at least some rules are concerned, did not contribute much to the classical presentation by Castrén (1858: 16–25) and to solving the problems discussed by Kreinovich (1968: 79–83), Toporov & Civjan (1968: 235–241). With its intriguing yarn of forms, the Yeniseic category of number challenges linguists with one of numerous riddles posed by these typologically unique languages.

Addressing only one aspect of this riddle, I am going to show in this paper:

- that one of the factors responsible for the complicated sets of number forms in Ket (and in Yeniseic in general) consists in superimposing and intermingling of two oppositions, **singular vs. plural** and **general vs. singulative**, the first one being inflectional and the second one — primarily at least — derivational;
- that, in accordance with the assumption made by Starostin, *\*-s(V)* (Ket mostly *-s'*) can be viewed as a diachronically, and partly also synchronically, productive suffix of singulative forms.

Notes: (1) The structure of the Yeniseic languages makes the differentiation between morpheme borders and word borders, resp. between synthetic and analytic forms, between derivation and word compounding, between suffixes and final elements in compounds embarrassing, and probably — diverting from the practical issue of orthography — not obligatory.

(2) Ket and other Yeniseic forms are quoted in this paper mainly (unless otherwise indicated) after Werner's VWJS, partly also from Porotova's SKS. The phonetic notations are therefore only partly unified (not more than in these sources). It is regrettably impossible to systematically differentiate between very phonetically exact transcriptions, characteristic of Werner's own records (these transcriptions usually contain the marking <sup>1-4</sup> for prosodic types), and less reliable records which he quotes in VWJS along with his own, as well as between records in which differing graphic/transcriptional systems are used. Under these circumstances it is superfluous to comment on many minor details of phonetics which can result from dialectal or individual variation as well as from the peculiarities (and quality) of transcription.

## 2. *de's'*-singulatives in Ket

The notion of singulatives is by no means new in Yeniseic linguistics. This term has been applied to a large group of compounds in Ket which include a noun (usually denoting substances, masses, foodstuffs, natural phenomena) as their first component and the word (suffix) *des'* ('eye') as the second one, cf. *e:l'* 'berries' — *e:l'des'* '(a single) berry' (VWJS 1: 258 — <sup>3</sup>*e:l'*, <sup>3</sup>*e:l'des'*), *qo:* 'hail' — *qo:des'* 'hailstone', etc., see Porotova 1990: 65–66. In her analysis Porotova stresses that (a) there are nouns which form both plural forms and singulatives, cf. *hɛn'əŋ*

‘sand’ — *hán’añan* ‘sands’ — *hundes* (VWJS 1: 338 — *hín’añdis*) ‘sandstone, a grain of sand’; (b) singulatives can have plural forms of their own, cf. *qo:des’anj* ‘hailstones (≈ hail)’ — it is reasonable to keep both these properties of *de:s*-singulatives in mind when dealing with presumably older *s*-singulatives.

It can be added that in several cases Ket sources quote a *de:s*-singulative as “singular” and the form without this element as “plural”, cf. Toporov, Civjan 1968: 237 or the entry Pak. *qo:ndes*, *qo:ndes*, pl. *qon* ‘бисерина, зрачок // bead, pupil (of the eye)’ in SKS.

In the following the productive and transparent category of *de:s*-singulatives is left aside. It can be thought, however, that it arose as a functional replacement of a similar category which, in the course of time, lost its productivity and transparency.

### 3. Data on s-singulatives

**3.1.** The Ket pair *oks* — *a<sup>2</sup>q*, or one of its members, has the following attested correspondences in other Yeniseic idioms: Yug (Sym Ket) <sup>1</sup>*oksi* and <sup>2</sup>*a<sup>2</sup>χ* ‘trees, forest, wood’, Kott *atci* ‘Baum’, **ачи** ‘дерево’ (cf. also **ачихал** ‘вершина’, **ачичан** ‘корень’) and *āx* (*ag, ak, ax*) ‘Bäume, Wald’ with plural *āgan* (! — see below), **ак** ‘дрова, лес’, Arin **отши** ‘дерево, лес’, **отшил** ‘дерево’ (cf. also **ошапок** ‘вершина’) and **оо** ‘дрова, лес’, Pump. **hóchon** ‘sylva, arbor’ (cf. also **chógon** in **chógon-dýpun** ‘folium’), see Castrén 1858; Helimski 1986; Starostin 1995: 198, 295; VWJS 1: 86, 2: 50 (for the sake of precision, data from older sources are quoted here with their original spellings and translations).

I believe that the reconstructions suggested by S. Starostin and Werner need both a phonetic and a semantic refinement. First, the proto-form for *a<sup>2</sup>q* (Starostin: *\*xa<sup>2</sup>q*, Werner: *\*a<sup>2</sup>q*) should not contain an internal glottal stop, the latter being a phonetic (or prosodic) segment automatically appearing in Ket and Yug monosyllables with primary consonantal Auslaut (see Helimski 2000).<sup>2</sup> Second, the basic meaning of this word should be preferably reconstructed not as plural ‘trees’ (Starostin: ‘деревья’, Werner: ‘Bäume’ > ‘Wald’, ‘Holz’), but rather as general (substance name) ‘wood, chopwood, firewood’.<sup>3</sup> This is confirmed also by numerous verbal derivatives such as Yug *áχat* ‘Holz besorgen, Vorräte an Holz anlegen’, Ket *aq...vet* ‘Holz haben’, *áRasej* ‘Holzvorräte anlegen’, Kott *agathâqη* (Nom. act. *agat*) ‘hauen’.

**3.2.** The element *-s* is present in the singular form and absent from the plural form not only in the pair *oks* — *a<sup>2</sup>q*, but also in at least three or four further stems, all belonging to archaic strata of the Ket (Yeniseic) vocabulary. These are as follows:

- Ket <sup>2</sup>*s’é’s*, pl. <sup>1</sup>*s’ej* ‘лиственница // larch’, Yug <sup>2</sup>*se’s*, pl. <sup>1</sup>*sej* (the SKS quotes also Yug plural forms with the plural marker *-η* added to either *se’s* or *sej*: Sym *šeeη*, Vor. *ses’η*). Further Yeniseic counterparts can contain different suffixal elements: Kott *šet*, pl. *šat*, Arin *čit*, Pump. *tag*. Cf. also a derivative or compound in which a CV-variant of this stem seems to occur: Ket <sup>2</sup>*s’é’j*, pl. *s’éηn’ij* ‘Sitz aus Edeltannehweigen // seat made of larch twigs’, Yug <sup>2</sup>*se’j*, pl. *seηn’ij* (the suffixal or second part is *-j*, pl. *(-η)n’ij* < *(-η)jij*, as in <sup>2</sup>*u’j*, pl. *úηn’ej* ‘cradle’, <sup>2</sup>*qa’j*, pl. *qáηn’ij/qáηn’ej* ‘steep bank, hill’, <sup>2</sup>*ka’j*, pl. *kóηn’ij/kóηn’ej* ‘bell’).

<sup>2</sup> Also in recent Russian loanwords: Ket *s’a’j* ‘tea’, *l’é’s* ‘forest’, *hó’p* ‘priest’, *me’t* ‘copper’, *me’t* ‘honey’ (< Russ. чай, лес, поп, медь, мёд).

<sup>3</sup> Note the misunderstandings which arise from the somewhat inadequate choice of translation equivalents. For example, it is customary to translate Ru. *дерево* simply as ‘tree’, though in numerous contexts — statistically, perhaps, even more frequent — it means ‘wood’ and denotes material rather than a natural object.

- Ket  ${}^2qu's$ , pl.  ${}^2qu'η$  ‘дом, чум // house, nomad tent’, Yug  ${}^2χu's$ , pl.  ${}^2χu'η$ , Kott  $hûš$ , pl.  $huη$ , Arin  $-k'us, -kus$ , Pump.  $-kut$  (**hukùt**), see WVJS 2: 140 with the comment: “Nach der Pluralbildung läßt sich ein altes Kompositum vermuten” (NB: Pump.  $t$  is the regular continuation of Yen.  $*s > Ket s$ ).
- Ket  ${}^2tî's$ , pl.  ${}^2tî'η$  ‘камень // stone’, Yug  ${}^2čî's$ , pl.  ${}^2čî'η$ , Kott  $šîš$ , pl.  $šeη$ , Arin  $qes$ , Pump.  $kit$  (Werner in VWJS 2: 85 tends to view the forms in Arin and Pump., with pl. not attested, as unrelated to  ${}^2tî's$ ).
- Ket  ${}^2qe's/{}^2qä's$ , pl.  $qér'eη$  ‘песчаная отмель // sandbank’, Yug  ${}^2χe's$ , pl.  $χéd'iη$  (this example belongs together with the rest of this group if  ${}^2qe's/{}^2qä's < {}^2qe'ds/{}^2qäd's$ , which probably cannot be proven).

Besides, the same relationship between number forms is attested in several dozen compound words with one of the above stems as the second component: (SKS) Kel.  $il'oks'$ , pl.  $il'aq$  ‘щепка // wood splinter’, Kel.  $boq^{ht}is$ , pl.  $boqt'η$  ‘кремень // flint’, Kur.  $baηgus$ , pl.  $baηgun$  ‘землянка // dugout’, etc. etc.

**3.3.** It can be argued that in the above cases the “pure” stem (without  $*-s$  or the plural marker  $*-η$ ) denotes substances: wood ( $a^2q$ ), larch wood ( $s'e(j)$ ), stone ( $tî-$ ), possibly also river sand ( $qe(d)-$ ), while the “singular” form denotes a unit of this substance (tree, larch tree, rock, sandbank), and the “plural” form with a formal plural marker  $-η$  several or many such units (stones = rocks, sandbanks). A similar relationship can be assumed also for  $qu-$ , possibly ‘home, dwelling place’, its single unit being a house, a tent. This semantic analysis is further supported by the fact that the unmarked “plural” forms can build plural forms of their own: Kott  $âgan$  (‘forests’), Yug (Sym)  $š'eeiη$  (it can be supposed — but not checked any more, since the dialect is by now extinct — that this plural form actually meant ‘larch forests’, as distinct from  ${}^1sej$  ‘larches, larch forest’).

By the way, the above observations discard the popular but superficial and groundless comparisons of Yeniseic words for ‘house’ and for ‘stone’ with German  $*xūs-$  ( $> house$ ) and with Turkic  $*tāš$ , correspondingly.

**3.4.** The following Ket and Yug examples serve as further attestations of the element  $-s$  ( $-s'$ ) and its function:

- Ket  ${}^1o'k$ , pl.  ${}^1ks'in$  (Yug  ${}^1ok$ , pl.  ${}^1ksin$ ) ‘sterlet’. The unusual plural marking ( $-s'in$  instead of  $-n$ ) finds a reasonable explanation if we assume that  ${}^1ōk$  is a general noun denoting sterlet as a fish species, its singulative (which is even attested in SKS — not in VWJS — as Kel.  $oks$ ) denotes a sterlet as a single specimen belonging to this species, and  ${}^1ksin$  is the plural form to this singulative.
- Ket  ${}^1qî'k$ , pl.  $qîks'eη$  (and  ${}^1qî'neη$ ) ‘Fußweg // footpath, track’ (cf. also the compound  $búlqîk$ , pl.  $búlqîks'eη$  ‘Fußspur // footprint(s)’, Yug  $búlχîk$ , pl.  $búlχinîη$ ). Here again it is possible, hypothetically expanding the dictionary data, to assume that the form  ${}^1qî'k$  denotes a footpath/track as a sequence of footprints, its non-attested singulative  ${}^1qî'ks'$  — a single footprint, and among the two plural forms  $qîks'eη$  refers to a plurality of footprints (left e.g. by the same animal) and to a plurality of footpaths/tracks (left by several animals).
- Ket  ${}^1qu'k$ , pl.  $qúks'en'$  (SKS:  $quqs'əη$ , the author’s field materials from Kellog [1993]:  $quks'eη$ ), Yug  ${}^1χuk$ , pl.  $χuksin$  /  $χúninîη$  //  ${}^3χu:n$  ‘hole’. The case appears to be very similar to the previous one, with some kind of — at least original — differentiation between and a hole/perforation in general and a single aperture.

- Ket Kel. *tʰits* ‘one generation’, a derivative from Pak. *tʰit* ‘root’ (SKS: 241).
- Ket Sul. *taŋs* ‘money, rouble’, a derivative from  ${}^2t\alpha^{\prime}\eta$  id.; the data as presented in dictionaries permit to assume that the meaning ‘money’ was primarily associated with the form  ${}^2t\alpha^{\prime}\eta$ , and the meaning ‘rouble’ (= ‘a unit of money’) with its *s*-derivative (and it cannot even be excluded that this distribution is preserved, at least in dialects). On the other hand,  ${}^2t\alpha^{\prime}\eta$  must be, according to VWJS, etymologically identical with  ${}^2t\alpha^{\prime}\eta$  ‘stones’ (see above): this suggests a scenario of formal and semantic differentiation between the archaic *s*-singulative  ${}^2tʰis$  and the innovative *taŋs* (in which the function of the plural marker *-ŋ* is not “recognized”).
- Ket *ujʃ*, *újis* ‘birch-bark laid under a baby’, a derivative from  ${}^2u^{\prime}j$  ‘cradle’ (with presumable basic semantics ‘a piece of cradle’).
- Ket  ${}^1u^{\prime}l^{\prime}s^{\prime}/ul^{\prime}s^{\prime}$ , pl. *úlʰsʰen* ‘a big water basin (sea, long and wide river, the Yenisei)’, a derivative from  ${}^1ul^{\prime}$  ‘water’ (with presumable basic semantic ‘a unit of water, water as a single whole’).

#### 4. Discussion

As is clear from above, it can be assumed that a number of nouns in Ket — first of all, words of general meaning (denoting substances, masses, groups) — must have been able to participate in a binary opposition, functioning both as general nouns (with the ability to form singulatives) and as singular nouns (with the ability to form plurals). Since several such nouns demonstrate the same property in Kott (or have exact correspondences of their *s*-singulatives in other, poorly attested, Yeniseic languages), this duality must have existed in Proto-Yeniseic.

Further development led in some cases to the reinterpretation of former singulatives as singular forms opposed to plural forms (especially if the shorter stem with general meaning was not preserved); in many other cases *s*-singulatives were perhaps lost or ousted by *des*-singulatives, so that the abovementioned examples are only scanty relics from the past. Still, it is hardly realistic to believe that the opposition “general : singulative” was ever as developed as to be comparable with the opposition “singular : plural” and to be an inflectional category rather than a productive derivational model. In any case, this development contributed to the formation of the present situation in Ket: “In gewissen Fällen ist die Pluralbildung immer noch ein Grenzfall zwischen Morphologie und Wortbildung” (Werner 1997b: 102).

The (historical) morphological analysis of number forms suggested in this paper stands relatively close to the one by Kreinovich (1968: 81–82), who saw in the pairs  ${}^2qu^{\prime}s^{\prime}$  —  ${}^2qu^{\prime}\eta$ ,  ${}^2tʰs^{\prime}$  —  ${}^2t\alpha^{\prime}\eta$ ,  ${}^2s^{\prime}\varepsilon^{\prime}s^{\prime}$  —  ${}^1s^{\prime}ej$  the opposition of a singular suffix *-sʰ* vs. plural suffixes *-ŋ* and *-j*. Werner criticized Kreinovich’s approach as unacceptable; this was made on several occasions — and with varying argumentation. One of his alternative versions says that *-sʰ* has nothing to do with the category of number: it belongs to the original root, and the consonant alternation finds its explanation in historical derivation and historical phonetics (Werner 1995: 87). However, there are examples indicating that the stem-final consonant *-sʰ* can be well preserved before plural markers ( ${}^1ke^{\prime}s^{\prime}$ , pl. *kasʰn* ‘burbot’;  ${}^2ki^{\prime}s^{\prime}$ , pl. *kisʰen* ‘leg’), which possibly led him to another explanation which, in my opinion, does not differ much from Kreinovich’s approach:

In der Tat hat man es in solchen Fällen in der Regel mit historischen Komposita zu tun, bei denen sich in Plural nur die Pluralform des ersten Kompositionsgliedes bewahrt hat; vom zweiten Kompositionsglied ist in der Singularform nur ein konsonantischer Rest übrig geblieben, der den Eindruck eines Reliktelements

macht, welches E. A. Krejnovič als Marker des Singulars deutete. [...] Wörter mit dem Reliktelemt -s (jug. -s/-š) in der Singularform. (Werner 1998: 51, 52; similarly: Werner 1997b: 99)

Indeed, even the fact that the *s* of the singulatives is in some examples attested as part of the stem in all Yeniseic languages (e.g. in Ket <sup>2</sup>*qu's*, Yug <sup>2</sup>*χu's*, Kott *hûš*, Arin *-k'us*, Pump. *-kut* 'house') does not yet prove that it was always a suffix and not an independent word. It was already mentioned above that the structure (and history) of Ket makes the differentiation between derivation and word compounding — and even more, between “synthetic” and “analytic” forms in inflection — often problematic, and, in any case, hardly productive. The following pair of examples illustrates this thesis, but can possibly also shed some light on the connections — if not on the origin — of *s*-singulatives:

- (a) Ket Kur. <sup>3</sup>*qε:γet*, pl. *qéηdεη* 'chief, boss', a compound consisting of <sup>4</sup>*qä* 'big (in attributive function)' (pl. <sup>4</sup>*qäη*) and <sup>2</sup>*kε't* 'human being, man' (suppletive pl. <sup>2</sup>*dε'η* 'people')
- (b) Ket <sup>4</sup>*qäs* 'big (in non-attributive function)' and <sup>4</sup>*qäs*, pl. *qäηs'in* 'chief, boss', where *-s'* (pl. *-s'in*), usually treated by Werner (1998: 39) and other representatives of the Tomsk school as the so-called “predicative suffix”, is added to <sup>4</sup>*qä* instead of <sup>2</sup>*kε't*.

Note that in (b), as well as in (a), the plural formes are double marked — the first adjectival component is in both cases supplied with the plural suffix *-η*. This means that, historically at least, <sup>4</sup>*qäs* must also be viewed as a compound word.

The label “predicative suffix”, introduced by A. P. Dulzon (1968) for the element *-s'* in non-attributive forms of adjectives, numerals, participles etc. which play an extremely important role in Ket grammar (as well as its counterpart *-še/-ši*, pl. *-šin* in the grammar of Kott), is misleading. The predicative function is only one (maybe the most important or the most frequent) function of the forms with this suffix, which occur, however, whenever an adjective etc. is used independently, without belonging to an attributive syntagm<sup>4</sup>. This accounts also for the fact that substantivized adjectives (like <sup>4</sup>*qäs* 'chief, boss') and participles are systematically marked with this suffix.

Can it be that the suffix of non-attributive forms *-s'* and the singulative suffix *-s'* are of the same origin? I am not going to immerse here into details of this issue, but already the postpositive use of *one* in English with nonattributive/substantivized adjectives and participles (*a / the big one, a / the standing one*) makes such a historical connection extremely probable.

### Abbreviations

Local varieties of Ket: Kel. — Kellog, Kur. — Kurejka, Pak. — Pakuliha, Sul. — Sulomaj.

### References

- Castrén, M. A. 1858. *Versuch einer jennissei-ostjakischen und kottischen Sprachlehre*. Hrsg. von A. Schiefner. St. Petersburg.
- Dulzon, A.P. 1968. *Ketskiy yazyk*. Tomsk: Izd-vo Tomskogo un-ta.
- Helimski, E.A. 1986. Arkhivnye materialy XVIII veka po eniseyskim yazykam. In: *Paleoaziatskiy sbornik*. Leningrad: Nauka: 179–212.
- Helimski, E.A. 2000. Glottalizaciya v yazykakh sredney Sibiri. In: *Evraziyskoe prostranstvo: Zvuk i slovo. Mezhdunarodnaya konferenciya 3–6 sentyabrya 2000: Tezisy i materialy*. Moscow: 17–18.

<sup>4</sup> Too literal interpretation of the label “predicative suffix”, plus the idea about the verbal nature of predicativity, were, as it seems, responsible for the strange analysis of the word *oks'* suggested by Porotova (see Introduction).



- Kreinovich, E.A. 1968. Sposoby deystviya v glagole ketskogo yazyka. In: Vyach. Vs. Ivanov, V. N. Toporov, B. A. Uspenskiy (eds.). *Ketskiy sbornik: Lingvistika*. Moscow: Gl. red. vost. lit.: 75–138.
- Porotova, T.I. 1990. *Kategoriya mnozhestvennosti v eniseyskikh yazykakh*. Tomsk: Izd-vo Tomskogo un-ta.
- SKS = Porotova, T.I. 2002. *Slovar' govornykh form ketskikh suschestvitel'nykh (s formami mnozhestvennogo chisla)*. Tomsk: TGPU.
- Starostin, S.A. 1995. Sravnitel'nyy slovar' eniseyskikh yazykov. In: S. A. Starostin (ed.). *Ketskiy sbornik: Lingvistika*. Moscow: Yazyki russkoy kul'tury: 176–315.
- Toporov, V.N., T.V. Civjan. 1968. Ob izuchenii imeni v ketskom (Nekotorye rezul'taty i perspektivy). In: Vyach. Vs. Ivanov, V. N. Toporov, B. A. Uspenskiy (eds.). *Ketskiy sbornik: Lingvistika*. Moscow: Gl. red. vost. lit.: 229–246.
- Vall, M.N., I.F. Kanakin. 1985. *Kategorii imeni v ketskom yazyke*. Novosibirsk: Nauka.
- VWJS = Werner, Heinrich. 2002. *Vergleichendes Wörterbuch der Jenissej-Sprachen*. Bd. 1–3. Wiesbaden: Harrassowitz.
- Werner, Heinrich. 1995. *Zur Typologie der Jenissej-Sprachen*. (Veröffentlichungen der Societas Uralo-Altaica, Bd. 45). Wiesbaden: Harrassowitz.
- Werner, Heinrich. 1997a. *Das Jugische (Sym-Ketische)*. (Veröffentlichungen der Societas Uralo-Altaica, Bd. 50). Wiesbaden: Harrassowitz.
- Werner, Heinrich. 1997b. *Die ketische Sprache*. (Tunguso-Sibirica, Bd. 3). Wiesbaden: Harrassowitz.
- Werner, Heinrich. 1998. *Probleme der Wortbildung in den Jenissej-Sprachen*. (Lincom Studies in Asian Linguistics 25). München / Newcastle: Lincom Europa.

Е. А. Хелимский. Сингулятивы на -s в кетском языке.

Статья посвящена любопытному аспекту синхронной и исторической морфологии кетского языка, имеющему важное значение для праенисейской реконструкции. Основываясь на парадигматических характеристиках ряда архаичных форм, автор предполагает, что элемент -s', зафиксированный в некотором количестве кетских именных основ, следует анализировать как десемантизированный показатель сингулятива, по-видимому, обладавший продуктивностью на более ранних этапах развития кетского языка. В статье приводятся и подробно обсуждаются внутренние и внешние данные, так или иначе подтверждающие эту гипотезу.

*Ключевые слова:* Енисейские языки, кетский язык, застывшая морфология, сингулятив.



## 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 family<sup>1</sup> 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:

Cerrado<sup>2</sup>

Northern Jê

**Panará**<sup>3</sup> (PAN)

Core Northern Jê

AMT: **Apinayé** (Apinajé, API), **Kayapó** (Mêbêngôkre, KAY), **Timbira** (TIM)

**Tapayúna** (TAP), **Suyá** (Kîsêdjê, SUY)

Central Jê: **Xavánte** (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.

<sup>1</sup> 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).

<sup>2</sup> 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.

<sup>3</sup> Called Southern Kayapó in older sources.

Of these, Timbira is actually a dialect continuum with at least six divergent dialects: **Pykobjê**, **Ramkokamekrá**, **Krahô**, **Apãniêkrá**, **Pará Gavião** (Parkatêjê), **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 Kayapó as spoken by the Kayapó and Xikrín 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>)<sup>4</sup>. 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
Kayapó:	Costa 2015, Jefferson 1989, Stout and Thomson 1974, Salanova 2001, Salanova p.c.
Pykobjê:	Sá 1999, Amado 2004
Ramkokamekrá:	Popjes and Popjes 1971
Krahô:	Miranda 2014
Apãniêkrá:	Alves 2004
Parkatêjê:	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:

- 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);
- 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, θ, r* (Nikulin 2015a: 27–29);
- Timbira varieties called “Menren” and “Krao” and the Kayapó variety called “Gorotiré” by Loukotka (1963), where *r* is found in place of earlier *\*t̥* (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 Xakriabá and Ingain show some interesting phonological retentions); however, their data are not taken into account in the present series.

---

<sup>4</sup> Since back and central unrounded vowels do not contrast in any Jê language, back unrounded vowels *ɨ, ʊ, u*, are written here as *ɜ, 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, Xavánte and Kaingáng) and proposes a reconstruction of the Proto-Jê phonological system. Even though he recognizes that Kaingáng and Xoklém 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 Kaingáng (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 Xavánte). The correspondences postulated by Davis are presented below as Tab. 1–2 (the notation is modified for Apinayé, Timbira, Xavánte and Kaingáng to match UTS).

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

PJ	API	TIM	SUY	XAV	KGG
*p	p	p	w ~ hw ~ p, h before r	p ~ b / m ~ w	p
*t	t	t	t, t <sup>h</sup> , r, n	t ~ d / n, Ø before w	t, <sup>n</sup> d / n, r
*c	č, Ø before w	c-, -y	t, y, n	c ~ ʒ ~ y, ? before w	y, d <sup>n</sup> in coda
*k	k	k ~ k <sup>h</sup>	k ~ k <sup>h</sup>	ʔ, h (_ə), sometimes u, w (#_a), Ø (C_C)	k, <sup>n</sup> g, Ø word- finally
*m	m / <sup>n</sup> b	m / p	m	p ~ b / m	<sup>n</sup> b / m, p, -g <sup>n</sup> / -ŋ, -d <sup>n</sup>
*n	n / <sup>n</sup> d	n / t	n	t ~ d / n	<sup>n</sup> d / n, t
*ɲ	ɲ / <sup>n</sup> d <sup>n</sup>	c, h, -n	n, ɲ	c, ʒ / ɲ, -y	y, n, -ŋ
*ŋ	ŋ / <sup>n</sup> g	ŋ / k	ŋ	ʔ	ŋ / <sup>n</sup> g, k
*w	w	w	w	w, Ø	Ø, -ŋ
*r	r	r, n	r	r, Ø (C_ə)	r, -n
*z	ʔ, y, ɲ	h, y	s, y	c, ʒ / ɲ, h, Ø word- finally	ɸ, y, h, Ø (C_), n (_C)

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

PJ	API	TIM	SUY	XAV	KGG
*a	a	a	a	a	a, ẽ
*ə	ɜ, e, a	ə, o	ĩ, a, ə	ɛ, ə, a	a, ă
*ĩ	ĩ	ĩ	ĩ	ə	ĩ, ỹ, i, e
*ɔ	ɔ	ɔ	ɔ	ɔ	ẽ
*o	o	o	o	u	?
*u	u	u	u	u	u
*ɛ	ɛ	ɛ	ɛ	e	ɛ
*e	e, ɛ	e	e, ɛ	e, ɛ, i	e
*i	i	i	i	i	i

PJ	API	TIM	SUY	XAV	KGG
*ã	ã	ẽ	ẽ	ã	ẽ
*ĩ	ĩ	ã		ã	ĩ
*õ	õ	õ	õ	õ	ũ, ă
*ũ	ũ	ũ	ũ	ũ	ũ
*ẽ	ẽ	ẽ	ẽ, e, ɛ	ẽ	ẽ
*ĩ	ĩ	ĩ	ĩ	ĩ	ĩ

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 // nãmõ* '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 Xoklém) 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 (?) 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 ( $V_1$ ) and on the syllable coda:

Apinayé:	EV = $V_1$ ( <i>i</i> after palatal -č; <i>i</i> in finite verb forms only after -ar; suppressed in non-finite verb forms)	Oliveira 2005: 78–79: 191
Kayapó:	EV = $V_1$ ( <i>i</i> if $V_1 = e$ ; <i>o</i> ~ <i>u</i> if $V_1 = o$ ; <i>i</i> after $d^n$ , $d_\phi^n$ ; <i>i</i> if $V_1 = a$ ; <i>i</i> after -č if $V_1$ is not rounded)	Stout and Thomson 1974
	EV = $V_1$ ( <i>i</i> if $V_1 = a$ , $\text{ɜ}$ , $\text{ɔ}$ in non-finite verb forms, <i>a</i> in nouns), only if the coda is $r$	Salanova 2001

Ramkokamekrá:	EV = V <sub>1</sub> ( <i>i</i> if V <sub>1</sub> = <i>a</i> )	Popjes and Popjes 1971
Krahô:	EV = V <sub>1</sub> , only if the coda is <i>r</i>	Miranda 2014
Tapayúna:	EV = V <sub>1</sub>	Camargo 2010: 100–101
Suyá:	EV = V <sub>1</sub> ( <i>i</i> / <i>ĩ</i> if V <sub>1</sub> = <i>a</i> or after <i>m</i> , <i>n</i> , <i>y</i> if V <sub>1</sub> is oral; <i>ĩ</i> in some words following <i>ẽn</i> ; <i>i</i> occurs after coronals and <i>ĩ</i> elsewhere)	Nonato 2014: 129

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 Kayapó 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, Kayapó, 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 *hr*, *hl* < \**pr*). 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 *ɔ* (Pykobjê *ĩ*, Suyá *ɔ*, Panará *ɔ*, *ĩ*), whereas *Cy* sequences are relatively frequent only before *e* (Pykobjê *ĩ*). 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 analyzed 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 Kayapó, Tapayúna and Suyá with minimal changes. The following pairs of PNJ consonants occurred in complementary distribution: \**m* ~ \**m̃*, \**n* ~ \**ñ*, \**ɲ* ~ \**ɲ̃*. In addition, \**ɲ* did not contrast with any other voiced palatal (\**y*, \**ɲ̃* and \**ɲ̃*<sup>5</sup>). 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 Maxakalían, Krenák and Jabutí 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).

<sup>5</sup> Except for one very specific environment (namely, before a secondarily nasalized vowel), in which a minimal pair involving \**ɲ̃* and \**ɲ* is attested, see 3.3.

Table 3. Onset consonants in Northern Jê languages.

PNJ	PNR	API	KAY	TIM	TAP	SUY
*p	p	p	p	p	h <sup>w</sup> , h <sup>†</sup>	hw, h <sup>†</sup>
*pr	py, pr <sup>‡</sup>	pr	pr	pr	hr	hl
*t	t	t (*ty > č)	t (*ty > č)	t (*ty > c)	t (*ti > či, *ty > č)	t <sup>h</sup> (*ti > či, *ty > s)
*t̥	s	ʔ, Ø	ʔ, Ø	h (*t̥w > w)	t	s
*k	k (*ka > n̄, =r̄ ~ a, *ku > ī)	k	k	k <sup>h</sup> , k <sup>§</sup>	k (*ky > č, *uka > *ua)	k <sup>(h)</sup>
*kr	ky, kr <sup>‡</sup>	kr	kr	k <sup>h</sup> r, kr <sup>§</sup>	kχ	k <sup>(h)</sup> ɹ, k <sup>‡</sup>
*b	p	p	b	p	w (oral), m (nasal)	p, w <sup>§</sup>
*d̥	s (*d̥i > ti)	č	č̣	c	t	t
*g			g	k		k
*m	m	m	m	m	m	m
*mr		mr	mr	mr	r	
*n	n-, =r-	n	n	n	n	n
*ɲ	y	ɲ	ɲ	y	ɲ	ɲ
*ŋ	k	ŋ	ŋ	ŋ ~ <sup>n</sup> g	ŋ	ŋ
*ŋr	y	ŋr	ŋr	r	ŋr	<sup>n</sup> gɹ
<sup>n</sup> b	<sup>n</sup> p	<sup>n</sup> b	m	[m]p	<sup>n</sup> b ~ m (* <sup>n</sup> by > <sup>n</sup> ẓ ~ y)	<sup>n</sup> b (* <sup>n</sup> by > my ~ m̄ẓ)
<sup>n</sup> br	<sup>n</sup> py, <sup>n</sup> pr <sup>‡</sup>	<sup>n</sup> br	mr	[m]pr	nr	<sup>n</sup> bl
<sup>n</sup> d	<sup>n</sup> t	<sup>n</sup> d	n	[n]t	<sup>n</sup> d ~ n	<sup>n</sup> d
<sup>n</sup> d̥	<sup>n</sup> s	<sup>n</sup> č̣	ɲ	[n]c	<sup>n</sup> t (~ <sup>n</sup> d)	<sup>n</sup> t (~ <sup>n</sup> d)
<sup>n</sup> g	<sup>n</sup> k	<sup>n</sup> g	ŋ	[ŋ]k	<sup>n</sup> g	<sup>n</sup> g
<sup>n</sup> gr	<sup>n</sup> ky, <sup>n</sup> kr <sup>‡</sup>	<sup>n</sup> gr	ŋr	[ŋ]kr	<sup>n</sup> gɹ	<sup>n</sup> gɹ
*y	y	ž	y	y	<sup>n</sup> ẓ ~ y	<sup>n</sup> y ~ y ~ ẓ̌
*r	y, r <sup>†</sup>	r	r	r	r	r
*w		v	w	w	w	w

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=<sup>n</sup>grɔ 'warm' > PNR =r̄ẓ=kyɔ;  
 PNJ \*r̄ẓ 'flower' > PNR iȳẓ;  
 PNJ \*kr̄ẓ 'head' > PNR ikȳẓ;  
 PNJ \*c̄ip=kra / \*ɲ̄ip=kra 'hand' > PNR si=kya / ȳi=kya;  
 PNJ \*kr̄i 'cold' > PNR kȳi;  
 PNJ \*cara / \*yara 'wing, feather' > PNR saya 'flight feather';  
 PNJ \*ka<sup>n</sup>bro 'blood' > PNR =r̄ẓpyu;



- PNJ \**kukritĩ* ‘tapir’ > PNR *kyiti*;  
 PNJ \**rɔ* ‘anaconda’ > PNR *yɔ-ti*;  
 PNJ \**prɔ(-r)* ‘to cover’ > PNR *pyo-rĩ*;  
 PNJ \**bro-ti* ‘*Genipa americana*’ > PNR *pyu-ti*, etc.

