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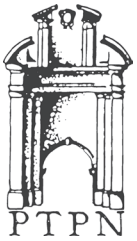

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Common Kyushu-Ryukyuan substratum in maritime vocabulary: A preliminary analysis

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Abstract: Aleksandra Jarosz & Georg Orlandi, *Common Kyushu-Ryukyuan substratum in maritime vocabulary: A preliminary analysis*. The Poznań Society for the Advancement of Arts and Sciences, PL ISSN 0079-4740, pp. 7-46

This paper constitutes a preliminary linguistic test of the hypothesis which postulates that shared Kyushu-Ryukyuan lexicon related to maritime knowledge provides evidence for a Kyushu-Ryukyuan subgrouping within the Japonic cladogram. The paper introduces Kyushu-Ryukyuan cognates and potential shared lexical innovations in seafaring vocabulary, cardinal directions and navigation, and marine fauna, all of which suggest a shared Kyushu-Ryukyuan navigation culture, as well as common maritime subsistence and lifestyle patterns. The case is reinforced by several promising cases of common morphological features between Kyushu and Ryukyuan. The overall conclusion is that the compared linguistic data does support the Kyushu-Ryukyuan clade. Finally, we identify a mismatch between lexical and morphological evidence concerning lower-unit classification of the South Japonic node. We observe that while shared innovative vocabulary allows to postulate Proto-Satsugū-Ryukyuan within Kyushu-Ryukyuan as the most direct mainland ancestor of Ryukyuan languages – the predecessor pre-Proto-Ryukyuan language that was still spoken in Kyushu in the first millennium AD – shared grammatical features do not suggest any particular subdivision of Kyushu-Ryukyuan.

Keywords: Ryukyuan languages, maritime vocabulary, Japonic, Kyushu-Ryukyuan, language spread, genetic subgrouping

Introduction

Ryukyuan is a linguistic group that, together with Mainland Japanese and the moribund Hachijō language spoken in Hachijō islands, forms the Japonic language family. Ryukyuan languages are spoken in the Ryukyu Islands, a chain of Japanese islands that stretches from the south-east of Kyushu to the northern part of Taiwan. Most specialists divide Ryukyuan languages into two branches: a northern one, North Ryukyuan, comprising the languages spoken in Amami Ōshima and Okinawa, and a southern one, South Ryukyuan/Sakishima, comprising the languages spoken in Yonaguni and Yaeyama (also referred to as Macro-Yaeyama), as well as the one spoken in Miyako (Chiiki Kenkyūjo 2013; Shimoji & Heinrich 2014).

Past language planning policies, which started as early as in the Meiji era (1868-1912), when the Tokyo-based *hyōjungo* (standard language) was promoted and local varieties stigmatized through a series of punishments, including the *hōgen fuda* (dialect tag), have resulted in the current endangered status of Ryukyuan languages, now spoken chiefly by native speakers in their 50s and 60s or older (Karimata 2015: 114; Heinrich 2012). While there are no official statistical data on the number of native speakers of Ryukyuan languages, there are some rough estimates of it. According to Niinaga et al. (2014: 100-101), the number of North Ryukyuan speakers is around 265,963, and the number of South Ryukyuan speakers does not exceed 26,000 (cf. Jarosz 2023: 196-197).

Historically, Ryukyuan languages are documented since the late fifteenth century, with older texts being found on stone inscriptions, such as the *Ankokuzan Jukamoku-no Kihi*, which dates back to 1427 AD. If one excludes some administrative appointments written in 1523, one of the earliest and most important written sources is the *Omoro Sōshi*, a compilation of ancient poems and songs from Okinawa and the Amami Islands, collected into 22 volumes and written primarily in *hiragana* with some simple *kanji*. Due to the historical and political contacts between Ming China and the Ryukyu Kingdom, starting from the fifteenth century, a number of Chinese sources mention the Ryukyus and its language (Ding 2008; Tawata 1997, 2010; Lin 2015; Ishizaki 2015). Korean materials also made their appearance in the 16th century. Western accounts on the Ryukyus also go back as far as the late 15th and early 16th centuries, when Portuguese voyagers travelled East Asia and arrived at the Ryukyus for the first time. However, with occasional exceptions, the earliest Western treatises on the Ryukyus fail to mention the language spoken by their inhabitants, which only appeared in the second half of the eighteenth century.

Dating the origins and spread of Ryukyuan languages remains a debated and controversial topic, as a significant disparity between linguistic and extra-linguistic evidence (historical, archaeological, and anthropological) still persists (Pellard 2015). Most linguists date the split of Ryukyuan between the 2nd and the 7th centuries CE (Hattori 1979; Uemura 1992; Miyake 2003; Hokama 2007: 30). Pellard (2021) believes it must have occurred no later than the 8th century CE. Jarosz (Jarosz et al. 2022: 4) believes that the latest dating of the split of the Ryukyuan branch must be set at no later than mid-6th century, since Ryukyuan languages had already undergone innovations from Proto-Japonic source forms (such as, e.g., the treatment of Proto-Japonic diphthongs *uj, *oj and *əj) that Miyake's (2003) philological study of Pre-Old Japanese demonstrated the split to have occurred by the end of the sixth century at the latest. Other approaches include the two studies by Lee & Hasegawa (2011) and Robbeets et al. (2021).

On the other hand, major, successful population movements from Kyushu into the Ryukyus occurred no sooner than 9th/10th century CE (Asato & Doi 2011; Jarosz et al. 2022). It is believed since at least the time of Basil H. Chamberlain (1850-1935) that the diffusion of Ryukyuan languages was favoured by the spread of agriculture (Schwartz 1908: 129; Newman & Eng 1947: 32). However, in the Ryukyus, agriculture was hampered by thin soils and other geological problems. As such, while we do not contend that agriculture was not a very important factor in favouring the spread of Ryukyuan languages, it is also felt that other factors such as sea craft may have played an important role in the formation and diffusion of Ryukyuan languages. The present article elaborates on the idea presented in Jarosz et al.

(2022) that it is the seafaring-related vocabulary that distinguishes Kyushu and Ryukyuan from other Japonic-speaking areas, suggesting an erstwhile shared maritime subsistence and lifestyle patterns. The main goal of the paper is, however, to provide evidence from the seafaring-related sectors of vocabulary supporting the Kyushu-Ryukyuan/South Japonic node on the Japonic cladogram (see e.g. Igarashi 2021, Karimata 2020, or DeBoer 2020), which groups together modern Ryukyuan languages with putative, unattested/extinct indigenous Kyushu topolects reflected only as a substratum in modern Mainland Kyushu topolects. This Kyushu-Ryukyuan/South Japonic group is genetically contrasted with one or more Mainland Japanese nodes[1], and it challenges the prevalent bipartite division of Japonic into Ryukyuan and Kyushu-inclusive Mainland (cf. Pellard 2015). This revision of the Japonic family tree has been proposed in the most systematic way by Igarashi (2016 et seq.) with five levels of genetic-diachronic stratification of the South Japonic group (Igarashi 2021: 41-42, fig. 9).

Previous lexicon-based studies discussing the possibility of a closer genetic affinity between Kyushu and Ryukyuan include Igarashi (2016 et seq., especially 2021), Jarosz (2019a), Jarosz et al. (2022). Pioneering research in Japan highlighting the shared Kyushu-Ryukyuan vocabulary, although without teasing out shared innovations from retentions and loanwords, was conducted by Yukio Uemura and Mitsuyoshi Nohara, and its results are discussed in Karimata (2020: 232-235).

1. Sociogeographical background of the Ryukyu Islands

The Ryukyu Islands, also known in Japanese as the Nansei Islands, are a chain of volcanic Japanese islands that stretch southwest from Kyushu to Taiwan. Among the most important islands are Ōsumi, Tokara, Amami, Okinawa, and Sakishima Islands (further divided into the Miyako and Yaeyama Islands), with the southernmost Hateruma. The topolects spoken in Tokara and Ōsumi islands, however, do not belong linguistically to the Ryukyuan group. The Ryukyuan-speaking area, which can be equated with the area of the pre-modern Ryukyu Kingdom at its peak, comprises the island groups of Amami, Okinawa (= North Ryukyuan), Miyako and Yaeyama (= Sakishima / South Ryukyuan). It is therefore smaller than the geographic range of the Nansei archipelago.

Yonaguni, one of the Yaeyama Islands and also the westernmost inhabited island of Japan, is separated from Taiwan by about 60 km. On the other hand, the main island of Okinawa is separated from Miyako by the Kerama Gap, which extends over about 250 km and in the past also functioned as a barrier to travel, albeit properly equipped vessels were able to overcome it. Another geographical, and by extension cultural, boundary is marked by the Shichitō-nada that separates the Ryukyus from Kyushu. The Kuroshio (Black Current) that flows through the Shichitō- serves as a marine barrier between Yonaguni and both Taiwan and the southeast coast of China.

There are no precise data on the historical population of the Ryukyus. According to Kerr (2000: 15), "it is doubtful if there were ever as many as 300,000 people in the islands before

[1] Igarashi's (2021) model proposes three and DeBoer's (2020) four first-unit divisions of Japonic, Kyushu--Ryukyuan being one of them, whereas Karimata (2020) suggests a bipartite Kyushu-Ryukyuan/Mainland division. While our own view inclines toward Karimata's, this question will not be addressed here.

1879," and, indeed, demographers estimate that in the whole Okinawa Prefecture there were only around 166,789 people in 1873 (NIAC 2018; Higa 2021). In fact, it is probable that the population began to increase after Satsuma's invasion of the Ryukyu (*Ryūkyū shinkō*) in 1609, spurred as it was by the introduction of Japanese sugar corporations, new technologies, and land reforms. Growth rates notwithstanding, it appears that the Ryukyus historically could not sustain a large population of more than 300,000 people.

During the Ryukyu Kingdom period, the town-dwelling gentry was proportionally more numerous compared to the food-producing peasantry (Kerr 2000: 191). As noted already by Engelbert Kaempfer (1651-1716), the peasants, both farmers ("husbandmen" in his words) and fishermen, lived in poverty; nor was any excess of wealth detected among the elites (Kaempfer 1729: 62). More recently, Gregory Smits (2019) has shown how the Ryukyus' prosperity was not based upon the produce of the indigenous farming-based economy, but on a trade in luxury goods through a wide nautical network, extending northward through coastal Kyushu, Iki and Tsushima, and up to a certain extent even through the southern part of the Korean Peninsula. Even after the introduction of new crops from southeastern China, the economy of the Ryukyus was more centred on trade than on farming, as sugarcane cultivation was mostly reserved for trade than for subsistence.

It is important to bear the facts mentioned in this short overview in mind when reading the following sections, where we explore the connection between archaeology, geography and language in more detail. Below, we briefly introduce the materials which we utilized to carry out our analysis of the maritime lexicon, and then we proceed further with a compara

2. Discussion

While we do not intend to identify languages, in this case a group of insular topolects, with their vocabulary, it has been pointed out already a long time ago that languages may carry cultural information (Sapir 2004: 234). In this specific case, one might expect a close relationship between maritime knowledge and certain lexical items inherent to seafaring vocabulary, wind patterns, and sea craft. We assess the accuracy of this prediction.

We consulted several dictionaries on various Ryukyuan/Southern Kyushu topolects (cf. References), as well as different sources on Western and Eastern Old Japanese (hereafter WOJ and EOJ), and Old Ryukyuan. We transcribed all the lexical items related to maritime vocabulary into a spreadsheet file, comprising several sheets such as "fish vocabulary", "seafaring vocabulary", "maritime flora and fauna", and "wind patterns" among many others. We looked for promising parallels between Ryukyuan and Southern Kyushu items, and then we looked for possible cognates in WOJ, EOJ, as well as other Japanese dialects in order to see whether they are shared retentions or shared innovations. Although we cast a wider net to haul as much information as possible, in order to have the broadest possible areal coverage of the equivalents of the selected vocabulary, we critically assessed all the lexical items, eliminating circumstantial similarities and other possible cases of "false friends".

In this section, we discuss in more detail some linguistic phenomena, especially, although not exclusively, lexical items inherent to seafaring vocabulary, cardinal directions/navigation

and wind patterns, as well as marine flora and fauna. Whenever possible, we try to trace back the etymologies to PJ in order to provide a linguistic context and to allow for an assessment of the distinctiveness of the Kyushu-Ryukyuan communities from other ancient Japonic communities in terms of their maritime knowledge and culture.

We approached our study with a premise that modern Ryukyuan and Kyushu topolects do reflect a shared proto-language. At this point in the paper, however, we remain necessarily agnostic about the possible geographical range of that proto-language, or the subgroupings within it. Therefore, the terms that we tentatively use in order to refer to the shared Kyushu--Ryukyuan ancestor languages are Proto-Kyushu-Ryukyuan (alternatively: Proto-South Japonic, following Igarashi 2021) to indicate the geographically broadest putative ancestor language of all modern Ryukyuan languages and their erstwhile Kyushu kins reflected as a substratum in the modern Kyushu topolects, and Common Kyushu-Ryukyuan to refer to any ancestor language at any level equal to or below Proto-Kyushu-Ryukyuan which is delineated by the presence of shared Kyushu-Ryukyuan innovations. Starting with section (2.4.), the label "Common Kyushu-Ryukyuan" will be replaced with specific proposals of Kyushu-Ryukyuan subunits.

The purpose of this study is to argue for a closer genetic link of Kyushu than other Mainland varieties with Ryukyuan, as well as to attempt an approximation of the internal cladistic structure of the Kyushu-Ryukyuan branch by determining if there are any Kyushu topolects which can be argued to be more closely related to Ryukyuan than others. Therefore, the focus will be on providing the pertinent data from Kyushu topolects, especially in sections (2.1.) and (2.3.). Only the Kyushu evidence will be presented exhaustively, possibly by indicating all regional Kyushu attestations of the discussed Kyushu-Ryukyuan item. The Ryukyuan evidence, on the other hand, will mainly serve a representational function; the cognates on the Ryukyuan side are selected so that they show the distribution of the item throughout the Ryukyus (North/South, and the respective linguistic subunits), and they do not necessarily exhaust the list of Ryukyuan cognates of the item in question.

The term "Satsugū", which will occasionally be used as a reference to the Kyushu region which is geographically closest to the Ryukyus, comprises the areas which formerly (until the end of the feudal period in 1868) belonged to the Satsuma domain, meaning the entirety of Kagoshima prefecture as well as the southernmost part (Morokata) of Miyazaki prefecture.

Proto-language reconstructions provided in this paper are the authors' proposals, unless indicated otherwise. Where available, references to Martin's (1987) reconstructions are provided, also in the instances where our reconstructions formally differ due to differences in reconstructed PJ phoneme inventories and/or etymological approaches.

Except modern standard Japanese, romanized with the modified Hepburn standard, all linguistic material is presented in. Linguistic material cited from external sources has been retranscribed to conform with the conventions used in this paper, whereas the data originally provided in Japanese syllabaries has been romanized according to the authors' best knowledge of the phonological systems of the pertinent lects. Romanizations of Old Okinawan are based on the descriptions of Old Okinawan phonology in previous studies (Tawata 2010: Ishizaki 2015). Old Japanese phonological values in essence follow Vovin (2020).

The paper includes in the form of an appendix a listing of all toponyms and topolects below the prefectural level appearing in the text.

2.1. Seafaring vocabulary

The essential terminology of seafaring in Ryukyuan is of Japonic lineage. This set of vocabulary includes concepts such as 'ship/boat', 'sail', fish catching tools such as 'harpoon' (one of the types), 'fishing hook' and 'net', a range of parts of a boat such as 'stern' and 'bow', locations such as 'harbor', and the verb 'to row'. Examples of such vocabulary along with its Proto-Japonic reconstructions are presented in Table 1.

Table 1: Seafaring vocabulary with a Proto-Japonic lineage

	WOJ	Kagoshima	Naze	Kametsu	Hirara	Shika	Hateruma	Proto-Japonic
boat, ship	pune	fune	funɨ	funi	funi	funi	funi	*punaj (cf. Martin 1987: 413)
bow, head	pe	hesaʔ	—	—	—	—	piː	*paj (cf. Martin 1987: 403)
catching fish/ foraging	iso 'rocky shore'	iso (Takara)	—	—	isu	iɕu	—	*iso 'rocky shore; foraging ashore; catching fish'[2] (cf. Martin 1987: 427)
fishing hook	ti	—	—	—	ksɨː[3]	tsɨː	dzɨ	*ti (cf. Martin 1987: 546)
fishing rod/pole	sawo	sao	ɕoː	sau	soː	soː	—	*sawo
harbor (natural), anchorage	təmari	—	—	tumai	tumaz	tumarɨ	—	*təmari (cf. Martin 1987: 549)
harbor (port)	minato	minato	minato	—	mnatu	minatu	minatu	*minato (cf. Martin 1987: 480)
harpoon	—; MJ mori	moi	—	mui	—; Nagahama, Kuninaka mul	—	—	*mori/*məri (cf. Martin 1987: 485)
net	ami	an	ami	ami	am	an	an	*ami (cf. Martin 1987: 381)
sail	po	ho	fu	fuː	puː	fuː	poː	*po/*pə (cf. Martin 1987: 413)
stern	təmə	tomo	—	tumu ~ tomo	tumu	tumui	tumu	*təmə (cf. Martin 1987: 549)

[2] Although the meaning 'catching fish, foraging' is not attested in Old Japanese, there is broad evidence from Mainland Japanese for this meaning of *iso*, including Hachijō, Iwate, and Ōmishima; because of this, it appears to be safely reconstructible for Proto-Japonic. This meaning is also attested throughout Kyushu (Tokara, Tsutsu). At the same time, the WOJ meaning of 'rocky shore', often generalized to 'shore', is also commonly reflected in Ryukyuan (Hirara *isu*), Kyushu (Iojima *iso*), and also further east in the Mainland, often with different semantic developments (Miwa in Tokushima: 'crag'; a number of topolects in Chiba, Hyōgo, Yamaguchi: 'reef near the coast' or 'the sea close to the shore'; Toyota district in Hiroshima prefecture: 'places that get deeper the farther you go from the coast'). Martin (1987: 427) reconstructs *iswo with more general meanings 'beach; rock'.

[3] This is an irregular correspondence in place of the expected †*tsiː*.

A number of lexical items, related to fishing and fish-catching techniques or to boat construction, appears to be shared exclusively by Kyushu and Ryukyuan. Some of the items are exact formal and semantic matches; at other times, the correspondences are partial. The relevant items are listed below:

- 'a spot where many fish gather, a good fishing spot': Hatoma and Yonaguni *suni*, Hateruma *suneː*, Iki and Gotō islands, Tanegashima, Kagoshima and Okatchugamizu *sone*; this morpheme appears frequently in toponyms and family names in the Ryukyus (cf. Nakasone in Miyako), and in Tanegashima as reported by Uemura (2004: 50);
- 'bow, the head of the boat': Proto-South Ryukyuan **panagi*, e.g. Ikema *panadzɨ*, Tarama *panagzɨ*, Hatoma *panai*, Shika *hanai*, with Kamikoshiki *hanaːgi* and Shimokoshiki and Amakusa *hanagi*;
- Proto-Ryukyuan **ijako* 'oar', broadly attested in modern Ryukyuan (Miyako *zzaku*, Shika *jaku*, Shuri *ʔweːku*, China *joːkuː*) as well as in Old Okinawan (*ijako* ~ *ijago*, found as the second morpheme in compounds), with the form *jaku* 'oar' attested in Takara island in the Tokara group;
- 'fish bait' *kabu* in South Ryukyuan (Ikema, Hatoma), *kabuɛi* 'scattered bait; fish bait' in Satsugū Kyushu (Koshiki islands), and the verbs *kabusu* 'to scatter bait so as to attract fish' (Satsuma Peninsula, e.g.: Makurazaki, Nagashima, Azuma, Hashima, Bōnotsu; and Ōsumi Peninsula, e.g. Hami, Magome Ōdomari)[4];
- 'harpoon': Ikema and Hirara *tugja* 'harpoon with a hook', Naze *tugja*, Kametsu *tugja* 'trident for catching octopuses and small fish', from PJ **togu* 'to sharpen' => nominalization **togi* + substantive/diminutive PR suffix **-a* > PR **tugja*; relatable to Satomura (Kamikoshiki) *togiː* 'convex part of the joint of an oar', putatively a nominalization of **togu*;
- Proto-Ryukyuan **idzari* 'fishing at night (using the light of torches)', with the descendants broadly attested in North (Naze *ʔidzari*, Kametsu *ʔidai*, Wadomari *ʔidzai*) and South (Shika *idzarɨ*, Ikema *idzai*, Tarama *idal*) Ryukyuan, has cognates with a correspondent meaning in Akuseki (Tokara islands) and Tanegashima. This is a nominalization of PJ **insaru* 'to fish', attested in WOJ as *insaru*. Although WOJ has items such as *insaripɨ*/*insarimpɨ* 'torch light used to attract fish' and that meaning also served as a metonymic extension of the nominalization of *insaru – insari*, the use of the descendant of PJ **insaru* which specifically refers to traditional procedures of catching fish at night appears limited to Kyushu-Ryukyuan;
- 'scooping net', traceable to Proto-Kyushu-Ryukyuan **tabo*, broadly distributed throughout the Ryukyus, with the form *tabu* attested e.g. in Naze, Ikema, Hatoma, Shika and Hateruma, as well as Kyushu: Fukuoka *tabo*, Kumamoto *tabu*, Miyazaki *tɛetabu*, Kamikoshiki *gotaːbu* – the reflex of *b is opposed to Mainland Japanese *m in forms such as standard Japanese *tamo*. Also note the *o > u raising in most Kyushu forms, which may be indicative of the Ryukyuan-type vowel raising that had occurred in the indigenous Kyushu topolects before they were replaced by Mainland Japanese-type of topolects. Here, however, a mentioning needs to be made of a neighboring non-Kyushu attestation of **tabo*: the lexeme tabu in Abu

[4] The correspondence of Satsugū /bu/, instead of the expected /bo/, with Ikema /bu/ also implies that *o > u raising has taken place in Satsugū, endorsing the hypothesis of the archaicity of these vocabulary items: the raising must have occurred before the overall shift of indigenous Satsugū Kyushu into Mainland Japanese. This is the same kind of vowel change as postulated for *tabo > *tabu* 'scooping net' above. Cf. also (2.5.)

(Yamaguchi; Shōgaku Tosho 1989: 1410) means ‘a bag used by fisherwomen for carrying the catch’. Considering the close ties of Yamaguchi with Kyushu and an often-reported fact of Yamaguchi showing resemblance to the Kyushu lects (Okano 1986; Hirayama 1992-93: 239-240), the presence of this single token in Yamaguchi may be a result of an areal diffusion and/or suggest an influx of Kyushu-Ryukyuan migrants in Yamaguchi; the same, apparently innovative meaning of *tabo is attested in the Itoshima district in Fukuoka (Shōgaku Tosho 1989: 1410). At any rate, this exclusive Yamaguchi attestation does not disqualify *tabo as a candidate for a Kyushu-Ryukyuan innovation.

On the other hand, a significant number of seafaring vocabulary represents innovations limited to Ryukyuan, among which some are reconstructible for Proto-Ryukyuan, whereas others seem confined to specific languages or smaller areas.

Ikema has a wide range of specialist vocabulary concerning ship construction, including *kandan* ‘the part where the sail is fixed’, *babu* ‘small hole at the bottom of the ship in which the sail is stood and fixed’, *matagara* ‘the post’, *tiːhan* ‘rope used to prevent the crosspiece from falling off from the post’, or *hatagatsɨ* ‘a fence board cover against waves, fixed at both ends of a boat’. Other examples include:

- Proto-Miyako **pɨda* ‘harbor’: Tarama and Sawada-Irabu *pɨda*, Ikema *hida*, cf. also Shiraho (West Yaeyama) *pɨda* ‘shore’;
- Proto-Ryukyuan **kananko* ~ **kanago* ‘anchor’: Middle Okinawan *kanaku* ~ *kanagu*, Shika-Ishigaki *karangu*, Hirara and Nozaki *kanagu*;
- Ikema and Irabu-Nagahama *ubu* ‘anchor’;
- a wide range of vocabulary referring to various types of ‘harpoon’, including Proto-Ryukyuan **uge(mu)* (Hirara *vgjam*, Kurima *ugjam*, Nishibe *ugin*, Hateruma *ui*, Ie *udzimu*, China *ugimu*, Kametsu *ɕoːrau*gi[5]); Proto-Ryukyuan **ige(mu)* ~ **igo(mu)* (Tarama and Yonaguni *igun*, Hatoma *jukuːn*, Sesoko *idziːmu*), Ikema *mabjai* and *kakidza*, Wadomari *itɕidzaː*, China *itɕigaː*, Kurima *kaz* ~ *gaz*, Hatoma *ɕiːmeː*;
- vocabulary related to fishing nets and net production, such as Ikema *abiː* ‘net-knitting needle’, *agita* ‘a ruler for knitting nets with even eyes’, and Hirara *itsuvkja* ‘square net’;
- Tarama *dzibuku*, Hateruma *dzibagu* ‘fishing pole’;
- Hirara *bura* ‘head of a Japanese-style ship’;
- Hateruma *uni* ‘captain of the ship’.

In sum, the seafaring vocabulary of Proto-Ryukyuan speakers indicates that although their seafaring culture had general Japonic roots, it had also developed a number of concepts and names unique to the Kyushu-Ryukyuan zone, in particular in terms of fish catching and foraging. This sort of vocabulary is shared with Ryukyuan in all parts of Kyushu. On the other hand, items related to boat construction, such as ‘oar’ and ‘bow’, seem to be shared only with the southernmost outskirts of Satsugū Kyushu, such as Koshiki and Tokara islands, which may imply that the shipbuilding culture carried by Proto-Ryukyuan speakers was specific to the narrow southernmost Kyushu area.

[5] *ɕoːra* stands for ‘Spanish mackerel’.

2.2. Cardinal directions/navigation

Names of cardinal directions are conspicuously different in Mainland Japanese and Ryukyuan. Table 2 illustrates this by contrasting WOJ and EMJ (the system of EMJ has remained stable unto modern standard Japanese) systems with Proto-Ryukyuan and Old Okinawan. Proto-Ryukyuan reconstructions of 'east' and 'west' accord with Nakamoto (1983: 196-204). The reconstructions are corroborated by the earliest attested Old Okinawan forms (after Hokama 1995; phonological reconstructions follow Hattori 2018).

Table 2 shows Proto-Ryukyuan doublets for the names of all four cardinal directions. A reconstruction of similar doublets was already proposed by Nakamoto (1981, 1983), and it will be explained and explored in the discussion to follow.

Table 2: Cardinal directions in Japonic

	Proto-Japonic	WOJ	EMJ	Proto-Ryukyuan	Old Okinawan
east	*pingaɛi (cf. Martin 1987: 405)	pimungaɛi anduma	pigaɛi	*agarupe *piga(ɛi)	agarupɨ piga(ɛi)
west	*niɛi (cf. Martin 1987: 498)	niɛi	niɛi	*irupe *niɛi	irupɨ
north	*kita (cf. Martin 1987: 452)	kita	kita	*niɛi *kita	niɛi
south	*minami *pape 'southern wind' (cf. Martin 1987: 395; 479)	minami	minami	*pape *minami	papɨ

Both in Ryukyuan and in Mainland Japanese names for cardinal directions characteristically overlap with, or are extensions of, names referring to winds from specific directions, as exemplified by WOJ: *niɛi* means both 'west' and 'western wind' (Sawakata 1967: 544), whereas *minami* means both 'south' and 'southern wind' (Sawakata 1967: 712). This seems to underscore the close ties between navigation and the naming conventions of cardinal directions. In fact, the component *ɛi* in WOJ *niɛi*, *pimungaɛi* (EMJ *pigaɛi*, modern *higashi*), as well as in e.g. *araɛi* 'storm', is hypothesized to have originally meant 'wind' (Sawakata 1967: 345; Nakamoto 1981: 202). This would make the PJ etymology of *pimungaɛi* quite clear, as proposed earlier by Martin (1987: 405): **pi* 'sun' + **munga* 'to turn to' (attributive) + **ɛi* 'wind' = 'the wind turned toward the sun', 'the wind blowing in the direction of the sun'[6].

Among the four Ryukyuan cardinal directions, three have the component **pe*, which is the Proto-Japonic and Proto-Ryukyuan morpheme meaning 'side, direction'.