This change did not take place before front vowels:

- PNJ \**krẽ(-r)* ‘to eat’ > PNR *krẽ*;  
 PNJ \**=krɛ* ‘house’ > PNR *ku=krɛ*;  
 PNJ \**krĩ* ‘short (of height), child’ > PNR *ku=krĩ*, 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:
  - \**ka* [ga] > *ñ* in unstressed syllables before prenasalized consonants with subsequent flapping of *n* in intervocalic position:
    - PNJ \**ka<sup>n</sup>grɔ* ‘warm’ > PNR *ñ<sup>n</sup>=<sup>n</sup>kyɔ / =r̃<sup>n</sup>=<sup>n</sup>kyɔ*;
    - PNJ \**ka<sup>n</sup>bro* ‘blood’ > PNR *ñ<sup>n</sup>=<sup>n</sup>pyu / =r̃<sup>n</sup>=<sup>n</sup>pyu*;
    - PNJ \**kaŋ̃* ‘blood’ > \**ka<sup>n</sup>g̃* > PNR *ñk̃*;
    - PNJ \**tu=ka<sup>n</sup>ga* ‘lazy’ > PNR *s=wa<sup>n</sup>ka*, etc.;
  - \**ka* [ga] > *a* in unstressed syllables before voiceless consonants:
    - PNJ \**kaɖ̃t̃* ‘cotton’ > PNR *asətĩ* ‘cord’;
    - PNJ \**kaɖ̃wa* ~ \**kaɖ̃wa* ‘mortar’ > PNR *asuã* ‘pestle’;
    - PNJ \**kaprĩ* ‘sad’ > PNR *aprĩ-pɛ*;
    - PNJ \**kapr̃t̃* ‘turtle’ > PNR *apỹn*, etc.;
  - \**ku* > *i* in unstressed syllables before voiceless consonants:
    - PNJ \**kuɖ̃* ‘fire’ > PNR *isĩ*;
    - PNJ \**kukritĩ* ‘tapir’ > PNR *ikyiti*;
    - PNJ \**kubẽ* ‘barbarian’ > PNR *ipẽ*;
    - PNJ \**kũmtĩm̃* ‘capybara’ > PNR *intĩŋ*, etc.
- Voiced stops (both plain and prenasalized) underwent devoicing. Intervocalic prenasalized stops seem to have nasalized preceding vowels. In case of monosyllabic roots *ĩ* was added word-initially (probably for prosodic reasons, as proposed by Lapierre et al. 2016b):
  - PNJ \**ba* ‘liver’ > PNR *ĩ<sup>n</sup>pa*;
  - PNJ \**bĩtĩ* ‘sun’ > PNR *ĩ<sup>n</sup>pĩtĩ*;
  - PNJ \**dɔ* ‘eye’ > PNR *ĩ<sup>n</sup>tɔ*, etc.
- Since CCC onsets are not allowed in Panará, such PNJ clusters were simplified:
  - PNJ \**grwã* ~ \**gruwa* ‘moriche palm’ > PNR *ĩ<sup>n</sup>kwa* ~ *kwa-*.
- A sole example of PNJ \**ŋr* is available, in which *ŋ* disappears:
  - PNJ \**ŋr̃C̃* ‘toucan’ > PNR *ỹ-kwekwe*, *ỹ-sa*.

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 \* $\text{t}$  yielded  $\text{ʔ}$  or disappeared in Apinayé and Kayapó (the distribution is not clear); the Timbira reflex is  $h$  ( $\emptyset$  before  $w$ ):  
 PNJ \* $\text{t}i$  ‘seed’ > API  $i \sim \text{ʔ}i$ , KAY  $\text{ʔ}i$ , TIM  $hi$ ;  
 PNJ \* $\text{t}o$  ‘leaf, bodily hair’ > API  $o$ , KAY  $\text{ʔ}o$ , TIM  $ho$ ;  
 PNJ \* $\text{ku}\text{t}i$  ‘fire’ > API  $kuvi$ , KAY  $kuwi$ , TIM  $kuhi$ ;  
 PNJ \* $\text{t}wa$  / \* $\text{d}wa$  ‘tooth’ > API  $wa$  /  $=\check{c}wa$ , KAY  $wa$  /  $=\check{z}wa$ , TIM  $wa$  /  $=cwa$ ;  
 PNJ \* $\text{ka}\text{t}uw\check{a} \sim *ka\text{t}wa$  ‘mortar’ > API  $kau\text{v}\check{a} \sim ka\text{ʔ}u \sim kaur\check{u}$ , KAY  $ka\text{wa}$ , TIM  $ka\text{hu}\check{a}$ , etc.
- Another development that affected all these languages is the affricatization of PNJ \* $\text{ty}$  (API, KAY  $\check{c}$ , TIM  $c$ ), though only one example is currently known:  
 PNJ \* $\text{tyet}\check{e}$  ‘to burn’ > API  $\check{c}et\check{e}$ , KAY  $\check{c}et$  /  $\check{c}er\check{e}$ , 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 \* $\text{bit}\check{i}$  ‘only’ > API  $pi\check{c}$ , KAY  $bit$ , TIM  $pit$ ;  
 PNJ \* $\text{b}\check{z}$  ‘forest’ > API  $p\check{a}$ , KAY  $b\check{z}$ ;  
 PNJ \* $\text{bo}\check{t}i$  ‘to arrive’ > API  $poy$ , KAY  $boy\check{c}$ , TIM  $poy$ ;  
 PNJ \* $\text{ka}\text{d}\check{z}t\check{z}$  ‘cotton’ > API  $ka\check{c}\check{a}t\check{a}$ , KAY  $ka\check{z}\check{z}t$ , TIM  $kac\check{z}t$ ;  
 PNJ \* $\text{t}wa$  / \* $\text{d}wa$  ‘tooth’ > API  $wa$  /  $=\check{c}wa$ , KAY  $wa$  /  $=\check{z}wa$ , TIM  $wa$  /  $=cwa$ ;  
 PNJ \* $\text{ga}$  ‘thou’ > API  $ka$ , KAY  $ga$ , TIM  $ka$ ;  
 PNJ \* $\text{ga}$  / \* $\text{t}\check{z}\text{-}r$  / \* $\text{d}\check{z}\text{-}r$  ‘to fry’ > API  $=ka$  /  $=\check{z}r \sim =\check{a}r$ , KAY  $=ga$  /  $\check{z}\check{z}\text{-}r\check{z}$ , TIM  $ka$  /  $h\check{z}\text{-}r\check{z}$  /  $c\check{z}\text{-}r\check{z}$ .
- 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 \* $\text{m}^n\text{bra}(-r)$  ‘to walk’ > KAY  $mra\check{a}(-y\check{r})$ ;  
 PNJ \* $\text{ka}^n\text{bro}$  ‘blood’ > KAY  $kamr\check{o}$  ‘blood’,  $kamro$  ‘spleen’;  
 PNJ \* $\text{d}^n\text{a}(-r)$  ‘to bite’ > KAY  $na\check{a}(-y\check{r})$ .

One case of nasality assimilation is attested:

PNJ \* $\text{yud}\check{a}^n\check{i}$  ‘hummingbird’ > KAY  $nyud\check{a}^n$  (instead of expected \* $\text{yuyd}\check{a}^n$ ).

- After prefixes ending in  $-m$  (< \* $m$ , \* $p$ ) in Kayapó \*( $\text{d}^n$ ) $\text{d}\check{a} > y$ :  
 PNJ \* $\text{am}=\text{d}\check{a}o$  ‘rat’ > KAY  $am=y\check{o}$ ;  
 PNJ \* $\text{am}=\text{d}\check{a}i$  ‘bumblebee’ > KAY  $am=y\check{i}$ ;  
 PNJ \* $\text{m}=\text{d}^n\text{a}(-r)$  ‘to chew, to gnaw’ > KAY  $=m=y\check{a} / =m=y\check{a}\text{-}r$ , etc.  
 PNJ \* $\text{d}^n$  sometimes yield  $my$  through analogy:  
 PNJ \* $\text{d}^n\text{op}^n\text{d}^n\text{op}\check{o}$  ‘itchiness’ > KAY  $myomy\check{o}p$  (analogy with the next syllable);  
 Proto-Core Jê \* $\text{pi}=\text{d}^n\text{uw}\check{a} / *pi=\text{d}^n\text{w}\check{a}\text{-}r$  ‘to put vertically.PL’ > KAY  $pi=myu\check{w}\check{a} / pi=my\check{a}\text{-}r\check{a}$   
 (analogy with  $\text{ʔ}u=m=yu\check{w}\check{a} / \text{ʔ}u=m=y\check{a}\text{-}r\check{a} < *t\check{u}=m=\text{d}^n\text{uw}\check{a} / *t\check{u}=m=\text{d}^n\text{w}\check{a}\text{-}r$ ).
- All instances of \* $\text{r}w$  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 *k<sup>h</sup>* in Timbira lects. Cases with variation or unexpected reflexes are shadowed.

PNJ	Common TIM	Krahô	Ramkokamekrá	Pykobjê
* <sup>n</sup> go ‘water’	/ko/	ko	ko	ku
* <sup>n</sup> gra ‘paca’	/kra/	kra	kla	kra:
* <sup>n</sup> grwa ~ * <sup>n</sup> gruă ‘morighe log’	/krwă/	krw ~ k <sup>h</sup> rw	klowă	krw
* <sup>n</sup> gɜ ‘yard’	/kɜ/	kɛ	kɜ	k <sup>h</sup> ə: (irreg.)
* <sup>n</sup> grɜ ‘dry’	/krɜ/	krɛ ~ k <sup>h</sup> re	k <sup>h</sup> ɜɜ (irreg.)	krɔ
*ka <sup>n</sup> grɔ ‘warm’	/kagrɔ/	kagrɔ ~ kak <sup>h</sup> ɔ	—	kakro
* <sup>n</sup> grɛ ‘sing’	/krɛ/	krɛ ~ k <sup>h</sup> re	kle	kre
* <sup>n</sup> gro ‘pig’	/kro/	kro	k <sup>h</sup> lo (irreg.)	krɔ: ~ k <sup>h</sup> ru:
* <sup>n</sup> gokôn (PAMT) ‘squash’	/koʔk <sup>h</sup> ɔn/	kuʔk <sup>h</sup> ɔn ~ kuʔkɔn	—	kuʔk <sup>h</sup> ɔn
*ga ‘thou’	/ka/	ka	ka	ka
*kɜ ‘skin’	/k <sup>h</sup> ɜ/	k <sup>h</sup> ɛ	k <sup>h</sup> ɜ	k <sup>h</sup> ə
*kra ‘offspring’	/k <sup>h</sup> ra/	k <sup>h</sup> ra ~ kra	k <sup>h</sup> la	k <sup>h</sup> ra
*krɛ ‘hole’	/k <sup>h</sup> re/	k <sup>h</sup> re ~ kre	k <sup>h</sup> le	k <sup>h</sup> re
*kɛnɛ ‘stone’	/k <sup>h</sup> ɛn/	k <sup>h</sup> ɛn	k <sup>h</sup> ɛn	k <sup>h</sup> en

PNJ \*ruă / \*rwɜ-k ‘to descend’ > API vrɜ / vrɛ, TIM wrɜ / wrɜ-k;

PNJ \*<sup>n</sup>grwă ~ \*<sup>n</sup>gruwa ‘morighe palm’ > API <sup>n</sup>grwa, TIM krwă ‘morighe log’;

PNJ \*krwɜtɜ ‘beak’ > API kwrɜtɜ, TIM k<sup>h</sup>ɜtɜ;

PNJ \*rwɜ-tɜ ‘rib’ > API vrɛ-tɜ, TIM wrɜ-tɜ.

- PNJ \*<sup>n</sup>gr is preserved in Apinayé and Timbira; for Timbira, only two examples are available, in which *gr* disappears (note that no cognates outside Core Jê have been identified for any other words containing \*<sup>n</sup>gr in Proto-Core Jê):  
 PNJ \*<sup>n</sup>grɔCɔ ‘toucan’ > API <sup>n</sup>grɔyɜ, KAY <sup>n</sup>grɔt, TIM rɔ;  
 PAMT \*<sup>n</sup>grɔtɔ ‘sprout’ > API <sup>n</sup>grɔtɔ, TIM <sup>n</sup>grɔt.
- Voiced prenasalized stops were devoiced in Timbira; the prenasalization was lost except at morpheme boundaries. Lapiere 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 *k<sup>h</sup>* (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 Apãniêkrá and Parkatêjê. Timbira *k<sup>h</sup>* goes back to PNJ \*<sup>n</sup>k in stressed syllables, while Timbira *k* goes back to PNJ \*<sup>n</sup>g, \*<sup>n</sup>g and \*<sup>n</sup>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):

- debuccalization of \*p (TAP *h<sup>w</sup>*, SUY *hw*) and further delabialization in complex onsets:  
PNJ \*pa ‘arm’ > TAP *h<sup>w</sup>a*, SUY *hwa*<sup>6</sup>;  
PNJ \*purǔ ‘field’ > TAP, SUY *hu.lǔ*;  
PNJ \*prǔ ‘wife’ > TAP *hrǔ*, SUY *hlǔ*;  
PNJ \*pri ‘road’ > TAP *hri*, SUY *hli*, etc.
- affricatization and optional prenasalization of PNJ \*y (non-phonemic):  
Proto-Core Jê \*y<sub>9tǔ</sub> ~ \*y<sub>3tǔ</sub> ‘sweet potato’ > TAP *yarǔ* ~ *ǰarǔ* ~ *ǰarǔ*, SUY *y<sub>3rǔ</sub>* ~ *y<sub>3rǔ</sub>* ~ *ǰ<sub>3rǔ</sub>*, etc.
- alveolarization of PNJ \*d̥ and \*<sup>n</sup>d̥ (TAP *t* and <sup>n</sup>*t* ~ <sup>n</sup>*d*, SUY *t* and <sup>n</sup>*t* ~ <sup>n</sup>*d*):  
Proto-Core Jê \*t̥ud̥e / \*<sup>n</sup>d̥ud̥e ‘bow’ > TAP *tute*, SUY *sute* / =*tute*;  
PNJ \*a=d̥<sub>3</sub> / \*d̥<sub>3-r3</sub> / \*t̥<sub>3-r3</sub> ‘to enter’ > SUY *a=t<sub>3</sub>* / *t<sub>3-l3</sub>* / *s<sub>3-l3</sub>*;  
PNJ \*=d̥<sub>a</sub> / \*d̥ā-m / \*t̥ā-m ‘to stand’ > SUY =*ta* / *tā-m* / *sā-m*;  
PNJ \*kad̥wa ‘salt’ > TAP *kat<sup>w</sup>a*, SUY *k<sup>h</sup>atwa*;  
PNJ \*=d̥<sub>wa</sub> / \*t̥w<sub>9-r</sub> / \*d̥w<sub>9-r</sub> ‘to bathe’ > SUY *t<sup>h</sup>w<sub>9</sub>* ~ *tw<sub>9</sub>*;  
PNJ \*ka<sup>n</sup>d̥e ‘star’ > TAP *ka<sup>n</sup>te-či* ~ *ka<sup>n</sup>de-či*, SUY *kāte-či*;  
PNJ \*<sup>n</sup>d̥i ‘mother’ > TAP *<sup>n</sup>ti-re*;  
PNJ \*<sup>n</sup>d̥<sub>a</sub> / \*<sup>n</sup>d̥<sub>a-r</sub> ‘to bite’ > TAP *kū=ta*, SUY *<sup>n</sup>ta*;  
PNJ \*<sup>n</sup>d̥<sub>o</sub> / \*<sup>n</sup>d̥<sub>o-r</sub> ‘to hang’ > SUY *<sup>n</sup>to* / *<sup>n</sup>to-lǔ*;  
PNJ \*<sup>n</sup>d̥epě ‘bat’ > TAP *<sup>n</sup>tewě*, SUY *<sup>n</sup>dewě*;  
PNJ \*<sup>n</sup>d̥om̥d̥opǔ ‘itchiness’ > TAP *<sup>n</sup>do<sup>n</sup>dowǔ*, etc.
- affricatization of PNJ \*t before \*t (TAP *či*, SUY *či*):  
PNJ \*akati ‘day’ > TAP *agači*, SUY *akači*;  
PNJ \*=ti ‘augmentative’ > TAP =*či*, SUY =*či*, etc.

Individual straightforward developments in Tapayúna and Suyá include:

- PNJ \*t > TAP *t̥*, SUY *t<sup>h</sup>*:  
PNJ \*tɛpě ‘fish’ > TAP *t̥ɛwě*, SUY *t<sup>h</sup>ɛwě*;  
PNJ \*katɔ / \*katɔ-r ‘to leave / to be born’ > TAP *kaɔ*, SUY *kat<sup>h</sup>ɔ* / *kat<sup>h</sup>ɔ-lǔ*;  
PNJ \*tikǔ ‘belly’ > SUY *t<sup>h</sup>ikǔ*, etc.

In one case, one can suspect Kayapó or Suyá influence in Tapayúna:

PNJ \*tikǔ ‘black’ > TAP *tigǔ*, SUY *t<sup>h</sup>ikǔ*.

- PNJ \*t̥ > TAP *t*, SUY *s*:  
PNJ \*t̥i ‘seed’ > TAP *tí*, SUY *sí*;  
PNJ \*t̥wakǔ ‘coati’ > TAP *toakǔ*, SUY *swakǔ*;  
PNJ \*kut̥i ‘fire’ > TAP *kuti*, SUY *kwisí*;  
PNJ \*t̥<sub>3</sub>kǔ ‘hawk, bird’ > TAP *t<sub>3</sub>gǔ*, SUY *s<sub>3</sub>kǔ*, etc.
- PNJ \*b > TAP *w/m* (per nasality), SUY *p*, *w* (in unstressed syllables?):  
PNJ \*bǔ ‘grass’ > TAP *mǔ*, SUY *pǔ*;  
Proto-Core Jê \*b<sub>3</sub> ‘forest’ > TAP *w<sub>3</sub>*, SUY *p<sub>3</sub>* ‘grass, bush’;  
PNJ \*b<sub>3-t̥i</sub> ~ \*bǔ-t̥i ‘corn’ > TAP *w<sub>3-ti</sub>* ~ *mǔ-ti*, SUY *w<sub>3-si</sub>*;  
PNJ \*boǔt̥i ‘to arrive’ > SUY *pəyí* / *porǔ*;

<sup>6</sup> Note that Guedes (1993) systematically writes *ɣ* and *ɣw* where other authors write *hr* and *hw*.

- PNJ *\*=bĩ* / *\*bĩ-r* ‘to kill’ > SUY *pĩ* / *pĩ-lĩ*;  
 PNJ *\*ba* ‘1SG.NOM, 1INCL.ABS’ > TAP *wa*, SUY *pa* ~ *wa*;  
 PNJ *\*b3r-tĩ* ‘pepper (tree-seed)’ > TAP *w3y-tĩ*;  
 PNJ *\*bi* / *bi-r* ‘to ascend’ > SUY *pi*;  
 PNJ *\*bĩ* / *bĩ-r* ‘to take’ > TAP *wĩ*, SUY *pi*;  
 PNJ *\*bãmä* ‘father’ > TAP *mãmã*, SUY *pãmã*, etc.

The suggested distribution is violated in PNJ *\*bitĩ* ‘only’ > SUY *wirĩ* ‘always’, if the comparison is correct. In isolated cases TAP, SUY *w* is found as an irregular reflex of other PNJ stops:

- PNJ *\*(a=)ka<sup>n</sup>b3t3* ‘night’ > TAP *a=gawərə*, but SUY *(a=)ka<sup>n</sup>b3.l3*;  
 PNJ *\*<sup>n</sup>bɛd<sup>n</sup>ĩ* ‘honey’ > TAP *wɛy*, but TAP *<sup>n</sup>bɛy-tĩ* ‘bee’, SUY *<sup>n</sup>bɛnĩ*;  
 PNJ *\*pidɛi* ‘one’ > TAP, SUY *witi*;  
 PNJ *\*pĩ-* ‘verbal prefix with unclear meaning’ > SUY *wĩ-*.
- PNJ *\*mɾ* > TAP *r*; PNJ *\*<sup>n</sup>bɾ* > TAP *nɾ*, SUY *<sup>n</sup>b.l*; PNJ *\*kɾ* > TAP *kχ*, SUY *k<sup>(h)</sup>.i*; PNJ *\*ɲɾ* > TAP *ɲɾ*, SUY *<sup>n</sup>g.i*; PNJ *\*<sup>n</sup>gɾ* > TAP *<sup>n</sup>gɸ*, SUY *<sup>n</sup>g.i*;  
 PNJ *\*mɾũmũ* ‘ant’ > TAP *rũwũ* / *rũm-*;  
 Proto-Core Jê *\*<sup>n</sup>bɾi* ‘animal, game’ > TAP *nɾi*, SUY *<sup>n</sup>b.lĩ*;  
 PNJ *\*<sup>n</sup>bro-ti* ‘*Genipa americana*’ > TAP *nro-či*;  
 PNJ *\*ka<sup>n</sup>bri* ‘heron’ > TAP *kanri*;  
 PNJ *\*kra* ‘offspring’ > TAP *kχa*, SUY *k<sup>h</sup>.ia*;  
 PNJ *\*kukritĩ* ‘tapir’ > TAP *kukχirĩ*, SUY *kuk<sup>(h)</sup>.irĩ*;  
 PNJ *\*ɲɾ3ɲɾ3* ~ *\*ɲɾ3* ‘green’ > TAP *ɲɾẽɲɾẽ* ~ *ɲɾẽ* ‘blue, green, yellow’, SUY *<sup>n</sup>g.ia<sup>n</sup>g.ia-nĩ* ‘yellow’;  
 PNJ *\*<sup>n</sup>gɾɛ* ‘egg’ > TAP *<sup>n</sup>gɸɛ*, SUY *<sup>n</sup>g.ɛ*;  
 PNJ *\*<sup>n</sup>grotō* ‘Pleiades’ > SUY *<sup>n</sup>g.ɔrō*;  
 PNJ *\*<sup>n</sup>gɾɔ* ‘to warm up’ > TAP *ka=<sup>n</sup>gɸɔ* ‘warm’, SUY *<sup>n</sup>g.ɔ*, etc.
  - PNJ *<sup>n</sup>b* > TAP *<sup>n</sup>b* ~ *m*, PNJ *<sup>n</sup>d* > TAP *<sup>n</sup>d* ~ *n*:  
 PNJ *\*<sup>n</sup>ba* ‘liver’ > TAP *<sup>n</sup>ba* ~ *ma*;  
 PNJ *\*<sup>n</sup>bĩtĩ* ‘sun’ > TAP *<sup>n</sup>bĩrĩ* ~ *mĩrĩ*;  
 PNJ *\*<sup>n</sup>de* ‘giant otter’ > TAP *<sup>n</sup>de* ~ *ne*;  
 PNJ *\*<sup>n</sup>da* ‘rain’ > TAP *<sup>n</sup>da* ~ *na*;  
 PNJ *\*<sup>n</sup>dɔ* ‘eye’ > TAP *<sup>n</sup>dɔ* ~ *nɔ*, etc.
  - PNJ *Cw* > TAP *C<sup>w</sup>*:  
 PNJ *\*kadɸwa* ‘salt’ > TAP *kat<sup>w</sup>a*;  
 PNJ *\*kwɔɾə* ‘manioc’ > TAP *k<sup>w</sup>ərə*;  
 PNJ *\*ɸwa* ‘sour’ > TAP *t<sup>w</sup>a-či*, etc.
  - PNJ *\*ky* > TAP *č*, PNJ *\*ty* > TAP *č*, SUY *s*, PNJ *\*<sup>n</sup>by* > TAP *y* ~ *ǰ* ~ *<sup>n</sup>ǰ*, SUY *mǰ*:  
 PNJ *\*kyɛ* ‘thigh’ > TAP *čɛ*;  
 PNJ *\*tyetě* ‘to burn’ > TAP *čerě*, SUY *serě*;  
 PNJ *\*<sup>n</sup>byed<sup>n</sup>ĩ* ‘husband’ > TAP *yerě* ~ *žerě* ~ *<sup>n</sup>žerě*, SUY *mženi*, etc.
  - In two words PNJ *\*k* disappears in Tapayúna; in both cases, the root is preceded by the same prefix (TAP *tu-* < PNJ *\*tũ*):  
 PNJ *\*tũ=ka<sup>n</sup>dɛ* ‘medicine’ > TAP *tu=anɛ*, SUY *su=ka<sup>n</sup>dɛ*;  
 PNJ *\*tũ=ka<sup>n</sup>ga* ‘lazy’ > TAP *tu=ẽnga*.

- 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  $*d$ . I was not able to find any similar correlations for SUY  $k^h$  and  $k$ :  
PNJ  $*kuked\eta^i$  'agouti' > SUY  $kuk^heni$ ;  
PNJ  $*\text{ɬ}wak\tilde{o}$  'coati' > SUY  $swak\tilde{o}$ , etc.

Note that TAP  $k$  is realized as [g] 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  $*ga / *ɬ_{3-r} / *d_{3-r}$  'to fry' > SUY  $ka$ ;  
PNJ  $*gu$  '1INCL.NOM' > SUY  $ku$ , etc.
- In several isolated words, PNJ  $*kr$  > TAP, SUY  $k$  (Guedes:  $\check{c}$ ) before front vowels:  
PNJ  $*kri$  'village' > SUY  $k\tilde{i}$  (Guedes:  $\check{c}\tilde{i}$ );  
PNJ  $*kriti$  'pet' > TAP, SUY  $kiri$ ;  
PNJ  $*kre$  'parakeet' > TAP  $k\chi\tilde{e}$ , SUY  $k\tilde{e}$  (Guedes:  $\check{c}\tilde{e}$ );  
PNJ  $*kriti$  'grasshopper, cricket' > TAP  $k\chi it-\check{c}\tilde{i} \sim kit-\check{c}\tilde{i}$ .

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  $*kre$  'hole' > TAP  $k\chi\epsilon$ , SUY  $k\epsilon$ ;  
PNJ  $*kri$  (/  $*kri-r$  ?) 'to sit.PL' > SUY  $k\tilde{i}$ , etc.
- Apparently  $rw$ -like clusters are not tolerated in Tapayúna:  
PNJ  $*ngrwa \sim *ngruw\check{a}$  'moriche palm' > TAP  $ngbuw\check{a}$ ;  
PNJ  $*krw\eta y\check{s}$  'Amazon parrot' > TAP  $k\chi_{3tk}\chi_{3}$ ;  
PNJ  $*akrw\eta t\check{s}$  'cashew' > TAP  $ak\chi_{\eta y-t\check{s}}$ .

### 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,  $*\tilde{u}$  and  $*\tilde{a}$  were not phonemic, and  $*\eta$  and  $*\check{i}$  were very rare.  $*ye$  and  $*iy\check{a}$ , as well as  $*wa$  and  $*uw\check{a}$ , were frequently in variation, whose nature is yet to be discovered.

- $*\tilde{u}$  ( $\sim *i$ ) and  $*\tilde{a}$  were allophones of PNJ  $*u$ ,  $*i$  and  $*a$  before nasal codas:<sup>7</sup>  
PNJ  $*d\tilde{u}m\check{u}$  'father (vocative)' > PNR  $s\tilde{u}$ , KAY  $\check{z}\tilde{u}n$ , TIM  $c\tilde{u}m \sim c\tilde{u}$ , TAP  $tu-re$ ;  
PNJ  $*t\tilde{u}m\check{u}$  'old' > PNR  $=t\tilde{u}$ , API  $t\tilde{u}m\check{u}$ , KAY  $t\tilde{u}m$ , TIM  $t\tilde{u}m$ , TAP  $\text{ɬ}\tilde{u}m\check{u}$ , SUY  $t\tilde{u}m\check{u}$ ;

<sup>7</sup> The marginal status of these phonemes in Kayapó has already been noted by Salanova (2001: 24).

Table 5. Vowels in Northern Jê languages.

PNJ	PNR	API	KAY	TIM	TAP	SUY
*a	a	a	a	a	a	a
*ɔ	ɔ	ɔ	ɔ	ɔ	ɔ	ɔ
*ɛ	ɛ	ɛ	ɛ	ɛ	ɛ	ɛ
*ɜ	ɜ	ɜ, ə	ɜ	ɜ	ɜ	ɜ
*o	o	o	o	o	o, ɔ <sup>†</sup> (ɔ)	o, wɔ (ɔ)
*e	e	e	e	e	e	e
*ɐ	ɜ	ɐ	ɐ	ɐ	ə	ɐ
*u	u	u	u	u	u	u
*i	i	i	i	i	i	i
*ĩ	ĩ	ĩ	ĩ	ĩ	ĩ	ĩ
*wa	wa	wa	wa	wa	a <sup>†</sup>	wa
*uwa		uə ~ urĩ	uwa	uwa	uwa	
*wɔ	wɜ, wĩ, u	wɔ	wɔ	wɔ	ɔ <sup>l</sup>	wɔ
*ye	i, yɜ (?)	že, e <sup>‡</sup>	ye, e <sup>‡</sup>	ye, e <sup>‡</sup>	e <sup>‡</sup>	e <sup>‡</sup>
*iyã		iə ~ ža ~ irĩ	iyã	iyã		iyã
*ã	ã ~ a:ŋ	ã ~ ə	ã	a	a ~ ẽ	ã
*ɔ̃	ɔ̃	ɔ̃	õ	ɔ̃	õ	ɔ̃
*ɛ̃	ɛ̃	ɛ̃	ẽ	ɛ̃	ẽ	ɛ̃
*ɜ̃	ɜ̃	ɜ̃	ĩ	ɜ̃	ẽ	ɜ̃
*ĩ	ĩ	ĩ	ĩ	ĩ	ĩ	ĩ
*ũ	ũ	ũ	ũ	ũ	ũ	ũ
*ĩ̃	ĩ̃ ~ i:ŋ	ĩ̃	ĩ̃	ĩ̃	ĩ̃	ĩ̃

Note: † The onset becomes labialized. ‡ The onset becomes palatalized (see 3.2.).

PNJ \*kũmtũm ũ ~ \*kũmtĩmĩ ‘capybara’ > PNR *intĩŋ*, KAY *kunũm*, TIM *kũmtũm*, TAP *koŋũn ũ ~ koŋũwũ*, SUY *kutũmũ*;

PNJ \*kũmũ ‘smoke’ > API *kũmũ*, KAY *kũm*, TIM *kũm*, SUY *kusi=kũmũ*;

PNJ \*mɾũmũ ‘ant’ > API *mɾũmũ*, KAY *mɾũm*, TIM *prũm*, TAP *rũwũ*;

PNJ \*ŋũmũ ~ \*ŋĩmĩ ‘who’ > API *ŋãmã* (older speakers), *ŋamã* (younger speakers) ‘another’, KAY *ŋũm* (Xikrín), *ŋib<sup>n</sup>* (Kayapó), TIM *yũm*, TAP *ŋĩmũ*, SUY *ŋũmũ*;

PNJ \*bãmã ‘other person’s father’ > API *pãmã*, KAY *bãm*, TIM *a=pam*, TAP *mẽmẽ*, SUY *pãmẽ*;

PNJ \*=d̥a / \*d̥ã-m / \*t̥ã-m ‘to stand’ > PNR *sã ~ sa:ŋ*, API *ča / čã-m ~ ča-r*, KAY *ža / žã-m / ã-m*, TIM *ca / ca-m / ha-m*, SUY =*ta / tã-mã / sã-mã*;

PNJ \*t̥ãmã / \*ŋãmã ‘chin’ > API *ŋəmã*, KAY *ama*, TIM *hama*;

PNJ \*t̥ãmã-ɬo / \*ŋãmã-ɬo ‘beard’ > API *ŋãmã*, KAY *ama-ɬo*, TIM *hama-ho*, TAP *tam-to*.

- Examples of PNJ \*ɐ (outside the diphthong \*wɐ):

PNJ \*tɐĩ ‘hard’ > PNR *tətĩ*, API *təyč / təyt*, KAY *təyč*, TIM *təy*, SUY *turũ (təř ?)*;

PNJ \*tɐɔ / \*d̥ɐɔ ‘bitter’ > API *ɔ / ɔ yd̥<sup>n</sup> / čɔ*, KAY *ɔ*, TIM *hɔ / cɔ*, TAP *tə*;

PNJ \*<sup>n</sup>bɐwã / \*<sup>n</sup>bɐ-r ‘to cry’ > API <sup>n</sup>*bɐ-r ~ <sup>n</sup>bɐũ / <sup>n</sup>bɐ-r*, KAY *muũ / mɐ-rũ*, SUY <sup>n</sup>*bɐ-lũ*;

PNJ \*kuɔɐ ‘bad smell’ > KAY *kužɐ*, TIM *kučɐ*, TAP *kutə*;

PNJ \*kurɐ ‘smooth’ > API, TIM *kurɐ*.

The same correspondence is attested in a number of roots whose distribution is limited to Apinayé, Kayapó and Timbira:

- PAMT \*<sup>n</sup>b<sub>9</sub> / \*<sup>n</sup>b<sub>9</sub>-d<sup>n</sup> ~ \*<sup>n</sup>b<sub>9</sub>-r ‘to carry’ > API <sup>n</sup>b<sub>9</sub> / <sup>n</sup>b<sub>9</sub>-y<sup>d</sup> ~ <sup>n</sup>b<sub>9</sub>-r, KAY =m<sub>9</sub> / m<sub>9</sub>-y<sup>d</sup> ‘to grab’,  
TIM p<sub>9</sub> / p<sub>9</sub>-d<sup>n</sup> (may be related to PNR i<sup>n</sup>p<sub>i</sub>-r<sup>i</sup> ‘id.’);  
PAMT \*<sup>t</sup>ap<sub>r</sub><sub>9</sub> / \*<sup>y</sup>ap<sub>r</sub><sub>9</sub> ‘to insult, to dishonor’ > API ap<sub>r</sub><sub>9</sub> / yap<sub>r</sub><sub>9</sub>, KAY ap<sub>r</sub><sub>9</sub> / yap<sub>r</sub><sub>9</sub>, TIM ap<sub>r</sub><sub>9</sub> /  
yap<sub>r</sub><sub>9</sub> ‘to name’;  
PAMT \*<sup>p</sup>r<sub>9</sub> ‘corn husk’ > API p<sub>r</sub><sub>9</sub> ‘feather’, KAY p<sub>r</sub><sub>9</sub>, TIM p<sub>r</sub><sub>9</sub> ‘corn husk / feather’;  
PAMT \*<sup>t</sup>ub<sub>9</sub>b<sup>n</sup> ‘deep’ > API up<sub>9</sub>m<sup>9</sup>, KAY ub<sub>9</sub>b<sup>n</sup>;  
PAMT \*<sup>k</sup>9 ‘bad smell, fish smell’ > API, TIM k<sub>9</sub>, KAY k<sub>9</sub>, etc.