Cognates of WOJ *pimungaɛi*/EMJ *pigaɛi* 'east' are found in Old Okinawan as well as, with a punctual local distribution, in North Ryukyuan (including Wan in Kikai, Ongachi, Yuwan and Yadon in Amami, Kametsu and San in Tokunoshima, Yoron, Oshikaku in

[6] Although Martin derives EMJ *pigaɛi* directly from WOJ *pimungaɛi*, there is also a possibility that these are two parallelly-formed lexemes, with *piga* analyzable as PJ **pi-nə-ka* sun-GEN-place 'the place of the sun', 'the location of the sun'.

Kakeroma-Amami, down to Sate in northern Okinawa); they are also broadly encountered in toponyms and family names such as the very popular Okinawan name Higa (Nakamoto 1981: 200-201; Nakamoto 1983: 197-198). A South Ryukyuan hapax legomenon *pingasɨ* is also attested in a ceremonial song in Hateruma (Nakasone 1969: 465). This evidence is enough to reconstruct **piga(ɕi)* for Proto-Ryukyuan as well as **pinga(ɕi)* for Proto-Japonic. On the other hand, the core Ryukyuan 'east' lexeme, **agarupe*, constitutes a definite majority throughout the North and South Ryukyuan area. With such evidence one can hypothesize that whereas **piga(ɕi)* had been the inherited Proto-Ryukyuan label for 'east', **agarupe* was a Proto-Ryukyuan innovation shared by the speakers of Proto-South Ryukyuan at the moment of the split of Proto-Ryukyuan into North and South, which likely happened no earlier than the 12th century along with the move of Proto-South Ryukyuan speakers into the Sakishima islands (cf. Jarosz et al. 2022). The linguistic data as presented here indicates that at the time of the split, there was a regional variation, with some of the Proto-Ryukyuan communities using **agarupe* and others **piga(ɕi)*. The use of **agarupe* at that time must have been robust and widespread enough, however, to eventually minorize **piga(ɕi)*.

Semantically, **agarupe* has a transparent structure of **agaru* 'to rise' and **pe* 'side, direction', referring to the side of the sky on which the sun rises. It was apparently initially used in sacral contexts related to the cult of the sun. As the direction of the rising sun, the east was revered and considered sacred (Nakasone 1969: 468; Nakamoto 1981: 200, 202). This may have been the initial motivation of the emergence of Proto-Ryukyuan **agarupe*, the 'sacred east', and its differentiation from **piga(ɕi)*, the 'profane east'[7]. Traces of this distinction seem to be retained in modern Yamatoma (Amami Ōshima), which displays both forms: *ʔagare* is used to refer to the direction of praying to the rising sun, whereas *higaɕi* does not have any reported usage limitations (Osada et al. 1980: 140).

A mention should also be made of the cognates of WOJ *koti* 'eastern wind', which are again found in Middle Okinawan (e.g. makutɕi 'eastern wind') and modern Shuri, meaning both 'east' and 'eastern wind'. In North Ryukyuan, although the cognates of *koti* are soundly attested (a wide range of topolects from Osai and Koniya in Amami to Itoman in Okinawa), their meaning appears mostly limited to 'eastern wind'; Nakamoto (1981: 200-201) lists a number of topolects in which the meaning of 'eastern wind' expanded to 'east', and they are scattered in Amami Ōshima, Kikai, down to Aha, Henoko and Sokei in north Okinawa. A similar situation is observed in Kyushu, with cognates of *koti* meaning 'eastern wind' distributed from Ōita and Kumamoto through Kagoshima down to Tanegashima and Yakushima. Such cognates can also be found in the topolects of a broadly comprehended western Honshu (Wakayama, Totsukawa, Hiroshima), with the easternmost post of distribution at the time found in Shizuoka. All this would seem to imply that PJ **koti* was originally a navigation-only term, with the reconstructible primary meaning 'eastern wind'. There is no evidence that in any Mainland Japanese topolect **koti* has expanded enough to be used as an indication of a cardinal direction.

[7] Nakasone (1969: 468) proposes a reverse explanation: the innovative metonymic form **agarupe* had replaced **piga(ɕi)* because of the sacredness/taboo of the latter.

No cognates of WOJ *anduma* have been found in Ryukyuan; this lexeme is likely a Mainland Japanese innovation.

The Ryukyuan word for 'west', **irupe*, is apparently an innovation symmetrical with **agarupe*. In contrast to **agarupe*, **irupe* consists of **iru* 'to enter, to descend (about the sun)' (cf. Japanese *hinoiri* 'sunset') and, again, **pe* 'side, direction'[8]. Reflexes of **irupe* are virtually an exclusive reference to the direction of 'west' in Ryukyuan languages, and they must have replaced the original Proto-Japonic word for 'west', **niɛi*, which in turn acquired the meaning of 'north' in Ryukyuan (cf. below). Reflexes of **niɛi* 'west' with the original PJ meaning are still found or even predominant in Amami, through Tokunoshima, also attested locally in Okinawa (Sate, Kayō, Nakima), the southernmost boundary of their distribution being Itoman[9] (Nakamoto 1981: 203). There are also attestations of a use, albeit declining, of *niɛi* 'west' in Old Okinawan (Hokama 1995: 506). Out of the two Ryukyuan expressions for 'west', it is only the reflexes of **irupe* that are found in South Ryukyuan, suggesting that the innovative **irupe* must have been well established in Proto-Ryukyuan at the time of the split into Northern and Southern groups. Although **niɛi* was still retained in a range of communities, it had been completely replaced by **irupe* in the community of the Proto-South Ryukyuan carriers, similarly to the virtually total replacement of **piga(ɛi)* by **agarupe* for 'east'.

In a fraction of topolects from the Amami area (Nakamoto 1983: 199 lists Shitoke in Kikai, Yuwan-Amami, and Amagi-Tokunoshima), the item 'west' is traceable to a proto-form **oki*. To this list one can add lexemes and compounds in which reflexes of **oki* indicate 'northern wind', such as Amami (Naze, Koniya, Yamatoma) *uki-niɛi* 'north-western wind' and *ukibe* (Yamatoma) 'western wind'. These reflexes are valuable inasmuch as they have cognates in the forms of Kamikoshiki *okibainin*, Tanegashima *okibaje* and Yanagawa *okibae* 'south--western wind'. **oki* 'western wind' could be therefore reconstructed for a shared Kyushu--Ryukyuan ancestor, with a strong indication that Proto-Ryukyuan speakers had a shared navigation culture with at least some of the Kyushu communities of the time. Semantically, the picture becomes still more complicated with the presence of the unit *oki-no kadze* 'southern wind' in Miyazaki, *oki* 'eastern wind' in Koyu (eastern Miyazaki), as well as Old Okinawan *okitoba*, allegedly 'northern wind'[10]. The reconstruction of the meaning of

[8] Both **agarupe* and **irupe* were likely modeled in their structure after **pape* 'south', although if one attempts to analyze 'south' as **pa-pe*, at this point it is not clear what the meaning of **pa* is. Considering that a descendant of *pape meaning 'waves stirred by the wind' is attested in Kitaamabe (Ōita), one very vague guess is that *pa might be related to PJ *aba 'foam' (Martin 1987: 387).

[9] The markings on the isogloss (isolexical) map in Nakamoto (1981: 203) indicate that the forms *nisɨ* are also found in Miyara (Eastern Yaeyama) and Shiraho (Western Yaeama) on Ishigaki. This, however, seems to be a printing mistake which confused marking assigned to *nisɨ* with that of *iri*. No source has recorded a cognate of **niɛi* to mean 'west' in any South Ryukyuan topolect, and even Nakamoto himself (1981: 202) only discusses North Ryukyuan in this context.

[10] Also Old Okinawan *okitoba* may in fact mean 'north-western wind', rather than just 'northern wind'. Hokama (1995: 125) identifies it as meaning 'northern wind', and the component *oki* as the regular Japonic morpheme meaning 'open sea', the whole compound literally meaning 'northern wind blowing from the open sea'. Although *oki* 'open sea' should be the ultimate etymological origin of **oki* 'western wind', it is not impossible that the isolated morpheme *oki* in Old Okinawan *okitoba* means 'west/western wind', just as is implied by the

Common Kyushu-Ryukyuan **oki* thus remains inconclusive, although considering the geographically central location and quantitative domination of the meanings of 'west/western wind', 'western wind' seems to be the most likely candidate. Note, however, that also the component *toba* is reported as meaning 'western wind' in a Shikoku topolect (Hokama 1995: 125). In actuality, looking at the comparanda from all over Japan, *oki* can mean the wind from virtually any direction, and by extension, any cardinal direction.

Thus, *oki-no kadze* is reported with the meaning 'north-eastern wind' in Ano in Shimane (western Honshu), and again with the meaning 'southern wind' in Shima (Mie, western Honshu), whereas *oki* by itself indicates 'north' in Minamikoma (Yamanashi); *oki* means 'east' or 'south-east' in Yaizu (Shizuoka), 'south-east' in Aichi and Hekikai, and 'south-west' in Nishi Kasugai (all Aichi); and plain 'south' in Hamana (Shizuoka) and Kurahashi island, or 'southern wind' in Aki (Kōchi). Upon a closer look at the location of these places on the map of Japan, it turns out that this semantic variation must be motivated geographically: from PJ **oki-* 'wind from the open sea' (metonymic extension of **oki* 'open sea') were developed area-specific names of wind directions, depending on which direction the open sea was located at in the particular area. As a consequence, this also produced a Common Kyushu-Ryukyuan innovation **oki-* 'western/southwestern wind'. The noteworthy fact that no topolect group outside Kyushu-Ryukyuan seems to use *oki with the plain meaning of 'west' (as opposed to 'south-west') must be rooted in such a geographic underspecification accompanying the meaning of *oki. It is also remarkable that in Mainland Japan, with one confirmed exception in Ano, *oki seems only to be shared by topolects spoken in areas facing the Pacific, and not Sea of Japan; hence the domination of the 'south'-related meanings of *oki.

Cognates of WOJ *minami* 'south' are few in Ryukyuan, and include forms such as *minam*, *minan* and *minoːhoː*. Not only are they – like the cognates of WOJ *niɕi* 'west' and *kita* 'north' – unattested in South Ryukyuan, they are also spatially confined to the narrow Amami area: parts of the Kakeroma island (Oshikaku, Setsukawa, Sesō), Sani, Yuwan, Nesebu (Nakamoto 1981: 204-205, Nakamoto 1983: 201), and Yamatoma (Osada et al. 1980: 140). As Nakamoto (1981: 204, 1983: 199) points out, such distribution limited to the area geographically closest to Mainland may encourage a conclusion that these forms are loans from Japanese; however, it does not appear particularly likely that a contact-induced loan from the dominating state language should remain limited only to a small number of remote topolects all concentrated in a relatively narrow area, rather than spread throughout the islands. The view that these cognates of *minami* reflect in fact a conservative layer of Ryukyuan vocabulary is endorsed by the evidence from the names for the three other cardinal directions, all of which replicate the scenario of the WOJ/Mainland cognates being confined to limited North Ryukyuan areas with the alleged innovations taking over everywhere else. A further support may be offered by attestations of *minami* in Old Okinawan, although this evidence by itself is not considered to be firm enough[11].

comparative North Ryukyuan evidence. If this etymology is correct, *okitoba* 'north-western wind' would be a lexical compound analogous to modern Amami *uki-niɕi*.

[11] Although the form *minami* is also attested in the Chinese sources on Old Okinawan (cf. Hokama 1995: 640)*: Liuqiu Guan Yiyu*/*Ryūkyūkan Yakugo* (around 1500) and *Yinyun Zihai*/*On'in Jikai* (around 1573), Hattori

The widespread Ryukyuan name for 'south', Proto-Ryukyuan ***pape*, can be hypothesized to be conservative and reveal a Proto-Japonic morpheme. Cognates of ***pape* meaning 'southern wind', although absent in WOJ and EMJ, are broadly distributed in Mainland Japan. Already in *Butsurui Shōko*, the 18th-century dialectal lexicon by Gozen Koshigaya, *fae* 'southern wind' and a range of related vocabulary of the seafarers, such as *kurofae* 'wind blowing at the beginning of the wet season', *arafae* 'wind blowing in the middle of the wet season', and *woɛifae* 'south-western wind', are reported for western Honshu and the Izu province (Tōjō 1941: 11-13)[12]. In modern Mainland Japanese topolects, *hae* 'southern wind' or its local variants are abundantly attested in Kyushu, as well as in other areas of western Mainland, in particular the Chūgoku area (Shimane, Yamaguchi, Okayama), but also Shikoku (mostly Ehime). There are, however, also individual attestations of **pape* in Watari (Tōhoku) – *haebutɛi* – as well as in the Hachijō language, *haebuki*, here meaning 'southern wind blowing around May' (Shōgaku Tosho 1989: 1878).

Furthermore, several Mainland descendants of *pape have changed the meaning from 'southern' to 'western' (*hai-no kadze*; Oki islands), 'north-western' (*hai*; Uma in Shikoku), or 'north-eastern wind' (*haikadze*; Kasado island). These three locations represent a relatively concentrated area of western Mainland, with two facing the Seto Inland Sea. Such meaning innovations relative to the geographic placement of the specific topolect may imply that PJ *pape may have originally represented a noun not tied to a specific direction, as perhaps reflected in still different Mainland meanings of *pape attested today: 'violent wind, gale' in Higashitonami (*ohaikadze*; Toyama); 'gust' in Yakushima (*hainokadze*); or even 'wet season' (*hae*; Shima). One can hypothesize that PJ-speaking communities recognized a relationship between the concepts of 'strong wind, gale, gust' on the one hand and 'southern wind' on the other. While PJ *pape may have meant both, the meaning of 'southern wind' may have been replaced by different directions in topolects in which perhaps winds from different directions carry a stronger association with 'gale' or 'gust'.

In few modern Mainland topolects (Naka in Shimane, Nishi Sonogi in Nagasaki), *pape is attested with the cardinal direction meaning of 'south'. Since these examples are so isolated, and since extending the meaning from the name of a wind to the name of a cardinal direction seems such a common occurrence in Japonic, it would be prudent not to reconstruct PJ *pape 'south' based on these attestations alone, and treat them as parallel semantic innovations instead.

The most likely interpretation of the so far accumulated evidence concerning the Ryukyuan 'south' lexemes is that there were two Proto-Ryukyuan items with this meaning, conservative ***minami* and innovative ***pape*. Proto-Ryukyuan innovated the meaning 'south' from a specialized vocabulary item ***pape* meaning 'southern wind', to the general exclusion of the original lexeme ***minami* but for a number of Amami topolects.

(1979) points out that *Liuqiu Guan Yiyu* frequently confuses Ryukyuan with Japanese data (an analogous Japanese language guide was compiled at the same time), and the sources that follow, including *Yinyun Zihai*, often cite the chronologically earliest *Liuqiu Guan Yiyu* uncritically. Therefore, this cannot be considered as evidence for the presence of *minami* in Old Okinawan, and neither can be the presence of *minami* in Classical Okinawan literature, which is heavily influenced by Japanese.

[12] Romanization of *Butsurui Shōko's* reflexes of PJ *p as <f> follow the description of the pertinent sound change in Frellesvig (2010: 386-387).

Similar to ‘south’, cognates WOJ and Mainland Japanese *kita* ‘north’ are only scarcely attested in Ryukyuan, and the evidence is limited to North Ryukyuan, again concentrating in Amami. The form *kita:* is found in Amami’s Kakeroma island, *kita* in Amami’s Yoro island and the central part of Amami Ōshima (Yuwan, Kushi, Nakama, Ongachi, and Yamatoma), but also Nakima in the Okinawa main island, and *k’ita* in Uka in the north of Okinawa (Nakamoto 1981: 206-207; Nakamoto 1983: 200-201; Osada et al. 1980: 140). The distribution of Ryukyuan cognates of *kita* is therefore significantly broader than *minami*. Furthermore, a cognate of WOJ/Mainland *kita* ‘north’ is attested in Old Okinawan with a general meaning of ‘wind’, not specified for direction (Hokama 1995: 226).

The development of Ryukyuan ‘north’ from the Proto-Japonic lexeme for ‘west’ is strictly tied to the emergence of the aforementioned innovative Ryukyuan pair **agarupe* ‘east’ and **irupe* ‘west’. Once **irupe* had started to diffuse and replace **niɛi* as the ‘west’ lexeme, **niɛi* survived by shifting its meaning to ‘north’[13], in turn eliminating Proto-Japanese **kita* from most of the Ryukyuan-speaking area. The shift to the meaning ‘north’ was facilitated by the use of **niɛi* with the meaning of ‘northern wind’ – traces of which are still retained in topolects like Yamatoma, which uses *kita* as the cardinal direction ‘north’ – and the existence of a range of compounds with *niɛi* to refer to various types of ‘northern wind’. A similar multitude of expressions with *niɛi* meaning ‘northern wind’ are attested in Old Okinawan (Hokama 1995: 506-507); similarly, although the essential meaning of Old Okinawan *niɛi* is ‘west’, Old Okinawan also provides early traces of interpreting *niɛi* as ‘north’ (Nakamoto 1981: 202).

The overarching scenario which emerges from the above picture is that initially, Proto-Ryukyuan displayed the system of four cardinal directions entirely inherited from Proto-Japonic: **pinga(ɛi)* ‘east’, **niɛi* ‘west’, **kita* ‘north’ and **minami* ‘south’. Remnants of this system are still found in North Ryukyuan, although they are concentrated in the Amami island group, in particular its northern part down to Tokunoshima; the further south, the more incidental these reflexes become.

The innovative system: **agarupe* ‘east’, **irupe* ‘west’, **niɛi* ‘north’ and **pape* ‘south’ had been fully formed before the split of Proto-Ryukyuan into the North and South groups, i.e. by the 12th century. It has become prevalent in the Ryukyuan-speaking area. Most importantly, this system was already stable in the language of the eventual Japonic settlers of Southern Ryukyus, with no traces left of the conservative system inherited from Proto-Japonic, a situation likely caused by the bottleneck effect (cf. e.g. Fortescue 1998, Everett 2017). This explains why reflexes of the conservative system are practically nowhere to be found in South Ryukyuan, not even in the epic and ritual songs famous for their linguistic archaisms (cf. Nevskiy 1978).

Such a complete distancing from the inherited Proto-Japonic system magnifies – or becomes more and more apparent – the further down south one looks. This agrees with the line of Proto-Ryukyuan expansion southward from the Kikai island, which is the most plausible candidate for the Proto-Ryukyuan homeland (cf. Jarosz et al. 2022: 15). One can imagine

[13] It is plausible that the meaning shift from ‘north’ to ‘west’ was mediated by a metonymic extension of **niɛi* referring to ‘north-west’, as in e.g. ‘north-western wind’. An analogous precedent is found in the item niɛikadze ‘north-western wind’ in Mainland Nakagambara (Niigata; Shōgaku Tosho 1989: 1789).

that those Proto-Ryukyuan communities which innovated their lexicon of cardinal directions were also those communities which were more mobile and whose members would become the founders of outpost Ryukyuan-speaking settlements. The more mobile communities, actively involved in navigation in order to reach the islands further south, would be more likely to establish innovative vocabulary for cardinal directions – which in their case would be some of the most essential vocabulary – and use it as a token of their identity distinct from their more sedentary Proto-Ryukyuan kins. Viewed in this light, it is understandable that it was only the innovative system that survived in Proto-South Ryukyuan, the language of the ultimate long distance explorers among ancient Ryukyuans, who had to overcome a roughly 300-kilometer-long stretch of the Pacific in order to reach the Miyako islands from Okinawa.

Navigation was therefore an important building block of a Ryukyuan ethnolinguistic identity. The said navigation-related part of the Ryukyuan identity was only constructed, however, long after the split of Proto-Ryukyuan from Proto-Japonic as well as Common Kyushu-Ryukyuan, and there is no evidence that any of the Proto-Ryukyuan innovations were shared by some topolects in Kyushu – with the exception of Common Kyushu--Ryukyuan **oki-* 'western wind' > local North Ryukyuan 'west' which, however marginal and spatially limited in its attestations on both sides of the linguistic Kyushu/Ryukyuan divide, does testify to some amount of navigation knowledge exclusively shared between the two groups.

Several other names of cardinal directions also come from the names of winds. Apart from the directions which incorporate the alleged Proto-Japonic component **ɕi* 'wind', such is the case with **pape* and **koti*; either can be respectively reconstructed as Proto-Japonic 'southern wind' and 'eastern wind', with **pape* later evolving into a general Proto-Ryukyuan lexeme of cardinal direction meaning 'south', and **koti* innovating into the meaning of 'east' in some North Ryukyuan topolects. Furthermore, **niɕi* was used in early Proto-Ryukyuan stages with the meaning of 'northern wind', which led to a metonymic identification of the name of the wind with the name of the cardinal direction, as a consequence allowing **niɕi* to replace **kita* as the indicator of 'north' as **niɕi* itself had begun to be replaced by **irupe* with the meaning 'west'.

In sum, the sources of the innovative names of cardinal directions in Proto-Ryukyuan were twofold: one was the names of winds metonymically extended to indicate the directions (**pape* 'south wind' > 'south'; **niɕi* 'north wind' > 'north'), and the other referenced the respective directions of the rising and setting of the sun (**agarupe* 'the direction where the sun rises' > 'east'; **irupe* 'the direction where the sun sets' > 'west'), and was rooted in the Ryukyuan cult of the sun.

2.3. Names of marine flora and fauna

Considering the difference in climate zones between the (subtropical) Ryukyus and most of the (temperate) mainland Japan, it is little wonder that the amount of inherited shared lexicon pertaining to marine flora and fauna in both groups is low. It is also to be expected that Ryukyuan would have a large base of innovative fish names coined specifically to label

the species unique to the Ryukyus, or that these names would reflect a pre-Ryukyuan substratum.

If a species does seem to share a label in Mainland and Ryukyuan, there are good chances that the label has been borrowed from Mainland to Ryukyuan. This is most likely the case with names for the genus Thunnus, standard Japanese *shibi*, attested in Old Japanese as *ɕubi*. Although well attested in Ryukyuan, the equivalents of *shibi* do not show the expected sound correspondences, cf. Hateruma *ɕibi* instead of the predicted †*sibi*, a clear indication of a loanword.

As a consequence, there are few fish names that can be fairly uncontroversially reconstructed for Proto-Japonic. They include 'eel', 'flatfish', and possibly 'Spanish mackerel'; there are also attestations of items with possible Proto-Japonic roots which now indicate different species in standard/Mainland Japanese and Ryukyuan, such as **moro*. This list can be expanded by 'whale', which, although obviously not a fish, may be conceptualized as such due to its formal resemblance to a prototypical fish.

Table 3: Proto-Japonic fish names inherited in Ryukyuan

Species	Attestations Ryukyu	Standard Japanese	Proto-Japonic
bluespine unicornfish/blackhead seabrem	'bluespine unicornfish' (*Naso unicornis*) Madomari-Kume *tɕinuman*, Itoman *hontɕinuman*, Shika *tsinumara*	'blackhead seabrem' (*Acanthopagrus schlegelii*) *chinu*	*tinu/*tino
eel	Hirara *mnagzi*, Ikema *unadzi*, Hateruma *unan*, Wadomari *unadzi*	unagi	*(m)unagi/*(m)onagi (cf. Martin 1987: 562)
flatfish	Hirara, Shika *i:*, Naze *e:*, Kametsu *je:*	ei	*ewi
Spanish mackarel (*Scomberomorus niphonius*)	Wadomari, Kametsu *so:ra*, Hateruma *sa:ra*, Yonaguni *sara*	sawara	*sapara
threadfin emperor/shortfin scad	'threadfin emperor' (Lethrinus genivittatus) Shika *muru:*, Chinen, Itoman, Madomari-Kume, Hama *ino:muru:*	'shortfin scad' (Decapterus macrosoma) *moro*	*moro/*mərə
whale	Naze *k'udzira*, Sesokko *gudza*, Hirara, Nagahama *fuddza*	kujira	*kundira (cf. Martin 1987: 468)

In contrast, a sizeable bulk of shared Kyushu-Ryukyuan fish names is attested, especially in the Satsugū area. That the Ryukyus and southern Kyushu have more in common in terms of climate certainly favoured this kind of outcome. Some of the cognates indicate slightly different fish species in the Ryukyus and in Satsugū, although they still refer to species which are visually akin. Similarly, the fact that a number of items, such as 'flathead silverside' and 'two-spot red snapper', appear to be shared by just Kyushu and South Ryukyuan alone, with the omission of North Ryukyuan, strengthens the likelihood of a label being recon-

structible for Common Kyushu-Ryukyuan, retained at the peripheries of the pertinent Kyushu-Ryukyuan area, in a manner characteristic of archaic lexemes.

Although the number of fish lexemes shared exclusively by Ryukyuan and Satsugū is the biggest, the lexicon shared with other parts of Kyushu, including the Chikugo area, Gotō islands, Tsushima and Amakusa, cannot be ignored. This corroborates the observation based on the vocabulary of seafaring technology (2.1.) that before migrating to the Ryukyus, Pre-Proto-Ryukyuan speakers participated in a broader Common Kyushu-Ryukyuan seafaring/fishery culture.

Table 4: Shared Kyushu-Ryukyuan innovations in fish names

Species (as attested in Ryukyuan)	Attestations in Ryukyu	Attestations in Kyushu	Common Kyushu--Ryukyuan reconstruction
bigeye scad (*Selar crumenophthalmus*)	Naze *gatsun*; Itoman *gatɛun*; Hirara *gatsinu*; Hateruma *gatsin*	Kaimon, Kasasa (Satsuma Peninsula) *gatsun*; Iwamoto, Akune, Ichiki (Satsuma Peninsula), Kamikoshiki *gattsun*	*gatsunu ?
bluefin trevally/skipjack (*Caranx melampygus*), striped jack (*Pseudocaranx dentex*), yellow-spotted trevally (*Carangoides orthogrammus*)	Nagahama, Nakachi *mnuzzu*	Shimahira (Satsuma Peninsula) *minoio*, Tsushima *minouo* 'luna lionfish' (*Pterois lunulata*)	*minoiwo
dogtooth tuna (*Gymnosarda unicolor*)	Itoman *tokakin*, Madomari-Kume, Hisamatsu *tukakin*, Hateruma *tukaju:*; cf. also Shika 'yellowfin surgeonfish' (*Acanthurus xanthopterus*) *tukadza*	Beppu Itajiki, Origuchi (both Makurazaki, Satsuma Peninsula) *tokatɛi*; 'Korean mackerel' (*Scomberomorus koreanus*) Kagoshima *tokatɛin*; 'rainbow runner' (Elagatis bipinnulata) Fukumoto (Satsuma Peninsula), Magome Ōdomari (Ōsumi Peninsula) *tokatɛin*	*toka-
flathead silverside (*Hypoatherina valenciennei*)	Hirara, Karimata, Shika *padara*	Makurazaki, Akune, Izumi, Komenotsu (Satsuma Peninsula), Shimokoshiki *hadara*; Imuta (Satsuma Peninsula) *hadaradzako*; Ibusuki, Akune (Satsuma Peninsula) *hadaradzako*; 'roughhead silverside' (*Atherion elymus*) Matsunoo (Satsuma Peninsula) *hadara*; Hashima (Satsuma Peninsula) *hadarasago*; 'Japanese sardinella' (Sardinella zunasi) Ōkawa (Chikugo), Shiranuhi, Ōyano (both Amakusa), overall Kumamoto prefecture *hadara*; 'dotted gizzard shad' (*Konosirus punctatus*) Kurume, Yame (both Chikugo) *hadara*	*padara

Japanese ricefish (*Oryzia*)	Shuri-Naha *takamami*, *takama:mi*, *takama:*	Ōura-Kawabe (Satsuma Peninsula) *takamami*, Ōsaka-Hiyoshi (Satsuma Peninsula) *takamamintɛo*; widespread in Satsuma and Ōsumi Peninsulas *takamame* and its suffixated variants such as *takamamesenko*, *takamametɛin*, *takamamenoko*, *takamamenti*, and many other	*takamame
longtailed red snapper (*Etelis coruscans*)	Itoman *akamatɛi*, Karimata, Hisamatsu *akamatsi*, Hateruma *agamatsi*, Yonaguni *agamatɛi*	Kunigami (Tanegashima) *akama*ʔ ‘Japanese soldierfish’ (*Ostichthys japonicus*)	*akamatu[14]
mottled spinefoot (*Siganus fuscescens*)	Nakijin *e:nukwa:*; Hateruma *enoha* (referring to the fry only)	Kataura (Satsuma Peninsula), Shibushi (Ōsumi Peninsula), Furue (Yakushima) *jenoha*; Makurazaki *jeno* (Satsuma Peninsula); ‘land-locked trout’ Chikugo *enoha*	*eno-
olive flounder (*Paralichthys olivaceus*); righteyed flounders (*Pleuronectidae*)	Naze *katahiraʔju*; Nagahama *pssazzu*; Hatoma *pisaidzu*	Kagoshima *katahiraiwo*; Kamikoshiki *katahirajo*	*(kata-)pira-ijo
two-spot red snapper (*Lutjanus bohar*)	Shika *akana:* ~ *akana:idzu*, Hirara *akanazzu*	Issō, Kurio, Ambō (all Yakushima) *akana*[15]	*akana
wrasse (*Labridae*)	Hirara, Sawada, Nakachi *fusabzi*; Wadomari, China, Kametsu *kusabi*	Miyanoura, Kurio, Ambō (all Yakushima), Tanegashima, Higashi Ichiki (Satsuma Peninsula), Takushima, Iki, Tsushima, Amakusa *kusabi*; Tsushima, Amakusa *kusabu*	*kusabi

Names of the fish that appear to be Ryukyuan innovations not traceable to shared Japonic roots include ‘longspined porcupine fish’ (*Diodon holocanthus*, PR *abasu ~ *abasa), ‘blackspot tuskfish’ (*Choerodon schoenleinii*, PR *makobo), ‘brutal moray’ (*Gymnothorax kidako*, PR *udzu), ‘fugu’ (PR *une ~ *unja), ‘emperor’ (*Lethrinus*, PR *tamanu), ‘parrotfish’ (*Scaridae*, PR *irabutu), and ‘shark’ (PR *saba, cognate of standard Japanese *saba* ‘mackerel’). Apart from these, individual Ryukyuan languages or topolects also have a range of “endemic” fish names – innovative labels not found outside the specific area, such as Tarama *ka:ngu* for ‘crucian carp’, and South Ryukyuan **babja* ‘Japanese black porgy’ (*Acanthopagrus schlegelii*) and ‘Japanese black seabrem’ (*Girella punctata*).

In contrast to fish names, names of seafood creatures are shared in substantial numbers between Ryukyuan and Mainland Japanese. This pertains especially to generic names which

[14] In a number of western Mainland lects in Mie, Okayama and Kagawa prefectures (Shōgaku Tosho 1989: 23), *akamatsu* indicates a different fish species, the common ninow (*Zacco platypus* or *Opsariichthys platypus*). This leaves a margin for consideration as to which meaning is innovative and which a retention from a shared ancestor; for now, the interpretation of the Kyushu-Ryukyuan meaning as the innovative one will be maintained.

[15] *Akana* is reportedly a usual Satsugū name for red snappers and similar species, encountered in Satsuma and Ōsumi areas as well as Morokata (Hashiguchi 2004-1: 60). Furthermore, like *akamatsu*, the name *akana* is attested outside the Kyushu-Ryukyu area in Tottori as a reference to the ‘marbled rockfish’ (Bouz-Konnyaku 2021; Shōgaku Tosho 1989: 23), suggesting that the name itself has a broader western Japan distribution.

do not introduce a specialized distinction of species, such as 'crab', 'medusa' or 'octopus'. These names can be therefore assumed not to have been replaced in Ryukyuan since Proto-Japonic.

Table 5: Proto-Japonic marine animal names inherited in Ryukyuan

Species	Attestations in Ryukyu	Mainland Japanese	Proto-Japonic
abalone	China *e:bi*, Hirara *a:bzi*, Tarama *e:bzi*,	*awabi*	*awambi (cf. Martin 1987: 388)
clam	Naze, Kametsu, Wadomari *hamagui*, Shika *hamo:ri,* Hatoma *pamo:ru*	*hamaguri*	*pamagoruj (cf. Martin 1987: 379)
crab	Naze, Kametsu *gan*, Yoron gan, Shuri *gani*, Sesoko, Ie *gai*, Hirara, Ikema, Shika, Hateruma *kan*	*kani*	*kanuj
jellyfish	Naze *jə:ra*, Hatoma *ira*, Shuri *ʔi:ra:*, Ikema *rrja:*, Hirara *zza*, Sawada *lla*	dialectal (e.g. Sado, Shima) *ira*	*ira
octopus	Naze, Wadomari, Kametsu *to:*, Sesoko *tafu:*, Hirara, Tarama, Shika, Hateruma taku, Yonaguni *tagu*	*tako*	*tako
sea urchin	Wadomari *ʔuni:*, Sesoko *ui*, Hirara, Hateruma *un*	*uni*	*oni
shellfish	Tarama, Sawada *kaz*; China *ha:i:* 'conch', Shuri *ke:*	*kai*	*kapi (cf. Martin 1987: 433)
shrimp	Naze, Wadomari i:bi, Sesoko *ʔi:bi*, Hirara ibzi, Hateruma *ibi*, Yoron *ibi*, Yonaguni *in*	*ebi*	*jebi (cf. Martin 1987: 392)
squid, cuttlefish	Wadomari *ʔitɛa*, Shuri *ʔika*, Shika *ika*, Hirara *ikja*, Hatoma, Hateruma *iga*, Yonaguni *ita*	*ika*	*ika (cf. Martin 1987: 421)
turtle	Wadomari *hami:*, Naze, Kametsu *kami*, Hirara, Ikema, Shika, Hateruma *kami*	*kame*	*kamaj (cf. Martin 1987: 435)

Although there is also a body of seafood and other sea creature names innovatively shared by Kyushu and Ryukyuan, unlike fish, these are typically limited to the Satsugū area alone, and still only to specific, individual topolects of Satsugū rather than the whole area. It is also remarkable that whereas the vocabulary with Proto-Japonic lineage involved generic names, the putative Kyushu-Ryukyuan vocabulary mostly targets specific species[16] – and the semantics of the particular names is consequently much narrower. This encourages a hypothesis that Pre-Proto-Ryukyuan speakers in southern Kyushu distinguished themselves from other Japonic-speaking groups at the time by the specialized vocabulary pertaining to the specific types or species of sea creatures.

[16] One exception here may be 'shellfish', Kyushu-Ryukyuan *mina, cognate of WOJ *mina* > *nina* '(mud) snail' (cf. Jarosz 2021: 54). Since no Mainland cognates of Kyushu-Ryukyuan **mina* 'shellfish' have so far been found, it is impossible to determine whether the Kyushu-Ryukyuan semantics are an innovation or if they reflect the Proto-Japonic semantics of this item. Instances like *manina* 'Lunella coreensis' in Sukumo and Ōtsuki in Kōchi (Shikoku) are inconclusive, as they technically refer to a snail which lives in the sea like a shellfish.

Also important is the fact that even if a certain form can be reconstructed for Common Kyushu-Ryukyuan, often the semantics of the modern Kyushu and Ryukyuan reflexes have become rather distant, to the point where it is not possible to postulate a confident Kyushu-Ryukyuan semantic reconstruction, as in **nosa* – which yielded modern Kagoshima 'shark' and Miyako 'spiral shellfish' – or **korowa*, which resulted in Shika 'many-formed cerith', but Tokara and Koshiki 'sea cucumber'. Some of the correspondences are also not well established, increasing the risk of a spurious cognacy.

As a consequence of all of the above reservations, the only relatively certain and straightforward Kyushu-Ryukyuan items in Table 6 below are 'hermit crab', 'webfoot octopus', 'golden cuttlefish', 'trepang' and 'turban snail'.

Table 6: Proto-Japonic marine animal names shared by Kyushu-Ryukyuan

Species (as attested in Ryukyuan)	Attestations in Ryukyu	Attestations in Kyushu	Common Kyushu-Ryukyuan reconstruction
coconut crab (*Birgus latro*)	Ikema, Tarama, Hatoma *makugan*, Hateruma *mugon*, Shika *mukkon* ~ *makkon*, Naze *ammaku*	'fish eggs' Kurume, Ukiha, Yame, Hita (all Chikugo), Kamikoshiki, Shimokoshiki, Tanegashima *mako*; 'red sea brem' Sasue, Fukumoto (both Satsuma Peninsula) *mako*	*mako 'fish eggs'; juxtaposed with *kani 'crab' produced Proto-South Ryukyuan *makogan 'coconut crab'
golden cuttlefish (*Sepia esculenta*)	Kametsu, Shika, Yonaguni *kubuɕimi*, Hateruma *kuɕɕimi*, Wadomari, China *hibuɕimi*; broadclub cuttlefish (*Sepia latimanus*) Shuri *kubuɕimi*	Shimokoshiki, Satomura, Taira (both Kamikoshiki) *kubuɕi*(*-ika*), Tanegashima, Kamikoshiki *koboɕi*(*-ika*)	*kobose-
hermit crab	Naze, Hateruma *aman*, Wadomari *amamu*, Hirara *amam*	Takara (Tokara islands) *amamu*; 'sea slater' (*Ligia exotica*) Tanegashima *amame*	*amamu
Japanese mud shrimp (*Upogebia major*)	Shika *da:na-kan*	*Macrobrachium nipponense* Sakurajima, Hioki (both Satsuma Peninsula), Fukuyama (Ōsumi Peninsula) *damma*, Tanegashima *dakuma*; generic reference to 'shrimp', Nagasaki *dakuma*, Beppu Tawaratsumida (Satsuma Peninsula) *damma*; 'freshwater shrimp' (referring to multiple geni/subspecies) Morokata, Kimotsuki *dakumaebi*; Torisu, Sato (both Satsuma Peninsula), Kokubu, Kaseda (both Ōsumi Peninsula) *damma*; Tamaki *daguma*; Nobeoka *rakumaebi*	*dakuma
many-formed cerith (*Batillaria multiformis*)	Shika *kuruba:*	'sea cucumber' Kodakara (Tokara), Kuwanoura (Koshiki) *koroa*	*korowa

mysid/opossum shrimp/small river shrimp	Shuri-Naha *seːgwa*; Nagahama *saz*; Ikema, Shika *sai*; Hateruma *səː*	Takaoka (Morokata) *dzae*; Chikugo *saintɛoː*	*sapi/*sai[17]
spiral shellfish	Ikema, Nagahama *nusa*	a species of shark (*Galeus nipponensis*) Kagoshima *nosa*	*nosa
trepang, sea cucumber	Shika *ʂikiri*, Hateruma *ʂikiri*, Yonaguni *t'ija,* Sani *ɕikiri*, Nakijin *ɕitɕiːri~ hitɕiːri*	Tanegashima *ɕikiri*, Kagoshima *ɕikii*	*ɕikire
turban snail, a species of (*Lunella correensis*)	Shika *tsibuʂi-nna*	Izumi, Kasasa (both Satsuma Peninsula), Kamikoshiki, Teuchi-Shimokoshiki *tsubuɕi-mina*	*tuboɕi-mina
webfoot octopus (*Octopus ocellatus*)	Wadomari *ɕiːgai*, China *ɕigeː*, Nakachi *ʂigaz*, Sawada *ʂigal*	'long-armed octopus' (Octopus minor) Tanegashima *sugaru*	*sugaru

Whereas the proportion of shared Kyushu-Ryukyuan names in this sector of vocabulary is relatively low, there is conversely a wealth of innovative names which are exclusive to Ryukyuan. Some of the species represented by such names are found elsewhere in Japan and, as such, the labels could be potentially shared with other Japonic topolects; they include 'cowry' (PR **subi*[18]), 'Neptune's cradle' (*Tricadna gigas*, PR **adzikai*), 'coral' (PR **uro*), or 'trumpet shell' (PR **sabora*). Like with fish, there is also an abundance of names with etymologies attested only locally.

This fact must be related to the apparently uneven, at times likely endemic diffusion of seafood and other marine creatures among the Ryukyuan-speaking area.

There is not much of note in terms of innovative marine flora names shared by Kyushu and Ryukyuan. The available Ryukyuan vocabulary either has Proto-Japonic roots, including 'sea lettuce' (PJ **awosa*), 'lavor, sloke, sloak' (PJ **nəri*), 'alga, duckweed, seaweed' (tentative PJ **mo*), '*Codium fragile*' (tentative PJ **mojru*, cf. Jarosz 2020: 77 and Martin 1987: 480), and '*Chondrus ocellatus*' (PJ **tunomata*), or represents innovations exclusive to Ryukyuan, such as 'brown alga' (*Nemacystus decipiens*, PR **sinuri*), 'red seabroom' (*Digenea simplex*, tentative PR **natsi-ara*), and 'sea grapes' (*Caulerpa lentillifera*, Miyako *nkjafu* ~ *nkifu*). All in all, there seems to have been no substantial shared Kyushu-Ryukyuan culture of the seaweed/marine plant subsistence such that would single out the Kyushu-Ryukyuan communities from other Japonic speakers.

2.4. Shared Kyushu-Ryukyuan morphology

Although not the central topic of our paper, shared innovative morphology provides strong arguments in favour of a genetic subgrouping of Kyushu and Ryukyuan. As such,

[17] This could be ultimately related to Old Japanese regional *se* 'Japanese goose barnacle', attested in *Izumo Fudoki* (Hashiguchi 2004-1: 885). In modern Satsugū, this item is reflected as *se* (Nagata in Yakushima) ~ *sei* (Beppu-Itajiki on the Satsuma Peninsula).

[18] Formally, PR **subi* corresponds to the aforementioned Old Japanese *ɕubi* and modern standard *shibi*, so there is some chance that these items are cognates, despite the marked semantic difference.

a number of such features will be listed here in order to provide supporting evidence for this paper's case.

Igarashi (2023) successfully demonstrated a shared Kyushu-Ryukyuan innovation in verbal morphology resulting from a shared sound change from the PJ diphthong *əj to Kyushu-Ryukyuan *e, causing the cognates of WOJ upper bigrade verbs, such as **əkəj* > *okɨ* 'to get up', **ətəj* > *oti* 'to fall', to merge their conjugation patterns with the cognates of lower bigrade verbs (WOJ **akaj* > *ake* 'to open', **sagaj* > *sage* 'to lower'), cf. Common Kyushu-Ryukyuan **oke*, **ote*. According to Igarashi's evidence, the areas which retain the verbs inflecting according to the patterns imposed by the *əj > *e change include large parts of the Miyazaki prefecture, the former Ōno district in the Ōita prefecture, the Aso area in Kumamoto, the Iki island, and, to a smaller extent, the Koshiki islands.

The following list of other shared Kyushu-Ryukyuan morphological innovations is a revised and expanded version of the discussion in Supplementary Material 2 of (Jarosz et al. 2022), based chiefly on the transcript of natural speech records in Kindaichi and Shibata (1966) and Shibata (1967). The respective features undergo an in-depth discussion in a forthcoming publication (Jarosz 2024).

- Negative converb **-(a)da(na)*, e.g. Miyako -(*a*)*dana*, comparable with -(*a*)*dza* (Minamiamabe-Ueno), -*adena* (Kumamoto, Shirinashi, Tsutsu, Gotō, Arie);
- negative gerund **-(a)di*, e.g. Yoron -(*a*)*dzi*, Yuwan -(*a*)*dzɨi*, and Kyushu -*(a)dzi*, broadly attested especially in the areas of Kagoshima and Miyazaki prefectures, but also in the Iki and Gotō islands;
- conditional suffix *-(te)kara, attested throughout the Ryukyus, especially South Ryukyuan, as well as in locally in Ōita and Fukuoka;
- purposive marker appearing in constructions such as 'to go to do X'; there are two groups of reflexes, simplex and complex, the former consisting of Proto-Japonic genitive **-nə* followed by locative **-ka* grammaticalized from **ka* 'place' > modern Uku (Gotō islands), Shuri, Kametsu, Hirara, Tarama -*ga*; the latter comprised of locative **-ka* followed by allative **-pe* > **-kape* > modern Kagoshima, Miyazaki, Kuboizumi (Saga), Fukue -*ke*, Kuma, Kamikoshiki -*kjaː*; another variant of **-kape* is also preceded by the genitive marker, **-nəkape* > modern Fukuoka -*geː*, Nagasaki, Uku, Kumamoto, Kuma, and China -*gja*(ː), Ie -*dza*;
- the complex purposive marker **-(nə)kape* also attested in a range of Ryukyuan topolects as a marker not of the purposive, but of the allative, cf. Shuri, Tarama -*nkeː*, Hirara -*nkai*; in Kyushu topolects such as Satofure, Okatchugamizu and Shirinashi-Akune, descendants of **-(nə)kape* are attested in both purposive and allative functions;
- the manner-instrumental marker *-ti and the allative marker(s) *ti/*-ti-pe, the former grammaticalized from Proto-Japonic *ti 'way, road', in Kyushu attested with the form -*tɛi* in Tsutsu (Tsushima) and Miyakonojō;
- the Ryukyuan instrumental marker derived from the resultative form of the verb 'to do', PR **ɛija(ri)* > **ɛiː*, cognate with gerund/causal markers -*seː* ~ -*ɛeː* ~ -*sei* on nominalized verb forms, attested in topolects of the Kagoshima prefecture;
- ability verb **woposu*, a cognate of Early Middle Japanese *oposu* 'to complete, to achieve', attested as an ability potential auxiliary/suffix throughout Ryukyuan as well as, scarcely, in Fukuoka and Ōita prefectures.

Several of these assumed Kyushu-Ryukyuan innovations are found in most or all of the Kyushu area. This speaks in favour of the validity of Kyushu-Ryukyuan, or Igarashi's South Japonic, as a genetic subgrouping within the Japonic cladogram.

At the same time, morphological data does not provide firm evidence for a lower-level subgrouping of Ryukyuan and southern Kyushu/Satsugū, which is a crucial departure from what lexical evidence seems to be pointing at. Nevertheless, both lexical and morphological findings allow us to postulate Proto-Kyushu-Ryukyuan as the shared ancestor of Ryukyuan and the original Kyushu Japonic topolects.

A note should also be made of shared Kyushu-Ryukyuan morphological features which also have cognate forms in western Japanese dialects. One example is negative past tense markers, viz. Proto-Ryukyuan **-(a)datamu* < **-(a)dana-atamu* (cf. Thorpe 1983: 197), comparable with Kyushu -(*a*)*datta* (Shiiba-Miyazaki, Kumamoto, Ōita), -(*a*)*ratta* (Suwatsuru-Ōita), -(*a*)*dzatta* (Gotō islands), -(*a*)*dzatta* / -(*a*)*dzotta* (Satofure-Iki), -(*a*)*dzatta* (Tsutsu-Tsushima, Minamiamabe-Ueno in Ōita, Minamikata-Nishiusuki in Miyazaki, Tanegashima). While cognates of these markers are also attested in e.g. Wakayama and Izumo, attestations besides Kyushu-Ryukyuan are confined to western Japanese (cf. Ōnishi 2016: 144-145), and as such, for the moment at least, they cannot be reconstructed for PJ.

2.5. Support of the shared Kyushu-Ryukyuan ancestry hypothesis

Speculations about common proto-language origins of neighbouring linguistic communities – or those that used to be neighbours in the past – are inherently disputable due to the nature of contact-induced changes. Studies in contact linguistics conclude that in fact any linguistic feature can be borrowed or diffuse even across language borders (cf. e.g. Thomason & Kaufman 1988, Thomason 2001, Chambers & Trudgill 2004). Needless to say, among all sectors of a linguistic system, vocabulary is by far the most prone to borrowing and diffusion. With these theoretical odds working against using shared lexicon as evidence of an erstwhile linguistic subgrouping, below we provide evidence strengthening the case for the vocabulary discussed in (2.1-2.3.) being considered as inherited from a shared Kyushu-Ryukyuan ancestor.

First, there is evidence rooted in the sound change patterns of Proto-Ryukyuan and its daughter languages which implies that much of the vocabulary examined in this paper dates back to Pre-Proto-Ryukyuan, Proto-Ryukyuan or, in the case of South Ryukyuan items, to Proto--Sakishima[19]. The absolute timing of the split of all these proto-languages may be tentatively proposed as no later than 9th/10th century in the case of Pre-Proto-Ryukyuan, 13th century in the case of PR and early 14th century in the case of PS[20]. Sounds and sound sequences which can confidently be considered a reflection of any of these (pre-)proto-languages include:

[19] Cf. Hattori (1978) and Thorpe (1983) for seminal studies of Proto-Ryukyuan phonology, as well as Jarosz (2018a et seq.) for detailed analyses of the diachrony of specific phonological phenomena in the history of Ryukyuan, such as changes in the vowel system and the related chain shifts.

[20] These are cautious estimations; Karimata (2020: 245) suggests an even earlier interval of the split of PR into North and South, namely 10th to 12th centuries.

- PJ *p in e.g. PR **padara* ‘flathead silverside’ (4)[21], PR **pira-ijo* ‘olive flounder’ (4), PR **panagi* ‘bow, head of the boat’ (2.1.); if these items had been loans from Mainland Japonic, they would have been borrowed in a period when Mainland still retained the initial voiceless bilabial stop, therefore probably no later than 13th century if one follows Frellesvig’s (2010: 311) estimates concerning the inception of the fricativization of initial /p/ in Late Middle Japanese;
- PR centralization of PJ *u after coronal obstruents, e.g. PR **sɨgaru* ‘webfoot octopus’ (6), **akamatsɨ* ‘longtailed red snapper’ (4). These reflexes show that the origins of these items must be predating PR;
- PR *u in ‘hermit crab’ (6), PR and PS **amamu*; due to chain shifts which occurred in South Ryukyuan languages (Jarosz 2018a, Jarosz 2019b), if a Kyushu form *amamu* had been borrowed to Ryukyuan postdating the split of PR, it would have been reflected e.g. in Miyako as †amamu;
- PR word-initial sequence *ij, as in **ijako* ‘oar’ (2.1.), **ijo* ‘fish’ (e.g. ‘olive flounder’, 4). These sequences underwent distinct developments in North and South Ryukyuan; affrication *j > *dz occurred in PS, ensuring that South Ryukyuan origins of these items predate PS or else they would reflect in modern Sakishima languages as /ij/, e.g. Hirara-Miyako †ijaku ‘oar’, †iju ‘fish’;
- PS assimilation of the strings *Cir as an example of the Proto-Sakishima Flap Assimilation (FA; Jarosz 2018a, Jarosz 2019b), whereby C stands for a voiceless obstruent. The aspiration of voiceless obstruents in Sakishima caused the fricativization of the flap in these strings, e.g. *pir > *pis. If items such as ‘olive flounder’ (4) postdated PS, their expected modern form would be e.g. Nagahama (Miyako) †psɨra;
- PS change *ku > *fu, which ensures a pre-PS origin of the item ‘Wrasse’ (4), reflected as e.g. *fusabzɨ* and not †kusabzɨ or †kusabi in Miyako;
- PS centralization of PR *i after bilabial and velar stops, e.g. again in ‘Wrasse’ (4) – cf. Miyako *fusabzi*, not †kusabi; ‘trepang, sea cucumber’ (6) – cf. Shika *sɨkiri*, not †ɕikiri or †sɨkiri; ‘bow, head of the boat’ (2.1.) – cf. Tarama *panagzɨ*, not †panagi or †hanagi.

Although even such amount of substantial evidence in favour of the anciency of the relevant sound changes and the related lexical forms still does not eliminate the possibility of these items being loanwords from Mainland/Kyushu-Japanese (even as old as Pre-Proto--Ryukyuan, i.e. predating the Japonic migration into the Ryukyus c.a. 9th century CE), the time window permitting these loans becomes significantly narrower[22].

Morphemes used in toponyms can be expected to reflect older, conservative layers of vocabulary which are more likely to be inherited than diffuse through contact. Such are the instances of place and family names with PR *sone, which as a common noun indicates ‘a spot where many fish gather, a good fishing spot’ (2.1.).

[21] Single-digit numbers in parentheses reference the number of Table in which the specific item is originally listed.

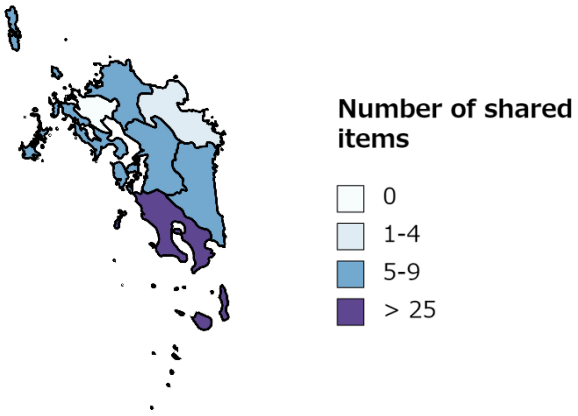
[22] On a side note, one can reiterate the tendencies of mid-vowel raising observed in a range of Kyushu items (e.g. ‘scooping net’, ‘fish bait’, 2.1.). Although this cannot be strictly considered a shared Kyushu-Ryukyuan change, since it is clear (cf. e.g. Hattori 1979, Thorpe 1983, Jarosz 2018a/b, Jarosz 2019, Jarosz 2021) that the mid-vowel raising was far from complete in PR, there is a likelihood that some mid-vowel raising tendencies were shared in the Kyushu-Ryukyuan ancestor language as allophony/variant forms.

Turning to geolinguistic and sociolinguistic considerations: as was briefly mentioned in (2.3.), morphemes attested in South Ryukyuan and Kyushu without mediation of North Ryukyuan are more likely to reflect inherited vocabulary. With the loan/diffusion scenario, the geographic discontinuity of attestations of such morphemes requires to assume that the diffusion omitted North Ryukyuan entirely, which is difficult to imagine both in general geolinguistic terms – the loanwords/diffusing vocabulary would have to somehow skip a roughly 600-kilometer-long chain of islands to be transferred directly to Sakishima – as well as from the sociopolitical perspective. It was the North Ryukyuan languages, in particular the Shuri-Naha topolect spoken in the capital of the Ryukyu Kingdom, that were the contact hub between the Ryukyus and pre-modern/early modern Kyushu. Examples of Kyushu or other Mainland Japanese loans that would be borrowed into South Ryukyuan directly rather than through Shuri-Naha/the Okinawan language are yet to be heard of (cf. Lawrence 2012: 408). There is no reason to assume otherwise about multiple items such as 'bow, the head of the boat' (2.1.), 'fish bait' (2.1.), 'hermit crab' (6), 'flathead silverside' (4), 'two-spot red snapper' (4), 'bluefin trevally/skipjack' (4); the lack of attestations of these items in North Ryukyuan means high chances for them to have been inherited in Sakishima and Kyushu from a Common Kyushu-Ryukyuan ancestor.

Due to the aforementioned structural (sound change) and geographic/sociolinguistic concerns, the likelihood of the Kyushu-Ryukyuan vocabulary compared in this paper representing a layer inherited from a shared ancestor can be assessed as relatively high.

2.6. Summary

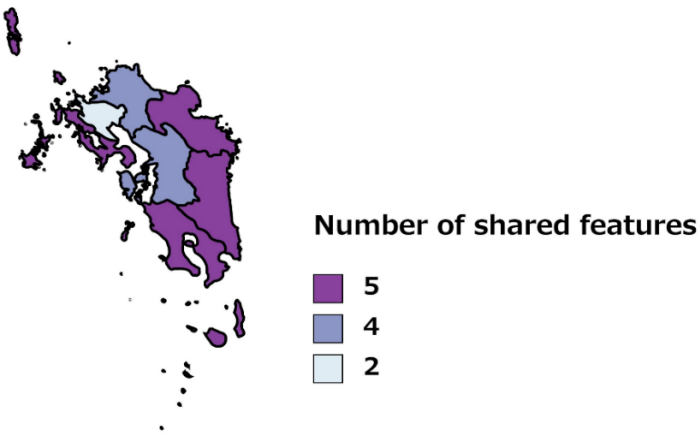
Map 1 shows the distribution of the attested alleged shared lexical innovations between Kyushu and Ryukyuan as discussed in the present paper. Altogether, there were 29 lexical comparanda that entered the final calculation as likely Common Kyushu-Ryukyuan protolanguage items. If detected in at least topolect spoken in a specific modern prefecture, each comparanda gained that prefecture score 1.