In one case the daughter languages disagree on the exact quality of Proto-Core Jê vowel: KAY y<sub>3</sub>t, TIM y<sub>3</sub>t, SUY y<sub>3</sub>r<sub>3</sub> ~ <sup>n</sup>y<sub>3</sub>r<sub>3</sub> ~ ž<sub>3</sub>r<sub>3</sub> ‘sweet potato’ point to Proto-Core Jê \*y<sub>3</sub>t<sub>3</sub>, whereas API ž<sub>9</sub>t<sub>9</sub> and TAP y<sub>9</sub>r<sub>9</sub> ~ ž<sub>9</sub>r<sub>9</sub> ~ <sup>n</sup>ž<sub>9</sub>r<sub>9</sub> ‘id.’ reflect PNJ \*y<sub>9</sub>t<sub>9</sub>.

- The sole reliable example of PNJ \*<sup>i</sup> is:  
PNJ \*<sup>t</sup>ĩ / \*<sup>t</sup>ĩ-r / \*<sup>n</sup>ĩ / \*<sup>n</sup>ĩ-r ‘to sit.SG’ > PNR si:ŋ ~ sĩ / nĩ, API nĩ / nĩ-r, KAY nĩ / nĩ-rĩ, TIM hĩ / hĩ-r /  
yĩ / yĩ-r, SUY =nĩ / sĩ / nĩ-ĩ.
- The alternation between \*<sup>y</sup>e and \*<sup>i</sup>y<sup>ä</sup> can be exemplified by the following etymologies (note that the sequence \*<sup>r</sup>y is regularly simplified to \*<sup>y</sup>):  
PNJ \*<sup>k</sup>riy<sup>ä</sup> / \*<sup>k</sup>ye-r ‘to raise’ > PNR ky<sub>3</sub>-ri (?), KAY kriy<sup>ä</sup> / kye-r<sup>ě</sup>.  
PNJ \*<sup>k</sup>ukiy<sup>ä</sup> / \*<sup>k</sup>ukye-r ‘to ask’ > PNR i<sup>n</sup>ky<sub>3</sub>-ri (?), API kukža / kukže-r, TIM kuk<sup>h</sup>iy<sup>ä</sup> ‘to search’,  
SUY kuk<sup>h</sup>iy<sup>ä</sup>;  
PNJ \*<sup>k</sup>okiy<sup>ä</sup> / \*<sup>k</sup>okye-r ‘to split’ > PNR kye-y ‘to cut’ (?), API kokže ‘to pick, to lift’ (?), KAY kokye  
~ kokiy<sup>ä</sup> / kokye-r<sup>ě</sup> (Xikrín: -ɔ-), TIM kok<sup>h</sup>ye / kok<sup>h</sup>ye-d<sup>n</sup>;  
Proto-Core Jê \*<sup>a</sup>=kiy<sup>ä</sup> / \*<sup>a</sup>=kye-r ‘to yell, to argue’ > API a=kiř / ža=kže-r, KAY a=kiy<sup>ä</sup> ~ a=kya /  
ž<sub>3</sub>=kye-r<sup>ě</sup>, TIM a=k<sup>h</sup>ye / a=k<sup>h</sup>ye-r, a=k<sup>h</sup>iy<sup>ä</sup> ~ k<sup>h</sup>iy<sup>ä</sup> ‘angry’, SUY a=k<sup>h</sup>iy<sup>ä</sup>;  
Proto-Core Jê \*<sup>n</sup>gyi<sup>ä</sup> / \*<sup>n</sup>gye-d<sup>n</sup> ‘to enter.PL, to put into a deep container.PL’ > API <sup>n</sup>gye /  
<sup>n</sup>gye-y<sup>d</sup>, a=<sup>n</sup>gye / ya=<sup>n</sup>gye, KAY =ŋiy<sup>ä</sup> / =ŋye-y<sup>d</sup>, a=ŋye-y, TIM a=kye-y, SUY a=ŋye / ŋye-ĩ<sup>ě</sup>;  
Proto-Core Jê \*<sup>=</sup>riy<sup>ä</sup> ~ \*<sup>=</sup>yet<sup>ě</sup> / \*<sup>y</sup>et ‘to hang.PL’ > API a=yet<sup>ě</sup> / yet, KAY a=riy<sup>ä</sup>, SUY =yer<sup>ě</sup> / a=yet,  
sariy<sup>ä</sup> / yariy<sup>ä</sup>.

In some other cases no such alternation is attested:

- PNJ \*<sup>k</sup>ye / \*<sup>k</sup>ye-d<sup>n</sup> ‘to drag’ > PNR kr<sub>3</sub>-ri (?), API kže / kže-d<sup>n</sup>, KAY kye / kye-d<sup>n</sup>, TIM k<sup>h</sup>ye / k<sup>h</sup>ye-d<sup>n</sup>;  
Proto-Core Jê \*<sup>k</sup>kaye / \*<sup>k</sup>kaye-d<sup>n</sup> ‘to scratch’ > API kakže, TIM kak<sup>h</sup>ye / kak<sup>h</sup>ye-d<sup>n</sup>, SUY kak<sup>(h)</sup>e-nĩ;  
PAMT \*<sup>t</sup>akye / \*<sup>y</sup>akye / \*<sup>t</sup>akye-d<sup>n</sup> ‘to look for water’ > API akže / žakže / akže-d<sup>n</sup> ‘to open a hole’,  
TIM hak<sup>h</sup>ye / yak<sup>h</sup>ye / yak<sup>h</sup>ye-d<sup>n</sup> ‘to fetch water’;  
Proto-Core Jê \*<sup>k</sup>iy<sup>ä</sup> ‘fire pit’ > API kiř ~ kiä, TIM k<sup>h</sup>iy<sup>ä</sup>;  
PNJ \*<sup>k</sup>ye ‘thigh’ > API kže, KAY kye, TIM k<sup>h</sup>ye, TAP če;  
PNJ \*<sup>n</sup>byed<sup>n</sup> ‘husband’ > API <sup>n</sup>bžey<sup>d</sup>, KAY myed<sup>n</sup>, TIM pyed<sup>n</sup>, TAP <sup>n</sup>žer<sup>ě</sup>, SUY mženĩ;  
PNJ \*<sup>t</sup>yet<sup>ě</sup> ‘to burn’ > PNR titi, API čet<sup>ě</sup>, KAY čet / čer<sup>ě</sup>, TIM cet, TAP čer<sup>ě</sup>, SUY ser<sup>ě</sup>.

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). \*<sup>i</sup>y<sup>ä</sup> is restricted to open syllables, \*<sup>y</sup>e is found both in open and closed syllables. It is possible that originally \*<sup>y</sup>e was found exclusively in closed syllables.



- The alternation between *\*wa*, *\*wə* and *\*uwa* can be illustrated with the following examples:  
Proto-Core Jê *\*kruwa* ~ *\*krwa* ‘arrow’ > API *kruǎ*, KAY *kruwǎ*, TIM *kruwǎ*, SUY *kɔwa*;  
PNJ *\*n̄grwa* ~ *\*n̄gruwa* ‘moriche palm’ > PNR *ĩṁkwa* ~ *kwa-*, API *n̄gɔra*, KAY *ŋrwa*, TIM *krɔwǎ* ‘moriche log’, TAP *n̄gɔuwa*, SUY *ŋɔwa*;  
PNJ *\*kaṭuwa* ~ *\*kaṭwa* ‘mortar’ > PNR *asuǎ* ‘pestle’, API *kauwǎ* ~ *kaṭu* ~ *kaurũ*, KAY *kawa*, TIM *kahuwǎ*;  
Proto-Core Jê *\*ruwa* / *\*rwe-k* ‘to descend’ > API *vrɔ* / *vrĩ*, KAY *ruwǎ* ~ *rwe* / *rwe-k*, TIM *wrɔ* / *wrɔ-k*, SUY *lwɔ* / *lwɔ-kǎ*;  
PNJ *\*ḍwa* / *\*ṭwɔ-r* / *\*ḍwɔ-r* ‘to bathe’ > PNR *swɔ-rĩ*, API *čwa* / *wə-r*, KAY *ṣuwa* / *wɔ-r* / *ṣwɔ-r*, TIM *cwa* / *wɔ-r* / *cwɔ-r*, SUY *twɔ* ~ *t<sup>h</sup>wɔ*, 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 *\*n̄buwa* / *\*n̄bɔ-r* ‘to cry’ > API *n̄bu-r* ~ *n̄buǎ* / *n̄bɔ-rǎ*, KAY *muǎ* / *mɔ-rǎ*, SUY *n̄bɔ-rǎ*;  
Proto-Core Jê *\*pi=n̄ḍuwa* / *\*pi=n̄ḍwɔ-r* ‘to put vertically.PL’ > API *=n̄ṣwɔ* / *=n̄ṣwɔ-yḍ*, KAY *pi=m=yuwa* / *pi=m=yɔ-rǎ*, TIM *pi=cwɔ* / *pi=cwɔ-r* / *=m=cɔ* / *=m=cɔ-r*, SUY *wi=ntwɔ* / *wi=ntwɔ-lǎ*.

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

- Since Proto-Northern Jê vowel inventory was very rich (no less than 15 monophthongs and 2 diphthongs were phonemic), there was little space for allophony. That is why in most cases the reflexes of PNJ vowels in modern languages are quite straightforward (major shifts have occurred in some Timbira varieties after the split of Proto-Timbira, see (Nikulin 2016b)). However, several poorly understood splits have taken place in individual languages, notably PNJ *\*ɔ* > API *ɔ*, *ə* (Nikulin 2015a: 13):  
PNJ *\*a<sup>n̄</sup>bɔd<sup>n̄</sup>ĩ* ‘piranha’ > API *a<sup>n̄</sup>bɔnǎ*;  
PNJ *\*=ṭɔ* ‘basket’ > API *ka=və*;  
PNJ *\*kɔ* ‘skin; breast’ > API *kə*;  
PNJ *\*kɔrǎ* ‘to whistle’ > API *kəṛǎ* / *kɔr*;  
PNJ *\*pɔtǎ* ‘southern tamandua’ > API *pəṭǎ*, *pɔt-rɛ*, *pɔt-ti*, etc.

Their phonemic status is demonstrated by Oliveira (2005: 66–67). In most cases, *ə* is found in phonetically open syllables, while *ɔ* 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 *ɔ* may be realized as any of these in free variation: [*ɔ*, *ə*, *ə*].

- Irregular nasalization in Kayapó has been treated in 3.2.2.
- The reflexes of PNJ *\*wɔ* in Panará are uncertain. *wɔ* is found in verbs (e.g. PNJ *\*ṭwɔ-r* / *\*ḍwɔ-r* ‘to bathe.NMLZ’ > PNR *swɔ-rĩ*) but is not attested in nouns:  
PNJ *\*kwɔrǎ* ‘manioc’ > PNR *kwi*;  
PNJ *\*n̄dwɔd<sup>n̄</sup>ĩ* ‘snail’ > PNR *pari=<sup>n̄</sup>tu*;  
PNJ *\*twɔb<sup>n̄</sup>ĩ* ‘fat’ > PNR *tũmǎ*, etc.

- I have already discussed possible irregular vowel splits (especially  $*_3 > \text{ɔ} \sim \text{a}$ ;  $*_i > i \sim \text{ɨ}$ ) 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  $\text{ɜ}$  where Guedes writes  $\text{ɔ} \sim \text{a}$  and  $i$  where Guedes writes  $i \sim \text{ɨ}$ .
- In the proto-language of Tapayúna and Suyá, PNJ  $*_o > *(w)\text{ɔ}$  before  $y$ :  
PNJ  $*_bo\text{t}\text{ɨ}$  'to arrive' > SUY  $p\text{ɔ}y\text{ɨ}$  /  $por\text{ɔ}$ ;  
PNJ  $*_kukoy\text{ɨ}$  'monkey' > TAP  $kuk^w\text{ɔ}y$ , SUY  $kukw\text{ɔ}y\text{ɨ}$ .
- 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  $*_kwed\text{ɨ}$  'bird, feather' > API  $kveyd\text{ɨ}$  'bird', KAY  $kweyd\text{ɨ}$  'bird', TIM  $kuwed\text{ɨ}$  'bird',  
TAP  $t_3=gwey$  'feather', etc.

### 3.4. Coda.

Except for syllables whose rhymes go back to PNJ  $*_iy\text{ɔ}$  or  $*_uw\text{ɔ}$  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  $*_tep\text{ɛ}$  'fish' > PNR  $t\text{ɛ}p\text{ɨ}$ , API  $t\text{ɛ}p\text{ɛ}$ , KAY, TIM  $t\text{ɛ}p$ , TAP  $t\text{ɛ}w\text{ɛ}$ , SUY  $t^h\text{ɛ}w\text{ɛ}$ ;

PNJ  $*_bit\text{ɨ}$  'sun' > PNR  $\text{ɨ}^n p\text{it}\text{ɨ}$ , API  $^n b\text{it}\text{ɨ}$ , KAY  $m\text{it}$ , TIM  $p\text{it}$ , TAP  $^n b\text{ir}\text{ɨ} \sim m\text{ir}\text{ɨ}$ , SUY  $^n b\text{ir}\text{ɨ}$ ;

PNJ  $*_t\text{ɔ}\text{t}\text{ɨ}$  'hard' > PNR  $t\text{at}\text{ɨ}$ , API  $t\text{ɔ}y\text{ɛ}$  /  $t\text{ɔ}y\text{t}$ , KAY  $t\text{ɔ}y\text{ɛ}$ , TIM  $t\text{ɔ}y$ , SUY  $tur\text{ɨ}$  ( $t\text{ɔ}r\text{ɔ}$  ?);

PNJ  $*_b\text{e}\text{t}\text{ɨ}$  'good' > PNR  $\text{ɨ}^n p\text{ɛ}$ , API  $^n b\text{e}\text{ɛ}$ , KAY  $m\text{e}\text{ɛ}$ , TIM  $p\text{ɛ}y$ , TAP  $^n b\text{e}y-$  ~  $m\text{e}y-$ , SUY  $^n b\text{er}\text{ɨ}$ ;

PNJ  $*_t_3k\text{ɜ}$  'hawk, bird' > PNR  $s\text{ɔ}$ , API  $\text{ɜ}k\text{-}t\text{ɨ}$ , KAY  $\text{ɜ}k$ , TIM  $h\text{ɜ}k$ , TAP  $t_3g\text{ɜ}$ , SUY  $s\text{ɜ}k\text{ɜ}$ ;

PNJ  $*_tob\text{ɨ}$  'flour, powder' > API  $\text{ɔ}b\text{ɨ}$  //  $\text{ɔ}m\text{ɔ}$ , KAY  $ob\text{ɨ}$  /  $\text{ɜ}ob\text{ɨ}$ , TIM  $hob\text{ɨ}$  /  $\text{ɔ}b\text{ɨ}$ ;

PNJ  $*_t_3b\text{ɨ}$  'raw' > API  $t_3b\text{ɨ}$  //  $t_3m\text{ɜ}$ , TIM  $t_3b\text{ɨ}$ , SUY  $t^h\text{ɜ}m\text{ɜ}$ ;

PNJ  $*_byed\text{ɨ}$  'husband' > API  $^n b\text{zeyd}\text{ɨ}$ , KAY  $m\text{yed}\text{ɨ}$ , TIM  $p\text{yed}\text{ɨ}$ , TAP  $^n \text{zer}\text{ɛ}$ , SUY  $m\text{žen}\text{ɨ}$ ;

Proto-Core Jê  $*_tod\text{ɨ}$  'armadillo' > API  $tod\text{ɨ}$  //  $ton\text{ɔ}$ , KAY, TIM  $tod\text{ɨ}$ , TAP  $\text{ɔ}r\text{ɔ}$ , SUY  $m\text{žen}\text{ɨ}$ ;

PNJ  $*_bed\text{ɨ}$  'honey' > PNR  $n\text{ã}=\text{p}\text{ɛ}y\text{ɨ}$ , API  $^n b\text{eyd}\text{ɨ}$ , KAY  $m\text{eyd}\text{ɨ}$ , TIM  $p\text{ed}\text{ɨ}$ , TAP  $w\text{ey}$ ,  $^n b\text{ey-t}\text{ɨ}$  'bee', SUY  $^n b\text{en}\text{ɨ}$ ;

PNJ  $*_kukoy\text{ɨ}$  'monkey' > PNR  $\text{ɨ}^n ko$ ; API  $kukoy$ , KAY  $kuko\text{ɨ}$ , TIM  $kuk^hoy$ , TAP  $kuk^w\text{ɔ}y$ , SUY  $kukw\text{ɔ}y\text{ɨ}$ ;

PNJ  $*_pur\text{ɨ}$  'field' > PNR  $pu$ ; API  $pur$ , KAY  $pur\text{ɨ}$ , TIM  $pur$ , TAP  $hur\text{ɨ}$ , SUY  $hu.l\text{ɨ}$ ;

PNJ  $*_diw\text{ɨ}$  'field' > PNR  $\text{ɨ}^n tu\text{ɨ}$ , API  $^n diw\text{ɨ}$ , KAY  $ni$ , TIM  $[n]tuw\text{ɔ}$ , TAP, SUY  $^n diw\text{ɨ}$ .

Cf. also PNJ, Proto-Core Jê or PAMT  $*_kop\text{ɔ}$  'fly (insect)',  $*_t\text{ɨ}p=k\text{ɔ}p\text{ɔ}$  /  $*_n\text{ɨ}p=k\text{ɔ}p\text{ɔ}$  'claw, nail',  $^n d\text{ep}\text{ɛ}$  'bat',  $*_r\text{ɔ}p\text{ɔ}$  'jaguar',  $*_tyet\text{ɛ}$  'to burn',  $*_k\text{ɔ}t\text{ɔ}$  'cicada',  $*_kukrit\text{ɨ}$  'tapir',  $*_kubit\text{ɨ}$  'howler monkey',  $^n but\text{ɨ}$  'neck',  $*_ket\text{ɛ}$  'not',  $*_kad\text{ɜ}t\text{ɜ}$  'cotton',  $*_wet\text{ɛ}$  'lizard',  $*_p\text{ɜ}t\text{ɜ}$  'southern tamandua',  $*_y\text{ɔ}t\text{ɜ}$  'sweet potato',  $*_tut\text{ɨ}$  'pigeon',  $*_ka^nb\text{ɜ}t\text{ɜ}$  'night',  $*_t\text{ɜ}=\text{ko}t\text{ɜ}$  /  $*_n\text{ɜ}=\text{ko}t\text{ɜ}$  'chest',  $^n grot\text{ɜ}$  'Pleiades',  $^n bo\text{t}\text{ɨ}$  'to arrive',  $^n bo\text{t}\text{ɨ}$  'courbaril',  $*_t\text{ɛ}t\text{ɨ}$  /  $*_d\text{ɛ}t\text{ɨ}$  'to deceive',  $*_p\text{e}\text{t}\text{ɨ}$  'to make',  $*_kaki$  'cough',  $*_tik\text{ɨ}$  'black',  $*_kud\text{ɛ}k\text{ɛ}$  'vein',  $*_tiki$  'stomach',  $*_ka^nbrek\text{ɛ}$  'red',  $*_pok\text{ɜ}$  'to ignite',  $*_kok\text{ɜ}$  'wind',  $*_atik\text{ɨ}$  'forest surrounding the village',  $*_pe-k$  'to fart',  $*_ti-k$  'to die',  $*_t\text{ã}^nba-k$  /  $*_ya^nb\text{ã}-k$  'to listen',  $*_r\text{w}\text{ɔ}-k$  'to descend',  $^n bak\text{ɨ}$  'scorpion',  $*_tw\text{ɔ}b\text{ɨ}$  'fat',  $^n b\text{ɜ}d\text{ɨ}$  'macaw',  $*_a^nb\text{ɜ}d\text{ɨ}$  'piranha',  $*_t_3d\text{ɨ}$  /  $*_d_3d\text{ɨ}$  'sweet',  $*_yud\text{ɨ}$  'hummingbird',  $*_kwed\text{ɨ}$  'bird, feather',  $*_kuked\text{ɨ}$  'agouti',  $*_r\text{ɔ}d\text{ɨ}$  'grugru palm',  $*_bay\text{ɨ}$  'snake sp.',  $^n d_3y\text{ɨ}$  'woodpecker',  $*_ror\text{ɜ}$  'termite',  $*_b\text{ɜ}r\text{ɜ}$  'tree',  $*_kw\text{ɔ}r$  'manioc',  $*_par\text{ɨ}$  'foot',  $*_ter\text{ɛ}$  'Euterpe sp.',  $*_at\text{ɔ}r\text{ɜ}$  'tinamou',  $*_ka^nb\text{er}\text{ɛ}$  'Turu palm', etc.

Table 6. Coda consonants in Northern Jê languages after non-nasal vowels.

PNJ	PNR	API	KAY	TIM	TAP (internal <sup>†</sup> )	TAP (final <sup>†</sup> )	SUY (internal <sup>†</sup> )	SUY (final <sup>†</sup> )
*p	pĩ	p	p	p	p	wV	p	wV
*t	tĩ	t, yč <sup>‡</sup> §	t, yč <sup>‡</sup>	t	t	rV	t	rV, rĩ <sup>‡</sup>
*t̥	tĩ	yč, t <sup>#</sup>	č	y	y	y	y, t <sup>#</sup>	y, rV <sup>#</sup>
*k	∅	k	k	k	k	gV	k	kV, kĩ <sup>‡</sup>
*b <sup>n</sup>		b <sup>n</sup>	b <sup>n</sup>	b <sup>n</sup>			m	mĩ
*d <sup>n</sup>		d <sup>n</sup> , yd <sup>n</sup>	d <sup>n</sup>	d <sup>n</sup>		rV	n	nĩ
*d̥ <sup>n</sup>	ŋ	yd <sup>n</sup>	ɲ	d <sup>n</sup>	y	y	n	nĩ
*y	:	y	ɲ	y	y	y	y	yĩ
*r	ː, rĩ <sup>#</sup> ¶	r	rV, rĩ <sup>§</sup>	r	y	rV, y <sup>‡</sup>	lV, y <sup>‡</sup>	lV, yĩ <sup>‡</sup>
*w	ĩ	w	∅	wã		wV	p	wV

Notes: † Internal = in the middle of an intonational phrase, final = immediately preceding a pause. ‡ After *a*. § After *i*. # In long verb forms. ¶ After *ɜ*. § After *a*, in long verb forms also after *ɜ* or *ɔ*.

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

PNJ	PNR	API	KAY	TIM	TAP (internal <sup>†</sup> )	TAP (final <sup>†</sup> )	SUY (internal <sup>†</sup> )	SUY (final <sup>†</sup> )
*t		<sup>n</sup> t	<sup>n</sup> t	t			n	nV
*t̥		<sup>n</sup> č	<sup>n</sup> č	y			n	nV
*k		<sup>n</sup> k	<sup>n</sup> k	k	k			
*m	∅	m	m	m	m	mV, wV	m	mV
*n		n	n	n		nV, rV	n	nV
*ɲ		ɲ, n	ɲ	n			n	nĩ
*y		y	∅	∅	y	y		
*r		r	r, n <sup>‡</sup>	r			lV	lV

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

Except in long verb forms, where much variation with \*ɲ 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 *õp* / *ɲõp* ‘elbow’ of unknown origin. The most reliable etymologies are:

Proto-Core Jê \**prõtõ* ‘to run’ > API *prõtõ*, KAY *prõtõ*, SUY *h.lõnõ*;

Proto-Core Jê \**tõtĩ* ‘sister’ > API *tõtĩ*, KAY *tõtĩ* ‘brother’, TIM *tõtĩ*, SUY *tõtĩ*;

PNJ \**katõkõ* ‘firearm’ > PNR *atõ*, API *katõtõ*, KAY *katõtõ*, TIM *katõk*;

Proto-Core Jê \**kõkõ* ‘lizard’ > API *kõtõkõ*, KAY *kõtõk*, TIM *kõtõk*, TAP *kõk-či*;

PNJ \**kẽnẽ* ‘stone’ > PNR *kĩẽy* (?), API *kẽnẽ*, KAY *kẽn*, TIM *kĩẽn*, TAP *kẽnẽ*, TAP *kĩẽnẽ*;

PNJ \**tĩnĩ* / \**ɲĩnĩ* ‘faeces’ > PNR *sĩ* / *yĩ*, API *tĩnĩ* / *ɲĩnĩ*, KAY *ĩn* / *ɲĩn*, TIM *hĩn* / *yĩn*, TAP *tĩrĩ*;

Proto-Core Jê \**kõnõ* ‘articulation, knee’ > API *kõnõ*, KAY *kõn*, TIM *kõn*, TAP *kõrõ*, SUY *kõtõnõ*;

PNJ \**kaprõnõ* ‘turtle’ > PNR *apyõn*, API *kaprõnõ*, KAY *kaprõn*, TIM *kaprõn*, TAP *kahrẽm-či*, SUY *kah.lõ-či*;

PNJ \**kutõyĩ* ‘worm, blind snake’ > API *kutõy*, KAY *kutõ*, TIM *kutõ*, TAP *kuřõy*;

PNJ \**rõrõ* ‘*Attalea speciosa* coconut’ > API *rõrõ*, KAY *rõn*, TIM *rõ*;

Proto-Core Jê \**tĩrĩ* ‘alive’ > API *tĩrĩ*, KAY *tĩn*, TIM *tĩr*, SUY *tĩr.lĩ*.

### 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 *\*r* (in Tapayúna and Suyá):

PNJ *\*kratĩ* ‘base, stem, lower part of the body’ > API *kratã* ‘waist, leg, beginning, medial part of a long object’ ~ *krayč* ‘wall, stem, stalk’, KAY *krayč* ‘trunk, stump, pelvis’ (cf. SUY *k<sup>h</sup>arĩ*);

PNJ *\*parĩ* ‘foot’ > TAP *h<sup>w</sup>ay*, SUY *hwayĩ* (cf. KAY *parĩ*);

PNJ *\*<sup>n</sup>ba* / *\*<sup>n</sup>ba-r* ‘to know’ > *\*<sup>n</sup>ba* / *\*<sup>n</sup>ba-rĩ* > SUY *<sup>n</sup>ba* / *<sup>n</sup>ba-yĩ* (cf. KAY *ma-rĩ*);

PNJ *\*kapa* / *\*kapa-r* ‘to pull out’ > *\*kapa* / *\*kapa-rĩ* > SUY *kapa-yĩ*.

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

PNJ *\*bitĩ* ‘only’ > API *pič*, but KAY *bit* (cf. TIM *pit*, maybe SUY *wirĩ* ‘always’);

PNJ *\*kritĩ* ‘pet’ > API *kritĩ* ~ *krič*, but KAY *krit* (cf. TAP, SUY *kirĩ*);

PNJ *\*=d̥i* / *\*t̥i-ri* / *\*d̥i-ri* ‘to put’ > SUY *=ti* / *si-li* / *ti-li* (cf. KAY *=ži* / *ži-rĩ*), 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 Paresí (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 *ɜr* or *ɔr*. While in nouns with these rhyme the echo vowel is [i] (*bɜrĩ* ‘tree, horn’), in long verb forms it copies the nucleus (*akɜ-rĩ* / *yakɜ-rĩ* ‘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-r* ‘to finish, to kill’, Xavánte *pa* / *pa-ri* ‘to finish, to erase’;  
PNJ *\*parĩ* ‘foot’, Xavánte *para* ‘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-r* ‘to finish’ and *\*parã* ‘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 *pəyĩ* / *pot* ‘to arrive’ < *\*boṭĩ* / *\*bot* < *\*boṭĩ* / *\*boṭ*;  
SUY *=yerẽ* / *a=yet* ‘to hang.PL’ < *\*=yetẽ* / *\*yet*, etc.

The depalatalization of PNJ *\*t̥* through suppression of an echo vowel is attested in API *təyč* / *təyt* ‘hard’.

It is uncertain whether this phenomenon affected PNJ long verb form suffixes other than *\*r*. As a preliminary solution, I reconstruct forms like PNJ *\*tẽ-m* ‘to go.SG’, *\*kõ-m* ‘to drink’, *\*pe-k* ‘to fart’, *\*ti-k* ‘to die’, *\*ta<sup>n</sup>ba-k* / *\*ya=ba-k* ‘to listen’, *\*rw9-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 *\*-ŋ*.

#### 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* / *k<sup>h</sup>* opposition in Suyá;
- the status of stem-initial alternations of palatal consonants and *\*g* (*\*ŋ* 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

- Alves, Flávia de Castro. 2004. *O Timbira falado pelos Canela Apãniekrá: uma contribuição aos estudos da morfossintaxe de uma língua Jê*. PhD. Campinas: Universidade Estadual de Campinas.
- Amado, Rosane de Sá. 2004. *Aspectos morfofonológicos do Gavião-Pykobjê*. PhD. São Paulo: Universidade de São Paulo.
- Araújo, Leopoldina. 2016. *Dicionário Parkatêjê-Português*. Belém.
- Bardagil-Mas, Bernat, Myriam Lapierre, Perankô Panará, Andrés Salanova. 2016. A Digital Dictionary of Panará. *Symposium on American Indian Languages*. Rochester: Rochester Institute of Technology.
- Brandão, Ana Paula Barros. 2014. *A reference grammar of Paresi-Haliti (Arawak)*. PhD. Austin: The University of Texas at Austin.
- Camargo, Nayara da Silva. 2010. *Língua Tapayúna: aspectos sociolingüísticos e uma análise fonológica preliminar*. MA thesis. Campinas: Universidade Estadual de Campinas.
- Costa, Lucivaldo Silva da. 2015. *Uma descrição gramatical da língua Xikrín do Cateté (família Jê, tronco Macro-Jê)*. PhD. Brasília: Universidade de Brasília.
- Davis, Irvine. 1966. Comparative Jê phonology. *Estudos Lingüísticos: Revista Brasileira de Lingüística Teórica e Aplicada* 1(2): 20–24.
- Dourado, Luciana Gonçalves. 2001. *Aspectos morfofossintáticos da língua Panará (Jê)*. PhD. Campinas: Universidade Estadual de Campinas.
- Ehrenreich, Paul. 1895. Materialien zur Sprachenkunde Brasiliens: III. Die Sprache der Akuä oder Chavantes und Cherentes (Goyaz). *Zeitschrift für Ethnologie* 27: 149–162.
- Ferreira, Marília de Nazaré de Oliveira. 2003. *Estudo morfofossintático da língua Parkatêjê*. PhD. Campinas: Universidade Estadual de Campinas.

- Guedes, Marymárcia. 1993. *Siwǎ Mēkapēra. Suyá: a língua da gente: um estudo fonológico e gramatical*. PhD. Campinas: Universidade Estadual de Campinas.
- Ham, Patricia, Helen Waller, Linda Koopman. 1979. *Aspectos da língua Apinayé*. Cuiabá: Sociedade Internacional de Linguística.
- Jefferson, Kathleen. 1989. *Gramática Pedagógica Kayapó*. Anápolis: Associação Internacional de Linguística, SIL – Brasil.
- Lapierre, Myriam, Bernat Bardagil-Mas, Andrés Salanova. 2016a. The nasal consonants of Panará. WSCLA. Montréal: Université du Québec à Montréal.
- Lapierre, Myriam, Andrés Salanova, Bernat Bardagil-Mas. 2016b. A reconstruction of Proto-Northern Jê phonemics. *Amazônicas VI. Coloquio Internacional AMAZÓNICAS* (“La estructura de las lenguas amazónicas”). Leticia/Tabatinga: Universidad Nacional de Colombia; Universidade do Estado do Amazonas; Instituto Caro y Cuervo: 110–111.
- Loukotka, Čestmír. 1963. Documents et vocabulaires inédits de langues et de dialectes sud-américains. *Journal de la Société des Américanistes* 52: 7–60.
- Miranda, Maxwell Gomes. 2014. *Morfologia e morfossintaxe da língua Krahô (família Jê, tronco Macro-Jê)*. PhD. Brasília: Universidade de Brasília.
- Nikulin, Andrey. 2015a. *Verifikaciya gipotezy o zhe-tupi-karibskom rodstve [On the genetic unity of Jê-Tupí-Karib]*. MA thesis. Moscow: Moskovskiy gosudarstvennyy universitet imeni M. V. Lomonosova.
- Nikulin, Andrey. 2015b. Apofonia e sistema vocálico do Proto-Jê Meridional: contribuição para estudos comparativos das línguas Jê. *Revista Brasileira de Linguística Antropológica* 7(2): 275–306.
- Nikulin, Andrey. 2016a. Proto-Jê revisited: phonology, morphophonology and language contact. *Amazônicas VI. Coloquio Internacional AMAZÓNICAS* (“La estructura de las lenguas amazónicas”). Leticia/Tabatinga: Universidad Nacional de Colombia; Universidade do Estado do Amazonas; Instituto Caro y Cuervo: 108–109.
- Nikulin, Andrey. 2016b. *Fonologia segmental do conjunto dialetal Timbira (Jê Setentrional) m.s.* Brasília.
- Nonato, Rafael. 2014. *Clause Chaining, Switch Reference and Coordination*. PhD. Cambridge: Massachusetts Institute of Technology.
- Oliveira, Christiane Cunha de. 2005. *The language of the Apinajé people of Central Brazil*. PhD. University of Oregon.
- Popjes, Jack, Josephine Popjes. 1971. *Phonemic statement of Canela. Preliminary version*. Anápolis: Associação Internacional de Linguística (SIL Brasil).
- Ramirez, Henri, Valdir Vegini, Maria Cristina Victorino de França. 2015. Koropó, puri, kamakã e outras línguas do Leste brasileiro: revisão e proposta de nova classificação. *Línguas Indígenas Amercianas* 15(2): 223–277.
- Ribeiro, Eduardo Rivail, Hein van der Voort. 2010. Nimuendajú was right: The inclusion of the Jabutí language family in the Macro-Jê stock. *International Journal of American Linguistics* 76: 517–570.
- Rodrigues, Aryon Dall’Igna. 1981 [2010]. Estrutura do Tupinambá. In: Cabral et al. (eds.). *Línguas e Culturas Tupi II*. Brasília: LALI/UnB, Campinas: Curt Nimuendajú: 12–42.
- Rodrigues, Aryon Dall’Igna. 2012. Para o estudo histórico-comparativo das línguas Jê. *Revista Brasileira de Linguística Antropológica* 4(2): 279–288.
- Rodrigues, Aryon Dall’Igna. 1952. Análise morfológica de um texto Tupi. *Logos* 15: 56–77.
- Rodrigues, Aryon Dall’Igna. 1953. Morfologia do verbo Tupi. *Letras* 1: 121–152.
- Rodrigues, Cíntia Karla Coelho, Marília de Nazaré Ferreira-Silva. 2011. Comparando as consoantes das línguas Tapajúna e Suyá. *Alfa*: 601–611.
- Sá, Rosane Muñoz de. 1999. *Análise fonológica preliminar do Pykobjê*. MA thesis. São Paulo: Universidade de São Paulo.
- Salanova, Andrés Pablo. 2001. *A nasalidade em Mebengokre e Apinayé: o limite do vozeamento soante*. MA thesis. Campinas: Universidade Estadual de Campinas.
- Santos, Ludoviko Carnasciali dos. 1997. *Descrição de aspectos morfossintáticos da língua Suyá (Kisêdjê), família Jê*. PhD. Florianópolis: Universidade Federal de Santa Catarina.
- Starostin, Sergey Anatolëvich. 1999. O dokazatel’stve yazykovogo rodstva. In: Ya.G. Testelec, E.V. Rakhilina (eds.). *Tipologiya i teoriya yazyka: ot opisaniya k ob’yasneniyu (k 60-letiyu A.E. Kibrika)*: 57–69. Moskva: Yazyki russkoy kul’tury.
- Stout, Mickey, Ruth Thomson. 1974. Fonêmica Txukuhamei (Kayapó). *Série lingüística* 3. Summer Institute of Linguistics: 153–176.
- Vasconcelos, Eduardo Alves. 2014. Panará, Cayapó do Sul e a família Jê: primeiro caminho de análise. *Lengua y Literatura Latinoamericana* 16: 113–130.