Map 1. Lexical innovations in Kyushu shared with Ryukyuan

The results show an extreme domination of the vocabulary shared between Ryukyuan, on the one hand, and the area of the Kagoshima prefecture, on the other: whereas the attested numbers in other prefectures did not exceed six, the count for the Kagoshima area is 28 out of maximum 29. The disparity between this number and the runner-ups (Fukuoka and Nagasaki with six) is too great to dismiss it as statistical error. Even taking into consideration that the disproportion may be heightened by a skew in the available lexicographic sources, with the relevant Kagoshima vocabulary being better documented than that of other prefectures on the one hand, and subtracting the non-exact comparisons on the other, the results for Kagoshima would still be a multiplication of those of other Kyushu prefectures. These results corroborate the postulation of the Kyushu homeland of the Ryukyuan speakers specifically in the area of the modern Kagoshima prefecture (matching the conclusion of Jarosz et al. 2022: 18), and to envision the communities speaking the shared Kyushu-Ryukyuan proto-language, Proto-Satsugū-Ryukyuan, as communities with a distinctive marine and seafaring culture.

At the same time, it is also noteworthy that for other areas, the amount of vocabulary shared with Ryukyuan is actually larger in the north prefectures – Fukuoka and Nagasaki – than in Kumamoto and Miyazaki, the two prefectures geographically adjacent to Kagoshima. This might be indicative of a non-linear spread of the proto-language of one order higher than Proto-Satsugū-Ryukyuan, the consequence being that the substratum lexicon of Miyazaki and Kumamoto bears no particularly closer relationship to Ryukyuan than that of Nagasaki (especially the remote islands like Gotō, Iki and Tsushima) and Fukuoka (especially the Chikugo area). More likely, however, the two northern prefectures might simply be relic areas, retaining more of conservative vocabulary than varieties in other regions (cf. discussion below). Either way, however, the differences between the numbers in topolects outside Kagoshima are minimal, which makes the risk of a statistical error resulting from a dataset skew/data availability is greater, and in turn invites a bigger dose of caution in drawing the conclusions.



Map 2. Grammatical innovations in Kyushu shared with Ryukyuan

The optics become quite different in an examination of the shared grammatical features. Here, the features discussed in 2.4.[23], calculated as a total of 9, were assigned binary values per prefecture: 1 for the presence and 0 for the absence of the feature in question in any topolect of the given prefecture. The results are visualized in Map 2.

In contrast to lexical innovations, the distribution of shared grammatical features is considerably even. There are as many as four leaders: Kagoshima, Miyazaki, Ōita and Nagasaki (five points each), three close runner-ups in Fukuoka and Kumamoto (four features), and the outsider in Saga (two).

Although the overall results do support the Kyushu-Ryukyuan affinity, no particular area of exclusive Kyushu-Ryukyuan innovations can be identified. Not only does the Kagoshima/Satsuma or Satsugū area not display more shared features with Ryukyuan, but also all shared features except one[24] are also found elsewhere in Kyushu, eliminating possibilities for a cladistic subdivision along the lines of Satsugū-Ryukyuan.

Shared innovative features found in all or most of the Kyushu area can confidently be traced to a shared Kyushu-Ryukyuan ancestor, supporting Proto-Kyushu-Ryukyuan as a legitimate Japonic tree node. Similarly, features shared between Ryukyuan and those Kyushu areas which are not geographically closest to the Ryukyus (i.e. areas outside Kagoshima and Miyazaki) can be considered Proto-Kyushu-Ryukyuan relics in a representation of what Chambers and Trudgill (2004: 94) call "the relic pattern", observed when a "linguistic feature exists in two or more parts of the region but those parts are separated from one another by an area in which a different, or opposing, feature occurs". This kind of distribution "indicates a late stage in the displacement of a formerly widespread linguistic feature by an innovation. In earlier times, the feature which now occurs in isolated areas was also found in the in-between areas. Its status is now that of a relic feature, and the in-between areas show the progress of the innovation. Therefore, rather than positing a discontinuous subgrouping of Ryukyuan and Southern Kyushu – Kagoshima and Miyazaki – e.g. with the outlier northwestern islands of the Nagasaki prefecture alone, the relic pattern should be a more likely explanation behind the distribution of the features in question in Kyushu. Parallel observations apply to the distribution of shared lexical features discussed with Map 1.

Morphological comparisons provide thus no particular reason for a cladistic subdivision of the Kyushu-Ryukyuan node. Even more interestingly and quite surprisingly, if one can talk about any micro-patterns of exclusive shared innovations, they pertain to the areas of Fukuoka and Ōita. These northeastern regions, relatively distant geographically from the Ryukyus, have two features shared with Ryukyuan not observed elsewhere in Kyushu: the conditional marker *-(te)kara and the ability verb *woposu. This seems to imply a higher

[23] The set includes Igarashi's (2023) findings about the shared **əi* > **e* development in the stems of vowel verbs. On the other hand, allative use of the **-(nə)kape* marker was excluded from the calculation, since its range is fully contained within the range of the purposive use of the same marker, and chances are that these allative uses represent individual developments of the specific topolects (a result of a usual grammaticalization mechanism).

[24] Referring to the gerund/causal markers *-se: ~ -ɕe: ~ -sei* compared with the Ryukyuan instrumental *-ɕi, a comparison which in itself is not without controversy (Jarosz 2024).

probability of the ultimate Kyushu-Ryukyuan homeland being located in northeastern Kyushu, and thus encourages a revisit of Serafim's proposal (2003) rejected in Jarosz et al. (2022).

Morphological signals are therefore at odds with lexical in terms of Kyushu-Ryukyuan subclassification. The disparity can be explained by a theory that once they started to shift to Mainland Japanese after the migration of some of the speakers to the Ryukyus, the remaining Kyushu lects of the Satsugū-Ryukyuan node replaced and innovated their grammar to a degree its closer affinity with Ryukyuan cannot be detected anymore. This also leads to somewhat unexpected conclusions that although, as mentioned above, vocabulary has the reputation of being the more easily borrowed/replaced parts of a language system, the retention ratio of relevant features in the putative Satsugū-Ryukyuan node is unquestionably stronger precisely in lexicon and not in grammar.

The lack of morphological evidence in favor of the Satsugū-Ryukyuan node as well as a general scarcity of morphological Kyushu-Ryukyuan features identifiable as innovative implies that most of grammatical innovativeness observed in modern Ryukyuan may be no older than Proto-Ryukyuan, and that perhaps the linguistic distance of Proto-Kyushu--Ryukyuan at the time of its split from other Japonic proto-varieties was not as great.

Such a not-huge linguistic distance between the ancient South Japonic and Mainland Japonic varieties may have facilitated the scenario postulated in this paper, according to which the language spoken formerly in Kyushu had been a closer kin of Ryukyuan within the South Japonic subgrouping, which then gradually shifted into – or blended with – Mainland Japanese.

On the other hand, the pattern of lexical innovations retaining a thick layer in Kagoshima prefecture, whereas the innovation ratio in all other areas is many times smaller, suggests that the erstwhile Kagoshima innovations dating to the Satsugū-Ryukyuan period were not entirely uprooted by the language replacement of the indigenous Kyushu-Japonic by Central Mainland Japanese. The Kyushu area of what is identified here as the Satsugū-Ryukyuan group comprises geographically adjacent communities of the Satsuma, Ōsumi and Morokata regions which dwelt under comparable climactic and subsistence conditions, and possibly formed a close contact network which favoured diffusion of seafaring culture and the related vocabulary.

Based on the above combination of lexical and morphological evidence summarized by Maps 1 and 2, one can tentatively propose the following Kyushu lineage of the Ryukyuan parent languages: Proto-Kyushu-Ryukyuan > Proto-Satsugū-Ryukyuan > Proto-Ryukyuan, with a caveat that "parent languages" do not necessarily indicate a great linguistic distance and a breach in mutual intelligibility between, for instance, Proto-Satsugū-Ryukyuan and other Kyushu topolects of the time, or even between these ancient Kyushu topolects and Old Japanese.

Although the Kyushu members of all these South Japonic nodes became extinct/shifted to Mainland Japanese, this lineage is reflected in the modern Mainland Kyushu topolects as a substratum which we were able to examine in this paper.

3. Conclusions

In the present paper we tested linguistically the hypothesis according to which maritime knowledge reflected in the shared Kyushu-Ryukyuan lexicon supports the Kyushu--Ryukyuan subgrouping in the Japonic family tree. We highlighted a conspicuous number of shared lexical items between Ryukyuan and Kyushu dialects, suggesting a shared navigation culture, as well as ostensible common maritime subsistence and lifestyle patterns, which may have played an important role in the eventual spread of Ryukyuan languages in the Ryukyus. Furthermore, although further research is needed in order to strengthen this position, we mentioned a number of Kyushu-Ryukyuan morphological innovations that speak in favour of a genealogical subgrouping of Kyushu and Ryukyuan.

As a result, we postulate two levels of shared Kyushu-Ryukyuan ancestry within the Japonic cladogram: Proto-Kyushu-Ryukyuan/Proto-South-Japonic, which is the ancestor of all Kyushu and Ryukyuan topolects; and Proto-Satsugū-Ryukyuan, the direct ancestor of Proto-Ryukyuan, comprising the Satsugū area (modern Kagoshima and southern Miyazaki prefectures).

Although following the split of Proto-Ryukyuan, the remaining South Japonic topolects eventually shifted to Central Mainland Japanese, the shared Kyushu-Ryukyuan substratum is still retained in modern Kyushu topolects with a varying density, the degree of which can be hypothesized to indirectly reflect the genetic proximity between the specific topolect and Ryukyuan languages.

At the same time, one can emphasize that the ratio of shared Kyushu-Ryukyuan vocabulary in the examined sectors varies depending on the sector. There is a substantial number of uncontroversial Kyushu-Ryukyuan cognates in terms of seafaring technology (2.1.) and, in particular, fish names (Table 4). Although there are also relatively many likely cognates naming marine fauna other than fish (Table 6), the putative cognacy is made weaker by the non-exact correspondences of meaning or form. On the other hand, there are virtually no shared Kyushu-Ryukyuan developments observed in the names of marine flora (2.3.), and only few such developments in the vocabulary concerning cardinal directions and navigation (2.2.).

To contextualize these findings against a broader Japonic backdrop, Ryukyuan also has a significant number of vocabulary traceable to Proto-Japonic concerning seafaring technology (Table 1), cardinal directions/navigation (Table 2), marine fauna (Table 6), as well as marine flora (2.3.). This suggests that the seafaring and maritime culture of Proto-Ryukyuans was also firmly grounded in a broader Japonic-speaking culture, although it developed its own specific characteristics shared with Kyushu topolects, in particular those of the Satsugū area. These specific developments were likely fed by the habitation conditions of Satsugū--Ryukyuan speakers, which included warm, borderline subtropical climate and accordant marine fauna, coastal or near-coastal dwellings, and marine subsistence patterns. Furthermore, a lot of Ryukyuan vocabulary developments appear exclusive to Ryukyuan alone, a feature explicit not only in the original Ryukyuan seafaring technology vocabulary (2.1.) and names for the local flora and fauna (2.3.), but also, perhaps most tellingly, in the innovative Ryukyuan system of cardinal directions, which co-exists in variously proportioned mixes

with the inherited Proto-Japonic system (2.2.). These are all developments postdating the Japonic migration into the Ryukyus around the 9th century AD (cf. Jarosz et al. 2022: 7-8).

All in all, our results imply Kyushu-Ryukyuans, in particular Satsugū-Ryukyuans, to have been a community culturally integrated into general Japonic patterns, although with a strong original maritime/seafaring component induced by environmental factors.

To conclude, the analysis of lexical items related to marine fauna, wind patterns and directions suggests a stronger affinity between Kyushu and Ryukyuan topolects than between Ryukyuan and other Mainland topolects, which might be tentatively interpreted as the result of a shared ancestry in the past. At the same time, we propose Proto-Satsugū-Ryukyuan as the predecessor pre-Proto-Ryukyuan language that was still spoken in Kyushu in the first millennium AD. While the conclusions reached in this paper are still preliminary, it is also felt that a deeper exploration of lexicon related to maritime knowledge, as well as a closer look at other shared Kyushu-Ryukyuan linguistic features, will eventually prove rewarding.

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This paper is dedicated to the memory of Alexander "Sasha" Vovin (1961-2022), a teacher, mentor and friend to both these authors.

Abbreviations

EMJ	Early Middle Japanese
EOJ	Eastern Old Japanese
PJ	Proto-Japonic
PR	Proto-Ryukyuan
PS	Proto-Sakishima
WOJ	Western Old Japanese

List of topolects with their corresponding languages and areas

Topolect	General location	Area and language
Abu	Western Honshu (Chūgoku)	Yamaguchi, Mainland Japanese
Aha	North Ryukyuan	Okinawa island, Kunigami
Aichi district	Tōkai	Aichi, Mainland Japanese
Aki	Shikoku	Kōchi, Mainland Japanese
Akune	Kyushu	Satsuma Peninsula, Satsugū, Kagoshima, Mainland Japanese
Akuseki	Kyushu	Tokara islands, Satsugū, Kagoshima, Mainland Japanese
Amagi	North Ryukyuan	Tokunoshima island, Amami
Ambō	Kyushu	Yakushima island, Satsugū, Kagoshima, Mainland Japanese
Amakusa	Kyushu	Amakusa island, Kumamoto, Mainland Japanese
Arie	Kyushu	Nagasaki, Mainland Japanese
Azuma	Kyushu	Satsuma Peninsula, Satsugū, Kagoshima, Mainland Japanese
Beppu Itajiki	Kyushu	Satsuma Peninsula, Satsugū, Kagoshima, Mainland Japanese
Beppu Tawaratsu-mida	Kyushu	Satsuma Peninsula, Satsugū, Kagoshima, Mainland Japanese
Bonōtsu	Kyushu	Satsuma Peninsula, Satsugū, Kagoshima, Mainland Japanese
Chikugo	Kyushu	parts of Fukuoka, Ōita, Saga and Kumamoto prefectures, Mainland Japanese
China	North Ryukyuan	Okinoerabu island, Kunigami
Fukumoto	Kyushu	Satsuma Peninsula, Satsugū, Kagoshima, Mainland Japanese
Fukuoka the city	Kyushu	Fukuoka, Mainland Japanese
Fukuyama	Kyushu	Ōsumi Peninsula, Satsugū, Kagoshima, Mainland Japanese
Furue	Kyushu	Yakushima island, Satsugū, Kagoshima, Mainland Japanese
Gotō	Kyushu	Gotō islands, Nagasaki, Mainland Japanese
Hachijō	Hachijō	Hachijō island, Hachijō language
Hamana	Tōkai	Shizuoka, Mainland Japanese
Hami	Kyushu	Ōsumi Peninsula, Satsugū, Kagoshima, Mainland Japanese
Hashima	Kyushu	Satsuma Peninsula, Satsugū, Kagoshima, Mainland Japanese
Hateruma	South Ryukyuan	Hateruma island, West Yaeyama
Hatoma	South Ryukyuan	Hatoma island, West Yaeyama
Hekikai	Tōkai	Aichi, Mainland Japanese
Henoko	North Ryukyuan	Okinawa island, Kunigami
Higashi Ichiki	Kyushu	Satsuma Peninsula, Satsugū, Kagoshima, Mainland Japanese
Hioki	Kyushu	Satsuma Peninsula, Satsugū, Kagoshima, Mainland Japanese
Hirara	South Ryukyuan	Miyako island, Miyako
Hiroshima	Western Honshu (Chūgoku)	Hiroshima, Mainland Japanese
Hisamatsu	South Ryukyuan	Miyako island, Miyako
Hita	Kyushu	Chikugo, Ōita, Mainland Japanese

Ibusuki	Kyushu	Satsuma Peninsula, Satsugū, Kagoshima, Mainland Japanese
Ichiki	Kyushu	Satsuma Peninsula, Satsugū, Kagoshima, Mainland Japanese
Ie	North Ryukyuan	Ie island, Kunigami
Ikema	South Ryukyuan	Ikema island, Miyako
Iki	Kyushu	Iki island, Nagasaki, Mainland Japanese
Imuta	Kyushu	Kamikoshiki island, Satsugū, Kagoshima, Mainland Japanese
Iojima	Kyushu	Iojima island, Satsugū, Kagoshima, Mainland Japanese
Issō	Kyushu	Yakushima island, Satsugū, Kagoshima, Mainland Japanese
Itoman	North Ryukyuan	Okinawa island, Kunigami
Itoshima	Kyushu	Fukuoka, Mainland Japanese
Iwamoto	Kyushu	Satsuma Peninsula, Satsugū, Kagoshima, Mainland Japanese
Izashiki	Kyushu	Ōsumi Peninsula, Satsugū, Kagoshima, Mainland Japanese
Izumi	Kyushu	Satsuma Peninsula, Satsugū, Kagoshima, Mainland Japanese
Kagoshima the city	Kyushu	Satsuma Peninsula, Satsugū, Kagoshima, Mainland Japanese
Kakeroma	North Ryukyuan	Kakeroma island, Amami
Kaimon	Kyushu	Satsuma Peninsula, Satsugū, Kagoshima, Mainland Japanese
Kametsu	North Ryukyuan	Tokunoshima island, Amami
Kamikoshiki	Kyushu	Kamikoshiki island, Satsugū, Kagoshima, Mainland Japanese
Karimata	Miyako	Miyako island, Miyako
Kasado	Chūgoku (western Honshu)	Kasado island, Yamaguchi, Mainland Japanese
Kasasa	Kyushu	Satsuma Peninsula, Satsugū, Kagoshima, Mainland Japanese
Kaseda	Kyushu	Ōsumi Peninsula, Satsugū, Kagoshima, Mainland Japanese
Kataura	Kyushu	Satsuma Peninsula, Satsugū, Kagoshima, Mainland Japanese
Kayō	North Ryukyuan	Okinawa island, Kunigami
Kikai	North Ryukyuan	Kikai island, Amami
Kimotsuki	Kyushu	Satsuma Peninsula, Satsugū, Kagoshima, Mainland Japanese
Kitaamabe	Kyushu	Ōita, Mainland Japanese
Kokubu	Kyushu	Ōsumi Peninsula, Satsugū, Kagoshima, Mainland Japanese
Komenotsu	Kyushu	Satsuma Peninsula, Satsugū, Kagoshima, Mainland Japanese
Koyu	Kyushu	Miyazaki, Mainland Japanese
Kuboizumi	Kyushu	Saga, Mainland Japanese
Kuma	Kyushu	Kumamoto, Mainland Japanese
Kumamoto the city	Kyushu	Kumamoto, Mainland Japanese
Kunigami	Kyushu	Tanegashima island, Satsugū, Kagoshima, Mainland Japanese
Kuninaka	South Ryukyuan	Irabu island, Miyako
Kurahashi	Chūgoku (western Honshu)	Kurahashi island, Hiroshima, Mainland Japanese
Kurima	South Ryukyuan	Kurima island, Miyako
Kurio	Kyushu	Yakushima island, Satsugū, Kagoshima, Mainland Japanese
Kurume	Kyushu	Chikugo, Fukuoka, Mainland Japanese
Kushi	North Ryukyuan	Amami Ōshima island, Amami

Kuwaura	Kyushu	Kamikoshiki island, Satsugū, Kagoshima, Mainland Japanese
Madomari	North Ryukyuan	Kume island, Okinawan
Magome-Ōdomari	Kyushu	Ōsumi Peninsula, Satsugū, Kagoshima, Mainland Japanese
Makurazaki	Kyushu	Satsuma Peninsula, Satsugū, Kagoshima, Mainland Japanese
Matsunoo	Kyushu	Satsuma Peninsula, Satsugū, Kagoshima, Mainland Japanese
Minamiamabe-Ueno	Kyushu	Ōita, Mainland Japanese
Minamikata	Kyushu	Nishiusuki, Miyazaki, Mainland Japanese
Minamikoma	Kōshin	Yamanashi, Mainland Japanese
Miyanoura	Kyushu	Yakushima island, Satsugū, Kagoshima, Mainland Japanese
Miyara	South Ryukyuan	Ishigaki island, East Yaeyama
Miyazaki	Kyushu	Miyazaki, Mainland Japanese
Nagahama	South Ryukyuan	Irabu island, Miyako
Nagasaki the city	Kyushu	Nagasaki, Mainland Japanese
Nagashima	Kyushu	Satsuma Peninsula, Satsugū, Kagoshima, Mainland Japanese
Naka	Chūgoku (western Honshu)	Shimane, Mainland Japanese
Nakachi	South Ryukyuan	Irabu island, Miyako
Nakagambara	Hokuriku	Niigata, Mainland Japanese
Nakama	North Ryukyuan	Amami Ōshima island, Amami
Nakijin	North Ryukyuan	Okinawa island, Kunigami
Nakima	North Ryukyuan	Okinawa island, Kunigami
Naze	North Ryukyuan	Amami Ōshima island, Amami
Nesebu	North Ryukyuan	Amami Ōshima island, Amami
Nishi Kasugai	Tōkai	Aichi, Mainland Japanese
Nishi Sonogi	Kyushu	Nagasaki, Mainland Japanese
Nobeoka	Kyushu	Miyazaki, Mainland Japanese
Ōita	Kyushu	Ōita, Mainland Japanese
Okatchugamizu	Kyushu	Satsuma Peninsula, Satsugū, Kagoshima, Mainland Japanese
Ōkawa	Kyushu	Chikugo, Fukuoka, Mainland Japanese
Oki	Chūgoku (western Honshu)	Oki islands, Shimane, Mainland Japanese
Ōmishima	Shikoku	Ehime, Mainland Japanese
Ongachi	North Ryukyuan	Amami Ōshima island, Amami
Origuchi	Kyushu	Satsuma Peninsula, Satsugū, Kagoshima, Mainland Japanese
Osai	North Ryukyuan	Kakeroma island, Amami
Ōsaka-Hiyoshi	Kyushu	Satsuma Peninsula, Satsugū, Kagoshima, Mainland Japanese
Oshikaku	North Ryukyuan	Kakeroma island, Amami
Ōsumi Peninsula	Kyushu	Satsugū, Kagoshima, Mainland Japanese
Ōtsuki	Shikoku	Kōchi, Mainland Japanese
Ōura-Kawabe	Kyushu	Satsuma Peninsula, Satsugū, Kagoshima, Mainland Japanese
Ōyano	Kyushu	Amakusa island, Kumamoto, Mainland Japanese

San	North Ryukyuan	Tokunoshima island, Amami
Sani	North Ryukyuan	Amami Ōshima island, Amami
Sakurajima	Kyushu	Satsuma Peninsula, Satsugū, Kagoshima, Mainland Japanese
Sasue	Kyushu	Satsuma Peninsula, Satsugū, Kagoshima, Mainland Japanese
Sate	North Ryukyuan	Okinawa island, Kunigami
Sato	Kyushu	Satsuma Peninsula, Satsugū, Kagoshima, Mainland Japanese
Satofure	Kyushu	Iki island, Nagasaki, Mainland Japanese
Satomura	Kyushu	Kamikoshiki island, Satsugū, Kagoshima, Mainland Japanese
Satsuma Peninsula	Kyushu	Satsugū, Kagoshima, Mainland Japanese
Sawada	South Ryukyuan	Irabu island, Miyako
Segami	Kyushu	Kamikoshiki island, Satsugū, Kagoshima, Mainland Japanese
Sesō	North Ryukyuan	Kakeroma island, Amami
Sesoko	North Ryukyuan	Okinawa island, Kunigami
Setsukawa	North Ryukyuan	Kakeroma island, Amami
Shibushi	Kyushu	Ōsumi Peninsula, Satsugū, Kagoshima, Mainland Japanese
Shika	South Ryukyuan	Ishigaki island, East Yaeyama
Shimahira	Kyushu	Satsuma Peninsula, Satsugū, Kagoshima, Mainland Japanese
Shimokoshiki	Kyushu	Shimokoshiki island, Satsugū, Kagoshima, Mainland Japanese
Shiraho	South Ryukyuan	Ishigaki island, West Yaeyama
Shiranuhi	Kyushu	Amakusa island, Kumamoto, Mainland Japanese
Shirinashi	Kyushu	Satsuma Peninsula, Satsugū, Kagoshima, Mainland Japanese
Shitoke	North Ryukyuan	Kikai island, Amami
Shuri	South Ryukyuan	Okinawa island, Okinawan
Shiiba	Kyushu	Miyazaki, Mainland Japanese
Sokei	North Ryukyuan	Okinawa island, Kunigami
Sukumo	Shikoku	Kōchi, Mainland Japanese
Suwatsuru	Kyushu	Ōita, Mainland Japanese
Taira	Kyushu	Kamikoshiki island, Satsugū, Kagoshima, Mainland Japanese
Takaoka	Kyushu	Morokata, Satsugū, Miyazaki, Mainland Japanese
Takara	Kyushu	Tokara islands, Satsugū, Kagoshima, Mainland Japanese
Takushima	Kyushu	Takushima island, Nagasaki, Mainland Japanese
Tamaki	Kyushu	Kumamoto, Mainland Japanese
Tanegashima	Kyushu	Tanegashima island, Satsugū, Kagoshima, Mainland Japanese
Tarama	South Ryukyuan	Tarama island, Miyako
Teuchi	Kyushu	Shimokoshiki island, Satsugū, Kagoshima, Mainland Japanese
Tōgō-Izumi	Kyushu	Satsuma Peninsula, Satsugū, Kagoshima, Mainland Japanese
Tokunoshima	North Ryukyuan	Tokunoshima island, Amami
Torisu	Kyushu	Satsuma Peninsula, Satsugū, Kagoshima, Mainland Japanese
Totsukawa	Kansai	Nara, Mainland Japanese
Tsuchihae	Kyushu	Miyazaki, Mainland Japanese

Tsushima	Kyushi	Tsushima island, Nagasaki, Mainland Japanese
Tsutsu	Kyushu	Tsushima island, Nagasaki, Mainland Japanese
Uka	North Ryukyuan	Okinawa island, Kunigami
Ukiha	Kyushu	Chikugo, Fukuoka, Mainland Japanese
Uku	Kyushu	Fukue island, Gotō islands, Nagasaki, Mainland Japanese
Uma	Shikoku	Ehime, Mainland Japanese
Urakuwa	Kyushu	Nakatōri, Gotō islands, Nagasaki, Mainland Japanese
Wadomari	North Ryukyuan	Okinoerabu island, Kunigami
Wakayama	Kansai	Wakayama, Mainland Japanese
Watari	Tōhoku	Miyagi, Mainland Japanese
Wan	North Ryukyuan	Kikai island, Amami
Yadon	North Ryukyuan	Amami Ōshima island, Amami
Yaizu	Tōkai	Shizuoka, Mainland Japanese
Yamatoma	North Ryukyuan	Amami Ōshima island, Amami
Yame	Kyushu	Chikugo, Fukuoka, Mainland Japanese
Yanagawa	Kyushu	Chikugo, Fukuoka, Mainland Japanese
Yonaguni	South Ryukyuan	Yonaguni island, Yonaguni
Yoro	North Ryukyuan	Yoro island, Amami
Yoron	North Ryukyuan	Yoron island, Kunigami
Yuwan	North Ryukyuan	Amami Ōshima island, Amami

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Temporal adverbial clauses: A cross-linguistic perspective

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The study explores the form and function of 'when', 'while', 'after', 'before', and 'until' clauses in a variety sample of 218 languages. First, it is demonstrated that temporal adverbial clauses tend to be encoded with conjunctions and converbs in the database. A chi-squared goodness-of-fit test shows that 'after', 'before', and 'until' meanings are strongly and similarly associated with monofunctional clause-linking devices cross-linguistically. 'While' meanings are ambivalent, and 'when' meanings are strongly encoded with polyfunctional clause-linking devices. Second, the paper also explores the polyfunctionality patterns of temporal adverbial clause-linking devices. While the semantic polyfunctionality patterns attested in the present research align, for the most part, with those documented by other typological studies, there are a number of patterns that have been neglected in the typological literature, such as the polyfunctionality pattern between 'while' and 'without', between 'after' and 'lest', and between 'before' and 'lest', among others.

Keywords: temporal clauses, adverbial clauses, subordination, clause combining, complex sentence

1. Introduction

In temporal adverbial clause constructions, one clause can locate the situation expressed in another clause in time (Thompson et al. 2007: 243). Given the large spectrum of possible situations (*p* before/after/until *q*, etc.), temporal adverbial clauses represent the most semantically diverse class of adverbial clauses (Luk 2023: 43) as well as the most challenging class for interpretation (Lin 2015: 162). 'When' clauses are not specific in that the exact extent of the temporal meaning is unspecified and subject to variation (Cristofaro 2012; Diessel 2008: 470; Guerrero 2021; Hetterle 2015: 47). They can convey any reference time (i.e., before, after, and around the time of the main clause) and can also convey any time interval (e.g., short or long). However, the reference time and the time interval can only be recovered from the discourse context (Cristofaro 2003: 159). 'While' clauses express situations of co-occurrence or concomitance, i.e., situations taking place at the same time as the situation

expressed in the main clause (Dixon 2009: 10; Hetterle 2015: 47). Relations of temporal anteriority ('after' relations) involve two situations occurring in a sequence. In this case, the dependent situation is anterior to the main one (Cristofaro 2003: 159). In 'before' constructions, the dependent situation follows the main one in time and is selected as a temporal reference point for it (Cristofaro 2003: 159). Temporal clauses expressing terminal boundary ('until' clauses) mark the endpoint of a situation expressed in the main clause (Kortmann 1997: 85; Hetterle 2015: 48).

There are a number of typological studies that have explored specific types of temporal adverbial clauses, such as 'when' clauses (Cristofaro 2012; Guerrero 2021), 'while' clauses (Olguín Martínez 2020), 'after' clauses (Martowicz 2011: 108), 'before' clauses (Hetterle 2015: 221), and 'until' clauses (Hetterle 2015: 48). Still missing, however, is an attempt at exploring the expression of temporal adverbial relations in a single study. This type of analysis can lead us to make generalizations across them and can be invaluable to those documenting and describing languages, alerting them to details to watch for and chronicle.

The present study explores (1) 'when', (2) 'while', (3) 'after', (4) 'before', and (5) 'until' clauses in a variety sample of 218 languages.[1] In particular, special attention is paid to the following issue. Clause-linking devices encoding temporal adverbial clauses may be semantically monofunctional, i.e., they are only used for expressing one adverbal relation or semantically polyfunctional, i.e., they are used for expressing different adverbial relations in specific contexts (e.g., 'if', 'because', 'although'). The question is: cross-linguistically, which types of temporal adverbial clauses tend to be encoded by semantic monofunctional clause-linking devices disproportionately more often than semantic polyfunctional clause-linking devices?

In the second part of the paper, a more in-depth analysis of the semantic polyfunctionality of clause-linking devices is provided. Most studies that have addressed this domain have only taken into account a particular type of device (e.g., Kortmann 1997 only takes into account conjunctions) or two types of devices (e.g., Hetterle 2015 only takes into account conjunctions and converbs). Accordingly, it is not clear whether other clause-linking devices that have been traditionally disregarded ('and then' coordinators) will show polyfunctionality patterns not attested in previous studies. The question is: do the semantic polyfunctionality patterns attested in the present study align with those documented by other typological studies?

This paper is organized as follows: §2 presents the method for compiling the sample of the present research, briefly discussing the limits and advantages of such large-scale database. §3 introduces the range of clause-linkage patterns by which 'when', 'while', 'after', 'before', and 'until' clauses are formed in the sample. In §4, we apply a chi-squared goodness-of-fit test to explore the degree to which a temporal adverbial clause type is skewed towards semantic monofunctionality or polyfunctionality (and to determine the reliability of this skew). Moreover, this section investigates the range of polyfunctionality patterns attested in the sample. §5 summarizes the main findings of the present research.

[1] Other types of temporal adverbial clauses, such as 'as long as' and temporal 'since' clauses, do not play a role in the present study due to the scarcity of data in the sample.

2. Sample

In the present study, we take into account a sample of 218 languages based on the Genus--Macroarea method proposed by Miestamo (2005). In particular, the bottom-up variant of the method has been adopted here. In this variant, sample size is not predetermined. Instead, this variant tries to include languages from as many genera as possible, and the language chosen from each genus is made based on the availability of the sources (Miestamo et al. 2016: 247). Based on this, an attempted was made to find one language from each of Dryer's genera for which the available literature gives sufficient information on the grammar of temporal clause-linking strategies encoding: (1) 'when', (2) 'while', (3) 'after', (4) 'before', and (5) 'until' clauses. Of the 543 genera proposed by Dryer, it was possible to find sufficient information on 218 genera, which accounts for the final sample of 218 languages. In this method, the primary genetic stratification is made at the genus level, and the primary areal stratification at the level of macro-areas. The languages in the sample are shown in Table 1. Using this type of sample maximizes the likelihood of finding the different types that occur cross-linguistically.

Table 1: Languages in the sample per macro-area

Macro-area	Sample languages	Sum
Africa	!Xun, Bangime, Beja, Boko, Duka, Emai, Eton, Fongbe, Gaahmg, Gumuz, Hadza, Hausa, Hebrew, Ik, Iraqw, Izi, Jalkunan, Kabba, Kisi, Koyra Chiini, Lango, Lele, Lumun, Ma'di, Majang, Makary Kotoko, Mbembe, Mbodomo, N/uuki, Ngiti, Noon, Nubian, Sidaama, Somali, Supyire, Tamashek, Ts'ixa, Tommo So	38
Australia	Anindilyakwa, Arrernte, Bardi, Bininj Gun-Wok, Gaagudju, Gamilaraay, Garrwa, Gooniyandi, Gurr-Goni, Kalkatungu, Kayardild, Mangarrayi, Marrithiyel, Meryam Mir, Miriwung, Nakkara, Ngankikurungkurr, Nyangumartha, Wagiman, Wambaya, Worrorra	21
Eurasia	Abkhaz, Ainu, Armenian, Atong, Bantawa, Baoan, Basque, Bru, Bunan, Burushaski, Dargwa, Dhimal, English, Finnish, Galo, Georgian, Greek, Hungarian, Ingush, Japanese, Japhug, Kayah Monu, Kasong, Ket, Kharia, Khmer, Khwarshi, Korean, Lao, Lawa, Lezgian, Lithuanian, Malto, Mandarin, Mongsen Ao, Nuosu, Palula, Persian, Pnar, Russian, Saami, Semelai, Spanish, Tamil, Tangsa, Telugu, Tundra Nenets, Turkish, Udihe, Udmurt, Welsh, Xong, Yukaghir, Zoulei	54
North America	Alacatlatzala Mixtec, Amuzgo, Ayutla Mixe, Barbareño Chumash, Cherokee, Central Alaskan Yup'ik, Chitimacha, Chontal, Cora, Creek, Crow, Cupeño, Haida, Huasteca Nahuatl, Isthmus Zapotec, Lillooet, Maricopa, Musqueam, Ottawa, Onondaga, Rama, Sahaptin, Santiago Chinantec, Slave, Southeastern Tepehuan, Teribe, Necaxa Totonac, Tzeltal, Ute, Warihio, Yaqui, Yuchi	32

Papunesia	Abau, Abui, Aghu, Amele, Awtuw, Balantak, Barupu, Batak, Begak, Bilua, Hatam, Ilocano, Inanwatan, Indonesian, Kaluli, Komnzo, Makasae, Manambu, Marind, Maybrat, Momu, Moskona, Motuna, Namia, Oksapmin, Paiwan, Puyuma, Rukai, Saaroa, Savosavo, Tagalog, Tetun, Thao, Tidore, Tina Sambal, Toqabaqita, Urim, West Coast Bajau, Wooi, Yimas	40
South America	Aguaruna, Alto Perené, Apinajé, Baure, Cavineña, Cholón, Cubeo, Epena Pedee, Garifuna, Huitoto, Hup, Iquito, Kakua, Kokama Kokamilla, Kwaza, Macushi, Mako, Mamaindé, Mapuche, Matsés, Mosetén, Movima, Paez, Paresi, Paumarí, Piro, Sanuma, Tariana, Trumai, Urarina, Yagua, Yauyos Quechua, Yurakaré	33

Table 2: Number of genera included in the sample

Macro-area	Number of genera	Number of genera in the sample	Coverage
Africa	77	38	49.35%
Australia	43	21	48.83%
Eurasia	82	54	65.85%
North America	95	32	33.68%
Papunesia	136	40	29.41%
South America	110	33	30%
Total	543	218	40.14%

Areal stratification plays an important role in that it ensures that the number of languages in a sample are uniformly distributed over geographically independent areas. Dryer (1992) distinguishes the following macro-areas: Africa, Eurasia, Southeast Asia and Oceania, Australia and New Guinea, North America, and South America. Based on geographical independence, Hammarström & Donohue (2014) review these macro-areas and propose a different division: Africa, Eurasia, Papunesia, Australia, North America, and South America. These areas have been adopted in the latest editions of WALS instead of Dryer's original six areas (Miestamo et al. 2016: 240). While an ideal language sample would also be areally balanced, it is difficult to come up with a sample that is both genetically and areally balanced, for the simple reason that some macro-areas have more genera than others. Furthermore, some macro-areas are better represented than others because of the availability and quality of the sources. As is shown in Table 2, Eurasia is somewhat overrepresented in comparison to the other macro-areas, i.e., Australia, North America, and South America.

Overall, the sample of the present study aims at broad genetic and geographical coverage of the world's languages. Its basic classificatory principle is that of genetic independence, but as was shown above, two or more languages from different genera of the

same family may be taken into account. The sample is thus quite well-suited to exploring cross-linguistic variation in the encoding of temporal adverbial clauses.

3. Temporal adverbial clauses: Clause-linking devices

Temporal adverbial clauses are encoded with different clause-linking devices in the languages in the sample. Many languages use CONJUNCTIONS for expressing temporal adverbial relations, as in (1). These are morphemes that may appear in different positions at the clause over which they operate (i.e., they may appear at the beginning of the dependent clause) (Kortmann 1997: 72). Clauses in constructions encoded with conjunctions may be presented in a different order without changing the meaning expressed by the complex sentence construction (Mauri 2008: 84).

Bangime (Isolate)

(1) *ŋ̀* *déŋgò* ***hà*** *Séédù* *à* *∅* *twáá* *gāndà*.
1SG.SBJ wait.PFV until *Séédù* COMPL 3SG.SBJ arrive.PFV place
'I waited until Seydou arrived.' (Heath & Hantgan 2018: 498)

Languages may also resort to CONVERBS. A converb is a special verb form that does not appear in independent declarative clauses (Haspelmath 1995: 3). The clause containing the converb encodes a restrictive (modifying) or non-restrictive (non-modifying) proposition with respect to its main clause predicate (2). The order of the clauses in constructions encoded by converbs may be presented in a different order without changing the meaning expressed by the complex sentence construction. Converbs are part of the inflectional paradigm of verbs and thus in paradigmatic contrast to other inflectional morphemes (Haspelmath 1995: 4).

Kusunda (Isolate)

(2) *am-**de*** *u-g-i*.
eat-CVB come-3SG.SBJ-PST
'He came before eating.' (Watters 2006: 128)

'AND THEN' COORDINATORS are morphemes that are specifically used for encoding the temporally subsequent construction (Dixon 2009: 9), as can be seen in the Gooniyandi example in (3). Clauses linked with 'and then' coordinating devices always follow an iconic order. Accordingly, languages having 'and then' coordinating devices do not allow the order of clauses to be changed. Note that 'and then' devices tend to introduce clauses that appear with the same properties as independent declarative clauses. These devices may become discourse markers in many languages (Brody 2011: 10), that is, morphemes that link clauses inter-sententially and which are important in discourse structuring and narrative sequencing.

Gooniyandi (Bunuban)

(3) *yoowooloo* *garndiwangooddoo-ngga* *gardboowooddarni*,
men many-ERG they.fought.together
'Many men fought together,

niyi-nhingi *nardawooddarni* *thiddi-nhingi-ngga*.
that-ABL (and then) they.cried.together fight-ABL-ERG
and then they cried together afterwards.' (McGregor 1990: 428)

One important methodological challenge should be mentioned here. Some sources of the sample provide descriptions of clause-linking devices glossed as 'and'. At first glance, these devices look like general coordinating devices. However, a closer analysis reveals that they are 'and then' coordinating devices in that they are used exclusively for expressing temporal subsequence. A case in point is found in Daga. This language has a clause-linking device with the form *si* glossed as 'and' in all the examples provided in the source consulted (4). However, Murane (1974: 170) mentions that this clause-linking device only signals temporal subsequence. Accordingly, *si* 'and' is not considered a general coordinating device here. Rather, it is considered a sequential coordinating device. Haspelmath (2004: 8) notes that general coordinating devices are often translated as 'and' or '(and) then' because it is difficult to know to what extent the temporal relation is part of the meaning of the clause-linking device or to what extent it derives from the context. The policy adopted in this study is that general coordinating devices that have acquired a specific temporal meaning (e.g., temporal subsequence) are considered 'and then' coordinating devices.

Daga (Dagan)

(4) *sinasin* *ben* *wat* *wan-in*
cockatoo decoration get give-3SG.SBJ
'He (the crow) decorated the cockatoo,

si *wao* *anega* *wa-n-i*…
and crow thus say-3SG.SBJ-MV
and the crow said….' (Murane 1974: 177)

A number of languages in the sample convey temporal adverbial relations with LESS-GRAMMATICALIZED CLAUSE-LINKAGE PATTERNS. These strategies are semantically non-specific. For instance, languages may use an ASYNDETIC PATTERN as a primary strategy for conveying temporal meanings. Asyndetic construction refers to two clauses without any structural element linking them. It is likely that most languages of the world can combine clauses with asyndetic constructions (Noonan & Bavin 1981: 45). However, it is not common that this strategy becomes the primary one for expressing adverbial relations (e.g., 'when', 'because', etc.). An example is found in Koyra Chiini. The primary strategy for denoting 'before' in this language is that of asyndesis. In (5), clauses are not linked with any overt

device. In this construction, the 'before' interpretation arises due to iconicity of sequencing.[2] Another example is attested in Aghu. In this language, the 'until' relation is not directly expressed with any overt linking device, but inferred from iconicity of sequencing (6) (van den Heuvel 2016: 74). In this construction, the linear order of clauses mirrors their temporal order.[3]

Koyra Chiini (Songhay)

(5) *a-a* *gar* *ey* *fatta*
3SG-IPFV find 1SG exit
'It happens that I had left

woo *bine* *o* *gar* *ŋgi* *ta* ***na*** *tun*.
DEM TOP IPFV find 3PL TOP NEG arise
before they have arisen.' (Heath 1999: 279)

Aghu (Trans-New Guinea)

(6) *dii* *bu* *bē-dke* *napi* *da-xe*.
sago DUR pound-1SG mother come-REAL.SG
'I pounded sago until my mother came.' (van den Heuvel 2016: 74)

Another less-grammaticalized clause-linkage pattern is that of GENERAL COORDINATING DEVICES. These devices may be the primary way for conveying different temporal adverbial relations (Bril 2010: 5; Cristofaro 2003: 20-21). General coordinating devices are free or bound linkers, such as 'and' (Haspelmath 2004), that occur in a biclausal construction. In these constructions, a temporal adverbial relation is inferred due to iconicity of sequencing and/or contextual factors (including world knowledge). For instance, the linkage in the Awa Pit example in (7) involves only the general coordinating linker *kit* and the temporal subsequence relation is inferred due to iconicity of sequencing.

Awa Pit (Barbacoan)

(7) *mana=na* *tazh* ***kit*** *ii-ma-ti*.
Maria=TOP fall and die-COMPL-TERM
'After Maria fell over, she died.' (Curnow 1997: 309)

Languages may have more than one strategy for conveying a particular type of temporal relation. In such cases, we have determined for each language which strategy or strategies are

[2] It is expected that the clause providing the 'before' meaning occurs postposed to the main clause. This stems from the fact that it refers to a situation that occurs posterior to the one in the main clause (Diessel 2008: 470).

[3] It is expected that 'until' clauses occur at the end of the complex sentence construction given that they denote a situation realized after the situation of the first clause (Diessel 2008: 470).

primary, i.e., which strategy or strategies are used significantly more frequently than the others, and we focus only on those strategies for that language. In order to determine the primary strategy or strategies of the languages in the sample, we rely heavily on the authors of the sources consulted for the present study. However, care should be taken here given general observations is one of the most common ways by which the authors of the sources have identified a primary strategy (roughly 50 sources). That is, they explicitly mention that 'X' strategy is more common than others without providing any statistical frequencies. Evans (2003: 654) shows that temporal subsequence in Bininj Gun-Wok (Gunwinyguan) may be conveyed explicitly (i.e., with various types of sequential coordinators, *wanjh* 'and then', *kaluk* 'and then', *yerre* 'and then') or with asyndetic constructions. However, he mentions that the most common strategy in Bininj Gun-Wok is simply to place verbs in the order of occurrence with no explicit marking of the temporal subsequence relation. Another example is found in Abau (Sepik). In this language, 'when' clauses may be encoded with the conjunction *menkin* 'when' or with a construction appearing with *enekwei* 'time' (Lock 2011: 216). However, constructions appearing with *enekwei* 'time' are used less frequently than the conjunction *menkin* 'when'.

There are a number of sources for which the primary strategy has been determined by using statistical frequencies (roughly 150 sources). Hemmilä & Luoma (1987: 222) show, based on a corpus of 35 texts containing over 28,000 words, that in Urim (Torricelli), the sequential coordinators *atom* 'and then' and *pa* 'and then' occur more frequently than asyndetic constructions for conveying temporal subsequence. Therefore, they are the primary strategies for encoding 'after' clauses.

Sometimes the authors of the sources introduce the range of strategies by which a particular temporal relation may be expressed. However, they do not specify the strategy or strategies used significantly more frequently than the others (roughly 18 sources). In this scenario, native speakers and linguistic fieldworkers on a number of languages were consulted to determine the primary strategy.

As can be seen in Table 3, conjunctions, converbs, and 'and then' coordinators are more common than less-grammaticalized patterns in the languages in the sample.

Table 3: Frequency of clause-linkage patterns in the sample[4]

Clause-linkage pattern	'When'	'While'	'After'	'Before'	'Until'
Conjunctions	208 (73.49)	129 (54.89)	101 (35.31)	177 (81.19)	164 (75.22)
Converbs	71 (25.08)	84 (35.74)	77 (26.92)	36 (16.51)	41 (18.80)
'And then' coordinators	0	0	88 (30.76)	0	0
Less-grammaticalized patterns	4 (1.41)	22 (9.36)	20 (6.99)	5 (2.29)	13 (5.96)
Total	283 (100)	235 (100)	286 (100)	218 (100)	218 (100)

[4] Because of rounding, adding up the percentages of the individual types does not always come to 100% in the tables used in this chapter. Note that a number of languages have more than one primary strategy for conveying temporal adverbial relations.

For a number of languages, it was possible to determine the diachronic source of conjunctions, converbs, and 'and then' coordinators. Evidence for a given diachronic source is explicitly discussed by the authors of the grammars, and may come from reconstruction, partial homo-phony, or identity between the source and the target. In what follows, special attention is paid to a number of diachronic sources of conjunctions, converbs, and 'and then' coordinators. However, the discussion of this domain is not exhaustive given that the sources in the sample do not contain a detail discussion of the historical development of these clause--linkage patterns.

Diachronically, in a number of languages, 'when' conjunctions have been derived from nouns meaning 'time' (71/208=34.17%). In Ingush, the temporal noun *xaana* 'time' developed into a conjunction meaning 'when' (8). This is in line with other studies that have shown that relative clauses encoded with head nouns meaning 'time' provide a common source for temporal adverbial clauses (Heine & Kuteva 2002: 298; Heine & Kuteva 2007: 246; Olguín Martínez 2020). Diessel (2019: 106) notes that relative clauses encoded with a head noun meaning time provide a very frequent source for adverbial conjunctions encoding 'when' temporal clauses.[5] In a similar fashion, in many languages in the sample, 'while' conjunctions have been derived from nouns meaning 'time' (23/125=18.40%) and nouns meaning 'duration' (5/125=4%). In Makasae, the conjunction *watu* 'while' has been derived from a noun meaning 'time' (9).

Ingush (Nakh-Daghestanian)

(8) *siexan* *Ahwmad* *hwa=chy-veannacha* ***xaana***,
yesterday Ahmed DEIC=N-go.PTCP.OBL when
'Yesterday when Ahmed got home,

bolx *bezh* *joallar* *so*.
work do.CVB.SIM PROG.IMPERF 1SG.SBJ
I was working.' (Nichols 2011: 605)

Makasae (Timor-Alor-Pantar)

(9) ***watu*** *a'a* *ani* *sirbisu* *ere*, *gi* na'u *au* *mi-mi*.
CONJ REL 1SG.SBJ work DEM 3SG.SBJ just COMPL sit.SG-RDP
'He just sits about while I am working.' (Huber 2008: 112)

[5] The other source of 'when' conjunctions is that of articles (3/208=1.44%). It is well-known that 'when', and other types of adverbial clauses, may be encoded with nominalizations in many languages of the world (Lehmann 1988). Accordingly, they are often marked with the same morphological make-up as noun phrases (Diessel & Breunesse 2020: 311). In particular, they tend to be marked with articles or determiners that one might analyze as particular types of clause linking-devices.

As for ‘after’ clause-linking devices, it was possible to determine that in five languages (5/77=6.49%), ablative case markers developed into converbs. In Mangarrayi, the ablative case marker *-wana* developed into a converb used for expressing ‘after’ (10). Ablative markers in sim-ple clause constructions express motion away from, that is, ablative case applies to an entity that, from the speaker’s or protagonist’s viewpoint, is moving away from. Accordingly, ablative case makers expressing ‘after’ appear to be part of a more general process whereby spatial con-cepts are used for also indicating temporal concepts (Haspelmath 1997: 66; Kuteva et al. 2019a: 43).

Mangarrayi (Mangarrayi-Maran)

(10) *ya-ø-yaŋ-gu-**wana***, *(w)a-ŋa-naya-wu.*
IRR-3SG-go-DES-CVB IRR-1SG.3SG-cook-DES
‘After he goes, I want to cook it.’ (Merlan 1982: 21)

‘And then’ devices have been derived from verbs meaning ‘to finish’ in eighteen languages in the sample (18/88=20.45%). Jonsson (2012: 145) proposes that a series of clauses, such as ‘I cleaned the house, (that) finished, I went for a walk’ may be the starting point in grammaticalization processes resulting in a clause combining construction equivalent to that in (11). It has been noted that verbs meaning ‘to finish’ have grammaticalized into ‘and then’ coordinating devices in various languages around the world. Kuteva et al. (2019a: 177) mention that this grammaticalization pathway seems to be an instance in which process verbs are grammaticalized to markers structuring narrative discourse.

(11) *I cleaned the house*, (***that***) ***finished***, *I went for a walk* (‘I cleaned the house, **and then** I went for a walk’).

Another source of ‘and then’ coordinators is that of demonstratives (6/88=6.81%). In Kokota, temporal subsequence is signaled with the coordinator *anlau* ‘and then’ (12). Diachronically, this clause-linkage pattern developed from the demonstrative *an* ‘that’ and the suffix *-lau*. This suffix is a pragmatic marker primarily (and very commonly) suffixed to demonstratives and deictic loca-tives in noun phrases, and its function is to provide emphasis in a way that indicates that the refe-rent is exactly the entity at issue (Palmer 2009: 77). Demonstratives tend to develop a discourse--deictic use, in which they refer to an adjacent clause or situation (Diessel & Breunesse 2020).

In a number of languages, ‘and then’ coordinators have been derived from summary tail-head linkage constructions, e.g., the Jamul Tiipay (Yuman) sequential coordinating device *nya-puu-m* ‘when-do.thus-DS’ (and then) (Miller 2001: 253-254) and the Kewa (Austronesian) sequential coordinator *gu-pu-maa* ‘that-do-SEQ’ (and then) (Yarapea 2006: 292).[6] For instance, Van Breugel (2014: 247) explains that *ətəkəyməŋ* ‘and then’ in Atong (Sino-Tibetan) is a grammaticalized form of the verb *ətək-* ‘to do like this/that’ and was once

[6] Summary tail-head linkage constructions involve the replacement of the lexical verb of the tail clause by a generic or light verb (see de Vries 2005; Guérin & Aiton 2019 for a more detailed analysis).

used anaphorically in non-finite verbal forms referring to the situation in the preceding clause. The sequential device *ətəkəyməŋ* 'and then' seems to come from *ətək-əy-məŋ* 'do.like.this/that=ADV=SEQ' (having done like this/that) and seems to have participated in sequential tail-head linkage (see Olguín Martínez 2023 for more examples of this diachronic development).

As for 'before' clauses, in sixteen languages in the database (16/177=9.03%), conjunctions have been derived from a negative marker and another lexical item. For instance, in Bilua, 'before' relations are expressed with the conjunction *puliako* 'before' (12). This clause-linkage pattern originated in three morphemes: the standard negative marker *puli-*, the ligature *a*, and the third person pronoun *-ko* (Obata 2003: 225).

Bilua (Solomons East Papuan)

(12)	***puliako***	*nioqa*	*tada=o*	*nio*,	*o*	*ol=a…*
	before	3.DU	depart=NOM	FOC	3SG.M	go=PRS
	'Before they departed, he went…' (Obata 2003: 225)					

In Anindilyakwa, the conjunction *nariwiya* 'before' was derived from the standard negative marker *nari-* 'not' and the perlative case marker *-wiya* (Leeding 1989: 490). In Yagua, the combination of the negative morpheme *néé*, the clitic *=tìy*, and the negative morpheme *-míy* has been lexicalized as the conjunction *néétìymíy* 'before' (Payne 1985: 67). Another example is found in Baure. In this language, the basis of the conjunction *moena* 'before' was the verb *-ina-* 'be of use'. The privative prefix *mo-* 'without' was attached and the direct translation of the particle would be '(be of) no use' (Danielsen 2007: 395). From a functional perspective, the development of a 'before' conjunction from a negative marker and another lexical item is not surprising. In this scenario, negative markers cue that the situation of one clause is construed as not yet having taken place at the time of the other clause situation.

From a historical perspective, conjunctions expressing 'until' may develop from verbs. In the sample, it was possible to determine that in seven languages, 'until' conjunctions have been derived from verbs meaning 'to arrive' or 'to reach' (7/164=4.26%). An example is attested in Begak. In this language, 'until' meanings are signaled with the conjunction *sawot* (13). This conjunction developed from a verb meaning 'to arrive' (Goudswaard 2005: 178). The usage of verbs meaning 'to arrive/to reach' in the expression of 'until' can be interpreted as being part of a more general process whereby languages use a spatial metaphor (sometimes called fictitious motion) to refer, not to the motion of an agent, but to the (metaphorical) motion in time of a situation.

Begak (Austronesian)

(13)	*da*	*gə-tuttug*	*ino*
	PROG	AV-fall.out	yonder
	'Its fur fell out on and on		

sawot	*nong*	*a-matay*	*tu*	*bəgko*	*asu*	*di*.
until	OBL	NON.VOL-dead	too	also	dog	over.there

until her friend had no money.' (Goudswaard 2005: 178)

Another diachronic source of 'until' conjunctions is that of locational nouns meaning 'edge', 'border', 'end', or 'limit' (13/164=7.92%). As an example, let us consider Tamil. This language resorts to the conjunction *varai* 'until' for expressing temporal boundary adverbial relations (14). The etymology of this connective is a noun meaning 'end/limit' (Lehmann 1993: 335). Kuteva et al. (2019a: 81-82) mention that this development is attested in various African languages (e.g., Swahili *mpaka* 'border').[7] They point out that the use of locational nouns meaning 'edge', 'border', 'end', or 'limit' in the expression of 'until' is a general process whereby locational nouns give rise to typically spatial or temporal grammatical markers.

Tamil (Dravidian)

(14)

Kumaar	*varu-kir-a*	***varai**-kk-um*,	*naan*	*kaattiru-nt-een*.	
Kumar	come-PRS-ADJ	CONJ-DAT-INCL	1SG.SBJ	wait-PST-1SG.SBJ	

'I waited until Kumar came.' (Lehmann 1993: 335)

With respect to the diachronic sources of converbs, various types of case markers play a role in the expression of 'until'. Allative or lative case markers may develop into converbs used for expressing 'until'. This is attested in three languages in the database (3/41=7.31%). In Udihe, the converb *-tigi* has been derived from a lative case marker.