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.





H. Craig Melchert

Carrboro, North Carolina; melchert@humnet.ucla.edu

### Initial \**sp-* in Hittite and *šip(p)and-* ‘to libate’ \*

The Proto-Indo-European source of Hittite *šip(p)and-* ‘to libate’ has been the subject of much discussion, due to its implications for the treatment of initial clusters of sibilant plus stop in Hittite and potential implications for the much larger question of the status of the verbal category of the “perfect” in Anatolian: was the perfect, which in the oldest non-Anatolian IE languages expresses an attained state, inherited also in Anatolian and lost there, or is it an “Indo-Hittite” feature, i.e., a common innovation of “Core Indo-European”? Derivation of *šip(p)and-* from a PIE reduplicated perfect \**s(p)e-spónd-* has justifiably been rejected on formal and functional grounds, but improvements in our understanding of the outcome of PIE \**sp-* in Hittite, as well as recent innovative proposals regarding the phonology of reduplication and its status in PIE verbal morphology call for a reconsideration of the issue.

*Keywords:* *hi-*conjugation, Indo-Hittite, Proto-Indo-European perfect, reduplication.

At the colloquium honoring Holger Pedersen in Copenhagen in 1992, Bernhard Forssman proposed that the Hittite stem *šipand-* ‘libate; consecrate; offer’ reflects a PIE reduplicated perfect stem \**spe-spónd-*, while its rarer OH variant *išpand-* continues a root present (published as Forssman 1994). This account was not favorably received by the Anatolian specialists present upon its initial presentation, and it has subsequently with rare exceptions met mostly with rejection: e.g., Kassian and Yakubovich 2002: 34–5; Jasanoff 2003: 78, note 39; Tischler 2006: 1058 (with further literature); Kloekhorst 2008: 405; and Yakubovich 2009. Positive endorsements known to me are by Schulze-Thulin (2001: 384), LIV<sub>2</sub>: 577, and Hoffner and Melchert (2008: 27), the last of which elicited a renewed rejection by Yakubovich (2010a: 151).

All of those who have rejected Forssman’s derivation of *šipand-* have explicitly or implicitly assumed that *šipand-* and *išpand-* represent alternate spellings of a preserved initial cluster /*sp-*/. This was also the interpretation I adopted in Melchert 1994: 31–2, although with considerable misgivings. We have learned a great deal more about the fate of initial \**sp-* in Hittite in the last twenty years, and I have for some time believed that the gist of Forssman’s account of *šipand-* must be correct (hence the cautious reference in Hoffner and Melchert 2008: 27), but still outstanding formal and functional problems that I could not solve prevented me from asserting this in print. The time has now come for a complete review of the matter.

As has never been disputed, the development in Hittite of initial sequences of \**st-* and \**sk-* is consistently *išt-* and *išk-* respectively: *ištantā(i)-* ‘linger, be late’ < \**steh*<sub>2</sub>- ‘stand’, *ištu(wa)-* ‘be-

---

\* I am much indebted to Jay Jasanoff for making available to me the text of his forthcoming paper on the PIE perfect in advance of its formal publication and to Ryan Sandell and Sam Zukoff for extensive advice regarding the history of reduplication patterns. The standard disclaimer applies here with particular force, and I am solely responsible for any errors in the application of these authors’ views to the case at hand.

come known’ < \**steu-*, *iškalla-* ‘slit, tear’ < \**skelH-*, *iškar-* ‘prick, stick’ < \**sker-*. This is also the most common result for \**sp-*: *išpai-* ‘be satiated’ < \**speh<sub>1</sub>(i)-*, *išpant-* ‘night’ < \*(*k<sup>w</sup>*)*sp-ént-*, *išpar-* ‘spread out, strew’ < \**sper-*, *išparre-* ‘kick, trample’ < \**sperH-* (on separation of the last two see Kloekhorst 2008: 406–9), *išpart-* ‘escape’ < \**sperdh-*.

However, we now have solid evidence for two additional though rare outcomes of \**sp-*. The first is preservation as /*sp-*/, where the presence of a synchronic cluster is crucially indicated by *alternate* spellings with *ša-*, *še-*, *ši-*: *šale/ipe/ikkušta-* /*spe/ikusta-*/ ‘pin, needle’ (see now CHD Š: 397 for attestations). As seen by Poetto (1986: 52–3), Neumann (1987: 282), and Kimball (1999: 108–9), this word clearly reflects a virtual \**sp(e)ik-us-to-* to the enlarged root \**speig/k-* ‘sharp, pointed’ seen in English ‘spike’, Latin *spīca* ‘ear (of grain)’, etc. The second rare result is anaptyxis of a vowel *u*: *šuppištuwara-* ‘adorned with appliqués, decorations’, *šuppištuwari-* ‘appliqué, decoration’. The meaning is now assured by the occurrence of the *i*-stem noun in the Hurro-Hittite Bilingual, KBo 32.14 ii 43 (see Neu 1996: 81 and 146). However, the popular etymology (already Neu 1970: 68) as a compound ‘brightly shining’, allegedly consisting of *šuppi-* ‘ritually pure’ and *ištu(wa)-* ‘become known’ makes no sense whatsoever either semantically or formally. Hittite *šuppi-* means ‘ritually pure’, and there is *no basis* of any kind for a sense ‘shining’. Nor is the role of the purported second member ‘become known’ in a compound allegedly meaning ‘brightly shining’ explained (see the justified doubts of Kloekhorst 2008: 791).<sup>1</sup> This derivation also cannot account for the alternate form *išpišduwaraš* in KUB 42.64 Vo 2, which cannot be dismissed as a scribal error, since *iš-piš-du-wa-ra-* does not remotely resemble *šu-up-pí-iš-tu-wa-ra-* visually or aurally.

The decorations attached to a copper cup (thus in the bilingual) and the gold and silver adornments added to clothing may well have been shiny (for the latter see refs. in Tischler 2006: 1198), but they were also more fundamentally stuck or stitched onto their respective objects.<sup>2</sup> We are thus surely dealing with a derivative of a different form of the PIE root \**spei-* ‘pointed, sharp’ seen already above in /*spe/ikusta-*/: the sense of /*supistwara-*/ was ‘appliquéd’, decorated with something ‘stuck on’ (for the semantics compare the history of English ‘stick’ and ‘stitch’ and German *stechen*). Note, however, that at least one Hittite speaker knew this word in a form with the regular treatment of \**sp-* as *išp-*.

I had already recognized the existence of these two examples in Melchert 1994: 32, but found them as exceptional and inexplicable as *šipand-*. It is now clear, at least to me, that these forms do fit into a well-known Hittite pattern: they show the two regular results of prehistoric \**sm-*: (1) preservation; (2) *u*-anaptyxis. The first treatment is shown by Hittite *šale-me-en-zi*, *šam-na-an-zi* ‘withdraw; relinquish’ where (*pace* Kassian and Yakubovich 2002: 12) the alternate spelling of the singular stem clearly shows synchronic /*smen-*/ (thus with Oettinger 1979: 104, Kimball 1999: 117, and CHD Š: 120), in an ablauting root present \**smén-*, \**smn-énti*, even if the root etymology remains uncertain (thus also Kloekhorst 2008: 714–15).

There are now three examples for the treatment with anaptyctic *-u-*, which is quite real (*contra* Kloekhorst 2008: 782–5):

- (1) *šummittant-* ‘axe’ < virtual \**smit-ént-* ‘(the) cutting (one)’ (already Knobloch 1956: 67, Kimball 1999: 199 et al.);

<sup>1</sup> As per Kloekhorst (2008: 790), despite its clear behavior as an inherited word — an ablauting adjective — Hittite *šuppi-* ‘ritually pure’ has no clear cognates or etymology. Unfortunately, the attractive comparison with Umbrian *sopa/supa* and interpretation as ‘taboo’ (Watkins 1975) is very doubtful: see the extended critique by Weiss (2010: 358–83).

<sup>2</sup> I know of no basis for the meaning ‘animal representation or icon (usually of metal)’ adopted by Yakubovich (2009: 548, note 5). In any case, the word definitely does not contain *šuppi-* ‘ritually pure’.

- (2) *šum(m)um(m)ahh-* ‘unite, make one’ < \*sm- ‘one’ + -uman- ‘belonging to’ + factitive -ahh- (Rieken 2000: 174, modified by Hoffner and Melchert 2008: 60);<sup>3</sup>
- (3) first plural enclitic possessive -šumma/i- < \*s-mé- < aphaeresized \*ḡs-mé- (Rieken 2002: 414–15).<sup>4</sup>

As emphasized by Rieken, the change of initial \*sm- > šumm- with anaptyxis and gemination is a genuine Hittite sound law. She herself (2002: 408) left open the question of its precise conditioning versus that of the preservation as /sm-/. However, the contrast between *ša/emen-* < \*smén- and enclitic possessive *šumma/i-* < \*sme- suggests that the different outcomes are conditioned by the accent: namely, that initial \*sm- was preserved immediately before the accent but developed to \*summ- when the following syllable was unaccented. We cannot be as certain about the accent in *šummittant-* and *šum(m)um(m)ahh-*, but their morphological structure is more than compatible with supposing that the accent stood farther to the right than the original initial syllable.

Rieken (2002: 408) reasonably derives Hittite *išmeri-* ‘bridle, rein’ < \*s(h<sub>2</sub>)mér-, but if the root etymology (to \*seh<sub>2</sub>- ‘bind’) is correct, as it surely is, this example does not prove a development of \*sm- > išm-, since it is more likely that it was the \*sh<sub>2</sub>- that led to išh- (as in *išhanittar-* ‘relative by marriage, as per Rieken 1999: 283–4). The resulting unsyllabifiable \*išhme- was then reduced to *išme-*. Pace Kloekhorst (2008: 394) nothing requires that the verb *išhamai-* ‘sing’ reflect a zero-grade \*sh<sub>2</sub>m-; it may easily continue full-grade \*sh<sub>2</sub>em-, as he himself assumes for the noun *išhamāi-* ‘song’.

We may now return to the matter of the Hittite treatment of initial \*sp-. The observed vacillation is now explainable. Pre-Hittite language learners were faced with two models for how to treat \*sp-: since it consisted of sibilant plus voiceless stop, they could follow the model of \*st- and \*sk- and add a prothetic i-; however, since \*sp- also consisted of a sibilant plus labial stop, speakers could also follow the model of the other sequence of sibilant plus labial stop, namely \*sm-, and according to the position of the accent, either preserve the sequence or insert an anaptyctic -u-. Although m generally behaves as a sonorant in older Indo-European languages (that is, as a continuant), one must not forget that in articulatory terms it is also a stop. It is thus not unreasonable that Hittite speakers did not show absolute consistency in their treatment of initial \*sp-, where \*p belonged both to the class of labial stops and to the class of voiceless stops.

The dominant practice for most lexemes was to follow the model of the other voiceless stops and add a prothetic vowel i-. Contra Melchert 1994: 32, Kimball 1999: 110–11, Kassian and Yakubovich 2002: 33–5, and Yakubovich 2009: 545–7, there is not the slightest justification to doubt the linguistic reality of the prothetic vowel in *išT-*, as assumed by Kronasser (1966: 48–9), Eichner (1975: 98), Oettinger (1979: 416–17), Kloekhorst (2008: 61), and others. First of all, the alternations in personal names from the Old Assyrian texts of the Colony period cited by Yakubovich (2009: 546) not only all involve \*sp-, as he admits, but show exactly the same variation as we have seen in *šuppištuwarā- ~ išpištuwara-*: *Šu-pu-da-ah-šu* vs. *Iš-pu-da-ah-šu*, *Šu-pu-na-ah-šu* vs. *Iš-pu-na-ah-šu*, *Šu-pu-nu-ma-an* vs. *Iš-pu-nu-ma-an*. I emphasize that we find no spellings in these names of the type †Ša-pu- or †Ši-pu-, which is what we would expect were

<sup>3</sup> Since the word is hapax, the objection of Kloekhorst (2008: 784) that the word does not show geminate spelling for either of the two -mm- is not compelling.

<sup>4</sup> I am not persuaded by Rieken’s two proposed examples of the change \*sm- > -summ- in morpheme-internal position. Hittite *šumanzan-* (sic!) means ‘(bul)rush’ and has basic single -m- (see Melchert 2004: 129–31); CLuvian *teliššumma/i-* ‘(unfired) clay cup’ contains the Luvian suffix -umma/i- also seen in *annarumma/i-* ‘powerful’.

we facing alternate spellings for /spu-/.<sup>5</sup> These names actually further confirm that the variation in the Hittite appellative is genuine: /sup-/ vs. /isp-/. Note that the scriptio plena of the stem vowel in *šuppištuwarā-* ‘appliqué’ suggests that the accent was not on the vowel following the initial \*sp-, and therefore the treatment *šupp-* beside *išp-* fits the pattern for *šumm-* < \*sm-. Unfortunately, there is no independent evidence for the position of the accent in the personal names or in *ša/e/ippe/ikkušta-* ‘pin’, but nothing stands in the way of supposing that the names reflect original accent beyond the first syllable, while the appellative was /spékusta-/ like /smén-/.<sup>6</sup>

Kimball (1999: 110) cites as “very convincing” my own argument (Melchert 1984: 110) that the Hittite adjective *išhaškant-* ‘blood-shot, blood-stained’ must reflect a compound \**išhan-škant-* with the participle of *iške/a-* ‘anoint, smear’, thus showing that the *i-* of *iške/a-* must be purely graphic. The argument is not at all compelling, however, since nothing precludes that the compound was formed in pre-Hittite before the addition of the prothetic *i-*. In any case, the overlooked new example *i-is-ke-ez-[zi]* in the fragment KBo 34.243:3 (Ritual of Zarpaya) now excludes both my etymology and that of Rieken (1999: 402), approved by Kloekhorst (2008: 402), which start from \*(p)s-*ške/o-* and \*sg<sup>(h)</sup>-*yé/ó-* respectively.<sup>7</sup> The plene spelling (which would be entirely unparalleled for the prothetic vowel) appears to require a return to the etymology of Oettinger (1979: 327), despite the semantic difficulties associated with the root \*(h<sub>1</sub>)*eish<sub>1</sub>-*.

The first two arguments adduced by Kassian and Yakubovich (2002: 33) against the reality of the prothetic *i-* in *išT-* are also without foundation. Their statement that the prothetic vowel is always spelled *i-* is correct, but their claim that *iš-/eš-* alternations are frequent in cases with etymological \**i-* is patently false: Hitt. *iškiš-* ‘back’, cognate with Grk. ἴχι(ov) ‘loins’ (a quite certain equation, *pace* Kloekhorst 2008: 402) is spelled exclusively with *iš-*, while *išhā-* ‘owner; master, lord’ < \**h<sub>1</sub>es-h<sub>2</sub>-ó-* with regular raising of pretonic short \**e* to \**i* (see now on this word and its etymology Nussbaum 2014: 244–5) is also spelled exclusively with *iš-*, with the single exception of the totally aberrant form *eš-*h<sub>2</sub>** in the NS copy KBo 3.34 i 25, a copyist’s error that has no probative value.<sup>8</sup> Their second point, that the prothetic vowel is never spelled with plene as *i-iš-*, makes no sense, since we would expect the prothetic vowel to be unaccented and thus never lengthened.<sup>9</sup> The further argument adduced by Yakubovich (2009: 546, note 3) is also less than compelling. He claims that the HLuvian form *sà-ma-ra/i-ka-wa/i-ni* (URBS) for the city appearing in Hittite cuneiform as <sup>URU</sup>*Iš-mi/e-ri-ka-* shows that the Luvians learned this city name through the Hittites with /sm-/, since Luvian had eliminated all cases of initial \*sC- in their own language. There are two problems here: first, to my knowledge we know only that Luvian eliminated initial \*s+stop by deletion of the sibilant (e.g., HLuvian (\*261)*tapai* vs. Hittite

<sup>5</sup> One could, of course, argue that the empty vowel used in the spelling for /sp-/ merely copied the following real /u/ vowel, but the evidence from Hittite appellatives for the reality of *u*-anaptyxis argues decisively against this.

<sup>6</sup> The spelling of the “ethnic” suffix *-uma(n)-* with plene, as in <sup>LÚ</sup>*hi-iš-tu-u-ma-aš* (KBo 23.99 i 19), provides some indirect support for an accent \*/Spunóman-/ at least in the one personal name.

<sup>7</sup> *Contra* Kloekhorst (2008: 402), the inflection *iškezzi*, *iškanzi* must be older than that of *iškiyazzi*, since the inflectional type in *-e/-a-* in base verbs is recessive in Hittite, while that in *-ye/-ya-* is notoriously productive. Thus Rieken’s etymology is excluded also on this basis.

<sup>8</sup> *Contra* Kloekhorst (2008: 390) the form *e-eš-h<sub>2</sub>a-aš-ši-iš* is very unlikely to belong to this word (see Otten 1961: 130–1) and is irrelevant. There is thus no basis for appealing to the sporadic New Hittite change of *iš-* to *eš-* (see further below.)

<sup>9</sup> The claim of Kloekhorst (2008: 61) that the prothetic vowel cannot be identified with the Hittite phoneme /i/ because it fails to undergo the New Hittite lowering to *-e-* is also false, since Yakubovich (2010b: 309–15) has made compelling arguments that the very sporadic change of *e* > *i* in New Hittite is not a regular sound change.

*ištāpi* ‘blocks up’). I am not aware of any evidence that tells us the fate of initial \*s+sonorant. Second, even if Luvian had no native words with initial \*sR-, the argument is not probative. There is no way to exclude that the Hittites adapted the name \**Sme/iriga-* in their fashion with prothetic *i-*, while the Luvians dealt with the initial \*sm- by anaptyxis of an *-a-*. The Luvian form may easily be read as /Samariga-/.

We are thus left with *šipand-* alternating with *išpand-* as the *only* basis for doubting the reality of the prothetic *i-* in *išT-*. But we have now seen that this orthographic alternation cannot possibly be interpreted to stand for /spand-/, despite the assertions of Kassian and Yakubovich (2002: 33–5) and Yakubovich (2009: 547–8). We now *know* how a preserved initial /sp-/ was written where it existed, and as we would predict, it is expressed by alternation between *šapV-*, *še-pV-* and *ši-pV-* in *šale/ipe/ikkušta-* ‘pin, needle’. Given that *šip(p)and-* is spelled several hundred times with absolute consistency as *ši-(ip)-pa-an-t/d°*, it is not credible that this spelling stands for /sp-/. The first syllable of the word must be read as /si-/.

Possible additional evidence for the reality of a stem /sipánd-/ comes from HLuvian and Lycian. Yakubovich (2009: 555) cites the suggestion of Hajnal (1995: 133–4) that HLuvian (CAELUM.\*286.x)*sá-pa-tarali-i-sa* (KARKAMIŠ A 2+3, §17a) might mean ‘libation priest’ and reflect an earlier \*/sVpentero/i-/ also continued by Lycian *hppñterus*, which is a professional title or institution.<sup>10</sup> It is now clear that Lycian *hpp-* must be derived from a prehistoric \**sVp-* (contra Melchert 1994: 304–5), and the HLuvian may be read /sapandaris/. For Yakubovich (2009: 556) these forms attest a hybrid Luvo-Hittite creation \**səpantalli-* ‘pertaining to a libation’ that underwent rhoticism in Luvian and was then borrowed into Lycian. The last step is pure speculation, and the very different morphology of *hppñterus-* argues rather for a native Lycian word that is at best a root cognate with the Luvian. That the verbal stem is not attested in Luvian or Lycian (thus far!) is not a compelling argument against a Proto-Anatolian stem \**sepónd-* that led by regular phonological developments to *šipand-*, \*/sapand-/, and \**hppñt-*. I must emphasize, however, that I place no weight on this argument, since the meaning of the Luvian is not fully assured, and that of the Lycian is based entirely on the putative etymology.

Kassian and Yakubovich (2002: 33) and Yakubovich (2009: 547) argue that one cannot interpret the first vowel of the Old Hittite/Old Script spelling *ši-pa-an-t/d°* as real, because this could only imply a reading /siband-/, and voicing of the stop in this environment cannot be motivated by any known Hittite sound change. This argument reflects a fundamental methodological fallacy and a profound misunderstanding of how orthographies devised by and for native speakers work. Such orthographies cannot be compared to the International Phonetic Alphabet. Native speakers *know* how the words of their language are pronounced and also the grammar that predicts where they will occur, and writing systems (especially those used by a small elite) need only give just enough clues for another native speaker reader to successfully identify the word intended. Examples like the Anatolian hieroglyphs for Luvian and Linear B for Mycenaean Greek show just how much information can be omitted! Many factors determine spelling practices in a given tradition: aesthetics (important in the Anatolian hieroglyphs used for public inscriptions), convention, convenience, and above all simply imitation of one’s teachers.

The Hittites knew that /sipand-/ contained a voiceless labial stop; there was no *compulsion* to indicate this in a word that occurred hundreds of times in Old Hittite ritual texts. Since the first vowel of *ši-pa-an-t/d°* has to have been linguistically real, Yakubovich’s attempt (2009: 550–55) to motivate a Luvian-influenced anaptyxis into the non-existent /spand-/ is beside the point, but he does raise the legitimate question of why, beginning in Middle Hittite, the spell-

<sup>10</sup> For a similar independent interpretation of the HLuvian word and comparison with the Hittite hapax *šapa-an-ta-al-la* (KBo 31.8+ i 7) see Giusfredi 2010: 123–4.

ing *ši-ip-pa-an-t/d<sup>o</sup>* was introduced and in fact became the dominant orthography. Here the increasing role of Luvian native speakers among the Hittite scribes may well be the responsible factor. The Luvian-speaking scribes surely learned fairly quickly the general Hittite scribal practice of distinguishing intervocalic voiceless from voiced stops by -VC-CV- versus -V-CV spellings. It would be entirely natural if they chose to apply this to what seemed the unmotivated exception of *ši-pa-an-t/d<sup>o</sup>*. I stress, however, that this scenario is by no means necessary. Since, I must insist, the word was pronounced /sipánd-/ from the beginning of attested Hittite, a senior scribe could have decided at any time that the exception should be eliminated and a new standard spelling be adopted. A number of changes were made in Hittite spelling practices from Old to New Hittite, and this is merely one of them.

I may cite as a parallel for the non-writing of a geminate stop in Old Hittite versus its expression in later manuscripts the example of /tarsikke-/, the older iterative of *tar-* ‘say’. In Old Script we find only *tar-ši-kán-zi* and *tar-ši-ke-ez-zi* in KBo 22.2 Ro 8 and Vo 4, but in Middle Script *tar-ši-ik-ke-mi* (HKM 46:27) and *tar-ši-ik-ke-ši* (KUB 14.1 Ro 34), and in New Script copies of Old Hittite texts *tar-ši-ik-kán-zi* (KBo 3.1 ii 33 and 3.16 iii 14).

Whatever the motivation may have been for the introduction of the spelling *ši-ip-pa-an-t/d<sup>o</sup>*, the absolutely fixed spelling with initial *ši-* excludes the reading /spand-/ for Old Hittite, and since there is indeed no way to motivate a voicing of the labial stop, *ši-(ip)-pa-an-t/d<sup>o</sup>* must be interpreted as /sipánd-/, while the rarer variant *iš-pa-an-t/d<sup>o</sup>* stands for regular /ispánd-/. The problem then becomes: how do we account for the existence of these two stems and explain their attested shape and use?

The source of the stem *išpant-* is straightforward: it may continue a PIE root present of the *h<sub>2</sub>e*-conjugation *\*spónd-ei*, *\*spénd-nti* ‘libate’, yielding regularly attested *išpānti*, *išpantanzi* (Jasanoff 2003: 86) — but see below for an alternative account. An ablauting root present *\*spénd-*, *\*spnd-* (Forssman 1994: 102) would also lead to *išpant-* phonologically, but such a reconstruction is morphologically incompatible with a Hittite *hi*-verb root present. That the *hi*-inflection of *išpand-* is secondary after *šipand-* (LIV<sub>2</sub>: 577) is unlikely. Other Hittite root *mi*-presents standing beside reduplicated *hi*-presents show no such influence: *wēkzi* beside *wewakki* ‘demands’.

Forssman (1994: 103) proposed to derive *šipand-* from a reduplicated stem *\*spe-spond-*, *\*spe-spnd-*, assuming a full reduplication of the initial *\*sp-* of the root and differing simplifications leading to Hittite *šipand-* and Old Latin *spepondī*. The need to assume a complicated double dissimilation for Hittite whereby the first *\*p* but the second *\*s* was lost has undoubtedly been one of the reasons for the widespread rejection of Forssman’s account.

However, there is now a growing consensus that the history of reduplication in Indo-European should be understood very differently, namely as an inherited synchronic process whose operation is subject to renewal (whatever theoretical approach one takes to its description): see the extensive argumentation of Keydana 2006, followed by Byrd 2015: 118–21 and others. Furthermore, one should in reconstructing the PIE state of affairs follow the standard procedure of giving most weight to isolated archaisms that cannot easily be motivated as innovations. On this basis, following already Brugmann 1897: 40–41(!), Keydana (2006: 107), Byrd (2015: 120) and others argue on the basis of non-productive forms like Latin present *sistō* ‘(cause to) stand; stop’, Grk. ἵστημι ‘stand’ plus Avestan *hi-štaiti* ‘stands’ and Old Irish *se-scaind* ‘jumped’ that the PIE reduplication pattern with roots in initial *\*sT-* was *\*sV-sT-*.<sup>11</sup>

<sup>11</sup> Hittite *šišh(a)-* ‘order, decide’ may also be a relic reflecting *\*s<sub>1</sub>-sh<sub>2</sub>-* to the root *\*seh<sub>2</sub>-* ‘bind’ (thus Kloekhorst 2008: 758–9; cf. tentatively already Melchert 1984: 153, note 125). For the original stem as *šišh(a)-* see the MH/MS attestations cited by Kloekhorst and the CHD Š: 450–51.

This means that we may suppose that the PIE reduplicated stem behind Hittite *šipand-* was *\*se-spónd-*, *\*se-spnd-* (also considered as an alternative by Schulze-Thulin 2001: 384). These preforms will in terms of vocalism lead regularly to attested *šipānti*, *šipant/danzi*, with regular raising of pretonic short *\*e* to *i* (see Melchert 1994: 101) and lengthening of the accented short *\*ó* to Hittite *ā* in the strong stem (spelled plene a few times, as in KBo 17.11 iv 4&14, OH/OS).

What remains to be accounted for is the deletion of the second *\*s* of the preform *\*sespVnd-*. Once we regard changes in productive reduplication patterns as reflecting renewal of a synchronic process, there are (at least) two ways to account for the loss of *\*s* in this context. The first may be formulated in terms of pre-Hittite constraints on the syllabification of consonants. Synchronically, an [s] in contact with another consonant at a syllable boundary appears to be treated as ambisyllabic in attested Hittite: note spellings such as *ti-iš-ša-kán-zi* ‘they (usually) step’ (IBoT 1.36 iv 30) beside usual *ti-iš-kán-zi* for [tis.skán.t̪i] or *wa-aš-ša-pa-an* ‘garment’ beside *wa-aš-pa-an* for [was.span] (see Bernabé Pajares 1973: 446–7 and *passim*; Melchert 1994: 150–52). However, we have compelling reasons to think that at an earlier prestage of Hittite there was a constraint against [s]+stop as a syllable onset.

For word-initial position, of course, the evidence is the development of the prothetic *i-* before *\*sT-*. As argued above, this was undeniably the regular treatment of such initial clusters. The (thus far) unique exception of /spekusta-/ ‘pin’ was “licensed” only by the pressure of preserved /sm-/ with [s] plus labial nasal stop. Addition of the prothetic vowel naturally enabled a prehistoric syllabification *\*[is.TV-]*. Evidence for the same prehistoric constraint on [sT] in medial onsets is furnished by the pattern of anaptyxis in marked imperfectives with the suffix *\*-ške/o-*, where a vowel was inserted between a preceding consonant and the *\*s* or in the case of coronals between the *\*s* and the *\*k*: *appiške-* ‘take’, *akkiške-* ‘die’, but *taršikke-* ‘say’ (see Melchert 2012: 179–80). Once again, the anaptyxis solved the prehistoric synchronic syllabification problem, permitting *\*[ap.pis.kV-]*, *\*[ak.kis.kV-]* and *\*[tar.si.kV-]*.<sup>12</sup> I emphasize that the forms with anaptyxis became underlying representations by the time of attested Hittite, leading by then surely to phonetic realizations [ap.pis.skV-] etc.

We may therefore assume that likewise there was a stage at which pre-Hittite (arguably Common Anatolian) *\*sespVnd(V)-* could no longer be syllabified as *\*[se.spVn.d(V)-]*, just as the word-initial *\*[spó/én.d(V)-]* of the nominal stem <sup>(DUG)</sup>*išpanduzzi-* ‘libation’ and its derivatives could not be syllabified (likewise in the *h<sub>2e</sub>*-present if it existed at this point). In this case, solving the problem in the former by anaptyxis, producing *\*[se.sV.pVn.d(V)-]* beside the new [is.pó/én.d(V)-] with prothesis, would have seriously disrupted the formal relationship of words that were in semantic terms transparently related. A simpler alternative solution was to resyllabify *\*[se.spVn.d(V)-]* as *\*[ses.pVn.d(V)-]*.

However, there is now reason to believe that the syllabification *\*[ses.pVn.d(V)-]* might itself have been problematic. Zukoff (2014: 272–5) has argued for a context-sensitive version of the well-known Obligatory Contour Principle that prohibits identical adjacent segments. Zukoff proposes that there was also operative in early Indo-European an OCP-SYLLABLE (OCP-σ) constraint: “Assign one violation mark *\** for every syllable that contains identical segments.”<sup>13</sup> If we assume that this constraint also applied at some stage of pre-Hittite (or Common Anatolian), then it would have prohibited the syllabification *\*[ses.pVn.d(V)-]*, which

<sup>12</sup> For the assumption that intervocalic voiceless stops spelled double were geminates that closed the preceding syllable see Melchert 1994: 18 with references and also Kloekhorst 2014: 545–6 (with a different phonological analysis).

<sup>13</sup> For an extensive discussion of OCP effects in PIE and its descendants (including but not confined to OCP-σ) see Sandell 2016, who also duly notes (2016: 146) the notorious exceptionality of PIE *\*ses-* ‘sleep’ and its reflexes.

would have been solved by deletion of the *s* in the syllable coda.<sup>14</sup> If loss of the coda consonant led as expected to compensatory lengthening, producing a virtual \*[se:.p<sup>h</sup>n.d(V)-], the pretonic long vowel could have been shortened in time to undergo the specific pre-Hittite change of pretonic short \**e* to *i*. Compare Hittite *hippara-* ‘serf’ (or sim.) < \**h<sub>2</sub>ēpor-ó-* (Eichner 1973: 72).<sup>15</sup>

Hittite *šipand-* may thus be derived by regular phonological developments from a reduplicated stem \**se-spónd-*, \**se-spnd-*, and I stress again that its absolutely fixed *i*-vocalism cannot be plausibly explained by any other means. There remains, however, the question of whether such a reduplicated stem is a viable source for the Hittite verb in its attested use. One of the few supporters of Forssman’s original proposal, expresses doubts: “Ist ein altes Zustandspferkt semantisch sinnvoll?” (Kümmel in LIV<sub>2</sub>: 577, note 5). Yakubovich (2009: 547) also reasonably protests that there is no discernible functional difference between attested *šipand-* and *išpand-* (cf. also Kloekhorst 2008: 406). I myself previously looked in vain for any such contrast in usage.

I now believe that such a venture failed because we based our search on false premises. A perfect with the standardly assumed value of an “attained state” hardly fits the usage of the Hittite verb, which is clearly eventive: ‘libate’, secondarily ‘consecrate’ (by pouring a libation over), then by metonymy ‘offer X (to a deity)’ and by syntactic change ‘worship (a deity) with X’: see CHD Š: 384–95. I had supposed that the reduplicated stem belonged to what I regarded as the small class of iterative-durative perfects, such as \**we-w(o)rt-* ‘roll, revolve’ (on such a meaning for at least some instances of Vedic *vavart-* see Kümmel 2000: 462ff.). But I could find no clear traces of an iterative-durative or even processual value for *šipand-*.

Jasanoff (forthcoming) has now argued that the “attained state” value of the perfect in Core Indo-European is an innovation and that the classical “perfect” originates in a reduplicated *h<sub>2e</sub>*-aorist of the shape \**Ce-CóC-*, \**Ce-CC-*, whereas the few “perfects” that show iterative semantics reflect rather reduplicated *h<sub>2e</sub>*-presents of the form \**Cé-CoC-*, \**Cé-CC-*.<sup>16</sup> Hittite *wewakk-* ‘request’ (repeatedly) and *mēma/i-* ‘speak’ are direct reflexes of the latter category. By this scenario, \**se-spónd-*, \**se-spnd-* would have been a reduplicated *h<sub>2e</sub>*-aorist and should have referred to the act of libating not as an activity (which would have been expressed by the *h<sub>2e</sub>*-present), but as a single telic act.<sup>17</sup>

If one examines all thirty-plus instances of *šipand-* in Old Hittite/Old Script, one finds that it is consistently used in such a fashion. It is used to refer to the act of libating once at a particular “station”, such as in front of the window (KBo 17.11+ iv 23) or to the hearth (KBo 17.19

<sup>14</sup> One may compare typologically for a similar “repair” the Sanskrit weak perfect stem *sed-* ‘sit’ < \**sé-sd-* and more broadly other Sanskrit weak perfect stems of the shape *CeC-* as well as long-vowel preterite formations in Germanic and Celtic: see Schumacher 2005: 601–5, Zukoff 2014: 274, and Sandell: 2016: esp. 142–3 and 156–7.