Udihe (Tungusic)

(15)

ŋiča	*aziga*	*sagdi*	*odo-i-**tigi***	*igi-si-e-ni*.
little	girl	big	become-PTCP.PRS-CVB	feed-IPFV-PST-3SG

'(The man) used to feed a little girl (his future wife) until she grew up.' (Nikolaeva & Tolskaya 2001: 738)

To sum up, this section has shown that 'when', 'while', 'after', 'before', and 'until' clauses tend to be encoded with conjunctions, converbs, and 'and then' coordinators in the languages in the sample. Moreover, this section has discussed a number of diachronic sources of these clause-linkage patterns. Diachronic information is not explicitly available for a large portion of the languages included in the sample. Accordingly, the present study can make only a modest contribution to the source-oriented explanations in diachronic-typological investigations of temporal clause-linkage patterns.

[7] It has been proposed that many Eastern African languages have copied the Swahili noun *mpaka* 'border' for expressing 'until' (Mous 2020).

4. Data analysis

In this section, special attention is paid to whether conjunctions, converbs, and 'and then' coordinators tend to be semantically monofunctional or polyfunctional in the languages in the sample (§4.1). Moreover, a detailed discussion of the semantic polyfunctionality patterns of temporal clause-linking devices is provided (§4.2).

4.1. Semantic mono/polyfunctionality of clause-linkage patterns

Conjunctions, converbs, and 'and then' coordinators may be semantically monofunctional or polyfunctional. The example in (16) occurs with the conjunction 'after'. This device is monofunctional in that it is only used for conveying temporal subsequence. For a typical case of a conjunction that is polyfunctional, consider the temporal and causal meanings of 'since' (17) (Hopper & Traugott 2003: 80-81).

(16) *After we read your novel*, *we felt greatly inspired*.

(17) a. *I have done quite a bit of writing since we last got together* (temporal).
b. *Since I have a final exam tomorrow*, *I won't be able to go out tonight* (causal).

Most authors of the sources taken into account in the present study explicitly mention information related to the semantic mono/polyfunctionality of conjunctions, converbs, and 'and then' coordinators. Therefore, this study heavily relies on their explanations. For most grammars, when the authors mention that a clause-linkage pattern is polyfunctional, they also provide morphosyntactic evidence that the semantic polyfunctionality of a clause-linking device is due to conventionalized implicatures and not to pragmatic inferences not (yet) conventionalized (see Kortmann 1997: 91 for a more detailed discussion of this domain). By pragmatic inferences not (yet) conventionalized is meant the following. The example in (16) may implicate: *because we read your novel we felt greatly inspired*. However, Hopper & Traugott (2003: 81) point out that this causal reading is due to a pragmatic inference not (yet) conventionalized. Hetterle (2015: 205) shows that polyfunctional clause-linking devices are subject to specific morphosyntactic constraints. For instance, the English clause-linking device 'since' is polyfunctional in that it can be used for expressing 'after' relations as in (17a) and 'because' relations as in (17b). However, constructions including the temporal and causal 'since' are subject to distinct syntactic constraints (e.g., the temporal reading is only possible when the adverbial clause is in a past tense, but any tense form can appear with the causal reading).

In this section, the following question is explored: cross-linguistically, which types of temporal adverbial clauses tend to be encoded with monofunctional devices disproportionately more often than polyfunctional devices? To explore this question, conjunctions, converbs, and 'and then' coordinators are only taken into consideration.

To the question formulated above, the simplest way is to count the number of mono--functional and polyfunctional clause-linking devices used for encoding each of the temporal clause types in the languages in the sample. To measure the degree to which a clause type is skewed towards semantic monofunctionality or polyfunctionality (and to determine the reliability of this skew), one can then apply a chi-squared goodness-of-fit test. Because the present research seeks to explore the differences particular to each clause type, one chi-squared test for each semantic type of temporal adverbial clause was performed. Once the distribution of the dependent variable for each temporal adverbial clause was obtained (i.e., the *p*-values from the chi-squared tests), we estimated the effect size of the difference by taking the (absolute value of the) base-10 logarithm of the *p*-values.

The first step was to determine the number of monofunctional and polyfunctional clause--linkage patterns per semantic type of temporal clause attested in the languages of the present study. The resulting values are presented in Table 4.

Table 4: Frequency of mono/polyfunctional devices in the present study

Type	Monofunctional devices	Polyfunctional devices	Total
'When' clauses	76 (27.24%)	203 (72.76%)	279 (100%)
'While' clauses	100 (44.84%)	123(55.16%)	223 (100%)
'After' clauses	190 (71.42%)	76 (28.58%)	266 (100%)
'Before' clauses	159 (74.64%)	54 (25.36%)	213 (100%)
'Until' clauses	153 (74.63%)	52 (25.37%)	205 (100%)

The second step was to formulate the hypotheses. H0 postulates that monofunctional and polyfunctional clause-linkage patterns used in the encoding of each type of temporal clause are distributed evenly, meaning that both constructions occur equally often, i.e., 50% of the time. Thus:

H0: The frequencies of the two variable levels of CONSTRUCTION are identical–if I find a difference in my sample, this difference is just random variation; MONO_devices=POLY_ devices.

H1: The frequencies of the two variable levels of CONSTRUCTION are not identical; MONO_ devices ≠ POLY_ devices.

The third step was to run the chi-squared goodness-of-fit tests for each type of temporal adverbial clause (assuming 50/50 expected distribution). Table 5 shows the *p*-values for each temporal adverbial clause.

Table 5: *P*-values for each temporal adverbial clause

Type	*P*-values
'When' clauses	x-squared=47.367, df=1, *p*-value=5.887e-12
'While' clauses	x-squared=2.3722, df= 1, *p*-value=1.2e-1
'After' clauses	x-squared=48.857, df =1, *p*-value=2.8e-12
'Before' clauses	x-squared=51.761, df=1, *p*-value=6.27e-13
'Until' clauses	x-squared = 49.761, df=1, *p*-value=1.737e-12

After obtaining the *p*-values from the chi-squared tests of each temporal adverbial clause, we took the base-10 logarithm of each, and then took the absolute value of the logged *p*-values. The results of this analysis can be seen in Table 6. Note that the logged *p*-values help us to have an estimate of the effect size, or how different from a 50/50 split between monofunctional and polyfunctional devices the data are. This transformation has the advantage of indicating strength of association in a more intuitive scale (increasing values indicate increasing degrees of association; the threshold for significance falls at +1.30103). By convention, the direction of association is indicated by the sign of the logged *p*-value: positive values indicate association with monofunctional devices; negative values indicate association with polyfunctional devices.

Table 6: Logged *p*-values for each temporal adverbial clause

Type	Logged *p*-values
'When' clauses	-11.230092
'While' clauses	- 0.908287
'After' clauses	11.560192
'Before' clauses	12.202742
'Until' clause	11.760290

In Figure 1, the x-axis shows the difference between monofunctional and polyfunctional counts. The y-axis shows the absolute value of the effect size. Each semantic type is plotted as a point. Note that 'while' clauses are flexible in that they may be encoded by either monofunctional or polyfunctional devices (with a slight, non-significant trend towards polyfunctionality). 'After' clauses, 'before' clauses, and 'until' clauses, tend to be encoded with monofunctional clause-linking devices. 'When' clauses tend to be polyfunctional. The results suggest that 'after', 'before', and 'until' meanings are strongly and similarly associated with monofunctional devices cross-linguistically (all are more than 70% monofunctional). 'While' meanings are ambivalent, and 'when' meanings are strongly encoded with polyfunctional devices (only 30% of 'when' clauses are monofunctional, virtually the inverse of 'after', 'before', and 'until').

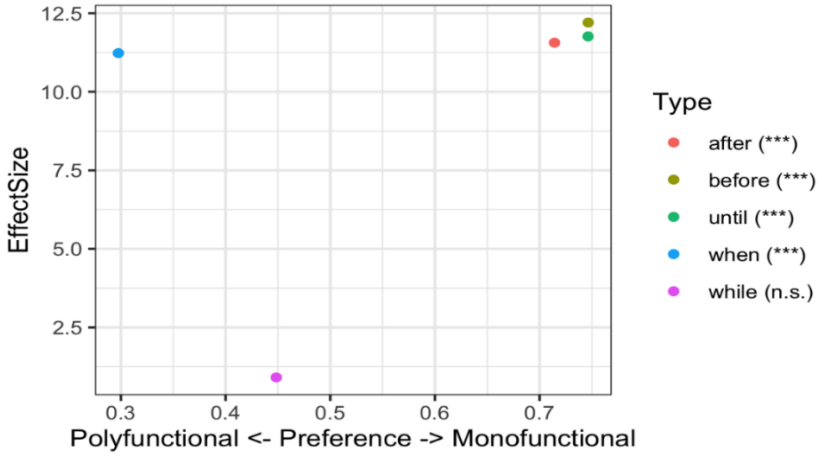

Figure 1. Mono/polyfunctionality of devices encoding temporal adverbial clauses

4.2. Semantic polyfunctionality

Most studies that have addressed the semantic polyfunctionality of temporal clause-linking devices have only taken into account a particular type of device (e.g., Kortmann 1997 only takes into account conjunctions) or two types of devices (e.g. Hetterle 2015 only takes into account conjunctions and converbs). Accordingly, it is not clear whether other devices that have been traditionally disregarded (e.g., 'and then' devices) will show polyfunctionality patterns not attested in previous studies. The question is: do the semantic polyfunctionality patterns attested in the present study align with those documented by other typological studies?

The main assumption is that polyfunctionality patterns in synchronic data reflect paths of semantic development diachronically (Jonsson 2012: 126; Kortmann 1997: 96). It will certainly be enlightening to use a semantic map for exploring the directionality of diachronic change of the polyfunctionality patterns attested in the present research. However, given that the diachronic data are far more difficult to obtain than the corresponding synchronic data, the present research can make only a modest contribution to the understanding of this domain. In what follows, we explore the semantic polyfunctionality patterns attested in the database.

4.2.1. 'When' clauses: Polyfunctional devices

'When' is involved in patterns of polyfunctionality with 9 adverbial relations (Table 7). In total, 'when' clauses are involved in 279 cases of overlap. 'When' constructions realized with polyfunctional devices are more frequently involved with other temporal relations ('while', 'after', 'before', 'until', and 'as soon as') than with non-temporal relations (e.g., 'if', 'because', 'although', and 'where'). Methodologically, if a clause-linkage pattern expresses three relations ('when', 'after', 'until') or more relations, it contributes to the counts and percentages of all of the relations it covers. This is similar to the procedure that has been followed in other typological studies (e.g., Hetterle 2015: 219). For instance, Kortmann (1997: 366) mentions that,

in his investigation, polyfunctional devices may be counted several times, that is, the percentages can be calculated for the total of readings that a device in a relevant language may receive. An example is found in Albanian. In this language, the conjunction *qëkurse* with its readings 'since', 'after', 'as soon as', 'when', 'while', 'as long as' was counted six times as a clause-linking device and the Albanian device *mbasi* was counted twice as a temporal device ('after', 'as soon as') and once as a causal device ('as/because'). This process has also been followed for the temporal clauses discussed in this subsection, and the following subsections.

Table 7: Individual polyfunctional patterns of 'when' devices

Relation	Count	Percentage
'While' relations	105	37.63
'If' relations	93	33.33
'After' relations	30	10.75
'Before' relations	25	8.96
'Because' relations	9	3.22
'Until' relations	8	2.86
'Where' relations	6	2.15
'Although' relations	2	0.71
'As soon as' relations	1	0.35
Total	279	100.00

As is indicated in Table 11, the most common patterns are between 'when' and 'while' (37.63%) and between 'when' and 'if' (33.33%). The overlap between 'when' and 'while' is not surprising in that 'while' constructions along with 'when' have been described as two types of simultaneity (Xrakovskij 2009: 30). 'When' clauses cover a large part of the semantic spectrum of temporal adverbial relations, with the precise reading essentially depending on the discourse context (including Tense-Aspect-Mood) of the construction, and apart from that, on the degree of delicacy one wants to adopt in classifying the relevant reading in a given context (Kortmann 1997: 182). In contrast, 'while' constructions have a specific reference time in that they refer to a length of time (*time during*; Dixon 2009: 10) and can only show a reference time involving situations that occur absolutely or partially simultaneously. Most sources of the languages in the sample explicitly indicate that 'while' meanings are derived from 'when' meanings. This suggests that an unspecific temporal meaning may develop into a specific temporal meaning (i.e., 'when' > 'while').

The second most frequent pattern is between 'when' and 'if'. It has often been suggested that clause-linking devices encoding 'when' clauses are often used for expressing generic/habitual conditional meanings (e.g., *When flowers are kept in the heat, they quickly wither away= If flowers are kept in the heat, they quickly wither away*; Comrie 1986: 82; Cristofaro 2003: 161). This is in line with Kortmann (1997: 192) who demonstrates that if a marker of 'when' clauses develops an additional use as a marker of a non-temporal relation, this relation is most likely to be 'if'. Most sources in the languages in the sample show that 'when' develops

into ‘if’ (i.e. ‘when’ > ‘if’). This follows the tendency of less abstract meanings developing into more abstract ones. In this scenario, a ‘when’ relation is pragmatically enriched by the implicature that one of the situations is also the condition of the other situation (Hetterle 2015: 256).

The polyfunctional patterns attested in the present investigation are almost identical to those found in other cross-linguistic studies (e.g., Hetterle 2015: 219; Kortmann 1997: 181). However, there are two overlaps that have not been explored before.

First, there are languages in which a clause-linking device is used for expressing ‘when’ and ‘where’. A case in point is attested in Meryam Mir. In this language, the conjunction *náde* can also be employed for denoting ‘where’. The ‘when’ interpretation is only possible when the dependent clause is preposed to the main clause (18). On the other hand, a *náde*-construction indicates ‘where’ when the dependent clause appears postposed to the main clause (19) (Piper 1989: 199). From a diachronic perspective, it is likely that the direction of development has been from spatial via temporal, that is, from a concrete to a more abstract meaning (Kortmann 1997: 96). In this regard, space is stable and concrete, time is always ongoing and less concrete than space (Jonsson 2012: 126). This is also indicated by the sources of the languages consulted for the present study.

Meryam Mir (Western Fly)

(18) ***náde*** *mitkat* *b-er-er*,
CONJ a.lot PL-become-PRS.IPFV
‘When there were a lot (of fish caught),

wi-ge-t-áys-lare…
3PL-DEIX-carry-PL.OBJ-PRS.IPFV.PL
they would bring (them)…’ (Piper 1989: 199)

(19) *máyk-em* *able* *mekir-em*
close-ALL DET almond.tree-ALL
‘(They crawled up close) to the almond tree

náde *ge* *sarup*-ira *sárik* *kep-kem* *da-ra-rem*.
CONJ DEIX castaway-GEN bow arrow-ASSOC 3-PL-be.sticking
where the castaway’s bow and arrow were sticking up.’ (Piper 1989: 199)

Second, there is one language in the sample in which a clause-linking device conveys ‘when’ and ‘as soon as’. The overlap between ‘when’ and ‘as soon as’ has been documented for Somali. In this language, ‘when’ constructions are encoded with the conjunction *markii* (20). This clause-linkage pattern can also indicate ‘as soon as’ (21). The development of ‘when’ into ‘as soon as’ can be explained by the fact that there are contexts in which ‘when’ may implicate immediate temporal subsequence. Accordingly, the meaning of ‘when’ can become enriched inferentially by the implicature that the situation of the main clause immediate follows the situation of the dependent clause.

Somali (Afro-Asiatic)

(20) ***markii*** *uu* *qol-kii* *ká* *baxáy*,
CONJ 3SG.SBJ room-the from went
'When he left the room,

wáxaan *kú* *idhi* *nabád* *gélyo*.
1SG.SBJ to said peace enter.CAUS.OPT
I said goodbye to him.' (Saeed 1999: 218)

(21) *is-la* ***markii*** *uu* *tegáy*, *sháqàan* *bilaabay*.
REFL-with CONJ 3SG.SBJ went work.1SG.SBJ.FOC began
'As soon as he left, I began working.' (Saeed 1999: 218)

4.2.2. 'While' clauses: Polyfunctional devices

'While' is involved in patterns of polyfunctionality with 12 adverbial relations, as is illustrated in Table 8. In total, 'while' is involved in 164 cases of overlap. Note that 'while' shows overlaps with other temporal relations (e.g., 'when', before', 'after', 'until', 'since', and 'as soon as') and with non-temporal relations (e.g. 'if', 'although', 'in order to', 'without', 'because', and 'where'). Of these, 'while' shows more overlaps with other temporal relations. In particular, the most common overlap is with devices that also cover 'when' (64.02%). The polysemy with 'before' is the second most common type (15.24%).

Table 8: Individual polyfunctional patterns of 'while' devices

Relation	Count	Percentage
'When' relations	105	64.02
'Before' relations	25	15.24
'After' relations	8	4.87
'If' relations	6	3.65
'Although' relations	6	3.65
'In order to' relations	4	2.43
'Until' relations	3	1.82
'Without' relations	2	1.21
'Because' relations	2	1.21
Temporal 'since' relations	1	0.60
'Where' relations	1	0.60
'As soon as' relations	1	0.60
Total	164	100

Kortmann (1997: 192) mentions that if a marker of 'while' clauses develops an additional use as a marker of a non-temporal relation, this relation is most likely to be 'although'. The results of the present study echo Kortmann's results. However, it is also interesting to observe that another non-temporal meaning that 'while' devices may develop is that of 'if'.

As was discussed in §4.2.1, the overlap between 'when' and 'while' is not surprising in that 'while' and 'when' constructions have been described as two types of simultaneity. The second most common pattern is between 'while' and 'before'. In this scenario, negative markers play an important role in that they serve as morphosyntactic material aiding in the 'before' interpretation. From a diachronic perspective, 'before' meanings are derived from paraphrases involving 'while' and a negative marker or a negative adverb(ial) 'not yet' ('before' is roughly the same as 'while not yet'; Wälchli 2018). In Motuna, 'before' clauses appear with the converb *-juu* (22). The dependent clause must be marked with the negative marker *toku*. The Converb *-juu* is polyfunctional and can be used for expressing 'while' when the dependent clause shows positive polarity (23). The change from 'while' to 'before' seems to be motivated by the inference that 'while not yet' implies that the situation of the main clause happens before the situation expressed in the dependent clause. Put another way, in this scenario, 'while' does not show a reference time involving situations that occur absolutely or partially simultaneously. Instead, it is employed to indicate a situation that has not yet been realized when the main clause situation takes place.

Motuna (East Bougainville)

(22) *tii* ***toku*** *umuu-**juu***, *na-mar-a-a-ni…*
there NEG come.1PL.EXCL-CVB say.to-1PL.EXCL.OBJ-3PL-REM.PST-DU
'Before we came there, they said to us…' (Onishi 1994: 476)

(23) *ti* *pa-na* *ti-ki* *poo'-ki* *kuuto-woi-**juu***,
ART.F 3SG.POSS-wife ART-ERG under.tree-ERG be.waiting-3SG-CVB
'While his wife was waiting under the tree,

Emmai *koto* *kiin-u-u-ng*.
Emmai up climb-3SG-REM.PST-M
Emmai climbed up.' (Onishi 1994: 475)

The polyfunctional patterns documented in the present work are almost identical to those attested by Hetterle (2015: 220) and Kortmann (1997: 181). However, there is one polyfunctional pattern not described in their research. There are two Afro-Asiatic languages (i.e., Beja and Sidaama) in the sample in which a clause-linking device is used for indicating 'while' and 'without' (also known as negative concomitance). An example of this pattern can be found in Sidaama. In this language, 'while' and 'without' are expressed with *-nni*. The 'without' interpretation only arises when the dependent clause appears with the negative marker *-kki* (25). The sources of the sample indicate that 'without' has been derived from

'while' ('while' > 'without'), indicating a direction of development from a concrete to a more abstract meaning. The development of 'while' into 'without' can be explained by the fact that 'without' involves a simultaneous situation in which 'p' does not accompany 'q' (see Olguín Martínez & Peregrina Llanes 2023). This situation more often than not runs counter to expectation, or is simply regarded as remarkable (e.g., 'he went past me without greeting me'). 'Without' constructions in these languages appear with obligatory negative markers. Accordingly, from a diachronic perspective, 'without' meanings have been derived from paraphrases involving 'while' and a negative marker ('without' is roughly the same as 'while not').

Sidaama (Afro-Asiatic)

(24) *sagalé* *ra'-is-i-ɗ-ɗ-a-**nni***
food become.cooked-EP-CAUS-EP-MID-3SG.F-while
'While she was cooking,

angá *gii-ɗ-i-t-u*.
hand burn-MID-3SG.F-PFV-3SG.F
she burned her hand.' (Kawachi 2007: 381)

(25) *keeš-i-tto-**kki-nni*** *amo*.
stay.long-PFV-2SG.M-NEG-without come.IMP.2SG
'Come without staying long.' (Kawachi 2007: 382)

4.2.3. 'After': Polyfunctional devices

'After' is involved in patterns of polyfunctionality with 10 adverbial relations, as is shown in Table 9. In total, 'after' is involved in 103 cases of overlap. It is worth noting that 'after' is involved in more overlaps with different types of non-temporal relations (i.e. 'as a result', 'because', 'if', 'although', 'in order to', and 'lest') than with other types of temporal relations (i.e. 'when', 'before', 'while', and 'until'). The most common overlaps are between 'after' and 'when' (29.12%), between 'after' and 'before' (19.41%), and between 'after' and 'as a result' (16.50%). One comment on the polyfunctionality pattern between 'after' and 'as a result' is in order here. Kortmann (1997: 192) proposes that if a clause-linking device encoding 'after' clauses develops an additional use as a marker of some non-temporal relation, this relation is most likely to be 'because'. The results of the present study are not in line with Kortmann's proposal, in that the most frequent connection is between 'after' and 'as a result' in the present study. One potential reason why the results of the present investigation are different from those attested in Kortmann's study stems from the fact that we take into account 'and then' devices. This is one of the most common kinds of semantic polyfunctionality that 'and then' devices have developed in the languages in the sample.

Table 9: Individual polyfunctional patterns of 'after' devices

Relation	Count	Percentage
'When' relations	30	29.12
'Before' relations	20	19.41
'As a result' *relations*	17	16.50
'While' relations	8	7.76
'Because' relations	7	6.79
'Until' relations	7	6.79
'If' relations	5	4.85
'Although' relations	4	3.88
'In order to' relations	4	3.88
'Lest' relations	1	0.97
Total	103	100.00

There are two polyfunctional patterns attested in the sample that have not described by previous typological studies (e.g., Hetterle 2015: 220; Kortmann 1997: 181; Martowicz 2011: 107--108). First, there are languages that employ the same device for expressing 'after' and 'until'. In Urim, 'after' and 'until' are expressed with the clause-linking device *pa*. In (26), the temporal subsequence relation is signaled with *pa*. To indicate that the action of the main clause continues until something else happens or until the end of the situation of the main clause is achieved, the verb of the main clause must be repeated several times (Hemmilä & Luoma 1987: 26), as in (27). In this scenario, the meaning of 'after' has become enriched inferentially by the implicature that the dependent clause marks the endpoint of a situation expressed in the main clause.

Urim (Torricelli/Urim)

(26) *men* *lap* *namung* ***pa*** *plalng* *apis*.
1PL.EXCL roast.REAL banana CONJ finish scrape.REAL
'We roasted the bananas and then scraped the ashes off.' (Hemmilä & Luoma 1987: 80)

(27) *men* *ak* *yikal* ***or-or-or-or-or-or***,
1PL.EXCL do.REAL bow hit-hit-hit-hit-hit-hit
'I kept hitting and hitting it with the bow,

pa *amo*.
CONJ die.REAL
until it died.' (Hemmilä & Luoma 1987: 26)

Second, there is one language in the sample that employs the same device for forming 'after' clauses and avertive 'lest' clauses. In Gaagudju, 'after' and 'lest' are expressed with *baleeru*. The 'after' interpretation arises when the main clause appears in any tense,

as in (28). However, the 'lest' interpretation is only possible when the dependent clause of a *baleeru*-constructions is marked with the evitative marker *-ya*, as in (29). The evitative marker merely asserts that the predication is possible (Harvey 2002: 251). The semantic affinity between 'after' and 'lest' can be explained as follows. An 'after' construction involves a sequence of two clauses in which the situation of the main clause happens after the situation expressed in the dependent clause, 'After' can be pragmatically enriched by the implicature that the dependent clause may invoke an undesired world (i.e., undesirable situation) that can be avoided by the situation described in the main clause.

Gaagudju (Isolate)

(28) …***baleeru*** *ma-rraama* *djaamu*.
and.then 1SG-get.FUT tucker
'…And then I will get some tucker.

Ma-nee-nda *mananggaarr* *nji-n-baloolburrbu*.
2SG-FUT-eat that 2SG-FUT-full.up
'You can eat it and then you will be full up.' (Harvey 2002: 377)

(29) *gooyida* *njing-gaama-y* *ilaawala*
NEG.IMP 2SG-say-PRS little
'Don't say (that), little boy!

baleeru *nji-n-ngeewi* *yunggaalja* *nji-nbuu-**ya***.
lest 3SG-hear-AUX devil 3SG-kill-EVIT
lest a devil hear you and kill you.' (Harvey 2002: 375)

4.2.4. 'Before' clauses: Polyfunctional devices

'Before' is involved in patterns of polyfunctionality with 5 adverbial relations (Table 10). In particular, 'before' shows overlaps with other temporal relations (e.g., 'while', 'when', 'after', and 'until'). The most common overlaps are between 'before' and 'while' (32.46%), between 'before' and 'when' (27.27%), and between 'before' and 'after' (25.97%). There is only one overlap with a non-temporal relation that 'before' clauses show. 'Before' clauses may overlap with avertive 'lest' clauses. This is an interesting finding in that it has been proposed that if a marker used in the expression of 'before' develops an additional use as a marker of some non-temporal meaning, this relation is most likely to be preference (e.g., 'rather than go there by plane, I would take the slowest train'; Kortmann 1997: 192).[8]

[8] Preference constructions are a type of adverbial construction in which of two alternatively possible situations *p* and *q*, *q* is preferred (by the generally volitional subject referents) and renders *p* unnecessary or improbable (Kortmann 1997: 89).

Table 10: Individual polyfunctional patterns of ‘before’ devices

Relation	Count	Percentage
‘While’ relations	25	32.46
‘When’ relations	21	27.27
‘After’ relations	20	25.97
‘Until’ relations	6	7.79
‘Lest’ relations	5	6.49
Total	77	100.00

The polyfunctional patterns attested in the present investigation are almost identical to those documented by Hetterle (2015: 222) and Kortmann (1997: 181). However, there is one polyfunctional pattern not described in their studies. There are 5 languages in the sample in which the same device is used for expressing ‘before’ and ‘lest’. The authors of the sources indicate that ‘before’ clauses developed into avertive ‘lest’ clauses (‘before’ > ‘lest’). In particular, this seems to be common in cases in which a ‘before’ clause shows an implicature that an undesirable situation is to be avoided (see Tahar 2021 for a more detailed discussion of avertive ‘before’ clauses). Put another way, the meaning of ‘before’ became enriched inferentially by the implicature that the dependent clause invokes an undesired world that can be avoided by the action described in the main clause. An example illustrating this development is attested in Virgin Islands Dutch Creole. Kuteva et al. (2019b: 864) mention that this language offers a semantically transparent example of how a structure which initially involved a ‘before’ clause (30), gave rise over time, to the avertive ‘lest’ construction in (31).

Virgin Islands Dutch Creole

(30) *ju* *fo* *bli* *een* *jaa* *mi* *ons*,
2SG MOD stay INDEF year with 1PL
‘You must stay with us for one year,

fo *ju* *nee* *am* *fa* *ons*.
CONJ 2SG take 3SG of 1PL
before you take her from us.’ (Kuteva et al. 2019b: 864; cf. Van Sluijs 2015)

(31) *dan* *Anáánsi* *a* *ho* *fo* *loo* *bet* *padún*,
then Anansi PST have for go ask pardon
‘Then Anansi had to ask for forgiveness,

fo *sini* *du* *am* *a* *fort*.
CONJ 3PL do 3SG LOC prison
lest they put him in prison.’ (Kuteva et al. 2019b: 864; cf. Van Sluijs 2015)

4.2.5. 'Until' clauses: Polyfunctional devices

'Until' is involved in patterns of polyfunctionality with 8 adverbial relations (Table 11). In total, 'until' is involved in 65 cases of overlap. 'Until' shows more overlaps with other temporal relations ('when', 'after', 'before', 'while', and 'as long as') than with non-temporal relations (e.g., 'in order to', 'as a result', and 'where). The most frequent polyfunctionality pattern is between 'until' and 'in order to' (44.61%). This is an interesting finding in that Hetterle (2015: 223) shows that if a clause-linking device encoding 'until' clauses develops an additional use as a marker of some non-temporal relation, this relation is most likely to be 'as a result'. The overlap between 'until' and 'in order to' has been explored in other typological studies. For instance, Schmidtke-Bode (2009: 106) shows that this overlap is attested mainly in African languages, such as Noon, Koyra Chiini, and Khoekhoe. In contrast, the overlap between 'until' and 'in order to' is mainly attested in the Australian languages of the sample of the present research (e.g., Miriwung; Kofod 1978: 142; Wagiman; Cook 1987: 131; Wambaya; Nordlinger 1993: 86).