<sup>15</sup> Zukoff (2015) has now refined his account of Indo-European reduplication patterns in terms of what he labels the POORLY-CUED REPETITION PRINCIPLE: “A CVC sequence containing identical consonants ( $C_{\alpha}VC_{\alpha}$ ) is dispreferred, due to repetition blindness; it is especially dispreferred if one or both of the consonants lack phonetic cues which are important for the perception of its presence (in contrast to zero) in the speech signal.” For reasons he sets forth, this principle applies especially to the second fricative [s] in a sequence #sVsT-. Since this newer formulation will also handle the case of *šipand-* < \**se-spónd-*, I forego extensive discussion here and refer interested readers to Zukoff’s own presentation, available online.

<sup>16</sup> While verbs of the latter class have mostly been assimilated to the true “attained state” perfects in the attested languages, Jasanoff stresses that in the oldest Greek their separate origin is still betrayed by a different plu-perfect inflection.

<sup>17</sup> I do follow LIV<sub>2</sub>: 577 and others, against Jasanoff forthcoming, in supposing that the concrete meaning ‘libate’ of Greek and Hittite is original, from which already in PIE developed the secondary sense ‘pledge, dedicate’ (in the middle ‘pledge, dedicate oneself’).



ii 11). It alone (never *išpand-*) is used with specification of how many discrete times one performs the act of libating: ‘once’ (KBo 17.11+ iv 33, KUB 43.30 ii 11&15 and often), ‘twice’ (KBo 20.10 i 9), ‘three times’ (KUB 43.30 ii 14), ‘seven times’ (KBo 25.127 ii 25). It alone is attested in the telic sense ‘consecrate’ a sacrificial animal or other object (KBo 17.36+ iii 9 and 17.33+ i 14). Finally, it may be used of worshipping a deity (in the accusative) by libating into a bowl (KBo 25.61 Vo 9).

Trying to determine whether the stem *išpand-* has a synchronically distinct sense and whether its absence in the contexts just cited for *šipand-* is systematic or merely due to chance is made extremely difficult by the very small number of examples, especially of examples with full context. Aside from the “Ritual for the Royal Couple”, which uses *only* *išpand-* in its attested portions (see Otten and Souček 1969: 97), there are a mere handful of other attestations, either in Old Script or later copies. However, the examples in KBo 20 ii 5&6 (OH/OS), where *išpanti* ‘performs a libation’ occurs in the immediately context of *hinga* ‘bows’ is strongly reminiscent of that of KBo 25.104 ii 12–13 (OH/OS?), where we read LUGAL-*uš* <sup>d</sup>*Kuwaššaš UŠKE*[N...] *šipanti*. Similarly, the phraseology [...] × 2 *ekuzi* [...*hu*]ppari *išpant*[i] ‘drinks two [...] libates into a bowl’ (KBo 25.51 i 18–19; OH/OS) hardly differs from that of *hūppari šipanti* (KBo 25.61 Vo 9; OH/OS) cited above.

It therefore seems extremely unlikely that the stem *išpant-* has any different sense synchronically from that of *šipant-*. Both refer to libating conceived as a single telic act and to the other telic meanings derived from that. By the oldest attested Hittite *išpant-* survives only as a marginal variant of *šipant-*. In fact, one may reasonably ask: does the very rare verbal stem *išpant-* continue a genuine prehistoric present stem at all, or is it merely an analogical creation based on the nominal forms <sup>(DUG)</sup>*išpanduzzi-* ‘libation’, <sup>DUG</sup>*išpanduzzi(y)aššar-* ‘libation vessel’, and <sup>(DUG)</sup>*išpantuwa-* ‘libation vessel’? Of course, if one opts for the latter interpretation, then one must ask in turn what the basis was for the nominal stems, which appear to be deverbative.

As to <sup>DUG</sup>*išpanduzzi-* (from which <sup>DUG</sup>*išpanduzzi(y)aššar-* obviously is further derived), if one looks at the class of Hittite nouns in *-uzzi-*, some are indeed undeniably deverbative, formed to synchronically existing verbal stems: e.g., <sup>KUŠ</sup>*annanuzzi-* ‘(part of a) harness’ < *annanu-* ‘train’, *kuruzzi-* ‘cutting tool’ < *ku(e)r-* ‘cut’. Others, however, appear to be rather deradical, being derived from forms of the respective roots whose existence in pre-Hittite as verbal stems is dubious: e.g., *išhuzzi-* ‘belt, chain’ < \**s(e)h<sub>2</sub>-* ‘bind’ (but all verbal forms are based on *išhi-* < \**sh<sub>2</sub>ei-*), *tuzzi-* ‘camp; army’ < \**dh(e)h<sub>1</sub>-* ‘place’ (whereas the present stem of the verb is *dai-* with an \**-i-* suffix).<sup>18</sup> The nominal stems <sup>DUG</sup>*išpanduzzi-* and <sup>DUG</sup>*išpanduzzi(y)aššar-* are thus not probative evidence for a genuine pre-Hittite verbal stem *išpand-*. The stem *išpanduzzi-* may be a primary derivative from the root \**spend-*. It is true that <sup>(DUG)</sup>*išpanduwa-* is hypostasized from the verbal noun (thus with Carruba 1966: 23, note 35), but precisely in this case there are also a number of spellings as <sup>(DUG)</sup>*šipanduwa-* (see CHD Š: 396). In this noun, then, the variant *išpanduwa-* may be analogical, just as in the other verbal forms.

I therefore must conclude that evidence for a pre-Hittite present stem of any kind is less than compelling. A *h<sub>2e</sub>-*conjugation present \**spónd-ei*, \**spénd-ṽti* may well have existed, but its existence must be based on other evidence (see Jasanoff 2003: 78 on Greek σπένδω ‘pour, libate’ and Latin *spondeō* ‘vow’). The fundamentally telic senses of the Hittite verb *šipand-* are in any case fully compatible with the proposal that it continues a reduplicated *h<sub>2e</sub>-*aorist. With due revisions, then, the much maligned derivation suggested by Forssman more than twenty

<sup>18</sup> The primary meaning of *tuzzi-* is ‘camp’, as shown by the derived verb *tuzziya-* ‘encamp’. One must with Kloekhorst (2008: 908) insist on this etymology of Carruba (1966: 23, note 35). There is *no* connection with western Indo-European \**teutā-*.

years ago may be upheld. However, one must not overlook that the functional side of the scenario presented here, following Jasanoff, has implications for Indo-European dialectology that are diametrically opposed to those of Forssman's original formulation: by the present account Hittite *šip(p)and-* reflects a PIE reduplicated aorist whose development into an "attained-state" perfect is a common innovation of "Core Indo-European".

*Ilya Yakubovich*

Philipps-Universität Marburg; sogdiana783@gmail.com

## Response to C. Melchert \*

It is appropriate to begin this response by thanking H. Craig Melchert for submitting the paper under discussion to the *Journal of Language Relationship*. Given the fact that the main claim of this paper radically contradicts the views expressed earlier by two editors of the journal, Alexei Kassian and Ilya Yakubovich, the publication of this piece in our journal is obviously conducive to resuming the discussion on this controversial topic. I hope that our readers will benefit from comparing different approaches to interpreting Hittite cuneiform spellings.

In the first part of the response I will dwell on Melchert's specific claims pertaining to the Hittite verbal stem *špand-* 'to libate'. It is my intention to demonstrate that its analysis offered immediately above is fraught with so many complications and arbitrary assumptions that it cannot be acceptable as a viable hypothesis regardless of the broader considerations that have motivated it. The second part of the response turns to a more general issue of how the Anatolian cuneiform reflects the evolution of consonant clusters in the Hittite language. I have to acknowledge here that Melchert's new approach is internally consistent and has some advantages over his older views. This prompts me to present an alternative account of how *špand-* may have evolved within the history of Hittite, which largely accommodates Melchert's contemporary interpretation of Hittite orthography but strives to avoid the pitfalls of his etymological analysis.

1. The readers must first be reminded about the nature of the controversy. The Old Hittite texts display a number of forms that contain the reflexes of the Indo-European root *\*spe/ond-* 'to libate' (LIV<sub>2</sub>: 577–578). These forms can be divided into two groups displaying the cuneiform spelling beginning with *iš-pa-* and *ši-pa-* respectively. Their distribution in Old Hittite / Old Script texts is illustrated in the Table 1 below, which is taken wholesale from Kassian & Yakubovich 2002: 34. It is easy to see that the the third-person forms of the base verb display the variants beginning with both *iš-pa-* and *ši-pa-*, with a preference for the first variant, while the rest of the attested forms show exclusively the spelling *iš-pa-*. It is worth mentioning that the spelling *ši-pa-* was generalized for all the finite forms by the Middle Hittite period, but the nominal derivatives *išpantuzzi* and *išpantuzzijaššar* retained the spelling *iš-pa-* throughout the history of Hittite (Yakubovich 2009: 549).

The controversy concerns the question whether the forms listed in the Table 1 are ultimately derived from one verbal stem or from two. According to the view of Kassian & Yakubovich 2002, which is also maintained in Yakubovich 2009, the variants *iš-pa-* and *ši-pa-* reflect different graphic renderings of the same word-initial cluster /sp-/, which cannot be unambiguously represented in cuneiform script. In this we followed a tentative suggestion expressed in Melchert 1994: 31. For Melchert (ibid.), the issue was not fully settled, because he could not think of a plausible reason why the two different graphic conventions were adopted in the instance of the root *špand-* 'libate', but not for rendering the other roots with etymological *\*sC-* clusters, which all consistently adopt the spelling *iš-CV-*. Kassian and Yakubovich (2002: 34) were bolder in defending the same interpretation, because we thought that we had a solution to this problem. According to the

\* This reply is subject to the usual disclaimers. I am grateful to Alexei Kassian and H. Craig Melchert, whose comments to its first drafts led to the overall improvement of my argumentation, and to Stephen Durnford, who has kindly agreed to improve my style. My work on this piece was conducted within the framework of the project "Digitales philologisch-etymologisches Wörterbuch der altanatolischen Kleinkorpussprachen (RI 1730/7-1)" funded by the *Deutsche Forschungsgemeinschaft*.

Table 1: *špand-* ‘to libate’ and its derivatives in Old Hittite

<i>špand-</i> ‘to libate’	
prs. 1 sg. <i>išpantahhi/e</i> : 6×	* <i>šipantahhi/e</i> : not attested
prs. 3 sg. <i>išpā/anti</i> : 8×	<i>šipā/anti</i> : 27×
prs. 3 pl. <i>išpantanzi</i> : 1×	<i>šipantanzi</i> : 7×
prs. 3 sg. <i>išpanzaškizzi</i> : 1×	* <i>šipanzaškizzi</i> : not attested
<i>išpantuzzi</i> ‘libation vessel’	
nom.-acc. sg. <i>išpantuzzi</i> : 7×	* <i>šipantuzzi</i> : not attested
dat.-loc. pl. <i>išpantuzziáš</i> : 2×	* <i>šipantuzziáš</i> : not attested
<i>išpantuzzijaššar</i> ‘libation vessel’	
nom.-acc. sg. <i>išpantuzzijaššar</i> : 11×	* <i>šipantuzzijaššar</i> : not attested
acc. sg. <i>išpantuzzijaššaran</i> : 1×	* <i>šipantuzzijaššaran</i> : not attested
acc. pl. <i>išpantuzzijaššaruš</i> : 1×	* <i>šipantuzzijaššaruš</i> : not attested

hypothesis proposed in Kassian 2000 and elaborated in Yakubovich 2009: 549–549 (with fn. 6), the innovative spelling *ši-pa-(a)-an-ti* ‘libates’ arose as an instance of graphic disambiguation with *iš-pa-an-ti* ‘in the night’ and later spread to the other forms belonging to the paradigm of the same verb. The gradual generalization of a spelling pattern from the most frequent form of the paradigm to the rest of it appears straightforward. This solution is cited with approval in Giusfredi 2014: 186–187, who also points out that the disambiguation never spread to the nominal derivatives of *špand-* ‘to libate’, because they are always accompanied by the determinative DUG ‘vessel’ and thus could not be taken for the derivatives of *išpant-* ‘night’. At the same time one has to acknowledge that a hypothesis of graphic disambiguation between lexemes in a dead language is normally not amenable to independent verification in view of its irreducible character. It can only be falsified, for example, by demonstrating that the phenomenon is not merely graphic, and / or replaced with a superior account.

Quite a different view is entertained in the paper to which I am now responding. It is argued there that only the Old Hittite spellings with *iš-pa-* reflect the etymological stem *\*špand-*, whereas their counterparts beginning with *ši-pa-* continue the pre-Hittite reduplicated stem *\*sispand-* < *\*sipand-*. Melchert acknowledges his inability to trace the synchronic difference between the two stems within the paradigm of the finite verb. This prompts him to advance a tentative hypothesis that the variant *iš-pa-* had originally been restricted to the non-finite forms and only secondarily spread to the finite paradigm in Old Hittite. The reason why the reconstructed stem distribution became skewed in

Old Hittite only to be restored in Middle Hittite remains unclear under such an analysis, even though one must acknowledge that one cannot always predict the direction of analogical change.

A more serious flaw of the proposed alternative is that it neither simplifies the account for the spelling *ši-pa-(a)-an-ti* ‘libates’ nor increases its value for the theory of writing. Melchert acknowledges that according to Sturtevant’s rule the expected reading of /sipánti/ would be *ši-ip-pa-(a)-an-ti*, the form that is regular in New Hittite, but rare in Middle Hittite and completely unattested in Old Hittite / Old Script texts. He also concedes that *\*\*/sibánti/*, the expected reading of OH. *ši-pa-(a)-an-ti*, cannot be derived from /sipánti/ by known sound laws. Thus Melchert essentially concurs with the observation of Kassian and Yakubovich 2002 that the form *ši-pa-(a)-an-ti* is graphically irregular. His account for the observed irregularity is, however, different and considerably more generic:

Kassian and Yakubovich (2002: 33) and Yakubovich (2009: 547) argue that one cannot interpret the first vowel of the Old Hittite/Old Script spelling *ši-pa-an-t/d-°* as real, because this could only imply a reading /siband-/ , and voicing of the stop in this environment cannot be motivated by any known Hittite sound change. This argument reflects a fundamental methodological fallacy and a profound misunderstanding of how orthographies devised by and for native speakers work. Native speakers *know* how the words of their language are pronounced and also the grammar that predicts where they will occur, and writing systems (especially those used by a

small elite) need only give just enough clues for another native speaker reader to successfully identify the word intended. (p. 191)

In its application to the Hittite cuneiform, this statement logically implies that Sturtevant's rule can be randomly violated in each and every case where this does not lead to the confusion of lexemes. Given the far-reaching character of this implication, it is not fully clear to me whether the citation above should be taken literally or perceived as a rhetorical device. At any rate, I stand by the description of Sturtevant's rule in Hoffner & Melchert 2008: 35, where it is regarded as a consistent pattern. To be sure, it can be violated by occasional simplified spellings, but I am aware of no instances where such violations would be generalized for any frequent form or lexeme. Therefore the exceptional orthography *ši-pa-(a)-an-ti* remains fully *ad hoc* under Melchert's analysis.

The final vulnerability of the new hypothesis concerns the way /sipánti/ is derived from the alleged reduplicated formation. Here Melchert begins with the stem *\*sespo/ēnd-* and postulates its subsequent development to *\*sēpo/ēnd-*, which supposedly reflects a universal constraint on the identical segments belonging to the same syllable. No Hittite parallels are, however, cited for such a development, while the forms of the Hittite root *še/aš-* 'to sleep' represent patent counterexamples. The last difficulty is implicitly acknowledged by Melchert (p. 193, fn. 13), but the change *\*sespo/ēnd- > \*sēpo/ēnd-* is nevertheless called regular! This is arguably the first occasion in the history of Anatolian studies where optimality-theoretical constraints are invoked not as a metalanguage for the empirically proven sound laws, but rather in order to overrule the available empirical evidence.

To illustrate the potential dangers of such a practice it is enough to mention that one of the prominent markedness constraints within the framework of Optimality Theory is the constraint on closed syllables. This constraint came to be top-ranked, for example, in Old Church Slavic, where a number of processes conspired in order to trigger the law of open syllable. Does this suffice to claim that any coda simplification on the morpheme boundary, whether regular or not, can be now licensed for ancient Indo-European languages with reference to the sudden prominence of such a constraint at the point when the respective morphological derivation has taken place? For example, one could use such an assumption in order to argue that Hitt. *tēzzi* 'says' goes back to an earlier *\*tērzi*, a putative singular counterpart of *taranzi* 'they say', while e.g. *kuerzi* 'cuts' reflects a later analogical devel-

opment. I doubt, however, that Melchert or any other mainstream Indo-Europeanist would subscribe to such a radical break with the traditional comparative method. While it is true that reduplications have a particular propensity to periodical renewals due to their iconic character, this has little to do with the assumed change *\*sespo/ēnd- > \*sēpo/ēnd-*, which is applied to the preexisting reduplication template according to Melchert's own analysis. Naturally, if one assumes that the attested Old Hittite forms of *špand-* 'to libate' reflect just one stem, the need for such an irregular development simply disappears.

Summing up, I claim that the proposed phonetic interpretation of the alternation between *iš-pa-* and *ši-pa-* in the paradigm of *špand-* 'to libate' is inferior to its graphic interpretation on three independent counts. First, it cannot account for the dynamics of distribution between the two stems. Second, it operates with an *ad hoc* violation of Sturtevant's rule. Third, it implies a phonetic scenario that contradicts the known sound laws. The first problem can be regarded as merely complicating the proposed analysis, but problems two and three plainly render it untenable, particularly when taken together. It remains to be seen what the considerations that prompted Melchert to give up his original analysis of the stem 'to libate' are.

2. Melchert's new interpretation of the spelling variation in *špand-* 'to libate' represents a consequence of his second thoughts on the development of initial sC-clusters in the history of Hittite. Melchert's old view on this topic are tentatively put forward in Melchert 1994: 31–32, while his change of opinion is already clearly expressed in Hoffner & Melchert 2008: 27. Nevertheless, since Melchert proposes a very detailed explication of his new stance, I will generally follow his most recent line of presentation in my further discussion.

The development of initial clusters in Hittite was a matter of much controversy in the twentieth century (see references in Melchert 1994: 31, and above p. 187 ff. with ref.). But an important contribution to the debate on the wake of the new millennium consisted of two articles that focus on this precise issue, namely Kavitskaya 2001 and Kassian & Yakubovich 2002. The first paper invokes the theory of syllable structure in order to advocate the view that the spelling *iš-CV-* for rendering such clusters always reflects phonological reality, thus implicitly taking issue with the stance of Melchert 1994 and anticipating certain assumptions of the present paper by Melchert. Curiously enough, this theoretically informed piece of work is not cited by Melchert above, possibly because Melchert's own analy-

sis focuses on the structure of Anatolian cuneiform rather than on cross-linguistic generalizations about syllable structure. The second paper dwells on orthographic issues and argues, following the observations of Melchert 1994, that the spelling *iš-CV-* for etymological *sC-* clusters represents a graphic convention. Melchert rejects several claims advanced in Kassian & Yakubovich 2002, naturally grouping some of them together with his own dated views.

The logical starting point of Melchert can be formulated as follows. The main graphic indicator for a synchronic consonant cluster is the presence of irregular spelling alternations, such as those characterizing the initial signs of *šale-me-en-zi* ‘withdraws’ or *šale/ippelikkušta* ‘pin’. In Kassian & Yakubovich 2002, such alternations were taken as instances of schwa insertion followed by schwa-harmony (e.g. [sə<sup>ə</sup>me:ntsi] ~ [sə<sup>ə</sup>me:ntsi]). This interpretation, however, is not compelling, as pointed in de Vaan 2003: 285 with reference to a similar “harmony” in Mycenaean Greek orthography, which clearly has a graphic explanation.<sup>1</sup> Furthermore, the data collected in Kassian & Yakubovich 2002 indicate no statistically significant correlation between the alternations of the *šale-me-en-zi* type and the plene spellings of the type *ša-(a)-li-ga* ‘touches, defiles’, which are surely indicative of vocalic epenthesis (cf. Kavitskaya 2001: 275, fn. 11). On the methodological level, Kassian & Yakubovich 2002 did use irregular spelling alternations in order to recover consonant clusters in some other instances (e.g. *za-aš-ki- / zi-ki-* for /tske-/, on which see below). Therefore it appears fair to invoke the same principle in the case under discussion. So far the critique of Melchert can be regarded as internally consistent.

If *šale/ippelikkušta-* and similar alternations reflect scribal uncertainty in dealing with word-initial consonant clusters, then cases like *išpant-* ‘night’ must reflect something else. Hence the next claim by Melchert: prothesis in *iš-CV-* clusters is phonetically real. An independent argument in favor of this hypothesis, which is not directly mentioned by Melchert, is the broad agreement between the relevant conventions of

the Old Assyrian and Hittite cuneiform. Deckschen 2007 reviews evidence for the spelling *iš-CV-* in Anatolian appellatives borrowed into Old Assyrian. Thus Old Ass. *išpuruzzinnum* (3×) ‘roof batten’ cannot be separated from Hitt. *išparuzzi-* ‘rafter’, itself possibly a derivative of Hitt. *išpar-* ‘to spread, strew’. Old Ass. *išhiulum* (1×, perhaps a commodity) may refer to a physical object used for binding rather than a written treaty, but this is hardly a compelling reason to doubt its connection with Hitt. *išhāi- /išhija-* ‘to bind’, the base of Hitt. *išhiul-* ‘treaty’. Finally, given that nasals before stops are not reflected in writing in Old Assyrian orthography, Old Ass. *išpadalum* (3×, a commodity) can be either a derivative of *išpant-* ‘night’, or perhaps that of the root *špand-* ‘to libate’, which is treated in this paper.<sup>2</sup> Kassian & Yakubovich 2002 and Kloekhorst 2008 concur in reconstructing consonant clusters in the roots under discussion.

The root etymologies offered in this paragraph are admittedly speculative, especially given the fact that in two of the three cases we cannot determine the semantics of the nouns involved. But if scholars are right in seeing here Hittite loanwords of Indo-European origin, structural considerations would strongly plead for reconstructing \**sC-* in *išpuruzzinnum*, *išhiulum*, and *išpadalum*. The morphemes *išpur-*, *išhi-*, and *išpad-*, all segmentable with a reasonable degree of confidence, are unlikely to reflect Indo-European disyllabic roots beginning with *i*, which vindicates its status as the prothetic vowel. One may argue that two largely independent cuneiform orthographies were unlikely to adopt the same default device of *i*-prothesis for rendering word-initial etymological *sC-* clusters unless there was some phonetic substance behind it.

The data above need to be reconciled with the synchronic alternation between word-initial *iš-pu-* and *šu-pu-* in the Old Assyrian transliteration of Hittite personal names, which were adduced in Yakubovich 2009: 546. Melchert (p. 189) treats the cases of *Šu-pu-da-ah-šu* vs. *Iš-pu-da-ah-šu*, *Šu-pu-na-ah-šu* vs. *Iš-pu-na-ah-šu*, and *Šu-pu-nu-ma-an* vs. *Iš-pu-nu-ma-an* as recurrent instances of genuine phonetic variation. Although this claim derives a degree of support from the over-

<sup>1</sup> To be sure, there is a significant difference between the Hittite and Mycenaean conventions. In Hittite, it is the *a*-vowel that is usually inserted in writing for rendering the etymological clusters “obstruent+resonant”, except for the cluster \**tr-*, where *e*-vowel is inserted (Kassian & Yakubovich 2002: 12–21). At least in some of these cases, the epenthesis is also phonetic, as indicated by occasional plene spellings. In Mycenaean, on the contrary, the “dummy” epenthetic vowel normally replicates the vowel that is pronounced in the relevant syllable, e.g. *du-ru-* for /dru-/, *do-ro-* for /dro-/ etc. (Melena 2014: 111–112). Deviations from this practice represent exceptions (Melena 2014: 113).

<sup>2</sup> The first interpretation is maintained in CAD (I/J): 257a, where the meaning ‘lodging’ is assigned to the noun under discussion, since it is mentioned together with the donkey food. The editors of the CAD were, however, familiar only with one occurrence of *išpadalum*, whereas its two additional occurrences apparently tip the scales in favour of its interpretation as an object (Derckschen 2007: 36). Can it be some sort of libation vessel, or alternatively a chamber pot (*vase de nuit*)? Cf. Luv. (CAELUM.\*286.x)*sā-pa-tara/i-i-sa* ‘libation-priest’ and its discussion in Yakubovich 2009: 555–556 vs. Melchert, p. 191 above.

whelming lexical distribution of the two variants in later Hittite (see below), the data above demonstrate that in the Colony period we are still dealing with free variation, which in turn strongly suggests that this variation was subphonemic. What it means in practice is that the Hittite speakers of the Colony period targeted the phonemic representation /sp-/, and were possibly even able to render it accurately in thorough pronunciation, but optionally implemented either prothesis or epenthesis in spoken forms, perhaps depending on personal idiolects. The only logical alternative to the proposed solution would be to assume that the Assyrian scribes encountered two different Hittite dialects, which were characterized by phonological prothesis and phonological epenthesis respectively, whereas the later dialect of Hattusa represents a sort of koine that drew upon both of them. In the absence of independent evidence for such dialectal divisions, the hypothesis of free subphonemic variation must be preferred as more economical. In a sense, this is the same kind of logic that prompts Melchert to accept free graphic variation in *šale/ippe/ikkušta-* ‘pin’ and similar cases, as opposed to postulating unattested Hittite dialects.

Melchert plausibly hypothesises that the Hittite \*sp-clusters represented an arena where two different strategies of breaking \*sC- clusters were in competition with each other. One was the *i*-prothesis, typical of the “s+stop” clusters, the other one was the *u*-epenthesis, which characterized clusters “s+labial” (or perhaps only those of them that had /u/ in the first syllable). But if one assumes that both strategies were allophonic in a particular environment in the Colony period, the simplest solution is to assume that they were always allophonic at the same historical period. In other words, the source of Old Assyrian *išhiulum* was phonetically [sxiu:l], or something similar, but phonologically /sxiúl/. Naturally, the Hittite loanwords into Old Assyrian reflect the Akkadian phonotactics and therefore the prothetic vowel must have acquired there the phonological status. They also appear to have generalized *i*-prothesis before \*sp- at the expense of *u*-epenthesis, if the available occurrences of *išpuruzzinnum* and *išpadallum* have enough probative force.

So much for the situation in the Colony period (20–18<sup>th</sup> centuries BC). Moving to the Old Hittite / Old Script corpus (15<sup>th</sup> century BC), one can observe the ongoing lexicalization of different processes affecting the etymological \*sp- clusters. If one follows Melchert’s new phonetic interpretation, one encounters here numerous instances of stable *i*-epenthesis, e.g. *išpant-* ‘night’, stable preservation of the original clus-

ter in *šale/ipe/ikkušta-* ‘pin, needle’, and overwhelming *u*-epenthesis in *šuppištuwara-* ‘decorated (vel sim.)’. In phonological terms, this situation can be, in principle, interpreted in two different ways. On the one hand, it is possible to argue that we observe here an emerging orthographic convention, which manifests itself through the selection of one phonetic variant per lexeme merely for purposes of writing. According to such an approach, the treatment of clusters in Old Hittite orthography would not be indicative of the actual evolution of language. On the other hand, the standardization of lexical representations may reflect the development of spoken Hittite, in which case one has to conclude that prothesis and epenthesis were well on the way to acquiring phonological status by the 15<sup>th</sup> century BC. Since there is no independent evidence for the subphonemic character of these processes in later Hittite, in this reply I will pursue the second solution, which also appears closer to Melchert’s own views.

One must, however, stress that the phonological prothesis and epenthesis discussed here do not represent mechanical consequences of universal constraints on syllable structure, contrary to what is asserted in Kavitskaya 2001. On the one hand, the diverse reflexes of the etymological *sp*-clusters strongly suggest that both phonological processes spread by way of lexical diffusion. On the other hand, as shown in Kassian & Yakubovich 2002, there is evidence for even more complicated initial clusters, which are nonetheless synchronically reflected in Old Hittite orthography. The best example is the verbal stem *za-aš-ki-* alternating with *zi-ik-ki-* and *zi-ki-* in the meaning ‘to put (around)’ (Kassian 2002: 136, cf. Yates 2016: 169 fn. 16), the imperfective derived from *dāi-/tiya-* ‘to put, place’ which can only represent /tske-/. Furthermore, there is enough morphological evidence to argue that *zaškaraiš* ‘anus’ and *zašhai-* ‘dream’ synchronically contain the clusters /tsk-/ and /tsx-/ respectively (cf. Kloekhorst 2008: 700, 875, Hoffner & Melchert 2008: 47). One needs a vivid imagination in order to build up a hierarchy of universal syllabic constraints that proscribes, for example, word-initial /sk-/ but accommodates word-initial /tsk-/.<sup>3</sup>

<sup>3</sup> This is not to deny the hypothesis that the universal constraints were quietly at work behind the scene as the evolution of Hittite clusters took its particular course. But one is unlikely to acquire a reputation like that of Sherlock Holmes if one begins with invoking the fallen nature of human beings (or the inherent injustice of capitalism) as a motivation for a particular crime. On a more positive note, it is worth pointing out that the Proto-Anatolian word-initial initial \*sC- clusters appear to have received differential treatment not only in Hittite but also in Lu-

It is under the prism of this observation that one has to approach the development of the verb *špand-* ‘to libate’ in the history of Hittite. If different strategies of cluster simplification spreading by way of diffusion were competing for the etymological *sp*-clusters in Old Hittite, it is perfectly possible that none of them had yet been generalized in pronunciation for certain lexical items. This is, in fact, more or less what is argued by Melchert in the instance of *šuppištuwara-*, which is once attested in the shape *iš-piš-du-wa-ra-* (KUB 42.64 Rev. 2). The only reason that appears to preclude Melchert from extending the same type of explanation to the variation between *iš-pa-* and *ši-pa-* in *špand-* is that the strategy of *i*-epenthesis appears to be otherwise unattested with the etymological *sp*-clusters.

Nevertheless, *i*-epenthesis has been claimed for other Hittite clusters involving a combination “s+stop”. Thus Kloekhorst (2008: 808) plausibly argues that /tské/á-/ ‘to put around’ began to develop epenthesis already in Old Hittite, as the spelling variant *zi-ik-ki-*, to become standard in the later period, would appear to suggest. One also encounters 1sg.prs *tar-ši-ik-ki-mi*, whose stem reflects the imperfective of *tarn(a)-* ‘to let (off)’, in the Old Hittite / Old Script corpus (Kassian & Yakubovich 2002: 34). In the later period epenthesis of the same type becomes common in other imperfective forms formed from roots ending in coronal stops, e.g. *az-zi-ik-ki-* /atsiki-/ from *ad-* ‘to eat’, *ar-ši-ik-ki-* /arsiki-/ from *arr-* ‘to wash’.<sup>4</sup> But the stems ending in labial and velar stops implemented a different strategy of attach-

---

vian. As Melchert (p. 190–191) justly points out, we have sufficient evidence for Luv. \*/st/ > /t/, but not for the analogous development in clusters containing velar stops. In fact, Rieken (2010: 657) has plausibly argued that Luv. \*sk evolved into [jk] in the verb *sà-ka-ta-li-sà-* [kantalif:a-] ‘to provide with decorations, make shine’. Rieken’s interpretation of the Anatolian hieroglyph <sà> as a designated syllabogram for rendering the sound [j] is also conducive to taking Luv. (CAELUM.\*286.x)*sà-pa-tara/i-i-sa* ‘libation-priest’ as [jpantaris], or something similar. Note, however, that a different development can be observed in Luv. *parri(ya)-* ‘to spread’ vs. *išpar-* ‘to spread, strew’ (Melchert 2014: 504) and Luv. *part(a/i)-* ‘leg (of animal)’ vs. Hitt. *išpart-* ‘to jump, escape’ (Oettinger 2015: 271–272). Therefore I continue to believe that Luv. (CAELUM.\*286.x)*sà-pa-tara/i-i-sa* represents a loanword from Hittite.

<sup>4</sup> Note, however, that even for the Middle Hittite period one can still confidently reconstruct the (optional) lack of epenthesis between the Hittite verbal roots ending in coronal consonants and the imperfective *sk*-suffix. Cf. such forms as *az-za-ki-tin* HBM 17 Rs. 43 (MS), *ši-pa-an-za-kán-du* KUB 40.56 + KUB 31.88 + Rs III 7, 12 (MS). See Kassian & Yakubovich 2002: 37–38 for additional synchronic evidence from Old Hittite. The claim that “there are examples to show that prehistorically there was epenthesis in all sequences of VC-ské/ó- except those in Vs-ské/ó-” (Melchert 2012: 179) is not illustrated with empirical data and therefore can be disregarded for the time being.

ing the imperfective suffix /-ské/á-/, e.g. *ša-an-ḫi-iš-ki-* from *šanḫ-* ‘to seek’, 3pl.prs *ap-pi-iš-kán-zi* from *epp-* ‘to seize’ (see Kassian & Yakubovich 2002: 33–37 for more examples). It is remarkable that Darya Kavitskaya, who otherwise frequently argues for direct application of phonological constraints, essentially accepts here a spread by diffusion. She claims that “[a]fter the *zikke-* form was created, one can hypothesize that the analogical extension of this form to other dental stems took place” (Kavitskaya 2001: 283).<sup>5</sup>

If the epenthesis in /tské/á-/ could influence the epenthesis in /arské/á-/, there are no reasons to *a priori* exclude the hypothesis that the same process affected the stem /spánd-/. To be sure, this is a non-trivial claim, because it extends the diffusion of *i*-epenthesis beyond the morphological domain for which it has been demonstrated, but its additional target is an isolated lexeme. One can, however, point out that the *u*-epenthesis in the etymological *sp*-clusters likewise appears to be restricted to *šuppištuwara-* ‘decorated (vel sim.)’ and *šuppištuwara-* ‘decoration (vel sim.)’. A possible explanation for the rarity of the two strategies is that the productive process of *i*-prothesis encroached upon both of them within the domain of word-initial clusters “s+stop”. In the instance of *u*-epenthesis, the onomastics of the Colony period is conducive to reconstructing its productive character within a limited domain of *sp(u)*-clusters. It is therefore perfectly possible, although not provable, that certain additional clusters “s+stop” also exhibited optional *i*-epenthesis before the cuneiform was adapted for writing Hittite.<sup>6</sup>

---

<sup>5</sup> The most recent brief discussion of *i*-epenthesis in Hittite imperfectives known to me, namely Yates 2016: 169–170, strives to account for it within the framework of the Optimality Theory. This discussion, however, does not go quite to the heart of the matter, because it fails to refer to the faithfulness constraint(s) that interact with the Sonority Sequencing Principle. In my opinion, of utmost relevance here is the No Breaking constraint, which prohibits splitting the phonological units of the input representation. As already pointed out in Kassian & Yakubovich 2002: 43, albeit in different terms, the difference between the derivations /apskV-/ → [ap:iskV-] and /atskV-/ → [ats:ik:V-] lies in the fact that /ts/ is a Hittite phoneme, whereas /ps/ is not. The derivation /atsk-/ → [ats:ik:-] satisfies both the Sonority Sequencing Principle and No Breaking constraint at the cost of violating a lower-ranking principle “align epenthesis with morpheme boundaries”. Such an explanation may not, however, be applied to the case of /arskV-/ → [arsik:V-] (as opposed to [ar:iskV-]) and similar cases, which must, therefore, be explained as an imitation of /atskV-/ → [ats:ik:V-] and similar cases. Since the process under discussion involves a proportion between the underlying ad phonetic representations, it is more appropriate to define it as diffusion of epenthesis rather than analogy.

<sup>6</sup> The change in the phonetic treatment of \*sC-clusters finds a typological parallel in the history of Persian. Thus it is usually

Naturally, we would have to assume that at the point when *i*-prothesis, *i*-epenthesis, and *u*-epenthesis had been in competition with each another, all the three processes had been subphonemic.

Now it is possible to compare the predictions of my new hypothesis with those of Melchert. I see the variation between the spellings *iš-pa-* and *ši-pa-* in the forms of *špand-* ‘to libate’ as a vestige of free allophonic alternation, of a kind that I also reconstruct behind spelling variations *Iš-pu-da-aḫ-šu* and *Šu-pu-da-aḫ-šu* in Old Assyrian. For Melchert, the forms *išpand-* and *šipand-* reflect two different stems, so the opposition between them must be phonological. I submit that *ši-pa-(a)-an-ti* and similar spellings provide a straightforward argument for preferring my analysis. The seeming violation of Sturtevant’s rule in this form, dismissed by Melchert as a random phenomenon, indicates that the phonological representation of the root was still /spand-/ in Old Hittite. It probably became /sipand-/ in the Middle Hittite period, after the phonetic variant [s'pa:nd-] came out of use in finite forms, although the conservative scribal tradition retained the spelling *ši-pa-(a)-an-ti* for a while. Eventually, however, it was replaced with the predictable *ši-ip-pa-(a)-an-ti*, which again fully conformed to Sturtevant’s rule. The likely sociolinguistic reasons for this orthographic reform were discussed in Yakubovich 2009, and I hope that the assumption of a real phonetic epenthesis can only make this account more credible. Two additional advantages of the proposed account over the reduplication hypothesis of Melchert consist in avoiding synchronic suppletion and irregu-

---

assumed that the default strategy in processing the Iranian lexemes was epenthesis, as in Pers. *setāre* ‘star’, but the recent loanwords undergo prothesis, as in Pers. *estudyo* ‘studio’ (cf. Windfuhr & Perry 2009: 428). Note, however, that even today some Persian native speakers implement a combination of phonetic prothesis and epenthesis while learning the pronunciation of English clusters “s + stop” (Jabbari 2011: 242, Table 2).

lar dissimilation *\*sespo/end-* > *\*sēpo/end-* (compare the previous section).

At the same time, the hypothesis of *i*-epenthesis comes at a considerable price when compared with the graphic disambiguation hypothesis, which was advocated in Kassian & Yakubovich 2002. Beside the necessity of assuming the arbitrary spread of *i*-epenthesis from [ts'ke:/a:-] to [s'pa:nd-], one has to reckon with the loss of direct motivation for the distribution of graphic variants in the Old Hittite paradigm of *špand-* ‘to libate’. To be sure, a broad explanatory account still remains possible. If the phonetic process of *i*-epenthesis were spreading by way of lexical diffusion before the *i*-prothesis was generalized across the board, one might argue that it initially affected the 3sg form [s'pa:ndi] in conformity with the general tendency of diffusional sound changes to target first the most frequent forms [Labov 1994: 483]. The subsequent spread from 3sg to 3pl, but not to 1sg, stays within the pool of trivial analogical patterns. But the assumption of graphic disambiguation between *ši-pa-an-ti* ‘to libate’ and *iš-pa-an-ti* ‘at night’ would have an advantage of immediately restricting its scope to the specific form where it happens to be most frequently observed. On the other hand, the scenario of Kassian & Yakubovich 2002 complicates the account for the New Hittite spelling *ši-ip-pa-(a)-an-ti* and is rendered more problematic by new suggestive evidence for the phonetic character of *i*-prothesis, as argued earlier in this section.

Summing up, the accounts in terms of graphic disambiguation and phonetic epenthesis remain viable alternatives, the selection between which will ultimately depend on the broader question of what happened to etymological sC-clusters in Hittite. I am now leaning toward the phonetic explanation, but I do not consider the issue fully settled. But whichever of these two solutions one prefers, there is no need to assume that the variants *išpā/ant-* and *šipā/ant-* historically reflect two different stems.

## References

- Bernabé Pajares, Alberto. 1973. La geminación de *s* y sonantes en hetita. *Revista española de lingüística* 3: 415–56.
- Brugmann, Karl. 1897–1916. *Grundriß der Vergleichenden Grammatik der Indogermanischen Sprachen*. Strassburg: Trübner.
- Byrd, Andrew. 2010. *The Indo-European syllable*. Leiden/Boston: Brill.
- Carruba, Onofrio. 1966. *Das Beschwörungsritual für die Göttin Wišurijanša*. Wiesbaden: Harrassowitz.
- CAD = *The Assyrian Dictionary of the Oriental Institute of the University of Chicago*. Chicago: The Oriental Institute, 1956–.
- CHD = *The Hittite Dictionary of the Oriental Institute of the University of Chicago*. Chicago: The Oriental Institute, 1989–.



- Dercksen, Jan G. 2007. On Anatolian Loanwords in Akkadian Texts from Kültepe. *ZA* 97: 26–46.
- Eichner, Heiner. 1973. Die Etymologie von heth. *mēhur*. *MSS* 31: 53–107.
- Eichner, Heiner. 1975. Die Vorgeschichte des hethitischen Verbalsystems. In: Helmut Rix (ed.). *Flexion und Wortbildung: Aken der V. Fachtagung der Indogermanischen Gesellschaft, Regensburg, 9.–14. September 1973*. Wiesbaden: Reichert: 71–103.
- Forssman, Bernhard. 1994. Zu hethitisch *šipand-* and *išpand-*. In Jens E. Rasmussen (ed.). *In honorem Holger Pedersen: Kolloquium der Indogermanischen Gesellschaft vom 26. bis 28. März 1993 in Kopenhagen*. Wiesbaden: Reichert: 93–106.
- Giusfredi, Federico. 2010. *Sources for socio-economic history of the Neo-Hittite states*. Heidelberg: Winter.
- Giusfredi, Federico. 2014. I limiti della regolaritàgrafematica: alcuni esempi dall' anatolico. *Kadmos* 53(1–2): 185–191.
- Hajnal, Ivo. 1995. *Der lykische Vokalismus*. Graz: Leykam.
- Hoffner, Harry A. Jr., H. Craig Melchert. 2008. *A grammar of the Hittite language*. Part 1: *Reference grammar*. Winona Lake: Eisenbrauns.
- Jabbari, Ali A. 2011. Persian learners' syllabification of English consonant clusters. *International Journal of English Linguistics* 1/1: 236–246.
- Jasanoff, Jay. 2003. *Hittite and the Indo-European verb*. Oxford/New York: Oxford University Press.
- Jasanoff, Jay. forthcoming. What happened to the perfect in Hittite? A contribution to the theory of the *h<sub>2</sub>e*-conjugation. In Elisabeth Rieken (ed.). *100 Jahre Entzifferung des Hethitischen. Morphosyntaktische Kategorien in Sprachgeschichte und Forschung*. Wiesbaden: Reichert.
- Kassian, Alexei. 2000. Khettskoje *ispan-* ~ *sipan-* 'zhertvovat': k foneticheskoy interpretacii. *Colloquia Classica and Indogermanica / Klassicheskaja filologija i indojevropejskoje jazykoznanije* II: 37–39.
- Kassian, Alexei, Ilya Yakubovich. 2002. The reflexes of Indo-European initial clusters in Hittite. In Vitalij Shevoshkin, Paul Sidwell (eds.). *Anatolian languages*. Canberra: Association for the History of Language: 10–48.
- Kavitskaya, Darya. 2001. Hittite vowel epenthesis and the sonority hierarchy. *Diachronica* 18/2: 267–299.
- Keydana, Götz. Die Indogermanische Perfektreduktion. *Folia Linguistica Historica* 22: 61–116.
- Kimball, Sara. 1999. *Hittite historical phonology*. Innsbruck: Institut für Sprachwissenschaft der Universität Innsbruck.
- Kloekhorst, Alwin. 2008. *Etymological dictionary of the hittite inherited lexicon*. Leiden/Boston: Brill.
- Kloekhorst, Alwin. 2014. *Accent in Hittite: A study in plene spelling, consonant gradation, clitics, and metrics*. Wiesbaden: Harrassowitz.
- Knobloch, Johannes. 1956. Hethitische Etymologien. In: Kurt Schubert et al. (eds.). *Vorderasiatische Studien. Festschrift für Viktor Christian zum 70. Geburtstag*. Vienna: 66–8.
- Kronasser, Heinz. 1966. *Etymologie der hethitischen Sprache*. Band 1. Wiesbaden: Harrassowitz.
- Kümmel, Martin. 2000. *Das Perfekt im Indoiranischen*. Wiesbaden: Reichert.
- Labov, William. 1994. *Principles of linguistic change: Internal factors*. Oxford: Blackwell.
- LIV<sub>2</sub> = Kümmel, Martin, Helmut Rix (eds.). 2001. *Lexikon der indogermanischen Verben. Die Wurzeln und ihre Primärstammbildungen*. 2. Auflage. Wiesbaden: Reichert.
- Melchert, H. Craig. 1984. *Studies in Hittite historical phonology*. Göttingen: Vandenhoeck and Ruprecht.
- Melchert, H. Craig. 1994. *Anatolian historical phonology*. Amsterdam/Atlanta: Rodopi.
- Melchert, H. Craig. 2004. Hittite nominal stems in *-anzan-*. In: Eva Tichy, Dagmar S. Wodtke, Britta Irslinger (eds.). *Indogermanisches Nomen. Derivation, Flexion und Ablaut*. Bremen: Hempen: 129–39.
- Melchert, H. Craig. 2012. Hittite "heteroclit" *s*-stems. In: Adam I. Cooper, Jeremy Rau, Michael Weiss (eds.). *Multi nominis grammaticus: Studies in Classical and Indo-European linguistics in honor of Alan J. Nussbaum on the occasion of his sixty-fifth birthday*. Boston/Ann Arbor: Beech Stave: 175–84.
- Melchert, H. Craig. 2014. Hittite *išpar-* 'to spread out' and *išparre/a-* 'to kick'. In Piotr Taracha (ed.). *Proceedings of the Eighth International Congress of Hittitology*. Warsaw: Agade: 499–506.
- Melena, José L. 2014. Mycenaean Writing. In Yves Duoux, Anna Morpurgo-Davies (eds.). *A Companion to Linear B: Mycenaean Texts and their World. Volume 3*. Louvain-la-neuve: Peeters: 1–186.
- Neu, Erich. 1970. *Ein althethitisches Gewitterritual*. Wiesbaden: Harrassowitz.
- Neu, Erich. 1996. *Das hurritische Epos der Freilassung I. Untersuchungen zu einem hurritisch-hethitischen Textensemble aus Hattuša*. Wiesbaden: Harrassowitz.
- Neumann, Günter. 1987. Review of Gary M. Beckman, *Hittite birth rituals* (Wiesbaden: Harrassowitz, 1983). *IF* 92: 279–83.

- Nussbaum, Alan. 2014. The PIE proprietor and his goods. In: H. Craig Melchert, Elisabeth Rieken, and Thomas Steer (eds.), *Munus amicitiae Norbert Oettinger a collegis et amicis dicatum*, 228–54. Boston/Ann Arbor: Beech Stave.
- Oettinger, Norbert. 1979. *Die Stammbildung des hethitischen Verbuns*. Nürnberg: Carl.
- Oettinger, Norbert. 2015. “Hethitisch” *partipartiske*- ‘laufen’ (\**sperdh-*) und *mutmutali-* ‘Schweinewühlplatz’. *Münchener Studien zur Sprachwissenschaft* 69/2: 269–279.
- Otten, Heinrich. 1961. Eine Beschwörung der Unterirdischen aus Boğazköy. *ZA* 54: 114–57.
- Otten, Heinrich, and Vladimir Souček. 1969. Ein althethitisches Ritual für das Königpaar. Wiesbaden: Harrassowitz.
- Poetto, Massimo. 1986. Eteo (<sup>URUDU</sup>)*šalepikkušta-*. *Sprache* 32: 52–3.
- Rieken, Elisabeth. 1999. *Untersuchungen zur nominalen Stammbildung des Hethitischen*. Wiesbaden: Harrassowitz.
- Rieken, Elisabeth. 2000. Hethitisch *šumumahl-*. *HS* 113: 171–5.
- Rieken, Elisabeth. 2002. Ein Lautgesetz und der Obliquusstamm des urindogermanischen Personalpronomens der 1. und 2. Person Plural. In: Matthias Fritz, Susanne Zeilfelder (eds.). *Novalis. Festschrift für Günter Neumann zum 80. Geburtstag*. Graz: Leykam: 407–16.
- Rieken, Elisabeth. 2010. Das Zeichen <sa> in Hieroglyphen-Luwischen. Aygül Süel (ed.). *Acts of the VII<sup>th</sup> International Congress of Hittitology*. Ankara: Anit: 651–660.
- Sandell, Ryan. 2016. Obligatory contour principle effects in Indo-European phonology: Statistical evidence and the morphology-phonology interface. In: Stephanie W. Jamison, H. Craig Melchert, and Brent Vine (eds.). *Proceedings of the 26th Annual UCLA Indo-European Conference*. Bremen: Hempen: 141–60.
- Schulze-Thulin, Britta. 2001. Fortsetzer urindogermanischer *-o-éye/o-*Kausativa/ Iterativa im Hethitischen. In: Onofrio Carruba and Wolfgang Meid (eds.). *Anatolisch und Indogermanisch/Anatolico e indoeuropeo*. Innsbruck: Institut für Sprachen und Literaturen der Universität Innsbruck: 381–93.
- Schumacher, Stefan. 2005. ‘Langvokalische Perfekta’ in indogermanischen Einzelsprachen und ihr grundsprachlicher Hintergrund. In Gerhard Meiser, Olav Hackstein (eds.). *Sprachkontakt und Sprachwandel: Akten der XI. Fachtagung der Indogermanischen Gesellschaft, 17–23. September 2000, Halle an der Salle*. Wiesbaden: Reichert: 591–626.
- Tischler, Johann. 2006. *Hethitisches Etymologisches Glossar*. Teil II/2. Lfg. 14 S/2. Innsbruck: Institut für Sprachen und Literaturen der Universität Innsbruck.
- de Vaan, Michiel. 2003. Review of *Proceedings of the 12<sup>th</sup> Annual UCLA Indo-European conference*, Martin E. Huld et al. (ed.) [Washington, DC: Institute for the Study of Man]. *Amsterdamer Beiträge zur älteren Germanistik* 58: 283–288.
- Watkins, Calvert. 1975. La désignation indo-européenne du ‘tabou’. In Julia Kristeva, Jean-Claude Milner, Nicolas Ruwet (eds.). *Langue, discours, société. Pour Émile Benveniste*. Paris: Éditions du seuil: 208–14.
- Weiss, Michael. 2010. *Language and ritual in Sabellic Italy: The ritual complex of the third and fourth Tabulae Iguvinae*. Leiden/Boston: Brill.
- Windfuhr, Gernot, John R. Perry. 2009. Persian and Tajik. Gernot Windfuhr (ed.). *The Iranian languages*. London: Routledge: 416–544.
- Yakubovich, Ilya. 2009. Anaptyxis in Hitt. \**spand-* ‘to libate’: One more case of Luvian influence on New Hittite. In N. A. Bondarko, N. N. Kazanski (eds.). *Indoeuropeyskoe yazykoznanie i klassicheskaya filologiya. XIII. Chteniya pamyati I.M. Tronskogo*. St. Petersburg: Nauka: 545–57.
- Yakubovich, Ilya. 2010a. Review of Hoffner and Melchert 2008. *Bibliotheca Orientalis* 67: 147–54.
- Yakubovich, Ilya. 2010b. *Sociolinguistics of the Luvian Language*. Leiden/Boston: Brill.
- Yates, Anthony D. 2016. Left but not leftmost? Interactions between epenthesis and ictus assignment in Anatolian. Stephanie D. Jamison et al (eds.). *Proceedings of the 26<sup>th</sup> Annual UCLA Indo-European Conference*. Bremen: Hempen: 161–178.
- Zukoff, Sam. 2014. On the origins of Attic reduplication. In: Stephanie W. Jamison, H. Craig Melchert, Brent Vine (eds.). *Proceedings of the 25th Annual UCLA Indo-European Conference*. Bremen: Hempen: 257–78.
- Zukoff, Sam. 2015. Poorly-cued repetition avoidance in Indo-European reduplication. Paper presented 9 January at the 89th Annual Meeting of the Linguistic Society of America, Portland, Oregon. <https://www.academia.edu/10119026/> (accessed 13 May 2016).

Крейг Мелчерт. Начальный кластер *\*sp-* в хеттском языке и глагол *šip(p)and-* ‘жертвовать’.

Статья посвящена механизму развития из праиндоевропейского источника хеттской формы *ši(p)rand-* ‘совершать возлияние’. Эта тема остается достаточно противоречивой ввиду того, что от решения данного вопроса существенно зависит не только реконструкция развития начальных сочетаний вида «свистящий + смычный» в хеттском языке, но и определение статуса глагольной категории «перфекта» в анатолийских языках — были ли формы перфекта (которые в древнейших неанатолийских и.-е. языках выражали значение достижения того или иного состояния) унаследованы и затем утрачены в анатолийских языках, или же их следует считать, в рамках «индо-хеттской» гипотезы, общей инновацией на уровне индоевропейского «ядра»? Попытка вывести форму *ši(p)rand-* из редуцированного и.-е. перфекта *\*s(p)e-spónd-* в свое время была справедливо отвергнута по целому ряду формальных и функциональных причин; однако, учитывая достигнутый прогресс в изучении рефлексов и.-е. *\*sp-* в хеттском, а также ряд новейших гипотез относительно фонологической природы редупликации и ее роли в и.-е. глагольной морфологии, мы находим веские основания вновь вернуться к этому вопросу.

*Ключевые слова:* hi-спряжение, индохеттская гипотеза, праиндоевропейский перфект, редупликация.



*Galina Sim*

Institute of Linguistics of the Russian Academy of Sciences (Moscow); galjasim@gmail.com

### Towards Proto-Niger-Congo: Comparison and Reconstruction, Paris, LLACAN, September 1–3, 2016

The 2<sup>nd</sup> Niger-Congo Congress was held by the research unit “Languages and cultures of Sub-Saharan Africa” (LLACAN) in Paris on September 1–3, 2016 as a follow-up to the first Congress, also held in Paris four years earlier. Despite the fact that J. Greenberg’s original hypothesis is now more than fifty years old, the genetic reality of the Proto-Niger-Congo phylum continues to have a somewhat hypothetical status, and thus, the main stimulus for organizing the previous Congress was a rather ambitious idea to make a significant advance in the reconstruction of Proto-Niger-Congo within a foreseeable timespan through the combined efforts of Africanists from different parts of the world. At the conclusion of the first Congress it was agreed that such events should be held on a regular basis every three or four years. Another outcome of scientific collaboration during and after the congress would be a collective monograph (provisionally titled “Comparative-historical studies in East Benue-Congo” and edited by John Watters) that will be released in the near future.

The 2<sup>nd</sup> Congress was opened by Mark van de Velde, present director of LLACAN. The initial sessions concerned the Niger-Congo phylum as a whole, and the rest consisted of presentations on individual families within Niger-Congo, more or less grouped together by the degree of genetic affiliation between the languages concerned. Addressed issues included comparative and historical studies as such, as well as typological studies without any major conclusions on diachrony. Historical presentations referred to various language levels: segmental phonology, tonology, grammatical and semantic reconstructions. Regrettably, several planned participants were unable to attend the event, but all submitted abstracts and other materials remain available online at the website of the Congress (<http://llacan.vjf.cnrs.fr/nigercongo2/index.html>).

Generally following the chronological order, first, we will briefly describe the presentations that concentrated on specific issues of the Niger-Congo macro-family, and then outline the various reports on particular branches of Niger-Congo.

One of the most exciting disputes concerned the possible stem/root structure in Proto-Niger-Congo. Two polemical proceedings that succeeded one another represented drastically different points of view. Roger Blench (McDonald Institute for Archaeological Research / University of Cambridge) developed Kay Williamson’s original suspicion, based on Ijoid data, that the canonic Proto-Niger-Congo root structure was possibly not disyllabic (according to Blench, this point of view may be suspected of a “Bantu-centric” bias), but trisyllabic CVCVCV. These originally triconsonantal roots subsequently underwent erosion in most branches, although Ijoid and Dogon languages (as the first Niger-Congo outliers) still show evidence of the initial state. Another argument in support of this is that the three-syllable root structure provides an explanation for front/back vowel alternation between the Niger-Congo subfamilies.

An alternative view was presented by Konstantin Pozdniakov (INALCO – LLACAN). Using statistical tools, he came to the conclusion that the most common Proto-Niger-Congo root structure was monosyllabic. In order to identify possible later derivational strata, calculations were carried out separately for verb and noun stems. Taking into consideration all the meso-level language families, the speaker successively addressed three questions: the nature of the initial and final phonemes and the number of syllables, with the consolidated results leading to suggest a monosyllabic biconsonantal CVC structure.

In their joint study Dmitry Idiatov and Mark Van de Velde (LLACAN – CNRS) determined to what extent it is justified to postulate labial-velar stops in Proto-Niger-Congo upon analyzing the lexical frequency of labial-velars in languages of Northern Sub-Saharan Africa. After putting the frequencies on the map, it was discovered that they constituted two easily recognizable high labial-velar frequency clusters (Coastal West Africa and Central Africa) and perhaps one less prominent cluster (South-Eastern Mali and South-Western Burkina Faso). Taking into account the

typological rarity of these consonants, the areas seem likely to be pockets of retention of the original state rather than zones where independent innovation should be suggested. On the other hand, since labial-velar phonemes are atypical for the basic lexicon and tend to be used in the expressive part of the vocabulary, such as ideophones or property words, and also because their distribution is mostly restricted to stem-initial position, it was assumed that it was unlikely for Proto-Niger-Congo to have labial-velars. The main trigger for the emergence and spread of these phonemes was C-emphasis prosody, partial manifestation of which is stem-initial consonant lengthening and strengthening. The authors also cautioned against properly unfounded reconstruction of labial-velars in intermediate language units.

Larry Hyman (University of California, Berkeley) verified the general assumption about the presence of two level tones in Proto-Niger-Congo. The starting point for the survey was an intention to figure out how far it is possible to extend the regular correspondences between the existing tonal reconstruction of Proto-Bantu and reconstructions of higher level groupings which include Bantu. Only verbal stems were considered and only for those languages where root tone characteristics are not a part of verb morphology (TAM, negation, etc.), so as to deal as far as feasible with relics of inherited lexical tones. A further goal was to find out more about Niger-Congo verb structure by considering the verb extensions and their tone patterns. The major findings are that there is no evidence for reconstructing more than two register tones; verb extensions had their own inherent tone features.

A first attempt at a modern phylogenetic classification of Niger-Congo was made by Jean-Marie Hombert (Laboratoire Dynamique du Langage, CNRS – Université Lumière Lyon 2), Rebecca Grollemund and Simon Brandford (Evolutionary Biology Group, University of Reading). The input consisted of 100-item wordlists belonging to the basic vocabulary for a sample of languages from different Niger-Congo families; cognate sets allegedly were identified by manual evaluation. However, data sources and quality were not always clear, and, more importantly, neither was the scoring scheme for cognate detection, making it hard to evaluate the usefulness of the new scheme for further Niger-Congo studies.

One of the distinguishing features of Niger-Congo was the existence of a nominal classification system. Several of the presentations were devoted to its traces in descendant families, including a survey conducted by Robert Hepburn-Gray (University at Buffalo, SUNY)

that presented an overview of Niger-Congo noun class agreement systems, taking into account a number of parameters of cross-language variation, such as type of agreement targets, or number of distinct positionally conditioned realizations of the class markers; it seems, however, that the modest size of the sample and the employed methodology remain insufficient to make any far-reaching conclusions. Ronald Schaefer (Southern Illinois University) reviewed types of subordinated arguments in Niger-Congo branches, distinguishing between sentence-like, infinitival and truncated complements (nominalisations). Two major tendencies are represented within Niger-Congo: to mark indicative, subjunctive, and conditional clauses differently, or to make no distinction between any of them. Unfortunately, this report suffers from the same problem as the preceding one.

An important task for Niger-Congo studies is to precisely delineate the boundaries of the phylum. Thus, for instance, because of limited data sources and a number of typological shifts in their history, the status of the Kadu (Krongo-Kadugli) languages had long remained contentious. Under one hypothesis, they were associated with Niger-Congo (within Kordofanian, or as a different branch), under another, they were included with Nilo-Saharan. An additional benefit of George Starostin's (Russian State University for the Humanities / Russian Presidential Academy) ongoing reclassification of Greenberg's Nilo-Saharan phylum was that it supplied new evidence for Kadu's non-Niger-Congo affiliation. The revised classification was established by means of lexicostatistics combined with traditional comparative-historical method involving step-by-step reconstruction (moving from first-order proto-languages to higher levels of classification) of the most stable subset of Swadesh list items (for detailed description, see G. Starostin 2013). The findings show that the basic lexicon of Kadu languages shows far more significant phonetic similarities with Nilo-Saharan (specifically, Central Sudanic, since Nilo-Saharan as a valid taxon remains even more problematic than Niger-Congo), and that there is no lexical basis whatsoever to group them together with Niger-Congo.

Turning now to reports on individual (smaller) language groups and families, Sandro Capo Chichi (Université Paris VII-Paris Diderot / Laboratoire de Linguistique formelle) revised the function of the noun suffix *-i* in Proto-Gbe. Previously it was understood as marking compounds, diminutives, nouns similar to underived base, and instruments (Capo 1991). According to Capo Chichi, the affix is one of the complementarily distributed variants along with na-

sality of terminal vowel, and both of them served as nominalizer for marking loanwords with structures uncommon for Proto-Gbe.

The Kwa languages demonstrate great diversity in the design of their class systems from residual to quite elaborate (the Guang and the Ghana-Togo Mountain languages). As the classes are attested in genetically remote Kwa branches and have external parallels in other Niger-Congo families, Maria Konoshenko and Daria Shavarina (Russian State University for the Humanities) came to the conclusion that Proto-Kwa had a fully-fledged class system with canonical Niger-Congo class marking on nouns and agreement. They identified the main strategies of noun class attrition, comparing them with the generalizations formulated for other families. Almost the same issue, but from a different angle, was addressed by Ines Fiedler (Humboldt-Universität zu Berlin). She described the Kwa class system in terms of gender (cf. Güldemann 2000) and proposed refinements for the already existing reconstructions of Kwa subgroups.

Further related to general classification issues, Tucker Childs (Portland State University) offered motivation for establishing Mel as a group separate from Atlantic proper, and suggested an internal reclassification of the family, indicating major clusters: Temne-Baga, Bolom-Kisi and Gola as a single language branch. The rest of the report dealt with the reconstruction of definite markers for various Mel subgroups, whose distribution supports current views on the internal classification of Mel.

Guillaume Segerer (LLACAN) raised the issue of universality of the basic vocabulary among languages, building on the case of Joola. Joola (Bak < Northern Atlantic), a cluster of languages spoken in Lower Casamance, Senegal, exhibit minor differences in phonology and morphology that reflect their close relationship; however, low cognacy percentages in lexicostatistical calculations contradict this assumption. The speaker highlighted the most stable and most unstable items in the Swadesh list, comparing them with the ones proposed in S. Starostin 2007 and Holman et al. 2008, and outlined the main lexical replacement strategies, among others, taboo for words used for people's names after their death.

Another talk specifically tackled the Southern sub-branch of the Mande family. These languages are generally assumed to have isolating morphology, yet their pronominal systems are rather elaborate, with multiple pronominal series differing morphologically and syntactically. Valentin Vydrin (LLACAN – INALCO) presented scenarios for the proliferation of the pronominal series and his own reconstruction of

the Proto-Southern Mande pronominal system. Despite a series of innovations and complications of the system that took place in recent times, the proto-system itself was rather intricate as well, including, among other things, a clusivity opposition for both dual and plural numbers.

Lynell Zogbo (University of the Free State / Abidjan) attempted to determine whether a separate adjective category could be reconstructible for Proto-Kru. Given that the class does not exceed 6–20 items, is not particularly homogenous within itself (some adjectives pattern like verbs, others like nouns) and Western and Eastern Kru differ in models of noun class agreement, she concluded that even though the category did exist, it was modest in scope.

Jeffrey Heath (University of Michigan) discussed verbal inflection in Proto-Dogon, particularly the issue of stem-gradation, which enables to draw parallels between Dogon and other Niger-Congo families.

A significant contribution to the description of several underexplored Adamawa lects was made in the course of fieldwork trips undertaken in 2012–2014 by the Faculty of Asian and African Studies of St. Petersburg State University. In their joint report Anastasiya Lyahovitch and Alexander Zheltov (St. Petersburg State University) presented the main results of the survey. For the languages under consideration the authors compared their pronominal systems as well as numeral systems and copulas, with further discussion on the implications that this could have for the internal classification of the family. Ulrich Kleinewillinghöfer (JGU-Universität Mainz) drew attention to several languages within the Samba-Duru subgroup of Central Adamawa that still preserve the original nominal class system, while most other Adamawa languages have reduced or even lost it; the established tentative reconstructions for Central Adamawa bear clear similarities to the noun system earlier proposed for Gur.

On the Benue-Congo side of things, a further report by Bruce Connel (Glendon College, York University) focused on tonological reconstruction in Mambiloid (Northern Bantoid). Modern Mambiloid languages appear to have three to four contrastive tones, yet the absence of regular tonal correspondences in their systems imply that they are rather innovative. The speaker suggested a two-tonal system for Proto-Mambiloid and, using individual daughter languages as case samples, illustrated the evolution from two-level tone systems to polytonal ones.

Demola Lewis (University of Ibadan, Nigeria) used several algorithms for automated classification, such as the Automated Similarity Judgement Program and the Sound Correspondent Recognition Program, to

North Edoid languages. For source data, she used the Leipzig-Jakarta lists of basic vocabulary, a recent alternative to the Swadesh list (with 62 overlapping items), compiled by Martin Haspelmath and Uri Tadmor in the course of their cross-linguistic investigation of borrowings in the world's languages (cf. Haspelmath & Tadmor 2009). Oyetayo Bankale (University of Ibadan, Nigeria) proposed a new model of stem-initial consonant (the most stable position within the morpheme) inventory for Proto-West Benue-Congo, although his reconstruction would seem to deal more with phonetics rather than phonology.

Two presentations concerned the Ekoid languages, a small Southern Bantoid subgroup. The Ekoid group proper is often discussed in conjunction with its closest relative, a single language Mbe. During the first stage of divergence, the common ancestor of the Ekoid languages split into Proto-Ndoe and Proto-Bakor-Ejagham, which in turn subdivided into the Bakor and Ejagham clusters. John Watters (SIL International) presented a reconstruction of the Proto-Ekoid-Mbe noun class system. Noun class prefixes and concord markers of Mbe and all the proto-languages of Ekoid subgroups were matched with those reconstructed for Proto-Bantu; the results revealed that despite several transformations and mergers, Proto-Ekoid-Mbe had a relatively well preserved noun class system, since all Bantu classes (except for 13 and 18) have correspondences in Ekoid-Mbe. Continuing the Ekoid subject, Galina Sim (Institute of Linguistics, Russian Academy of Sciences) proposed a hypothetical segmental inventory for Proto-Ekoid, specifically dwelling on some controversial topics such as the voiceless/voiced obstruent split in Proto-Ndoe, which should rather be regarded as an innovation than an archaism. An overview of the Lower Cross speech forms spread in Akwa Ibom State of Nigeria and their suggested classification was presented by Emmanuel Akaninyene Okon (University of Uyo, Akwa Ibom State, Nigeria).

Both talks given by Jacky Maniacky (Royal Museum for Central Africa, Belgium) addressed the issues of semantic reconstruction in Bantu. An automated likelihood-based statistical model was devel-

oped by Rebecca Grollemund, Simon Branford, and Mark Pagel (Evolutionary Biology Group, University of Reading). It allows to align cognate sets phonemically and detect sound changes by evaluating probabilities for each node in the graph and choosing the most probable scenario. The model was applied to the Proto-Bantu material and enabled to automatically detect some sound changes that actually took place.

Investigations of particular Niger-Congo branches not only lay down the groundwork for prospective Niger-Congo reconstruction but also to a certain extent supply possible scenarios that could have taken place during earlier stages.

The final chord took the shape of two general discussions moderated by Konstantin Pozdnyakov and Larry Hyman. Following the conference, the first meeting of the newly formed Adamawa languages working group was held with the goal of focusing researchers' efforts on this least well explored branch of Niger-Congo. Nevertheless, many problems in Niger-Congo reconstruction still remain to be resolved, and, hopefully, all the initiatives will in fact result in fruitful cooperation and further progress in our understanding of African prehistory.

## References

- Capo, Hounkpatin B. Christophe. 1991. *A comparative phonology of Gbe* (Publications in African Languages and Linguistics 14). Berlin / New York: Foris Publications; Garome, Bénin: Labo Gbe.
- Güldemann, Tom. 2000. Noun categorization systems in Non-Khoe lineages of Khoisan. *Afrikanische Arbeitspapiere* 63: 5–33.
- Haspelmath, Martin, Uri Tadmor (eds.). 2009. *Loanwords in the World's Languages. A Comparative Handbook*. Berlin, Boston: De Gruyter Mouton.
- Holman, Eric, Søren Wichmann, Cecil H. Brown, Viveka Velupillai, André Müller, Dik Bakker. 2008. Explorations in automated language classification. *Folia Linguistica* 42(2): 331–354.
- Starostin, G.S. 2013. *Yazyki Afriki. Opyt postroeniya leksikostatisticheskoy klassifikacii*. Tom 1: *Metodologiya. Koysanskije yazyki*. Moscow: Yazyki slavyanskoy kul'tury.
- Starostin, S.A. 2007. *Opredelenie ustoychivosti bazisnoy leksiki*. In S.A. Starostin. *Trudy po yazykoznaniyu*. Moscow: Yazyki slavyanskikh kul'tur: 825–839.