Table 11: Individual polyfunctional patterns of 'until' devices

Relation	Count	Percentage
'In order to' relations	29	44.61
'When' relations	8	12.30
'After' relations	7	10.76
'Before' relations	6	9.23
'As a result' relations	6	9.23
'While' relations	3	4.61
'As long as' relations	3	4.61
'Where' relations	3	4.61
Total	65	100

The overlaps of 'until' documented in the present research are almost identical to those found in Hetterle (2015: 223) and in Kortmann (1997: 181). One exception is the polyfunctionality pattern between 'until' and 'where'. In three languages in the sample, 'until' and 'where' are expressed with the same device. An example is attested in Ket. In this language, 'until' clauses and 'where' clauses are realized with the conjunction *baŋdiŋa*, as in (32) and (33). Nefedov (2015: 180) mentions that "in addition to marking temporal boundary, *baŋdiŋa* can mark locative relations. In the latter case, it requires the presence of a correlative element in the main clause like, for example, *tuniŋa* 'there'." Accordingly, 'where' meanings are distinguished from 'until' meanings by *tuniŋa* 'there', as can be seen in (33).

Ket (Yeniseian)

(32) *ū* *ab-iŋa* *d-ik-s-bess* ***baŋdiŋa,***
1SG 1SG.POSS-DAT 1SG-here-NON.PST-move CONJ
'Until you come to me,

ād *kiséŋ* *as* *di-k-a-doq*.
1SG here FUT 1SG-THEM-NON.PST-live
I will be living here.' (Nefedov 2015: 181)

(33) *tib* *du-ses-o-l-ta* ***baŋdiŋa***,
dog 3SG-place-PST-PST-be.in.position CONJ
'Where the dog sat,

būŋ ***tuniŋa*** *du-ik-n-bes-in*.
3PL there 3PL-here-PST-move-PL
they came.' (Nefedov 2015: 181)

As was noted above, the most frequent overlap is between 'until' and 'in order to'. Most authors of the sources mention that 'in order to' developed from 'until' (i.e., 'until' > 'in order to'), indicating a direction of development from a concrete to a more abstract meaning. The conceptual factors that motivate this semantic affinity could be explained as follows. Temporal clauses expressing terminal boundary mark the endpoint of a situation expressed in the main clause. 'Until' can be pragmatically enriched by the implicature that the dependent clause is also the purpose of the situation encoded in the main clause (e.g., 'I did it until she felt better'). In this scenario, the situation of the main clause is performed with the intention of obtaining the realization of the situation of the dependent clause.

There are other less frequent polyfunctionality patterns (i.e., between 'until' and 'as long as').[9] Of these, the authors of the sources mention the directionality of development of two overlaps. First, 'where' meanings develop into 'until' meanings (i.e., 'where' > 'until'). This indicates that the direction of development has been from space to time. Second, 'until' meanings develop into 'as a result' meanings (i.e., 'until' > 'as a result'). This has not gone unnoticed and echoes Hetterle (2015: 261), who mentions that 'until' and 'as a result' are likely to be related via the context-dependent conventionalized implicature that the endpoint specified in the 'until' clause is also the result or consequence of the main clause situation.

[9] Kortmann (1997: 178) notes that 'until' devices may be polyfunctional with 'as long as'. He explains that this link stems from the fact that the two relations can to some extent be viewed as complements of each other. For 'as long as' relations, the dependent clause situation opens up a time interval for the whole of which the situation of the main clause is true. On the other hand, 'until' relations introduce the endpoint of the time interval at which the situation of the main clause is true. This polyfunctionality has also been noted by Wälchli (2018: 190). This is attested in almost all modern Slavic languages, Hindi, Maithili, Hungarian, and Mordvin.

5. Final remarks

The present paper has set out to examine 'when', 'while', 'after', 'before', and 'until' clauses in a variety sample of 218 languages. A chi-squared goodness-of-fit test has shown that 'after', 'before', and 'until' meanings are strongly and similarly associated with monofunctional devices cross-linguistically. 'While' meanings are ambivalent, and 'when' meanings tend to be encoded with polyfunctional devices. In addition, the paper has analyzed the polyfunctionality patterns of temporal adverbial clause-linking devices. While the semantic polyfunctionality patterns attested in the present research align, for the most part, with those documented by other typological studies, there are a number of patterns that have been neglected in the typological literature, such as the polyfunctionality pattern between 'when' and 'where', between 'when' and 'as soon as', between 'while' and 'without', between 'after' and 'until', between 'after' and 'lest', between 'before' and 'lest', and between 'until' and 'where'.

There are a number of areas relevant to the study of temporal adverbial clauses that we could not address to keep the scope of the research manageable. Accordingly, they remain to be investigated by future studies and in what follows we mention some of these fruitful areas. First, as was shown in the paper, sometimes the clause-linking device may appear either in the first or second clause. In these cases, it would be interesting to explore whether there are any correlations between the position of the clause-linking device and its mono/polyfunctionality.

Second, another candidate for larger-scale future investigations is the number of clause--linking devices that may appear in a construction. In various languages in the sample, the complex sentence construction may appear with two clause-linking devices. Interestingly, one of the devices is always optional. It remains an open task to explore the range of factors that lead to this optionality.

Third, the areality of temporal adverbial clause-linkage pattern is another area for future research. It remains to be analyzed how these patterns spread and the mechanisms involved in their diffusion. The more we learn about individual languages and about what is common and rare cross-linguistically, the more adept we should become at recognizing areal patterns and the mechanisms which create them.

Needless to say, much remains to be learned about temporal adverbial clauses in terms of their synchronic functions and how they develop diachronically. However, the present work has hopefully paved the way for a better understanding of some domains related to the form and function of temporal adverbial clauses. It is hoped that the questions explored in this research bring us closer to a deeper understanding of temporal adverbial clauses.

Abbreviations

1=first person, 2=second person, 3=third person, ABL=ablative, ABS=absolutive, ACC=accusative, ADJ=adjective, ADNZ=adnominalizing, AFF=affirmative, AGR=agreement, ALL=allative, ART=article, ASP=aspect, ASSOC=associative, AUX=auxiliar, AV=actor voice, BND=bound root, CAUS=causative, CHD=change of direction, CL=classifier, COMIT=comitative, COMPL=completive, CONJ=conjunction, CONT=continuous, COR=core, CVB=converb, DAT=dative, DEF=definite, DEIC=deictic, DEIX=deixis, DEM=demonstrative, DES=desiderative, DU=dual, DUR=durative, EMOT=emotive, EP=epenthesis, ERG=ergative, EVID=evidential, EVIT=evitative, EXCL=exclusive, F=feminine, FOC=focus, FUT=future, GEN=genitive, HAB=habitual, IMPERF=imperfect, INCL=inclusive, INSTR=instrumental, INTR=intransitive, IPFV=imperfective, IRR=irrealis, LINK=linker, LOC=locative, M=masculine, MID=middle, MOD=MODAL, MV=medial verb, N=noun, NEG=negative, NMLZ=nominalizing, NOM=nominative, OBJ=object, OBL=oblique, OPT=optative, PERF=perfect, PFV=perfective, PL=plural, POSS=possessive, PROG=progressive, PRS=present, PST=past, PTCP=participle, RDP=reduplication, REAL=realis, REFL=reflexive, REM=remote, SBJ=subject, SE=sentence ender, SEQ=sequential, SG=singular, SIM=simultaneous, SS=same subject, SUPERESS=superessive, TERM=terminative, THEM=thematic, TOP=topic, TRANS=transitive, VOL=volitional, VS=verbal stem marker.

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The vowel /a/ as the main portal to humanity's language and culture faculties

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Abstract: Stanisław Puppel, *The vowel /a/ as the main portal to humanity's language and culture faculties*. The Poznań Society for the Advancement of Arts and Sciences, PL ISSN 0079-4740, pp. 77-82

The vowel /a/ is regarded here as the initial sound, based on earlier vowel-like vocalization in humans, especially the neonate cry. This particular type of vocalization marks the true beginning of human language in the ontological perspective. Its presence is absolutely fundamental for the generation and maintenance of oxygen-based language and culture complex. All of human life is conducted in the human auditive world of organization based on the air (the aerial condition).

Keywords: oxygen-based language and culture complex (OBLCC), neonatal cry, auditive world of organization, first language acquisition, human hearing range

Clamo, ergo sum.
I cry. therefore I am.
Krzyczę, więc jestem!

1. Introduction

Humans are aerial creatures and may therefore easily be referred to as participants in and builders of the 'oxygen-based language and culture' complex (hence OBLCC). Upon leaving the aquatic condition of the uterus, we are throwing ourselves entirely on the mercy of the air, as do all aerial mammals. Crying is the first and very clear sign of aerial (i.e. oxygen--based) life that is observed shortly after the baby leaves the uterus. We breathe the air and communicate in the air throughout our lifetimes. And the founding moment of our entrance to the aerial condition is the moment of our birth, or, more precisely, the way in which our organisms signal the dominant presence of the air upon leaving the uterus with what has been referred to in pertinent literature as the 'neonatal cry'. A view is proposed here that it is the neonatal/infant cry, as shown in the picture below, which is the foundation of language and culture in the underlying oxygen framework, and it is the focus of our attention.

Figure 1. The photo shows a crying (yelling) infant, with the mouth open wide and the body of the tongue visibly raised and moved backward as it enters the final destination of the oxygen-based language-culture complex (OBLCC) (source: author's own files).

Upon leaving the aquatic condition of the uterus, the neonate enters the extra-uterine (external) world with the aerial activation of the absolutely rudimentary respiratory, laryngeal, lingual and auditory equipment. And s/he will ultimately need its overall fitness both for the production of speech and in order to begin his/her career as a linguist, oral communicator and as a participant (and builder) of the ultimate oxygen-based cultural design, of the OBLCC, which may also be generally referred to as the human 'auditive world of organization' (see Corbett 2003).

The rudimentary respiratory-laryngeal-auditory machinery of the genus *Homo sapiens* has been assumed to operate within the acoustic field of ca. 20-30 Hz and 20 kHz. And it is within these values that the rich human sound repertory is universally constructed and contained (see e.g. Ladefoged & Maddieson 1990: Miller 1951; Ladefoged & Maddieson 1996; Maddieson & Disner 1984; Heffner 2004; Maddieson 2009; Gelfand 2010, with the latter handbook serving as an authoritative and invaluable source of information on human hearing).

As has been stated above, the baby begins the journey towards the fully controlled human 'auditive world of organization' and towards culture through the human region of the acoustic field with the neonatal cry, or the high intensity (vigorous) vocalization resembling the vowel /a/. In further motor-articulatory-auditory refinements and in the course of first language acquisition, the primary (endogenous) vocalization is finally advanced to the adult shape of the culture-specific sound systems easily duplicated across ethnicities and across diversified linguistic communities. The area of frequencies available to humans, as compared to that of animals, is illustrated in the following diagram (Fig. 2).

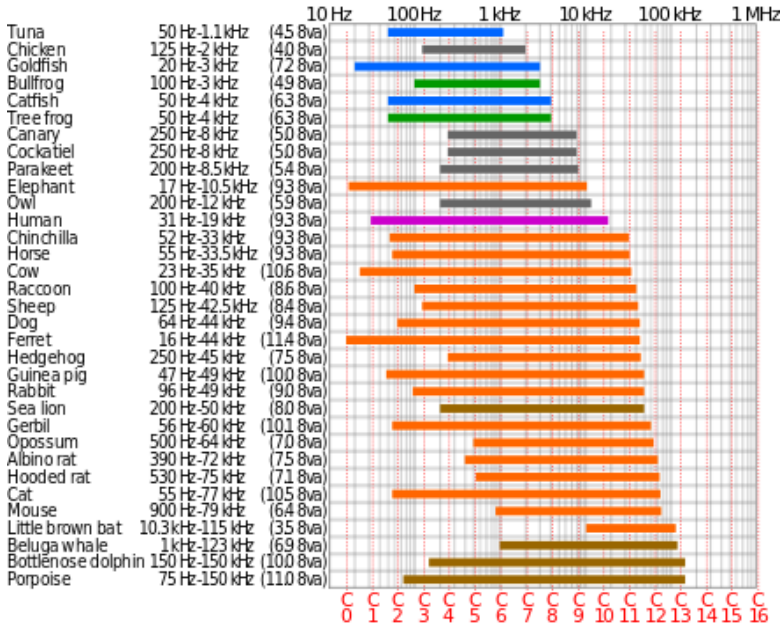

Figure 2. The human hearing range (indicated in velvet colour) is shown against a number of animal ranges. It is within this range that both language and culture are contained in the OBLCC) (source: http://commons.wikimedia.org/wiki/File:Animal_hearing_frequency_range.svg)

A more graphic presentation of the human hearing range against some selected animal ranges is shown below (Fig. 3)

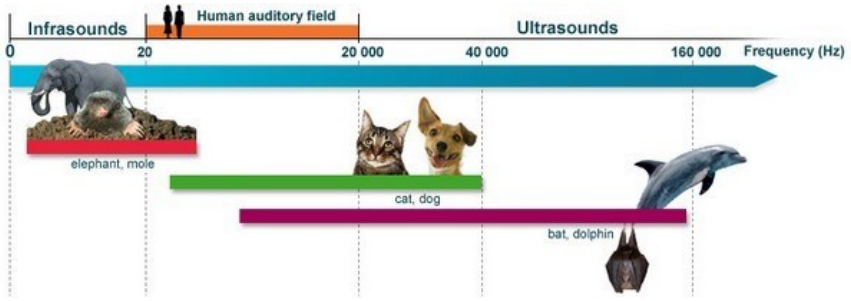

Figure 3. The human auditory field is shown against both the infrasound frequencies and ultrasound frequencies (source: www.cochlea.org/en/hear/human-auditory-range)

The realm of all human sounds is contained within the acoustic field whose ranges have been shown below (Fig. 4).

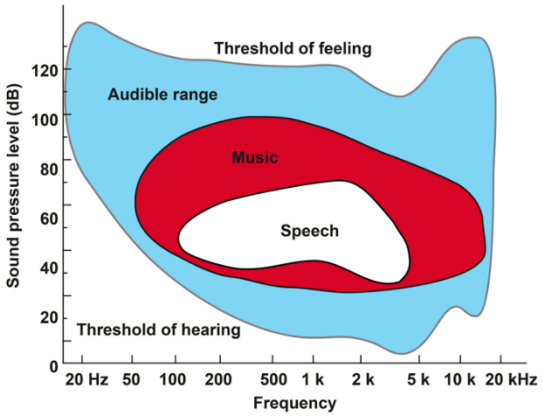

Figure 4. The human auditory range, with hearing and feeling (pain) thresholds as well as the music and speech areas (source: Ramirez & Herbig 2016)

2. Advantages of the neonate/infant cry

At this point, a major question may be formulated: What advantages does an infant generally obtain from the infant cry? To answer this question more or less satisfactorily, one must postulate a number of levels on which the infant cry appears to be a beneficial bio-socio-cultural endeavour. These levels include:

1. The vowel formant space expansion level: on the level of human vocal production, the production of the most quantal vowel /a/ (for a discussion of the nature of quantal vowels, see e.g. Stevens 1972; Stevens 1989; Stevens 1998) opens up, as it were, the acoustic, articulatory, and perceptual spaces which are filled up by various autonomous vowel segments, varying in number in different languages (see e.g. Puppel & Jahr 1997; Vorperian & Kent 2007) in the process of first language acquisition. This process of expansion of the afore mentioned spaces is intangible in nature and is accompanied by the production of tangible artefacts in the cultural dimension. The two dimensions, intangible in the form of human language and tangible in the form of various man-made artefacts, constitute the domain of culture.

2. The physiological (somatic) level: a number of fundamental activities are accomplished by the child on this level, such as: breathing (pulmonary) activity, cardiac activity, vocal cord activity (phonation), oro-facial activity, lingual activity, complex nervous system activity. As a result, an overall synchrony of these activities is eventually accomplished thus paving the way for the construction of full language in the primary oral order of communication. Moreover, the physiological level of the neonate/infant cry serves to signal such somatic phenomena as: hunger, thirst, fatigue, injury, pain, and indigestion. All are fundamental for what may be called the 'human technology of life'.

3. The social-cultural level: the first cry of the newborn baby indicates that the baby, separated from the maternal organism, is about to enter the social-cultural dimension of her oxygen-based life. The initial dimensions of social life, provided by the primary caregivers,

are the following: care, support and protection. Therefore, the social dimension of the first (neonate) cry *prima facie* involves the phenomenon of soliciting the attention (responsiveness) of those individuals around the baby, especially of the mother, as a result of the occurrence of the so-called separation distress, as well as it signals the need for physical contact (or 'bonding'; see e.g. Sullivan et al. 2011 and the literature contained therein) when the infant is separated from her mother, this time in the entirely new conditions of the extra-uterine and aerial life of the newly born human being. Let me emphasize at this point that physical contact – which the baby finds so fundamental after leaving the uterus – will for ever remain one of the main factors in the construction of and participation in the OBLCC, as indicated in the introductory section of the paper. It is so important that phenomena such as: skin hunger, touch starvation, and hug deprivation may become the sources of serious mental disturbances in later adult life.

4. The semiotic level: with the neonate cry, the newborn baby is finally tied up with and signals a strong attachment to the air (i.e. the oxygen as its major component) as the solid foundation of the baby's physiological-semiotic grounding on the terrestrial carrier. Again, the child's strong and physiologically inevitable attachment to the air constitutes a founding pillar of OBLCC.

5. The construction (structural-organizational) level: with the neonate cry, the newly born baby enters the final phase of the OBLCC dimension, the phase of the human technology of life. With the production of the /a/-semblant sound (which may also be termed a 'protophone', see Kimbrough Oller et al. 2019) serving as the foundation, a vocalic nucleus, for the slicing (i.e. segmentation) of the available acoustic field and subsequent construction of any vocalic system and the accompanying consonantal system which are culture-controlled (on the child's phonetic development, see e.g. Kilminster & Laird 1978 and Puppel 2001), the child initiates the vital process of constructing a working language via constructing a viable phonological system based on such psycho-social mechanisms as contrast and gradation (see e.g. Foley 1977; Ohala 1983; Kirchner 1997; Flemming 2001).

3. Conclusion

With this system at hand, and being fully immersed in the human auditive world of organization, the child becomes thoroughly involved in managing the surrounding external reality with rich semanticization, lexicalization, syntaxicization and interactive interpersonal verbal communication. In this way, s/he is beginning to participate in both the intangible (i.e. soft) and tangible (i.e. hard) dimensions of culture. Together, following the law of the Inevitability of Design (see Puppel 2022), the two dimensions, supported by language capacities, in particular the acquired sound pattern as the basis of lexical repertoires developed and maintained in the particular natural languages in the unique realm of human verbal communication, co-determine the human condition (*conditio humana*), or the uniquely human technology of life. All this is owed to the onotgenetically initial generation of the vowel /a/ which may thus be regarded as a 'launching pad' for the entire oxygen-based language-culture complex and a specific 'portal' to the entirety of culture.

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Angas-Sura etymologies XIII

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The paper as part of a long-running series is devoted to the etymological analysis of a new segment (namely that with initial dental *d-) of the Angas-Sura root stock, a small group of modern languages remotely and ultimately akin to pharaonic Egyptian and the well-known Semitic languages or Twareg in the Sahara etc. Doing so, I wish to continue the noble tradition initiated by J.H. Greenberg (1958), the founding father of modern Afro-Asiatic comparative linguistics (along with I.M. Diakonoff), who was the first scholar ever to have established by Neo--Grammarian the methods regular consonantal correspondences between Angas-Sura (AS) and ancient Egyptian in his pioneering (painfully isolated) paper on the ancient trichotomy of the word-initial labials in both branches. Nowadays our chances in following this path are substantially more favourable being equipped with our gigantic comparative root catalogue system of the Egyptian etymologies ever published (ongoing since 1994) and of the Afro-Asiatic parental lexical stock (ongoing since 1999). This series of papers represents the author's ongoing project for an etymological dictionary of the Angas-Sura languages comprising their entire Afro-Asiatic cognacy.[1]

Keywords: comparative-historical linguistics, Afro-Asiatic, Chadic languages, African linguistics, ancient Egyptian, Semitic studies, phonological reconstruction, consonantism, etymology

Introduction

The languages of the Angas-Sura (AS) group are spoken between the South-Eastern Plateau and the Benue river, Plateau State of Nigeria, by about 200.000 people in the estimation of H. Jungraithmayr (1981: 407). The Angas-Sura language group belongs to the West Chadic

[1] At this point, I specially express my cordial thanks to Prof. Krzysztof Tomasz Witczak (Department of Classical Philology, University of Łódz) for encouraging and supporting me to successfully apply for the ARR grant of his home university, in the frames of which this old project of mine (since 1998) is recently being carried out.

subbranch (cf. e.g. Jng. 1981: 407-408; Stolbova 1987: 31; JI 1994 II viii) of the Chadic branch, which, in turn, represents part of the great Afro-Asiatic (Semito-Hamitic) language family (or phylum), which is divided into six equipotential cognate branches: Semitic, Egyptian, Berber, Cushitic, Omotic, Chadic.

The best inner classification of the Angas-Sura group was suggested by C. Hoffmann (1971; 1975 MS: 2), who assumed Gerka to have been the first member split off from the group. The remaining group falls into three subgroups: (1) **Northern**: Angas, (2) **North--Eastern**: Sura (Mwaghavul), Mupun, Chakfem-Mushere Chip, Jorto, Kofyar, (3) **Southern**: Kanam (Koenoem), Pyapun(g), Tal, Montol, Goemai (Ankwe). On the basis of my own research on comparative AS phonology, I (Takacs 2004: xxi-xxxix; 2005: 47-52, §IV) stated that the phonological isoglosses confirm the correctness of Hoffmann's inner classification. Henceforth, I use the following (slightly modified) inner grouping: (1) **Gerka**, (2) **Angas**, (3) **Suroid** languages (falling further on in two clusters: 3.1. Sura-Mupun vs. 3.2. Kofyar--Mushere-Chip according to the isoglosses of the complex AS *g̣^{y}-), (4) **Goemaioid** languages (Kanam/Koenoem, Pyapun/Pyapung, Tal, Montol, Goemai). Most recently, on the basis of his own field research on several (hitherto unrecorded) AS languages starting from 2012, R.M. Blench[2] put forward an extended vision of an as full set of daughter languages as possible in a sketchy model, without anyhow demonstrating their peculiarities and the underlying lexicostatistical scores, along the following clusters: **(1)** Yiwom, Goemai, "Talic" (Pyapung, Tal, Koeneem), **(2)** Miship, **(3)** "Pan cluster": Jakato, Jibyal, Nteng, Bwol, Jipal, Kwalla, Doemak, Mernyang, **(4)** Mwaghavul, Mupun, Takas, **(5)** Mushere, Chakfem (?), **(6)** Ngas, Bəlnəng. Many of these alleged languages are so far either unrecorded or their sporadic wordlists are insufficient. Since the British field researcher, working mostly with "one-shoot" sessions,[3] has so far failed in elaborating a new comprehensive comparative phonology and lexicon first according to the standards of scholarship and has apparently missed to present the linguistic evidence or even the argumented outlines of his new vision are hidden to us, it is perhaps wiser to stick to the already firmly established frames of the 2004 grouping for the time being.

The phonological and lexical reconstruction of the Angas-Sura group had only been partly elaborated in minor segments[4] before the first comparative lexicon of the Angas-Sura

[2] Cf. Blench & Bulkaam 2019a Bln., 3, Figure 1; 2019b Jkt., 3, Figure 1; 2019c Jbl., 3, Figure 1; 2019d Nteng, 4, Figure 1: "The Central West Chadic languages".

[3] E.g.., Blench & Bulkaam 2019a Bln., 1: "The wordlist was collected as a 'one-shot' exercise and the transcription must therefore be regarded as preliminary."; Blench & Bulkaam 2019d Nteng, 1: "The village of Nteng was visited by the first author and Raymond Dawum on the 9th of December, 2017, and a basic 500 word list was elicited."

[4] Thus, J.H. Greenberg (1958) surveyed the Angas-Sura roots beginning with labials pointing out the original labial triad *b - *p - *f inherited from Afro-Asiatic. O.V. Stolbova devoted two studies to the subject, using basically the Angas (Foulkes 1915, Ormsby 1913-4) and Sura (Jungraithmayr 1963) lexicons for the comparison adducing some additional data from Chip, Montol, Gerka (collected and published by Jungraithmayr 1965). In 1972, she proposed a historical-comparative survey of the Proto-Angas-Sura consonant system in the light of some illustrative lexical material (2-3 exx. for each correspondence). In her 1977 paper, O.V. Stolbova presented 256 lexical roots and Proto-Angas-Sura reconstructions accompanied by a brief sketch of vowel correspondences. C. Hoffmann (1975 MS) offered a phonological (both consonantal and vowel) reconstruction of the Proto-Angas-

group has been completed (Takács 2004)[5]. Now, on the basis of this synthesis (by far not yet complete, of course as most recently further AS languages have emerged from the obscurity of their unrecorded status), it has become fundamentally plausible to systematically deal with the external cognates of the Angas-Sura lexical stock also both inside its gigantic Chadic kindred and in the remote branches of the Afro-Asiatic macrofamily. The series "Angas-Sura etymologies"[6] is contributing to outlining the so far unknown background of Angas-Sura lexical stock primarily with new lexical parallels. In this issue of my series, the new external correspondences of some of the Angas-Sura (AS) roots with initial *z- are discussed, collected mostly during the most recent of my research on the Afro-Asiatic root stock with initial dentals in my Afro-Asiatic root library (Ederics).

Some peculiar elements of the Afro-Asiatic background of the Angas-Sura historical consonantism

● A general devoicing of the voiced PAA stops in the Auslaut of the AS stems is a recent development. There are but a handful of records of older final *-b#, *-d#, and hardly any for *-g# (cf. Takács 2004: xxv-xxvi, xxxi, resp.). Sometimes the devoicing of plosives may be observed even in other positions too under conditions that cannot be precisely known as yet.

-Goemai level (on the basis of Goemai, Mernyang, Sura, and Angas) through 248 lexical roots. The West Chadic historical phonology by Stolbova (1987: 240-244) also contains a separate list of some 64 Proto-Angas roots.

[5] I express my best thanks for the constant and many-sided unselfish support yielded for my work by the great Chadicist, Prof. Herrmann Jungraithmayr (Institut für Afrikanische Sprachwissenschaften, J.W.Goethe--Universität, Frankfurt a/M). I am greatly indebted also to the Alexander von Humboldt-Stiftung (Bonn) for faciliating my research stay at Frankfurt a/M (1999-2000, 2002) as well as for funding the publication costs of the Angas-Sura comparative lexicon together with the OTKA (Hungarian National Scientific Research Fund, project nr. D 45976). I express my deep gratitude to the City Hall of Székesfehérvár (Hungary) for its "Lánczos-Szekfű" prize granted almost twenty years ago for an early phase of my research on the Afro-Asiatic background of the Angas-Sura lexicon, which I eventually began back in Sept. 1998 during my research at the Haifa University (funded by the OSI at Prague, which is gratefully acknowledged also in this place) with the guidance of the late Prof. A. B. Dolgopolsky (1930-2012), may his memory be blessed, one of the greatest Afro-Asiatic or Semito--Hamitic comparativists of all times.