П. В. Башарин

Russian State University for the Humanities (Moscow); pbasharin@yandex.ru

С. В. Кулланда [Sergei Kullanda].

Скифы: язык и этногенез [The Scyths: language and ethnogenesis].

М.: Университет Дмитрия Пожарского, 2016. 215 с.

Монография С.В. Кулланды подводит некоторый итог циклу работ автора, посвященных вопросам скифского языка. Скифские имена собственные и социальные термины являются важным источником не только для лингвистов, но и для историков. На основе их этимологизации Д.С. Раевский, развивая идеи В.И. Абаева (1949: 242–243) и Э.А. Грантовского (1960: 7–9), построил специфическую концепцию о характере скифского общества и его картине мира. Например, в именах трех легендарных братьев, Липокса — Арпокса — Колакса (соответственно, \**ripa* ‘горы’ по аналогии с названием Рипейских гор, \**āpra* ‘глубокий’, \**x<sup>v</sup>ar* ‘солнце’) он видел отражение представлений о трех мирах: верхнего — небесного, срединного — надземного и нижнего — подземных вод. Ряд этимологизаций, в том числе и приведенная выше, не имели под собой достаточных оснований и носили спекулятивный характер<sup>1</sup>. Однако эти гипотезы легли в основу трактовки ряда предметов материальной культуры, связанных с культурами скифского круга и позднее получили распространение в среде специалистов по скифской археологии.

На основании анализа скифского ономастикона в науке до сих пор господствует мнение о чисто гипотетическом разделении скифского и сарматского языков. В отечественной науке данная установка была сформирована работами В.И. Абаева, понимавшего под скифским языком «общее название для всех скифо-сарматских наречий и говоров, которые существовали на территории Причерноморья в период от VIII—VII вв. до н.э. до IV—V вв. н.э.»<sup>2</sup> и отказавшегося от разделения скифских и сарматских имен собственных. Схожих установок придерживаются и ведущие западные

иранисты (М. Майрхофер и Р. Шмитт). Таким образом, по замечанию автора, скифский в понимании упомянутых ученых являлся «конгломератом разновременных фонетических явлений, характерных для разных подгрупп иранских языков» (с. 5). Археологи часто отождествляют понятия «скифский» и «иранский».

К.Т. Витчак впервые предложил фонетические критерии разделения скифского и сарматского. Самым важным дифференцирующим признаком стало развитие в двух языках праиранского \**d*, отразившегося как *l* в скифском и как *d* в сарматском.

Рецензируемая монография состоит из трех глав. Первая посвящена предыстории скифов и открывается анализом вопроса прародины индоиранцев и иранцев. Ссылаясь на ряд заимствований в прафинно-угорский язык, демонстрирующий фонетические переходы, характерные для индоиранского, а не для праиранского (отсутствие переходов \**s* > *h*, \**kš* > *xš*), автор предлагает локализовать прародину индоиранцев в зоне, контактной с тогдашним проживанием финно-угров, не слишком далеко от таёжной зоны. Предположение о позднем переходе \**s* > \**h* для иранских, позволяющее видеть в народе, контактировавшем с финноуграми, не индоариев, а иранцев, выдвигавшееся с 60-х годов прошлого века некоторыми известными иранистами, так и не нашло достаточного обоснования (с. 17). С другой стороны, известная гипотеза Е.А. Хелимского о некоем не оставившем потомков индоарийском языке как об источнике этих заимствований, скорее применима к более позднему пласту заимствованной лексики.

Контактировали с индоиранцами также носители правосточнокавказского (пранахского) языка и картвелы. Потенциальным заимствованиям из северокавказских языков было посвящено несколько статей С.В. Кулланды<sup>3</sup>. В рецензируемой моногра-

---

<sup>1</sup> Раевский 1977. См. их критику в рецензируемой монографии (с. 119–120).

<sup>2</sup> Абаев 1949: 147. Этой точки зрения ученый придерживался в течение всей своей жизни.

<sup>3</sup> Кулланда 2012; Kullanda 2014.

фии автор обобщает выводы этих публикаций. Опираясь на нерегулярные передачи ряда рефлексов в индоарийских и иранских языках, он полагает, что говорить о единовременном заимствовании северокавказской лексики не представляется возможным. Большинство сопоставлений представляются вполне удачными, например, ἀκινάκης ‘персидский меч’, этимологии которого до сих пор не предлагалось, из пранах. \**ñāhki-* ‘железо’, \**nekV* ‘нож’<sup>4</sup>. Выведение др.-инд. *gandharvá* и авест. *gaṇḍarəβa-* из потенциального пранахского словосложения \**kanat* ‘мальчик, юноша; молодец, удалец’ + \**vāri* ‘шайка, банда’ не выглядит столь же надежной. Сложность локализации носителей картвельских и восточнокавказских языков в 3—2 тыс. до н.э. не позволяет дать однозначный ответ на вопрос о локализации индоиранцев, хотя напрашивается вывод об их продвижении с раннеиндоевропейской прародины через Кавказ в исторически засвидетельствованные места их обитания. Неясно, как эти данные увязываются с финно-угорскими контактами.

С другой стороны, восточнокавказские заимствования продолжают и отдельно в восточноиранские языки. Напрашивается логичный вывод, что последние могли заимствовать ряд лексем в процессе своего движения через Кавказ на Иранское нагорье и далее в Среднюю Азию. Этот аргумент является еще одним доводом в пользу движения праиранцев через Кавказ.

С.В. Кулланда полагает, что восточные иранцы населяли область Нижнего Поволжья. Аргументами для такого предположения служит авестийский гидроним *Raṇhā*, тождественный Рā Клавдия Птолемея и идентифицирующийся с Волгой, а также упоминание бобров (бобрех), из чьих шкур состоит облачение авестийской богини Ардвисуры Анахиты, между тем как в Аму-Дарье и Сыр-Дарье эти животные не обитают.

Сепаратные контакты собственно скифского проследить не удастся. Финно-пермские иранизмы, которые В.И. Лыткин считал заимствованиями из юго-восточных иранских языков на основании наличия в них озвончения интервокального \**-š-* в *-ž-*, могут демонстрировать собственно финно-пермское озвончение.

Вторая глава посвящена скифскому языку и культуре. Анализируя археологические материалы, маркеры продвижения носителей скифской культуры, автор приходит к выводу, что носители скифской материальной культуры пришли из

Приаралья, откуда происходит самая значительная часть категорий артефактов.

Основную часть второй главы составляет скифский глоссарий (с. 41—96). Анализируя все известные научные гипотезы по каждой конкретной лексеме, автор предлагает ряд новых этимологий. Анализ большего числа разбираемых этимонов до сих пор служит предметом острой полемики<sup>5</sup>.

В конце словника автор реконструирует несколько этимонов, не зафиксированных в письменных памятниках: \**gauçarga* этноним, \*\**θarmi* ‘вид дерева’, \*\**malaxa* (?) ‘саранча’, \**paraθi-* ‘топор’, \**raθana-* ‘ремень, веревка’. Однако *malax* скорее всего было заимствовано из языка типа согдийского (где оно, правда, не зафиксировано, но где, с другой стороны, слова для саранчи пока не найдено) или бактрийского.

Предположение автора, что согдийцы могли использовать графический ламед (*l*) для передачи звука *δ* (на том основании, что в перенятом согдийцами арамейском курсиве *далет* и *реш* не различались, а ламед в согдийском использовался только в заимствованиях за отсутствием там звука *ʀ*) (с. 98) лишено достаточных оснований. Гипотеза о существовании согдийского диалекта, где существовал переход *δ > l*, представляется более обоснованной, тем более, что данный гипотетический согдийский диалект разделяет эту особенность с юго-восточными иранскими языками. Даже если предположить, что пласт потенциальных согдийских заимствований в персидском на самом деле пришел из бактрийского, для существования подобного диалектального перехода в согдийском остается достаточно оснований (использование *l* для обозначения спирантов *δ* и *θ*)<sup>6</sup>.

Третья глава содержит характеристику основных фонетических особенностей скифского языка. Вслед за К.Т. Витчаком, С.В. Кулланда трактует все случаи появления скифского *l* как отражение восточноиранского *δ* и, соответственно, общеиранского \**d*. Переход в *δ* осуществился к VIII в., о чем свидетельствуют, с одной стороны, ассирийская и вавилонская передача самоназвания скифов *ašguza*, *asguza*, *iškūzaia* а с другой, — греческая *Σκῦθαι* < \**Skuda*. Известна и передача семитского *ḏ* через *t* в греческих текстах.

<sup>5</sup> Разбор примеров см. ниже.

<sup>6</sup> Ср., однако, исследование П.Б. Лурье и И.С. Якубовича, где демонстрируется, что все доказательства наличия ламбдаизма в постулируемом согдийском диалекте можно переинтерпретировать, а источником заимствования лексем с *l* в персидском является не согдийский, а бактрийский (Lurje, Yakubovich forthcoming).

<sup>4</sup> Автор не приводит на страницах монографии их полного списка, отсылая к выше цитируемым статьям.

Этноним Σκόλοτοι является более поздней передачей и отражает переход  $\delta > l$  (\*Skula). С другой стороны, этноним Σκύθαι, согласно С.В. Кулланде, наглядно демонстрирует эволюцию фонемы, обозначаемой тетой: переход из придыхательного в спирант. Из этого, полагает автор, следует, что первыми со скифами познакомились не ионийцы, с которыми имели дело жители Передней Азии, а дорийцы, т.е. население Балканского полуострова (если только этноним не попал к грекам через фракийскую передачу, что представляется более вероятным).

Гипотеза о таком переходе снимает проблему объяснения *l* в греческих передачах скифских имен ввиду преобладавшего в иранских языках ротацизма. С другой стороны, она заставляет пересмотреть ряд старых трактовок, связанных с социолингвистической областью. Например, имя Παϊσίσαλος, встречающееся в эпиграфике Крыма и Таманского полуострова, традиционно считается фригийским. С.В. Кулланда предположил, что это скифизированная форма имени боспорского царя Перисада (Παϊσιάδης).

Автор полагает, что данный переход является общегенетическим для юго-восточных иранских языков. Согласно Д.И. Эдельман, материал языков Гиндукуша, где изменение прослеживается в нуристанских и дардских языках, демонстрирует ареальный характер этого перехода. Однако, согласно ряду исследований (П.О. Шервё, А.И. Коган), это явление в языках Восточного Гиндукуша может объясняться влиянием иранских языков. С.В. Кулланда ссылается на заимствования из юговосточных иранских языков в древнеиндийский: передача топонима Бактрия (авест. *Vāxδī-*) как *Bāxlika*, *lipi* 'письмо' при западноиранском *dipi* (куда лексема, восходящая к шумерскому, попала через аккадский или эламский). Однако нужно заметить, что индийский материал демонстрирует не юго-восточные иранизмы вообще, а заимствования из бактрийского (de Blois 2013, 269).

Второй характерной особенностью скифской фонетики, согласно С.В. Кулланде, является переход начального \*xš- в сибилант, что передавалось *сигмой* в греческой графике. В отличие от этого, в сарматском \*xš- сохранялся и передавался греческой *кси*. На основании этого С.В. Кулланда отказывается от находящей поддержку у ряда современных ученых гипотезе о сарматской атрибуции племени саев и вслед за Б.Н. Граковым видит в них скифов.

Любопытно объяснение автором перебоев передачи иранских имен собственных с этимологи-

ческим начальным xš- в ассирийской, эламской и греческой передачах (типа ассир. *ká-aš/kaš-ta-ri-tu < Xšaθrita*, греч. ξατράτης (эпиграфич.) < \*xšaθrapā- при элам. *sa-tar-pa/ba-nu < Xšaθrapāna*, греч. σατράτης < \*xšaθrapā-). Подобные несоответствия вызваны различием в произношении самих иранцев (особенно на фоне того, что греки в остальных случаях различали иранские xš- и š/s-). Практически все имена, содержащие подобные перебои, отражают особенности мидийской фонетики (*θr* вместо др.-перс. *ç*). Исключением является первая часть имени, зафиксированного в арамейской графике на ахеменидской булле из Телло *ššhmr < xšaça* (согласно В. Хинцу). При этом переход \*xš- > s не был характерен для западных иранских языков (мидийского и древнеперсидского). Автор объясняет эти передачи отражением скифской фонетики (общееиранское \*θr отражается в греческих передачах скифских имен как τρ). Этот процесс мог быть вызван влиянием кочевого скифского элемента на местное мидийское население.

Сложность представляет собой объяснение интервокального *-d-*, появляющегося в ряде имен. Автор полагает, что в данных этимологиях мы имеем дело с отражением не *-d-*, а *nt- > d*. Ради этого он пересматривает традиционные этимологии: Μαδύες из \*mantu- 'советник, правитель', при общепринятой этимологии \*madu- 'мед', Αμάδοκοι из \*a-mantu-ka 'не имеющие правителей', при общепринятой этимологии \*āmādaka 'сыроядцы' из āma 'сырой' и ad 'есть'. С другой стороны, по мнению автора, сочетание \*nd- сохранялось как в Ἰνδάνθυρος, сопоставляемом с древнеперсидским *Vīdāfarnah-* Бехистунской надписи. Последнее передавалось по-гречески как Ἰνταφέρωνης / Ἰνταφρέωνης.

Интересна в этой связи трактовка гидронима Παντικάτης, традиционно объясняемого как 'Путь (panti) рыбы (kapa)'. Во-первых, *-nt-* < \**nθ-* могло не переходить в *d*. Во-вторых, гидронимы не обязательно имели скифское происхождение: ср. ниже о названии Дона Τάναϊς (сами скифы, согласно Плинию Старшему, называли Дон Силисом).

Согласно гипотезе автора, \*š дало скифское θ, вопреки общему для всех прочих восточных иранских *s*. Последний рефлекс отражен в передаче массагетских имен. Массагетскому имени собственному у Геродота Σπαργαπίσης соответствует скифское Σπαργαπέιθης. Следует заметить, что этот переход отражен в именах с элементом πείθης. Фасмер предложил влияние греческого элемента *-πείθης-* у Геродота. С.В. Кулланда полагает, что это влияние не могло быть решающим и приводит в пример потенциальные скифизмы в осетинском

типа *færæt* ‘топор’ < \**paraθu* < \**paraśu*, где *θ* появляется без всякого греческого посредства (при ожидаемом осетинском развитии \**ś* > *s*).

Этноним Θισαράται сопоставляется с др.-инд. *śiś-* ‘оставлять; выделять’ и трактуется как ‘отклонившиеся, удалившиеся’. Автор приводит экстралингвистический довод — сообщение Геродота о «скифах, отложившихся от царских скифов», живших к востоку от Меотиды (Азовского моря). Однако фисаматы жили в Причерноморье. Это географическое несоответствие автор объясняет перемещением скифских племен на протяжении III в. до н.э. (упоминание фисаматов встречается в декрете Протогена, предположительно конца этого столетия).

Особый случай развития \**ś* в скифском демонстрирует ряд имен божеств. Во-первых, это имя скифского Аполлона \*Γοιτόσουρος, вторую часть которого автор предлагает связывать с младоавест. *sūr* (<\**śuāh-*) ‘утро’ или из \**śūra* ‘сильный, могучий’. Третий элемент имени Афродиты Урании Ἀρφίμησα автор возводит к \**āśā-* ‘надежда’. Если считать, что имя Θαρμιασάδας содержит во второй части основу \**ā-sad-* ‘восседать, властвовать’, то оно тоже демонстрирует нетипичное для скифского развитие \**ś*. В этих случаях С.В. Кулланда полагает, что данные имена могли войти в скифский из другого арийского языка. Таким потенциальным источником он считает меотский или синдский.

Реконструкция некоторых фонем предположительна, в связи с отсутствием надежных примеров, например *v* < \**x*.

С.В. Кулланда исходит из предпосылки существования единого скифского языка, чьи фонетические особенности в одинаковой степени нашли отражение в иноязычных передачах: греческой, ассирийской, мидийской, авестийской и проч. Между тем, более реальной представляется гипотеза о существовании ряда скифских диалектов, которые могли иметь различные фонетические особенности. Тем более, что автор анализирует не только диалект «царских скифов» (зафиксированный у ряда греческих авторов), который мог представлять собой койне, но и данные греческой эпиграфики Причерноморья.

Скифский материал фиксировался в греческой графике на протяжении нескольких веков, начиная от Геродота (V в. до н.э.), в причерноморской эпиграфике (V—II в. до н.э.), у Лукиана (II в. н.э.) и Гесихия (V в. н.э.)<sup>7</sup>. При этом система передачи

скифской фонетики видоизменялась. Например, переход \**d* > *l* ряд иранистов связывал исключительно с диалектом «царских скифов». Впервые об общескифских процессах заговорил, кажется, только К.Т. Витчак.

Далеко не все греческие авторы имели о скифском языке точные представления. Типологически любая передача фонетики иноязычных имен часто грешит неточностями и гиперкоррекциями, даже при условии, что передатчик в некоторой степени владеет данным языком.

Это видно по гиперкоррекциям в передаче скифского вокализма в приводимом авторе лексиконе. Картина усложняется, если мы допускаем наличие ряда диалектов в самом скифском. В связи с этим не исключается и спорадическое различное отражение одних и тех же рефлексов.

Принятая автором гипотеза о едином скифском языке, а не ряда скифских диалектов, которые могли иметь различные фонетические особенности, порождает необходимость ревизии ряда этимологий. Например (если рассматривать примеры с самого начала глоссария), этноним Ἀμάδοκοι традиционно этимологизировался как \**āmādaka* ‘сыроды’ из *āma* ‘сырой’ и *ad* ‘есть’ (по В. Томашеку). С.В. Кулланда предлагает возводить лексему к \**amantu-ka* ‘не имеющие правителей’, от \**mantu-* ‘правитель’ или даже видеть в нем не скифский этноним. Возведение ΑΔΟΥΕΝΣ (имя из Фанагории) к \**hada-uxšan-* ‘богатый быками’ (этимология С.Р. Тохтасьева) также не принимается, т.к. \**d* должно было перейти в *l*. В этом этимоне С.В. Кулланда предлагает видеть заимствование из какого-то иранского языка, где не произошло данного перехода.

Спорадические колебания рефлексации можно проследить на примере *θ*. В ранних греческих передачах она отражает δ (в Σκύθαι < \**Skūda*), а в большинстве этимонов соответствует *θ* < \**ś* (например, Αθύρας из \**asū-* ‘быстрый’). Также тета появляется в отражении кластера *-st-* (*σθ*) Βορυσθίνης / Βαρυσθίνης < \**bauru-stāna* ‘место, [где водится] бобр’ (при этом автор не принимает предлагаемую А. Лома этимологию, допускающую \**varu-θana-*, \**varauš-θana-* ‘пойма [реки] Вару’). Наконец, встречается случай соответствия *θ-* ~ *t-* в композите Ἰνδάθουρος. Для данного композита предложен ряд этимологизаций, но ни одна из них не предполагает отражение теты во втором элементе. С.Р. Тохтасев на этом основании полагает, что имя не восходит к диалекту царских скифов<sup>8</sup>.

<sup>7</sup> Мы упоминаем исключительно датировку материала, приводимого автором.

<sup>8</sup> Подробнее о различных гипотезах этимологизации этого имени см. рецензируемую монографию (с. 66—67).

Отдельная часть главы посвящена вопросу потенциальных скифизмов как в древних иранских языках, так и в различных языках близлежащих регионов. Согласно мнению П. Лекока и А.М. Луботского, к скифскому словарю относится лексема *farnah-/x<sup>v</sup>arnah-* (эманация божественного света, символизирующего верховную власть). Общепринятой гипотезой является предположение, что форма *x<sup>v</sup>arnah-* первична и являлась общеиранским понятием, при том, что начальное *x<sup>v</sup>-* нашло отражение только в авестийской лексеме *x<sup>v</sup>arənah*. В последние десятилетия получила развитие гипотеза о первичности формы *farnah-* и о том, что форма с начальным *x<sup>v</sup>-* является результатом заимствования и гиперкоррекции. С.В. Кулланда не признает отнесения *farnah-* к скифскому словарю на том основании, что переход *p > f* перед гласным встречается в сарматском и осетинском, но не свойствен скифскому (наряду с раннесарматским!). Автор также не находит достаточных оснований в гипотезе А.М. Луботского о скифском переходе *\*ti > θi* (на основании трех древнеперсидских слов: *duvarθi-* ‘порт, колоннада’, *skauθi-/škauθi-* ‘слабый, бедный’, *\*θigra(ka)-* ‘чеснок’) из-за отсутствия надежных примеров для такого перехода. Ярким примером потенциального скифизма в мидийском является этноним *Skudra*, встречающийся в древнеперсидских надписях по отношению к фракийцам, который мог произойти от самоназвания скифов (*\*Skuda*). Имеется и другой пример передачи восточноиранского *δ* сочетанием зубной + *r*: мидийское *\*Bāxtrī-* (при авест. *Bāxδī-*). С.В. Кулланда полагает, что *r* в этих примерах является эпентезой для передачи специфического восточноиранского щелевого *δ*, а не исконным согласным<sup>9</sup>.

Ниже приведены случаи потенциальных скифских заимствований, постулируемых автором. Лексика текстов авестийского корпуса демонстрирует развитие *\*ś > θ* наряду с ожидаемым *s* (*gaēθu-* наряду с *gaēsū-* ‘курчавый’ (Яшт), *aīθi-θūra-* ‘могущественный’ наряду с *sūra-* ‘сильный, могучий’ (Яшт), *ana-saxtalanaθaxta* ‘тот, чей срок еще не прошел’ (Видевдат) и т.д.); *xš > s* (*sātar* ‘властитель’ вместо *\*xšātar*); *sr > θr* (*θraotah-* ‘поток’ вместо *\*sraotah-*). Эти дублиеты и замены издавна объяснялись как результаты смешения разных диалектов, вероятно, в устоявшихся культовых формулах (С. Викандер). Попытку объяснить их влиянием древнеперсидского С.В. Кулланда не принимает. Главным аргументом является то, что помимо перехода *\*ś > θ*

иных признаков древнеперсидской фонетики они не обнаруживают.

Автор делает предположение о существовании скифских объединений, образовывавших симбиоз с меотами и кобанцами. В доказательство этого он сопоставляет этноним *Μαῖται / Μαῖῶται / Μαῖῆται* с авест. *maēt/θ-/mit/θ-* ‘пребывать, проживать’ в смысле ‘коренные жители’. С другой стороны, автор считает меотской лексему из знаменитого митаннийского трактата Киккули *ца-ša-an-na* ‘беговой круг’, во втором слоге которой отражен не индоарийский рефлекс *\*h*, а его индоиранский вариант *\*zh*. Отсюда следует предположение, что арии могли составлять правящий слой меотского общества.

Меотам и синдам С.В. Кулланда определяет особую роль в этногенезе Причерноморских скифов, как арийскому (но не иранскому) народу, проживавшему в Северном Причерноморье. На то, что меоты и синды как население Северо-Западного Кавказа могли принадлежать к самостоятельной ветви арийских языков, по мнению автора, указывает ряд косвенных признаков. Во-первых, это разобранные выше имена скифских божеств, которые демонстрируют нетипичное для скифского развитие *\*ś > s*. Синдов, если возводить их этноним к арийскому *\*sindhu-* ‘река’, что должно дать в иранских *\*hindu*, скифы могли называть индами (что и засвидетельствовано рукописями труда Геродота, хотя издатели исправляют *Ἰνδοί* на *Σινδοί*). Симбиоз этих культур со скифской по оценке автора демонстрирует ряд особенностей материальной культуры Причерноморских скифов.

С.А. Старостин реконструировал для восточнокавказского лексему *\*vēlθi-* ‘войлок, бурка’, считая его заимствованием из какого-то индоиранского языка (ср. авест. *varasa* ‘волос’, др.-инд. *vāśa-* ‘побег, ветвь’). Фонема *\*θ* восстанавливалась им только для нескольких восточнокавказских праформ, которые не относились к исконной лексике. С.В. Кулланда полагает, что она является маркером заимствования из скифского. Он отмечает, что *θ* регулярна для древнеперсидского и скифского. Однако предок древнеперсидского не демонстрирует развития *\*ś > θ*, поскольку древнеперсидская форма названия Ассирии *Aθura* указывает на то, что это название было заимствовано с *ś*, который уже позже перешел в *θ*. Данное предположение выглядит весьма гипотетично: даже если полностью принять аргументацию автора по поводу проблематичности древнеперсидского источника, сложно исходить из положения, что переход *\*ś > θ* был характерен только для двух языков и не предположить, что могли быть и иные языки, где происходил подобный переход.

<sup>9</sup> В современной иранистике, впрочем, встречаются и прямо противоположные суждения (de Blois 2013).

О связи с западнокавказскими, согласно С.В. Кулланда, говорит скифское \**sana* ‘вино’ из западнокавказского \**s<sup>(w)</sup>ana* ‘смородина; вино’. Оно же присутствует в осетинском *sæn / sænæ* ‘вино’ (В.И. Абаев полагал, что переход был противоположным — из скифского в северокавказские).

Лингвистический материал (тем более не вполне надежный, особенно в случае с \**vēlθi-*) не является основным решающим фактором, подтверждающим связи скифов с народами северного Кавказа. Однако данные связи подтверждены рядом надежных археологических данных, и факт, что северокавказцы были тесно связаны с культурами скифского круга, не ставится под сомнение.

Ряд наблюдений может свидетельствовать в пользу контактов скифов с фракийцами. Ряд фракийских племен (сайи, сатры) имеют иранские наименования. Согласно ряду исследователей, об этих контактах свидетельствует этноним Σκύθαί, который мог попасть к грекам через фракийскую передачу. Упомянутый выше этноним *Skudra*, потенциальный скифизм в мидийском, встречается в древнеперсидских надписях по отношению к фракийцам и мог произойти от самоназвания скифов.

С.В. Кулланда также разделяет гипотезу Г. Хольцера о контактах скифских племен с еще одним, не индоиранским, индоевропейским субстратом, языком, в котором происходило оглушение звонких и озвончение глухих: название Дона Τάναϊς (ПИЕ \**dh<sub>2</sub>n-* ‘бежать, течь’), имя божества Ταβίτι (ПИЕ \**dh<sub>2</sub>p-* ‘готовить ритуальную пищу’).

В приложении автор дает перечень и краткую характеристику основных архаических скифских памятников (всего 16 объектов), содержащих вещи ближневосточного производства.

В конце монографии помещен указатель словоформ как скифского, так и прочих языков, затрагиваемых в тексте, что значительно упрощает поиски нужного пассажа.

Анализируя скифский языковой материал, исследователь неизбежно сталкивается с рядом альтернативных этимологизаций и трудностью в предпочтении одной из них. Ряд альтернативных скифских этимологий порождает острую полемику в кругах специалистов (см., например, Иванчик 2009; Кулланда 2011а; Он же 2011б). Положитель-

ной стороной работы является освещение всех научных теорий, наработанных учеными по каждому этимону. Она вряд ли поставит точку в вопросе этногенеза скифов, но, безусловно, станет ценным подспорьем для всех интересующихся скифским языком.

## Литература

- Абаев 1949 — В.И. Абаев. *Осетинский язык и фольклор*. М.—Л. [V.I. Abaev. *Osetinskij jazyk i fol'klor*. Moskva—Leningrad, 1949].
- Грантовский 1960 — Э.А. Грантовский. *Индо-иранские касты у скифов*. М. [E.A. Grantovskij. *Indo-iranskije kasty u skifov*. Moskva, 1960].
- Иванчик 2009 — А. И. Иванчик. К вопросу о скифском языке. *ВДИ* 2: 62—88. [A.I. Ivančik. K voprosu o skifskom jazyke. *Vestnik drevnej istorii*. 2009, 2: 62—88].
- Кулланда 2011а — С.В. Кулланда. Уроки скифского. *Вопросы языкового родства* 5: 48—68. [S.V. Kullanda. Uroki skifskogo. *Voprosy jazykovogo rodstva*. 2011, 5: 48—68].
- Кулланда 2011б — С.В. Кулланда. Скифы: язык и этнос. *Вестник РГГУ. Серия «Востоковедение. Африканистика»* 2 (64) / 11: 9—46. [S.V. Kullanda. Skify: jazyk i etnos. *Vestnik RGGU. Serija «Vostokovedenije. Afrikanistika»* 2 (64) / 11: 9—46].
- Кулланда 2012 — С.В. Кулланда. К проблеме лексических контактов северокавказских, индоиранских и классических языков. *Индоевропейское языкознание и классическая филология XVI*. СПб., 2012: 406—415. [S.V. Kullanda. K probleme leksičeskijh kontaktov severokavkazskijh, indoiranskijh i klassičeskijh jazykov. *Indoeuropejskoje jazykoznanije i klassičeskaja filologija XVI*. St Peterburg: 406—415].
- Раевский 1977 — Д.С. Раевский. *Очерки идеологии скифо-сакских племен. Опыт реконструкции скифской мифологии*. М. [D.S. Raevskij. *Očerki ideologii skifo-sakskich plemen. Opyt rekonstruktsii skifskoj mifologii*. Moskva, 1977].
- de Blois 2013 — F. de Blois. Bactria, Bāxdi, Balx. *Commentationes Iranicae. Сборник к 90-летию В.А. Лившица*. Под ред. С.Р. Тохтасьева и П.Б. Лурье. СПб.: 268—271. [*Commentationes Iranicae. Sbornik k 90-letiju V.A. Livšica*. Pod red. S.R. Tokhtas'eva i P.B. Lur'e. SPb: 268—271.]
- Kullanda 2014 — S.V. Kullanda. North Caucasian Loanwords in Indo-Iranian and Iranian. *Scripta Antiqua. Вопросы древней истории, филологии, искусства и материальной культуры: альманах*. Том 3. К юбилею Э.В. Ртвеладзе. М.: 717—725. [*Scripta Antiqua. Voprosy drevnej istorii, filologii, iskusstva i material'noj kul'tury: al'manah*. Tom 3. K jubileju E.V. Rtveldze. Moskva: 717—725]
- Lurje, Yakubovich, forthcoming — P. Lurje, I. Yakubovich. The Myth of Sogdian Lambdacism. In: D. Durkin-Meisterernst (ed.). *Memorial Volume in Honour of Werner Sundermann (1935—2012)*. Berlin, forthcoming.

Carlotta Viti (ed.).

*Perspectives on historical syntax.*

Studies in Language Companion Series 169. Amsterdam: John Benjamins, 2015. 158 p.

The volume under review is dedicated to various issues of historical syntax and syntactic reconstruction. The book is a collection of contributions resulting from the workshop “Syntactic change and syntactic reconstruction: new perspectives” held at the University of Zurich in September 2012.

In terms of linguistic reconstruction syntax has always been less investigated than phonology, lexicon or grammar. In the second half of the 20<sup>th</sup> century research on diachronic syntax began to take its place in the field of historical linguistic studies, Indo-European as well as historical linguistics in general (*inter alia*, Lehmann 1974, 1976, 2000; Faarlund 1990; Bauer 1995, 2000; Crespo & García Ramón 1997; Devine & Stephens 1999; Barðdal 2001; Hewson & Bubenik 2006; Luraghi 2010; Barðdal & Eythórsson 2012; Ferraresi & Goldbach 2008; Ferraresi & Lühr 2010; Harris & Campbell 1995; Lightfoot 1979, 1991, 1999, 2002a, 2006; Longobardi 2003; Batllori et al. 2005; Roberts 2007; Jonas et al. 2012). Unfortunately, the usual trend in historical syntax is that the research is conducted under different frameworks, with almost no exchange of data or methods. This results in very little consensus in academic spheres on important theoretical and practical issues concerning syntactic reconstruction. Meanwhile, scholarly interest in syntactic change and reconstruction is growing, since this territory is largely uncharted and could provide researchers with a lot of additional information on language relationship and contacts, as well as historical migrations in the history of civilization. With syntax constituting one of the essential layers of language structure, linguistic reconstruction can hardly be complete without considering syntactic change.

The very feasibility of such a reconstruction, though, is still under discussion. The obvious reason is that basic syntactic units are freely generated and not memorized, and vary in many more ways than phonemes, morphemes or lexemes. Therefore, they are hard to compare in different languages; it seems impossible to determine with any certainty which construction is etymologically older, and to reconstruct the previous stages according to the principles of the comparative method, which imply regular correspondences between linguistic units.

The book under review contributes to the understanding of historical syntax as a discipline of comparative historical linguistics. Carlotta Viti (University of Zurich) opens the discussion with general notions on the nature of historical syntax in the article “Historical syntax: problems, materials, methods, hypotheses”. Historical syntax is presented here as an emerging field of comparative linguistics; mechanisms of syntactic change and feasibility of syntactic reconstruction are discussed, as well as the general relevance of the volume for current studies in historical syntax. The author summarizes her introduction with a representative (but not exactly comprehensive!) list of references on previous research in historical syntax, about 8 pages in length. The bibliography, however, somehow lacks in fastidiousness: the names of A. Meillet, J. Wackernagel and K. Brugmann, M. Swadesh, C. Watkins and W. Lehmann, W. Labov, P. Kiparsky, J. Roberts and A. Garrett, whose influence on historical syntax and syntax theory cannot be overestimated, go along with dubious works on time depth in historical linguistics, such as Gray & Atkinson (2003), Renfrew et al. (2000), Longobardi & Guardiano (2009). The former two use phylogenetic methods to measure distances between cognate words, with ambitious, but not always reliable conclusions on prehistoric migrations; the latter focuses on building genealogical trees based on a list of syntactic parameters (see detailed discussion in Molina 2016). The aim of the introductory paper, though, is not to discuss the quality of the research, but to introduce the general problems of the field and present the most prominent perspectives of its development.

The chapter on syntactic change opens with a paper by Ekkehard König (Free University of Berlin & University of Freiburg), “Manner deixis as source of grammatical markers in Indo-European languages”. The main part of this paper focuses on the quite neglected aspect of relative demonstratives and their role in the process of grammaticalization, resulting in the development of new grammatical categories. The author discusses the well-known change from exophoric to anaphoric and cataphoric meaning, and also gives examples for cases of propositional anaphors,

developed from deictic words, as well as comparative markers, adverbial connectives, quotative, exclamative and approximative markers. He specifically looks into the semantic categories of ‘manner’, ‘quality’ and ‘degree’ (< Proto-Germanic \**swa*). In particular, he shows that Germanic languages lack a clear differentiation between the three categories mentioned above (Germanic and Romance languages are the ones in focus here). König claims to be using the comparative method for his study, taking a theoretical approach rather than a descriptive one. The general syntactic processes are reconstructed “on the basis of comparative evidence, synchronic observations of possible forms, and patterns of polysemy” as well as on the basis of theoretical information known about grammaticalization of demonstratives — the macro-processes of grammaticalization, observable in a variety of languages. The deictic particles of ‘manner’, ‘quality’, ‘degree’ are taken as a starting point for all further processes concerning other demonstratives.

By means of semantic analysis the author demonstrates on the examples of modern languages (English, German, Italian), as well as on ancient and proto-language material (Latin, Old German), the possible ways of semantic change from exophoric to anaphoric meaning, from anaphoric to connective, from cataphoric to quotative (the latter is typologically supported with data from African languages, via Güldemann 2008). One of the major construction types is the meaning change from an endophoric determiner to a comparative marker with further development into a relative marker (see also Haspelmath 2012; a detailed discussion of manner deictics in comparative constructions across languages is given in König 2013). The last change seems to have almost no support from linguistic material — still, König shows some Old Saxon / Old Low German examples (p. 54) that support this process, providing a perfect candidate for the reanalysis of comparative markers as relative markers:

- (1) sulike gesidos so he im selbo gecos  
 Such companions as he himself chose  
 ‘Such companions as/that he chose for himself...’  
 (Heliand text, 9th century, cf. Brandner & Bräuning 2013:138)

The main result of the paper is that, as suggested by the material, “demonstratives of manner, of quality and of degree are a highly relevant source for processes of grammaticalization”. However, the author stresses the preliminary character of this idea, and points out that it demands further research.

Frans Plank (University of Constance) begins his paper “Time for change” with a reference to physics,

astronomy and geology, lamenting that historical linguistics cannot offer the same exact timing for its milestone events, as is given for the Big Bang or the time of Earth emerging, in order to model the evolution of typological diversity in languages. He puts forward the idea that the time needed for a change (‘time-stability’) should be a direct object of study. The basic measuring unit for such a study might be one generation, or one instance of acquisition of a language. Plank claims that the absolute dating of changes in syntax is possible quite deep in time, if relative chronologies of changes are traced (p. 66). He also suggests that for some items of lexicon the time for change goes slower than for others, being incredulous at the idea of glottochronology: “The glottochronological constant has been so decisively discredited, and the identification of cognates has proved so formidable or indeed impossible a task without an in-depth expertise in the histories of the languages concerned, that one can only marvel at the recent surge of neoglottochronological enthusiasm and its gullible reception in high-profile science journals and the general press” (p. 70). It should be remarked that, as far as “neo”-glottochronology is concerned, Plank seems to only be acquainted with the well-publicized works of the Gray & Atkinson group (mentioned above with respect to the article of Carlotta Viti), whose methods were certainly let down by the poor quality of input lexicon material and, consequently, even poorer output results of dating. In fact, Plank confesses this in his own words: “Only one characteristic recent paper shall be mentioned, owing to its exceptional misproportion between rhetorical flourish and phylogenetic sophistication on the one hand and historical linguistic substance on the other: Greenhill, Atkinson, Meade & Gray 2010”. Different modern approaches to glottochronology, such as represented, e.g., in the project “The Global Lexicostatistical Database” (G. Starostin 2011–2016), are not taken into account by Plank in his paper.

As for his own ideas on time change, Plank suggests that there is a theoretical minimum for an elementary syntactic change, which takes three generations:

- individuals innovate;
- variation appears in the speech community;
- whole speech community follows the innovators.

According to the author, the loss of dual number in Attic Greek took precisely that minimum time, while in other languages this process took much longer: Old English is just one example, with over 600 years, or 25+ generations, for the change to take effect. Different changes, therefore, demand different spans of time. Plank advocates the idea that there is a list of possible



parameters for change, such as abruptness/gradualness, simple or complex innovation, social diffusion of the society, and so on (7 categories suggested in the paper): “Change should be rapid, reaching completion within the minimum span of three generations, if *all is easy*: simple actuation; abrupt transition; Neo-grammarians mode of implementation; elementary change; discernible, high-profile difference; decisive individuals; small, homogeneous, well-connected community”.

One particular case is investigated, namely, the grammaticalization of the local adposition ‘at’ from the noun ‘dwelling, home’. The aim of this case study is to determine the length of time for this change, and to compare its pace between several languages where it has occurred. Relevant instances are French *chez* ‘at’ from Late Latin *casalchiés*; Swedish, Danish, Norwegian *hos* ‘at’ from Old Norse *hus*; Icelandic and Faroese *hjá* ‘at, next to, by, with; of’ from Old Norse *hión* ‘family, household’; and late Pāli *gē* ‘at; of’ from Prakritic Indo-Aryan *geha*. The author shows that this change took approximately the same time (about 400 years = approximately 16 cycles of acquisition) to be completed.

The second part of the book, given over to issues of syntactic reconstruction, opens with a paper contributed by Thomas Smitherman (University of Bergen), called “Reconstructing non-canonical argument structure for Proto-Indo-European: methodological questions and progress”. The paper discusses methodological issues that have arisen over the investigation into the likelihood that oblique subject constructions in Indo-European languages are inherited from Proto-Indo-European. A four-year project, Indo-European Case and Argument Structure in a Typological Perspective (IECASTP, led by Jóhanna Barðdal, University of Bergen, in 2008–2012), had attempted to apply the comparative method to syntax, which allows Smitherman to discuss the difficulties encountered by the researchers.

As a starting point, he assumes that a syntactic reconstruction may be less reliable compared to a lexical one, but the reason for that is an extra layer of complexity — it should be based on a thorough reconstruction of phonetics, phonology, morphology (with complete understanding of allomorphy), formal and semantic aspects of lexicon. There are certain formal approaches to description of syntactic constructions, and a syntactic reconstruction of a language might look like an inventory of its possible constructions. IECASTP attempted to provide an example of how formal representations might work for PIE syntactic reconstructions (see Barðdal & Smitherman 2013). These representations include reconstruction of predi-

cates (as heads), all separate word forms, cases, semantic roles of arguments and argument structure of the predicate, which constitute a kind of construction grammar. This grammar can, indeed, be used as formal means to compare syntactic units. As described in the paper, the approach is rather close to dependency grammar, which has been actively used in treebanks, including ones for ancient languages (see below on Dag Haug and the PROIEL project). It certainly helps to enforce uniformity and provide an instrument to make comparisons on syntactic level; still, this does not necessarily mean that a certain syntactic construction in Latin has the exact same meaning as, say, in Hittite, which marks the weak point of this approach. The author does not, however, insist on generalizations on the current level of historical syntactic studies: theoretically-determined interpretations, according to Smitherman, should only be attempted “after the empirical data have been examined, after comparisons between languages have been conducted”.

The project has succeeded in gathering lists for predicates with argument structures, in which oblique subjects appear, from the oldest languages of Indo-European branches: Old Icelandic, Old High German, Middle High German, Gothic, and Old Russian; Latin, Ancient Greek (Homeric to Early Koiné), Old Church Slavonic, Old English, and Old Swedish, Sanskrit and Hittite (partially). For each predicate a PIE etymology was drawn where possible (phonetic reconstruction is based on laryngeal theory, under the assumption of three laryngeals and no vowel-initial morphemes). If a predicate is supposed to be an early borrowing into one IE branch from another (like some German borrowings into Common Slavic), it is not counted on the level of Indo-European etymological comparison.

Study of argument roles for the predicate involves analysis of the semantics of affixes and preverbs. Some verbal affixes are assumed to have aspectual values (like *-ske-* in Hittite); preverbs in some IE languages might evolve from postpositions or deictic adverbs, which could determine the case of arguments. Semantic transfers in verbs are also checked. IECASTP guidelines identify common semantic correlations as being linked to a single PIE predicate: e.g., burn — be angry or suffer an uncontrollable sensation; bend/twist — be confused/be in pain; eat/consume — be overcome; be light/heavy — have it easy/difficult, etc.

The preliminary results are as follows. Roughly 200 cognate sets in 2+ branches, and 90 sets in 3+ branches (Baltic and Slavic are not counted separately) have been analysed for the etymology of verbs and their polysemy, case frames and distribution of oblique subjects. The working hypothesis is that “late PIE had

a contained, probably unproductive or barely productive realm of semantic alignment within a generally Nominative-Accusative language”. According to the author, this ensues from patterns of use of the argument structure to accommodate polysemy, recurrent throughout many branches.

Basic methodological problems concern early borrowings between branches; areal contacts, with similar argument structures on some cognate predicates; comparison of non-cognate like word classes, e.g. comparing Latin deponent forms (with *\*-r*), Græco-Aryan (*\*-oi*), Slavic or Old Norse neo-formations involving the reflexive pronoun. Another important problem is whether to reconstruct sememes or forms — if several forms have the same or almost the same meaning, should they be considered separately or not? Smitherman does not give any clear answer in his article. He suggests that focused diachronic frequency studies should be conducted in the case of specific sememes for oblique subject construction in Indo-European. A controlled test should be invented that could play the role of a Swadesh-type wordlist for syntactic constructions, before we could claim with any certainty what semantic alignment there was in PIE. Summing up, he argues that a reconstruction of oblique subject constructions for PIE is possible, though the use of the Comparative Method for syntax certainly needs further review and refinement.

The next paper of the book under review is “An approach to syntactic reconstruction” by Ilja A. Seržant. It is primarily devoted to the methodological discussion of how to reconstruct syntactic patterns. The author distinguishes between two types of inquiries into diachronic syntax: stage reconstruction and etymological reconstruction (p. 117). He focuses on the second one and argues for a methodology based on the principles of the Comparative Method, where all factors other than inheritance should be excluded by the reconstruction process: “Typologically quirky, idiosyncratic features are better reconstructable than typologically ordinary ones”. Seržant applies his method to the development of the independent partitive genitive (IPG) from Proto-Indo-European into Baltic and Russian, and finally into North Russian dialects, to show that this feature was indeed inherited from PIE and how it changed from PIE.

The method crucially relies on typologically idiosyncratic properties of every pattern to be reconstructed. For example, morphological properties, as regards their phonetic/phonological realization, are typologically idiosyncratic. The more idiosyncratic properties are found to correlate across comparanda, the higher is the probability of the reconstruction.

Since (syntactic) categories never remain the same through time, syntactic reconstruction deals rather with clusters of properties that mutate through time: certain properties may persist while others may drastically change or get lost and new ones can be acquired. The author emphasizes that “superficially similar constructions may in fact have quite divergent underlying syntactic structures at different developmental stages”.

A grammatical category, therefore, is treated as a list or as a cluster of properties, with each subgroup analyzed separately. There are four types of profiles for the analysis — lexical, semantic, morphological and syntactic ones: “Profiles of the category can be established in the course of synchronic analyses at every particular stage where data are available”. The reconstruction of the morphological and lexical profiles on a proto-stage can be carried out by means of the Comparative Method. However, “the degree of probability” depends on “the number of idiosyncratic properties” inherited from the respective proto-language on the basis of the Comparative Method (Ivanov 1965: 185). It is only the Comparative Method, applied correctly, that helps to get rid of borrowings in the morphological profile, excluding typologically dominant correlations or correlations that are due to language contact. The syntactic and semantic profiles have to be explored for typologically quirky properties in order to individualize the reconstructed pattern against the typological background and thus claim sufficient probability. The following ranking of profiles represents their relevance for determining etymologically cognate categories across related languages (ranked from most to least crucial):

morphological profile > lexical profile > syntactic profile > semantic profile

Speaking about the IPG and the changes it underwent from PIE to Baltic and East Slavic, Ilja Seržant discusses first the morphological and lexical profiles of the construction. The inheritance of morphology and lexicon from PIE to Baltic/Slavic languages was thoroughly proven in previous studies. The difference between the genitive in Baltic/Slavic and in PIE is seen by Seržant, particularly, as loss of all morphological difference between ablative and genitive throughout the singular in the former, “while the latter still distinguishes these cases for one specific NP type, namely, the *o*-stems”. On the lexical level, it is important that there are reconstructible lexemes that occurred in the construction. Derivational means that are part of the lexeme should not be glossed over,

“because different morphological derivations, especially with verbs, may be linked to distinct syntactic patterns, e.g. causatives vs. simplices or denominal vs. deverbal predicates are known to trigger distinct syntactic patterns”.

The semantic profile is described on p. 134 as a list of possibly inherited functional properties for which values are drawn for PIE and Baltic/Slavic. The comparison exhibits a number of particular changes in the partitive genitive though its development:

- ability to quantify over the host constituent or over the whole clause,
- sensitiveness to adverbs quantifying the situation (VP),
- sensitiveness to verb-prefixal quantifiers,
- invoking the meaning of a temporality (‘for some period of time’) with transfer verbs,
- ‘one’ as a possible value of the implicit (head) quantifier,
- combination with verb negation,
- interaction with aspectuality,
- decreased referentiality,
- discursive backgroundedness,
- gradual loss of the partitive function; prevalence of the pseudo-partitive function,
- partitivity constraint,
- partial loss of the differential object marking.

The syntactic profile consists of five properties: selection restrictions on NPs marked by the IPG (e.g. mass vs. count nouns), selection restrictions on verbs with subject IPG (e.g. existential vs. unergative), verbal agreement with subject IPG, coordination with otherwise case-marked NPs, positional restrictions.

Thus, morphological and lexical profiles provide a relatively high probability for the assumption of etymological relationship between the IPG of Baltic and Slavic languages and the same structure in PIE, reconstructed on the basis of ancient IE languages such as Sanskrit, Avestan and Ancient Greek. After the analysis of syntactic properties, the author argues that the IPG in Baltic and Slavic (Russian) languages may be analyzed as a *syntactically independent partitive genitive*, governed by an *implicit pronoun*, for which the term *pro* is used, thus assuming the existence of an implicit head for this construction. The author reminds us that there is no restriction on syntactic position for the IPG in ancient IE languages, which is another reason why he argues for the implicit pronoun assuming case and position in the clause. The same concerns singular/plural of verbs in the partitive constructions — it is the *pro* which assumes number and person and becomes visible due to its ability to be the controller in

the subject position triggering verbal agreement. He argues that this implicit pronoun (zero head) in Baltic and Russian became even less visible in the morpho-syntax and, comparing with PIE, retained only a weak ability to coordinate with accusatives and, partly, nominatives (triggering the default third singular neuter/non-agreeing form). Finally, in those instances where some North Russian varieties allow for the agreement *ad formam* with the IPG subject, the implicit pronoun may be considered to be lost entirely and the former dependent genitive NP acquires direct access to verbal agreement. The general development of the IPG, thus, can be summarized as: *explicit head* (dependent partitive genitive) → “*pro*” (PIE/ ancient IE languages) → “*PRO*” (Baltic/Russian) → *null* (some North Russian subdialects).

The next paper, “Anatolian syntax: inheritance and innovation”, was contributed to the volume by Annette Tefeteller. It is dedicated to three interrelated topics in the syntax of Anatolian languages: the issue of argument structure, the putative split-ergativity, and the development of subject clitic pronouns. Actually, Annette Tefeteller is reproducing here her own talk at the VIIIth International Congress of Hittology in Warsaw in 2008, where it was received with relatively little enthusiasm; the problems encountered there remain largely unsolved in the paper, which seriously restricts its usefulness for future discussion on historical syntax.

In two areas concerned with subject reference, Anatolian languages display unique syntactic features. First, there is a third-person enclitic ‘subject’ pronoun, marked for gender, common and neuter, restricted to a particular class of verbs (intransitives only, predominantly statives). Second, there is a suffix used with neuter nouns when they occur in correlation with the subject of a transitive verb. Both are topics with a long history of discussion, and for both there is still no consensus as to their origins. Unfortunately, the author adds no new information to the discussion. Her analysis of Anatolian data in the paper is largely restricted to Hittite material, and the examples are mostly not Tefeteller’s own, but have been taken from other works, such as Melchert 2011. She laments that the most prominent syntacticians working in the field of Anatolian languages tend to use generative syntactic theory (see, for example, Hoffner & Melchert 2008:406; Sideltsev 2011), where subject pronouns are treated as *null subject*. Tefeteller suggests using another framework for Hittite, borrowed from the research on North American languages, according to which personal endings of verbs might be considered as verbal subject markers, i.e. incorporated pronomi-

nal elements (Jelinek 1984). Nouns, NPs, and independent pronouns in this case are considered as adjuncts, regardless of whether they are found outside or inside the clause. The verb thus constitutes a complete minimal clause in itself. However, the author gives no clear reasons why this concept should be used instead of the more widespread concept of null subject. Teffeteller argues that “the absence of grammatical agreement markers (*null subject*) is a typologically rare phenomenon”, with reference to Siewierska 1999, and that the generative framework only works for modern European languages. This sounds rather strange, since generative syntax has been tested many times on languages outside of the Indo-European family, and, actually, is now widely used in typological research on the world’s languages.

As for the problem of ‘ergativity’ in Hittite, this is an old discussion, in which the specific Hittite ‘ergative’ suffix *-ant-* (added to neuter nouns if they are subjects) is sometimes viewed as derivational, and sometimes as inflectional, with a special ‘ergative’ case in the Hittite noun declension paradigm (see recently, *inter alia*, Melchert 2011, Yakubovich 2011, Goedegebuure 2013). Annette Teffeteller traces this discussion in detail, listing all the arguments *pro and contra*, and may be safely referred to as a source for the most recent references on the question.

In the chapter “Historical syntax and corpus linguistics” the most prominent projects of annotated corpora for historical languages are represented. The opening paper is by Dag Haug from the University of Oslo, the leader of PROIEL, a unique public on-line resource for syntactically annotated corpora of ancient languages, built in the framework of universal dependencies (UD). He argues in the paper for the advantages of using parsed corpora (treebanks) for research in historical linguistics.

One important example is basic word order. Raw statistical data on word order in Ancient Greek differs between researchers (see p. 189 for figures on word order in Luke/Acts, according to various authors). The author points out an important question of historical syntax: if we cannot agree even on the raw facts, how can we settle such questions as what (if any) basic word order there was in Ancient Greek, or to what extent it was influenced by Semitic? Another thing is that the results of the research should also be replicable by other scholars, and it is only the corpus approach that could help us achieve this.

Initially, PROIEL had developed a parsed corpus of the Greek New Testament as well as several of its early translations into other languages (Haug & Jøhndal 2008; Haug et al. 2009). The paper in question

focuses on the description of the oldest part of the project. However, it should be mentioned here that, as of now, the project not only contains data from Ancient Greek (New Testament, *Historia Lausiaca*, Herodotus: *Histories*, Sphrantzes: *Chronicles*), but also from Church Slavonic (Codex Marianus, Codex Suprasliensis, Codex Zographensis), Classical Armenian (New Testament, Koriwn), Gothic (The Gothic Bible), and includes a list of sources in Latin, Old English, Old French, Old Norse, Old Russian, Portuguese and Spanish.

The author argues that “a treebank does not in itself define the *actual* assumptions of research based on it, but it defines the set of *possible* assumptions that a researcher can make using it”. There are several ways to avoid pre-assumption. Phrase structure based corpora, such as the Penn Treebank (actually, the family of corpora from the Linguistic Data Consortium at the University of Penn), use a much flatter phrase structure than any practitioners of theoretical phrase structure grammars assume, thereby avoiding many contentious decisions. The other option, which was chosen in the PROIEL corpus, is to use a dependency-based analysis, where grammatical relations, such as subject, object, and adverbial, are taken as primitive. Being on the team of linguists and programmers that work on the standards of Universal Dependencies, Dag Haug could have hardly made a different choice. Unfortunately, syntactic annotation in the UD scheme treats the syntax of the world’s languages as if no language-specific features existed in the first place (annotation of language-specific relations as subtags of existing universal tags does not help much). For example, one problematic issue with UD is clitics, with their specific syntax.<sup>1</sup> Another problem is the very absence of any assumption in treebanks — in fact, this framework gives the researcher no proper explanation of syntax. However, in terms of pure data PROIEL, with its standards of merely building an improved instrument for search, so far remains the best, if not the only, means of applying statistical methods to the material of early IE languages.

The paper of Prof. Dr. Rosemarie Lühr from Humboldt-University of Berlin (“Traces of discourse configurationality in older Indo-European languages?”) concerns the relationship between information structure and syntax on the material of Old Indian, Ancient

<sup>1</sup> Joakim Nivre, University of Uppsala, another member of the UD team, informed me in a pers. comm. during his lecture on Universal Dependencies in Moscow, Yandex campus, 20 April 2016, that he had no proper guidelines for annotating, for instance, Hittite subject enclitics.

Greek and Hittite, languages with the documented discourse-configurational word order *topic – focus – verb*. There are many deviations from this word order in the early IE languages. As in the case of a preceding predicate noun in Old Indian, the sequence *topic – focus* can be inverted. Similarly, a *shifting* topic may appear at the end of a clause if the first/initial position is taken by a *contrastive* focus. The positions of contrastive focus are shown in the paper on examples from Ancient Greek and Hittite.

Regrettably, Prof. Lühr does not take into account the works of Petra Goedegebuure (2013, 2014), who specifically discussed the types of foci in Hittite and their positions in the clause. This shortcoming of the article under review might be partially explained by its being presented for the first time in September 2012. Still, at the time when the reviewed volume was edited, the abovementioned papers of Goedegebuure, specifically the one concerning focused noun phrases (2013), had already been published and should have been known to Prof. Lühr. Actually, she presents here the preliminary results of her own project in Humboldt-University on word order corpus research in early IE languages. The project took around eight years, was finished in 2015 and has been discussed in several workshops of 2015 and 2016. One presented result is that the marked word order OSV, closely connected with the position of focus, in Hittite appears in 50% of all involved material.<sup>2</sup> Unfortunately, the corpus itself is not in the public domain, and there is no way for an independent check. Our own Hittite material (letters and instructions), when subjected to corpus-based analysis of the distribution of OSV, demonstrates rather low values – around 15% (Molina 2015). The author summarizes the paper with the notion that the position of information-structural entities in the old IE languages is inherited from PIE, and that only Greek has demonstrated in the study an innovation specified as “the postverbal *new-information* focus position”, triggered by the verb moving into the middle position. As has already been said, all the details leading to this assertion should be independently double-checked on corpus material, which strongly demands historical corpora made for the research to be opened for the public.

The chapter concerning corpus research for historical languages is continued with the paper “Studying word order changes in Latin: some methodological remarks”, contributed by Lieven Danckaert (Ghent

University). He argues that “a linear string of Latin words can correspond to more than one syntactic structure”, and offers a detailed case study on the often discussed OV/VO alternation in the history of Latin (from 1<sup>st</sup> c. BC to 6<sup>th</sup> c. AD). The author postulates multiple positions for the object in the Latin clause and demonstrates that “the objects in three different positions are all to be interpreted in a different way”. Two hypotheses are formulated for languages that display variable OV and VO ordering: one, that the choice between possible word orders is influenced by the variety of different usage-based factors, such as information structure, weight and complexity of the object, but the factor itself should not have much influence on the syntactic position of direct objects. Second, quantitative results that emerge from a study that only takes into account *syntactically non-ambiguous* environments provide a more accurate characterization of the syntactic changes that took place during the evolution from Latin towards the (early) Romance languages. The case study presented in the paper took into account at least 20 clauses with an auxiliary, with a transitive non-finite verb and an overt direct object for each period and source, “in order to be sure that the calculation of the average values of VO and OV is based on sufficient amount of tokens and thus provides a reliable estimate”. Surprisingly, the statistical data demonstrated that no statistically significant rise of VO could be spotted, in strong contrast with what is commonly assumed.

Anna Bonifazi’s article is titled “Problematizing syndetic coordination: Ancient Greek ‘and’ from Homer to Aristophanes”. It discusses the interpretation of three particles, *te*, *kai* and *de*, which function as coordinators with the general meaning ‘and’ in Archaic and Classical Greek. Bonifazi focuses on discourse phenomena that cause syntactic distinctions between these particles. She demonstrates that multiple words with the meaning ‘and’ reflect a specific communicative need: for example, *te* may pragmatically imply shared knowledge, or may indicate a certain genre, while *kai* between two conjuncts may be used to indicate a conceptual unity. Overall, summarizes Bonifazi, the range of usage for *te*, *kai*, and *de* encompasses a continuum between connective and adverbial functions.

The last paper in this chapter concerns epigraphic corpora: “What role for inscriptions in the study of syntax and syntactic change in the old Indo-European languages?”, by Francesca Dell’Oro. She regrets that scholars who deal with syntactic problems, especially of a theoretical nature “tend to dismiss inscriptional records of early IE languages as being ‘not useful’ or ‘too difficult to investigate’”, – although this assertion would seem unfair if one takes into account cer-

<sup>2</sup> This information was made public at the Workshop “The precursors of Indo-European: The Indo-Hittite and Indo-Uralic hypotheses”, Leiden University, June 2015, and was later discussed personally with Prof. Lühr.

tain cases of thorough investigation of epigraphic sources by Indo-Europeanists, it is indeed true that syntactic research rarely looks into inscriptions for input data. The paper provides a lot of examples from Greek epigraphics, including ones containing syntactic errors that help to reconstruct certain syntactic patterns, but also contains a series of rather commonplace assertions, such as “it is not easy to investigate problems of syntactic change or syntactic reconstruction on the basis of epigraphic material”.

The final chapter, concerning questions of historical syntax and linguistic contact, contains two papers based on non-Indo-European material. One of them is a case study of Guinea creole languages (“The Gulf of Guinea creoles: a case-study of syntactic reconstruction”) by Tjerk Hagemeijer; the other is “Syntactic diversity and change in Austroasiatic languages” by Mathias Jenny. Upon first sight, both seem to concern issues that are only tangentially related to the main focus of the volume, but in fact they offer a wider understanding of the problems of syntactic reconstruction, discussing material that usually remains untouched by mainstream researchers in the respective fields. The first article shows that creoles may constitute fertile ground with respect to the reconstruction of syntax, given a high degree of structural identity between sister languages and the fact that many shared syntactic properties, such as discontinuous sentence negation, must have been inherited and diffused from the protolanguage. The second one looks into the syntactic diversity of Austroasiatic languages, where historical data are available only for a small number of units, and seeks possible explanations for the development of this diversity. Two main factors seem to trigger syntactic change, namely, reanalysis and contact influence from neighboring languages, and insights drawn from languages with lengthy recorded histories could help to understand the development of languages with no historical data.

## References

- Barðdal, Jóhanna. 2001. *Case in Icelandic: A Synchronic, Diachronic and Comparative Approach*. Ph.D. dissertation, University of Lund.
- Barðdal, Jóhanna, Thórhallur Eythórsson. 2012. Reconstructing syntax: Construction grammar and the comparative method. In: H. C. Boas, I. Sag (eds.). *Sign-Based Construction Grammar*. Stanford CA: CSLI: 257–308.
- Barðdal, Jóhanna, Thomas Smitherman. 2013. The quest for cognates: A reconstruction of oblique subject constructions in Proto-Indo-European. *Language Dynamics and Change* 3(1): 28–67.
- Batllori, Montserrat, Maria-Lluïsa Hernanz, Carmen Picallo, Francesc Roca. 2005. *Grammaticalization and Parametric Variation*. Oxford: OUP.
- Bauer, Brigitte. 1995. *The Emergence and Development of SVO Patterning in Latin and French: Diachronic and Psycholinguistic Perspectives*. Oxford: OUP.
- Bauer, Brigitte. 2000. *Archaic Syntax in Indo-European: The Spread of Transitivity in Latin and French*. Berlin / New York: Mouton de Gruyter.
- Brandner, Ellen, Iris Bräuning. 2013. Relative *wo* in Alemannic: Only a complementizer? *Linguistische Berichte* 234: 131–169.
- Crespo, Emilio, José Luis García Ramón (eds.). 1997. *Berthold Delbrück y la sintaxis indoeuropea hoy. Actas del Coloquio de la Indogermanische Gesellschaft*. Madrid, 21–24 de septiembre de 1994. Wiesbaden: Reichert.
- Crisma, Paola, Giuseppe Longobardi (eds.). 2009. *Historical Syntax and Linguistic Theory*. Oxford: OUP.
- Devine, Andrew, Laurence Stephens. 1999. *Discontinuous Syntax. Hyperbaton in Greek*. Oxford: OUP.
- Goedegebuure, Petra. 2013. Hittite Noun Phrases in Focus. In: S. W. Jamison, H. Craig Melchert, B. Vine (eds.). *Proceedings of the 24th Annual UCLA Indo-European Conference*. Bremen: Hemen: 27–45.
- Goedegebuure, Petra. 2014. *The Hittite Demonstratives. Studies in Deixis, Topics and Focus*. Wiesbaden: Harrassowitz.
- Gray, Russell, Quentin Atkinson. 2003. Language-tree divergence times support the Anatolian theory of Indo-European origin. *Nature* 426: 435–439.
- Greenhill, Simon J., Quentin D. Atkinson, Andrew Meade, Russell D. Gray. 2010. The shape and tempo of language evolution. *Proceedings of the Royal Society B: Biological Sciences* 277: 2443–2450.
- Güldemann, Tom. 2008. *Quotative Indexes in African Languages: A Synchronic and Diachronic Survey*. Berlin: Mouton de Gruyter.
- Faarlund, Jan. 1990. *Syntactic Change: Towards a Theory of Historical Syntax*. Berlin: Mouton de Gruyter.
- Ferraresi, Gisella, Maria Goldbach (eds.). 2008. *Principles of Syntactic Reconstruction* (Current Issues in Linguistic Theory 302). Amsterdam: John Benjamins.
- Ferraresi, Gisella, Rosemarie Lühr (eds.). 2010. *Diachronic Studies on Information Structure. Language Acquisition and Change*. Berlin: Mouton de Gruyter.
- Harris, Alice, Lyle Campbell. 1995. *Historical Syntax in Cross-linguistic Perspective*. Cambridge: CUP.
- Haspelmath, Martin. 2012. Equative constructions in a worldwide perspective. Paper given at the conference “Expressions of Similarity from an Africanist and Typological Perspective”, Villejuif, July 2012.
- Haug, Dag, Marius L. Jøhndal. 2008. Creating a parallel treebank of the old Indo-European bible translations. In: Caroline Sporleder, Kiril Ribarov (eds.). *Proceedings of the Second Workshop on Language Technology for Cultural Heritage Data (LaTeCH 2008)*: 27–34.
- Haug, Dag, Marius L. Jøhndal, Hanne Eckhoff, Eirik Welo, Mari Hertenberg, Angelika Müth. 2009. Computational and linguistic issues in designing a syntactically annotated parallel corpus of Indo-European languages. *Traitement Automatique des Langues* 50: 17–45.
- Hewson, John, Vit Bubenik. 2006. *From Case to Adposition: The Development of Configurational Syntax in Indo-European Languages* (Current Issues in Linguistic Theory 280). Amsterdam: John Benjamins.

- Hoffner, Harry, Craig Melchert. 2008. *A Grammar of the Hittite Language*. Winona Lake IN: Eisenbrauns.
- Jelinek, Eloise. 1984. Empty categories, case, and configurationality. *Natural Language and Linguistic Theory* 2: 39–76.
- Jonas, Diane, John Whitman, Andrew Garrett (eds.). 2012. *Grammatical Change. Origins, Natures, Outcomes*. Oxford: OUP.
- König, Ekkehard. 2013. The deictic identification of similarity. In: Y. Treis, M. Vanhove (eds.). *Similitive and Equative Constructions: A Cross-linguistic Perspective*. Amsterdam: John Benjamins.
- Ivanov, Vjacheslav V. 1965. *Obshcheindoevropskaja, praslavjanskaja i anatolijskaja jazykovye sistemy (sravnitel'no-tipologicheskie ocherki)*. Moscow: Nauka.
- Lehmann, Winfred. 1974. *Proto-Indo-European Syntax*. Austin TX: University of Texas Press.
- Lehmann, Winfred. 1976. From topic to subject in Indo-European. In: Charles N. Li (ed.). *Subject and Topic*. New York NY: Academic Press: 447–456.
- Lehmann, Winfred. 2000. *Pre-Indo-European* (Journal of Indo-European Studies Monograph Series 41). Washington DC: Institute for the Study of Man.
- Lightfoot, David. 1979. *Principles of Diachronic Syntax*. Cambridge: CUP.
- Lightfoot, David. 1991. *How to Set Parameters: Arguments from Language Change*. Cambridge MA: MIT Press.
- Lightfoot, David. 1999. *The development of language: acquisition, change, and evolution*. Oxford: Blackwell.
- Lightfoot, David (ed.). 2002a. *Syntactic effects of morphological change*. Oxford: OUP.
- Lightfoot, David. 2006. *How new languages emerge*. Cambridge: CUP.
- Longobardi, Giuseppe. 2003. On parameters and parameter theory. In: E. Stark, U. Wandrusza (eds.). *Syntaxtheorien: Modelle, Methoden, Motive*. Tübingen: Narr: 273–290.
- Longobardi, Giuseppe, Cristina Guardiano. 2009. Evidence for syntax as a signal of historical relatedness. *Lingua* 119: 1679–1706.
- Luraghi, Silvia. 2010. The rise (and possible downfall) of configurationality. In: Silvia Luraghi & Vit Bubnik (eds.). *A Companion to Historical Linguistics*. London: Continuum: 212–229.
- Melchert, Craig. 2011. The problem of the ergative case in Hittite. In: M. Fruyt, M. Mazoyer, D. Pardee (eds.). *Grammatical Case in the Languages of the Middle East and Europe: Actes du colloque international "Variations, concurrence et évolution des cas dans divers domaines linguistiques"*. Paris 2–4 April 2007. Chicago IL: Oriental Institute of the University of Chicago: 161–167.
- Molina M.A. 2015. Markirovannyj porjadok slov OSV v khettskom jazyke, ego funkcii i reguljarnost' [Marked word order OSV in Hittite, its functions and regularity]. *Indoevropskoye jazykoznanie i klassicheskaya filologiya* 19. Saint-Petersburg: Nauka: 655–663.
- Molina M.A. 2016. Review of: L. Kulikov, N. Lavidas (eds.). Proto-Indo-European syntax and its development (2015). *Vo-prosy jazykoznanija* 5: 141–146.
- Renfrew, Colin, April McMahon, Robert Trask (eds.). 2000. *Time Depth in Historical Linguistics*. Cambridge: McDonald Institute for Archaeological Research.
- Roberts, Ian. 2007. *Diachronic Syntax*. Oxford: OUP.
- Sideltsev, Andrey V. 2011. Clitic doubling: A new syntactic category in Hittite. *Altorientalische Forschungen* 38(1): 81–91.
- Siewierska, Anna. 1999. From anaphoric pronoun to grammatical agreement marker: Why objects don't make it. *Folia Linguistica* 33(2): 225–251. Greville G. Corbett (ed.). Special issue "Agreement".
- Starostin G.S. (ed.). 2011–2015. *The Global Lexicostatistical Database*. Moscow/Santa Fe: Center for Comparative Studies at the Russian State University for the Humanities; Santa Fe Institute. Available: <http://starling.rinet.ru/new100>
- Yakubovich, Ilya. 2011. Privative ergativity in Hittite. Handout for the presentation at the conference "Historical-Comparative Linguistics in the 21st Century", Pavia, Italy, 22–25 September 2011.