[6] The first part (AS roots with initial *b-) appeared in *Lingua Posnaniensis* 46 (2004), 131-144. The second one (AS *ḅ-) in *Rocznik Orientalistyczny* (Warsaw) 57/1 (2004), 55-68. The third issue (AS *p-) in *Lingua Posnaniensis* 48 (2006), 121-138. The fourth part (AS *f-) has been published in *Folia Orientalia* 47/2 (2011), 273-289. The fifth part (AS *m- in monoconsonantal roots) in the *Cahiers Caribéens d'Egyptologie* (Schoelcher, Martinique) 13-14 (2010), 137-142. The sixth part (rest of AS *m-) was originally scheduled for *Rocznik Orientalistyczny* 74/1 (2021), but this paper has so far not been completed and submitted, which I had earlier unfortunately overlooked, so the word on its appearence in that RO issue was misrecorded by my mistake in this footnote of my previous communications on AS, for which I must apologize here. I plan to fill up this gap later. The seventh one (AS *d-) was published in *Lingua Posnaniensis* 62/3 (2020), 95-120. The eighth part (AS *ḍ-) in *Folia Orientalia* 57 (2020), 321-354. The ninth part (AS *t-) in *Lingua Posnaniensis* 63/1 (2021), 53-72. The tenth part (AS *z- + Ø, labials, dentals, velars) in *Lingua Posnaniensis* 64/1 (2022), 73-96. The eleventh part (AS *z- + nasals) in *Lingua Posnaniensis* 64/2 (2022), 49-76. The twelfth part (AS *z- + liquids) in *Lingua Posnaniensis* 63/2 (2021), 56-75.

● Labials basically reflect the original AA triad of *b, *p, *f as demonstrated by J.H. Greenberg (1958) and manifold corroborated by V.M. Illič-Svityč (1966: 9, 14-15), O. V. Stolbova (e.g., 1996: 15, §I.1.), and G. Takács (2001: 55; 2011: 148-152 etc.).
● AS *-VγV- < either an AA root medial "laryngeal" or a velar or a semi-vowel, i.e., where the -C_2- of AA *√$C_1C_2C_3$ was either *-h/ʔ/ḥ/ʕ- or *-g/k/γ/ḫ- or *-w/y-, but sometimes it is just epenthetic without a consonantal precedent (cf. Dolgopolsky 1982: 32-36).
● Original AA pharyngeals (*ʕ, *ḥ) and laryngeals (*ʔ, *h) were mostly preserved in the Inlaut as AS *-γ- (above). In the Anlaut, normally, AA *ʕ- and *ʔ- > AS zero, while AA *ḥ- and *h- > either AS *h- or zero. In the Auslaut, they mostly disappeared, but sometimes they developed in the contrary way, i.e., AA *ḥ- and *h- may have resulted in AS *-k#.
● Final AS *-ŋ – beside being a natural result of an older nasal (*m, *n) + velar, of course – otherwise usually derives from the contraction of an AA medial nasal (*-m- or *-n-) + lost AA pharyngeal (*ʕ, *ḥ) or laryngeal (*ʔ, *h), cf. already Illič-Svityč 1966: 33, fn. 11.

AS *z- + liquids (continued)

● **417. AS *zēl (> *zel ~** var. ***zol**?) "saliva" [GT]: Bəlnəng nzeel [ⁿzɛ̄ːl] "saliva" [Blench & Bulkaam 2019a Bln., 10], Mupun zēel "saliva" [Frj. 1991: 69], Kofyar zel ~ zéèl "saliva", cf. ók zéèl "to spit" (ók "1. to spit, 2. blow out") [Netting 1967: 31, 46], Mushere nzol (sic: -o-) "1. mucus, 2. sticky slimy substance produced by mucous membrane, 3. to draw saliva like okro soup (sic!)" [Diyakal 1997 MS: 173], Jakato zeel [zɛ̄ːl] "1. saliva; 2. spittle" [Blench & Bulkaam 2019b Jkt., 11], Chip zɛl (sic: short -e-) "saliva" [Kraft], Jibyal zeel [zɛ̄ːl] "1. saliva; 2. spittle" [Blench & Bulkaam 2019c Jbl., 9], Goemay zèl (sic: short -e-) "saliva flowing from the mouth when one is asleep" [Sirlinger 1937: 284] (AS: Takacs 2004: 422). The AS stem appears perfectly isolated in Chadic.[7] Its cognacy (???) with CCh.: Gisiga tazlay (unless [taẑay]?)[8] "saliva" [Gerstmann 1979 quoted in JI 1994 II 279] is highly doubtful. The closest AA cognate appears in an isogloss derivable from a NAA *√ḥʒl "1. milk, 2. mucus", primarily perhaps *„secretion" (?)[9] [GT], cf. OEg. traces of *ḥz3 [regular < *ḥzl] attested in this semantic domain[10] > MEg. ḥz3 "1. Schleim (des menschlichen und tierischen

[7] H. Jungraithmayr (either in JS 1981: 216 or in JI 1994 II 278-279) did not list such a root and its reflexes. O.V. Stolbova (CLD III 124-127) too missed any mention of this root.

[8] This word (and no other whatsoever) for "Speichel" was not listed in the Gisiga lexicon by J. Lukas (1970), which, however, appears to have a few cases of nouns with tV- prefix in Gisiga, cf. taps ~ tapas "1. Sonnenhitze, 2. Tageslicht", teŝ (tetl) "Knochen", teŝ (tetl) "Ei", təlar "Termite(nhügel?)", tipirek "Morgen". Neither H. Jungraithmayr (JI 1994 II 278-279) has any acceptable Chadic cognate, albeit he ranked this very form "B" just like the forms displaying a root √ŝḅ in the Mafa-Mada group where I fail to see the phonological match.

[9] Eventually related to PAA *√ḥʒl "to secrete" [GT]? Cf. Sem.: MSA *√ḥzl: Jibbali ḥɔ́zɔ́l "to separate from one's parents and take one's share of the family property", ḥézél "isolation" [Johnstone 1981: 122], Mehri ḥəzūl "to put aside, seclude, isolate (as e.g., a leper, a mangy camel)" [Johnstone 1987: 198]. For the semantic shift cf. IE *meuk- (var. *meug-): Latin mūcus "Schleim", Greek μύξα "1. Schleim, 2. Nase" vs. OIndic muñc-áti ~ muc-áti "befreit, läßt los", Avestan fra-muxti- "Losbinden" (IEW 744) or Hung. váladék "secretion" < válni "to get separated".

[10] Cf. OEg. ḥz (perhaps *ḥz3 with usual defectiveness of -3) "Teig (zum Brotbacken)" and ḥz3.w (pond detetrminative) "ein Gewässer (am Himmel)" (ÄWb I 886). Ch. Ehret (1995: 388, #798) miscompared this root

Körpers) (Med., NK Mag.), 2. Teig o.ä. (OK-): 2.1. eigtl. vom Teig beim Brotbacken, 2.2. in offizineller Verwendung, u.a. ḥz3 n ʿw3.jt gegorener Teig" (Wb III 160, 6-7) = "1. milk (CT I 168), 2. mucus (pap. Kahun, pap. Ebers), 3. dough" (MK, Med., FD 177) = "1. Pflanzenschleim, 2. Schleim (von Tieren)" (GHWb 560) = "milk, flood (?)" (CT, DCT 355-356)[11] > LEg. ḥz3 "1. bread dough, 2. efflux, 3. mucus" (PL 675) ||| Sem.: probably MSA *√ḥzl: Jibbali ḥɔ́zɔ́l "to separate from one's parents and take one's share of the family property", ḥézél "isolation" [Johnstone 1981: 122] = ḥɔ́zɔ́l "s'établir par ses propres moyens, ayant pris sa part du bien familial" [DRS], Mehri ḥəzūl "to put aside, seclude, isolate (as e.g., a leper, a mangy camel)" [Johnstone 1987: 198] = "mettre à part, à l'écart (du monde), isolater, mettre en quarantaine" [DRS] (MSA: DRS 855, ḤZL2). For AS-Eg.-MSA see Takács 2001: 79; 2011: 155.

A whole set of homorganic root varieties (several items with a root extension *ḥ)[12] appears in such a disturbing abundance within the semantic domain of diverse bodily secreta that one must doubt in an eventual cognacy of all of them (at any rate, our root above is certainly related to the roots described under entries no. 417.1, 417.3, 417.6) and so they must be carefully distinguished for further research as follows:

417.1. NAA *√ǯlḥ "milk" [GT] > SBrb.: EWlmd. a-zla, pl. a-zla-t-ăn & Ayr a-zla, pl. ə-zla-t-ăn "premier lait après le colostrum (tout blanc, avec peu de crème, dure env. une semaine après la délivrance; chez la femme et l'animal; le premier lait ne se boit que il ne se met jamais dans la bouillie)" [PAM 2003: 886] ||| Sem. *√dlḥ: Class. Ar. dullāḥ- "lac aqua mixtum" [Freytag 1837: 205a, not listed in Lane and BK] = dullāḥ- "lait mêlé d'eau" [GD 954] = dullaḥ- [DRS] of disputed verbal derivation (namely, Ar. dalaḥa (Lisan) and dalaḥa (Qamus) "mélanger le lait avec l'eau" [Rabin] = "to mix milk with water" [Leslau]),[13] cf. also varieties like daraḥ- "délayé d'eau (lait)" [DRS 341] vs. mu-dallaq- "lait délayé de

with Sem.: Ar. hazhāz- "flowing abundantly", Eg. ḥz.t "water-jar", PCu. *hăz- "flow of water", C/ECh. *-ḍk "saliva" < AA *-hăz- "flow (n.)".

[11] The sense "milk" was presumably the theonym ḥz3.t "a cow-goddess" (Urk. IV 238:14, FD 177) was derived from.

[12] Presumably identical to the CAA indicator of the nominal class of body parts (cf. Takács 1997).

[13] Le Comte de Landberg (GD 1031-1032) rendered this word ambiguously: "Ce thème ne se trouve que dans le *Qâmoûs* ... C'est probablement une prononciation pour" daraḥ- "délayé d'eau (lait)" [DRS 341] (only attested in the *Qāmūs*) derived from a verbal root he regarded as "un élargissement de" biliteral *√dr- whose "sens est proprement répandre, saupoudrer." Eventually, he affiliated dullāḥ- with mu-darraq- "délayé dans d'eau (lait)" [DRS 342] which "est aussi une épithète du lait baptisé d'eau. Les deux finales ح *et* ق peuvent donc provenir de l'endurcissement de la troisième de مذرّى, sans qu'il y ait besoin d'y voir une troisième lettre empruntée à une autre racine" where he joined "aussi le synonyme" mu-dallaq- "lait délayé de beaucoup d'eau" [BK I 780]: "ce n'est là qu'une permutation des sonores, et ne me paraît avoir rien à faire à ذلق …" He must certainly be right in relating dullāḥ-, daraḥ-, mu-darraq-, mu-dallaq- as stemming from some common source irrespective of the phonological alternations. Set in the context of a supposed match of Hbr. d- and Ar. d-, Ch. Rabin (1970: 292, #11) attached Ar. dalaḥa (Lisan) and dalaḥa (Qamus) "mélanger le lait avec l'eau" [Rabin] = "to mix milk with water" [Leslau], even if with reservations ("on peut se douter s'il y a une connection avec ..."), to the reflexes of Sem. *√zlḥ "1. to pour out" [GT] (on which cf. fn. 93 in this paper) as well as to those of Sem. *√dlḥ [Ward 1962: 397-398, #1] = *√dlḫ "to trouble water" [GT pace DRS 263-264] (on which as part of a large family of homorganic root cf. Takács 2021: 377, #538 and 2022: 187, #592.6). Such a hypothetic interrelationship of these three distinct Sem. roots would require to be more thoroughly demonstrated.

beaucoup d'eau" [BK 780] vs. mu-darraq- "délayé dans d'eau (lait)" [DRS 342], probably related to Dathina dalaḥ "1. jeter, verser, (de là:) 2. vanner, 3. (fig.) déballer, déverser", daliḥ "se jeter, se verser, se couler" [GD 953] (Ar.: GD 953-954 and 1031-1032 adopted in DRS 333: isolated in Sem.).

417.2. NAA *√ḍlk "scum (???)" [GT]: Eg.: unattested *d3k[14] < *√ḍlk yielding Dem. d3h (sic: -h for ḥ) "Schaum" vs. d3k "Speichel" (DG 673:1-2, resp.) = d3k "spittle" vs. d3ḥ "foam" (CED 323) = d3k ~ d3ḥ "Schaum, Speichel" (KHW 440) > Coptic (S) ⲁⲓϩ (m) "spittle" (CD 796b) = "Speichel, Geifer" (KHW 440) ||| Sem.: Ar. ṣilak- "matière liquide qui sort des pis des brebis avant le colostrum", ṣallaka II "serrer le pis d'une chamelle avec une ficelle, pour empêcher son petit de la têter" [BK I 1364].

417.3. PAA *√sl(ḥ), presumably ***sil(ḥ)-** "(to produce) (sour?) milk (?)" [GT], attested in CCh.: (???) Lame sēlé "sève épaisse sécrétées par un arbre, sp." [Sachnine 1982: 423] ||| ECu. *sill-V "first milk of cow" [GT]: LECu.: Arbore sill-a "first milk of cow" [Ehret 1987: 59, #228][15] | HECu.: Burji silli and Gedeo (Darasa) silla "first milk" [Hudson 1989: 99] ||| SBrb. *√sly (with *-y < *-ḥ)[16] "to curdle (of milk)" [GT]: Ahaggar e-sli "1. être caillé, être mêlé de caillots (le sujet étant du lait), se cailler, 2. (p.ext.) être épais (être consistant, peu liquide) (le sujet étant du miel)" [Foucauld 1951-2: 1827], EWlmd. & Ayr ə-sləy "1. être caillé, se cailler (lait), 2. (Ayr) fig.: être amer (par de, propos), 3. (Ayr) ne pas se maquiller (nouvelle veuve, en signe de deuil)", Ayr ə-ssəlay "1. lait caillé (lait laissé jusqu'à ce qu'il soit caillé), 2. babeurre (lait dont on a extrait le beurre)" [PAM 2003: 721] ||| Sem.: Ar. ʔislīḥ- "1. espèce de plante dont l'usage fait donner aux chamelles beaucoup de lait, 2. écume, 3. lait sans écume" [BK I 1120] = ʔislīḥ- "a certain plant, the pasturing upon which cause the milk of the camels to become abundant or a certain kind of tree or shrub that has this effect or a certain herb or leguminous plant, of those that are slender and soft, growing in the winter, that causes the camels to void sulāḥ- (or thin excrement) when they eat much of it or a certain herb, resembling the rochet, growing upon tracts of sand such as are termed ḥuqqūf- or a certain kind of plant, growing conspicuously in plain or soft tracts having a thin and delicate leaf and a pericarp stuffed with grains or seeds like those of the poppy, which is one of the plants of the rain of the spring and which causes the cattle to void sulāḥ-" [Lane 1402].

[14] This assumption on an ancient Egyptian etymon is in disagreement with the so far current theory on the etymology of our Demotic-Coptic word that J. Osing (NBÄ 194 and 723-724, n. 851) explained from a hypothetic LEg. *tí̯ḫ˘(j/y) "Schaum, Geifer, Speichel" he identified with a certain LEg. tḫ (syllabic writing: t3ḫj) "eine unbestimmte Substanz (neben Wachs und Material zur Herstellung von Farben)" (Macadam 1949 I, inscription VI 13) which he eventually derived from an unattested LEg. verbal root *tḫ > Coptic (S) ⲧⲱϩ "schmieren, tünchen". The Late Egyptian root, in turn, was affiliated (in NBÄ 723-724, n. 851) with Hbr. √ṭwḥ "tünchen" as a NWSem. loanword by assuming a secondary evolution of -k < -ḫ. In addition, ignoring the LEg. data, W. Westendorf (KHW 440) sought a direct connection to Coptic (S) ⲧⲱϩ "beschmieren", which certainly displays a distinct root.

[15] LECu.: Arbore sill-a "first milk of cow" was equated by Ch. Ehret (1987: 59, #228) with Bed. sil "spittle" [Ehret] < PCu. *sil- "to trickle" [Ehret] = to emit some phlegm" [GT], which was then combined by Ch. Ehret (1995: 159, #218) with his Sem. *√sly "placenta, afterbirth" and even Eg. snḥ.t "phlegm" (in fact, just an s- caus. of nḥ) < AA *-sil- "to run out (of fluid)".

[16] Where the Berber shift of *-y < NAA *-ḥ is regular as pointed out by W. Vycichl (1992).

417.4. PAA *√sl “(fluid?) excreta” [GT] > CCh.: Mbara sàlày (m) “excrément” [TSL 1986: 276] ||| ECu. *sāl- “Kuhfladen” [Sasse 1976: 126] = *sāl- “cow dung” [Sasse 1979: 32; 1982: 164]: LECu. *sāl- [Black]: Somali sā́l-o “dung of small size” [Black, so also Dlg.] = sāl-o “dung” [Ehret], Oromo fāl-ti [Sasse: f regular < *s], Konso sā́l-l-ā “fresh cattle dung”, sāl- “to cover with dung” [Black: -l-l- < *-l-t-] = sāl- “mit Kuhmist bestreichen” [Sasse] (LECu.: Black 1974: 100) | HECu. *sall-o “dung of cow” [Leslau 1988: 199 with further data; Hudson 1989: 54, 420][17] | Gollango sāl- “mit Dung bestreichen (z.B. Hauswand)”, sāl-té “Exkremente des Rindes” [AMS 1980: 220, 240] || SCu. *sālo+ “dung of large animals” [Ehret] = *sā́lo [Dlg.]: Ma'a ki-sálo “1. mud, 2. dung of large animals” [Ehret 1980: 326, #59] (Somali-Ma’a: Ehret l.c.; Cu.: Blažek 1994 MS Bed., 32) ||| (?) Eg. sr [< *sl?] “Schmutz” (GR, Wb IV 191, 14) ||| Sem.: Ar. √slḥ (root extension *ḥ) > I salaḥa “he voided his excrement or ordure or thin excrement, said of a bird: it muted or dunged”, salḥ- and sulāḥ- “excrement, ordure or dung or such as is thin, of any dung, thin excrement”, sulāḥ- also “a looseness or flax of thin excrement from the bowels: diarrhoea”, salaḥ- “rain water in pools left by torrents” [Lane 1402] = I salaḥa “1. rendre les excréments, faire caca (se dit de l’homme)”, salḥ- “eau de pluie ramassée dans un réservoir et stagnante”, sulāḥ- “caca, excréments (humains) *surtout* liquids” [BK I 1120] = salḥ- “excréments”, salāḥ-at- “(désigne une roche sur laqelle urinent les boucs sauvages quand ils sont en rut et qui alors devient noire comme de la poix)” [Dozy I 671-672]. For Cu.-Eg.: Dlg. 1987: 200, #38.[18] Mbara-Ar.: CLD III 78, #237 (with further vague Ch. comparanda).[19]

417.5. PAA *√ʦ̌l “to excrete” [GT] > HECu. *ʦ̌il- “to defecate” > *ʦ̌il-o “excrement” [Hudson][20] = PCu. (sic, in fact, just ECu.) *ʦAl- “кал, навоз” [Dlg.][21] = “feces” [Skinner]:[22] Sidamo ʦ̌ilō [Cerulli][23] = ʦ̌ilo “excrement” [Moreno apud Dlg., so also Gasparini and Yri apud Hudson], Gedeo ʦ̌ilo “excrement” [Hudson], Hadiya ʦ̌íro [PB apud Dlg.] = ʦ̌iro “excrement” [Hudson],[24] Kambatta ʦ̌inu “excrement” [Hudson], Burji ʦ̌ila [Sasse] = ʦ̌īla

[17] For the phonologically vague Burji reflex see the the suggestion by H.-J. Sasse (1982: 164) from HECu. *sāl- “cow dung”.

[18] The SCu.-LECu.-Eg. match was equated by A.B. Dolgopolsky (l.c.) directly with Sem. *ṯall- “mud, dirt” with a question-mark, although the Southern Cushitic evidence (where the distinction of Cu./AA *s vs. *č has been retained, cf. Takács 2001: 83-85; 2011: 124-125) clearly speaks for *s- here.

[19] Compared O.V. Stolbova (CLD l.c.) to other supposed reflexes of her PCh. *sVl- “1. (to render) excrements, 2. stink” [Stolbova] > ECh.: Mawa saalaŋ “puer, sentir” [Jng.] | Jegu šilw- “Notdurf verrichten (to render excrements)” [Jng.] and also with PCh. *swVl- “to fall” (derivative?) [Stolbova] > WCh.: Mushere es-šwul “dysentery” (es “faeces”) [Diyakal quoted by Takács 2004: 328] || ECh.: WDangla sôllè “to fall (several obj.)” [Fédry].

[20] Combined by Ch. Ehret (2000 MS: 222, #2048) directly with Eg. sr “dirt” in spite of the irregular Eg. s- vs. HECu. *ʦ̌-.

[21] Based by A.B. Dolgopolsky (l.c.) solely on the ill-founded comparison of the HECu. data with Somali reflex of ECu. *sāl- “cow dung”, which represent tow distinct ECu. roots.

[22] Affiliated by N. Skinner (1992: 356) with ECu. *sāl- “feces”, Ar. usar- (sic) “retention of urine”, Ch. reflexes of *čUr- “urine” [GT].

[23] Even in spite of being puzzled about its ʦ̌- (as “неясно”) miscompared by V.M. Illič-Svityč (1971: #50) with NOm.: Wolamo šiyā, Badditu šišē baselessly derived from *čir/l-t- as reflexes of his Nostratic *čiru “гной, жижа”.

[24] The Hadiya reflex (with its secondary -r- < *-l-) was miscompared in the HSED #486 with Eg. sr, Mokilko siiri, Burji sera, which, as we can see below, display a distinct root.

“excrement” [Hudson] (HECu.: Dlg. 1973: 192; Hudson 1989: 48, 59) ||| **NAA *√ç̣(ḥ)l ~ *√ç̣l(ḥ)** “to urinate” [GT] > SBrb.: EWlmd.-Ayr ă-z̧lu, Ayr ə-z̧lu “uriner debout”, EWlmd.--Ayr a-z̧ăla, pl. i-z̧ăla-t-ăn “jet d’urine (des animaux, p.ex., du chien)” [PAM 2003: 916] ||| Sem.: MSA: Harsusi ḏeḥāl, Jibbali ḏaḥal, Mehri ḏəḥal “uriner (homme)” (MSA: Johnstone 1977: 30; 1981: 48; 1987: 83; DRS 1127-1128: isolated in Sem.).

417.6. SAA *√čl, perhaps ***čil-** “saliva”, perhaps < **SAA **√čl** “to secrete (esp. phlegm, either milk or mucus?)” [GT], cf. WCh.: Dera yilek < *sile-k (?) [y regular < *s] “saliva” [Newman 1970: 48, fn. 27: “the final *k* is a non-productive ‘body part’ suffix”] ‖ CCh.: Buduma číluluu (-ū) “Speichel” (cf. Kanuri tḛ́lelè) [Nachtigal apud Lukas 1939: 95] = čìlúlú “saliva” [Cyffer] (isolated in Ch.: JI 1994 II 279) ||| Bed. sil “Speichel, Geifer” [Reinisch 1895: 198] = sīl “saliva” [Roper 1928: 232] = sil “spittle” [Ehret 1987: 59, #228].[25] The primary verbal root, sg. like PAA *√čl,[26] may have been retained by ECh. *čVl- “to separate” [GT]: WDangla tyólè “2. ‘désunir, disperser’” [Fédry 1971: 232], EDangla tyòlìyē “décoller, dépecer, enlever la peau” [Dbr.-Mnt. 1973: 321] | Masmaje čelli “éplucher” [Alio 2004: 281, #38] ||| (?) Eg. srj (if -r- < *-l-) “(Köpfe) abtrennen” (PT: in an old ritual, Wb IV 192, 10) and/or snj (if -n- < *-l-) “jem. vom (mᵉ) Bösen erlösen” (PT, Wb IV 156, 5).

417.7. PAA *√čl “to excrete” [GT] > PCh. *√člw “to defecate” [GT] > CCh.: Buduma (Yedina) nǯélaau “faeces” [Nachtigal apud JI] via secondary voicing effect of n- < *nčelaw [GT] ‖ ECh.: Jegu šilw- (šilwa, šilaw)[27] “Notdurf verrichten” [Jng. 1961: 117][28] (Ch.: JI 1994 II 129: isolated in Ch.) ||| Sem.: Ar. biradical *√t̲l “to excrete” [GT] > √t̲ll I “8. rendre, jeter des excréments (se dit des bêtes à sabot non fendu)”,[29] √t̲lḥ > I t̲alaḥa “1. rendre des excréments liquides (se dit de l’espèce bovine au printemps)”, t̲alaḥa “être sali d’ordures”, t̲alada “1. rendre des excréments liquides (se dit de l’eléphant)”, √t̲lṭ > I t̲alaṭa “1. rendre des excréments liquides (se dit de l’espèce

[25] Equated by Ch. Ehret (1987: 59, #228) with LECu.: Arbore sill-a “first milk of cow” < PCu. *sil- “to trickle” [Ehret] = to emit some phlegm” [GT], which was then combined by Ch. Ehret (1995: 159, #218) with his Sem. *√sly “placenta, afterbirth” and even Eg. snḫ.t “phlegm” (in fact, just an s- caus. of nḫ) < AA *-sil- “to run out (of fluid)”.

[26] For the semantic shift cf. IE *meuk- (var. *meug-): Lat. mūcus “Schleim”, Greek μύξα “1. Schleim, 2. Nase” vs. OIndic muñc-áti ~ muc-áti “befreit, läßt los”, Avestan fra-muxti- “Losbinden” (IEW 744) or Hungarian váladék “secretion” < válni “to get separated”.

[27] Jegu šE- may, of course be positionally palatalized < *sE- in most of the instances, but, in some cases, it seems to reflect ancient Ch./AA *č- too, cf. Jegu šee “zwei” [Jng.] < PCh./AA *√čr “2” [GT] (discussed by G. Takács 2011: 183), which seems to be corroborated by the revealing circumstance that Buduma has a pre-nasalized palatal affricate nǯ- that is supposed to have been voiced from *č- due to its direct contanct in the cluster with n- (just as in ancient Eg.).

[28] The Jegu word was compared by O.V. Stolbova (CLD l.c.) to other supposed reflexes of her PCh. *sVl- “1. (to render) excrements, 2. stink” [Stolbova] > ECh.: Mawa saalaŋ “puer, sentir” [Jng.] ‖ CCh.: Mbara sàlày (m) “excrément” [TSL 1986: 276] and Ar. √slḥ “rendre les excréments” [BK I 1120], for which see entry no. 417.4 above.

[29] Cf. Ar. t̲all-at- “mud that is taken out from the bottom of a well” derived by A.B. Dolgopolsky (l.c.) from his Sem. *t̲all- “mud, dirt” [Dlg.] in comparison with Syr. talil “pollutus, contaminatus”, tallel “polluit” contaminated in his view with Syr- talil “humidus”, tallel “humefecit” < Sem. *√tll “to flow”.

bovine, du chameau, des enfants), 2. jeter sur qqn. des excréments liquides, en salir qqn.", t̲alṭ- "excréments liquides" [BK I 231, 234, resp.], Dathina √nt̲l "fienter (cheval)" [GD 2743].

A root variety with *-r as C_2 and with the same vacillation of a voiced vs. voiceless PAA *Anlaut* (*ʒ- vs. *c-) is also known.

417.8. NAA *√ʒr "some phlegm" [GT] > SBrb.: Ahaggar tə-hîr-ət, pl. ti-hîr-t-în [GT: h regular < *z] "mucosité de l'oeil" [Prasse 1969: 66, #366: < *√?rh$_1$?][30] ||| Sem.: MSA *√zrr > Mehri zərwōr, Jibbali zoror, Harsusi zeror "bave, salive, crachat" (MSA: DRS 805: isolated in Sem.). Cf. NBrb.: Qabyle √zr > e-zzer "1. couler, 2. aller au fond", me-zzer "1. dépôt, 2. fond d'un liquide", u-zzur "être répandu, éparpillé", a-zuzzer "sorte de soupe de semouler" [Dallet 1982: 952-953].

417.9. PAA *√cr "to excrete" [GT] > Sem.: Ar. (root ext. *-ḥ) saraḥa I "3. rendre les excréments, 4. jaillir avec violence (se dit de l'urine)", VII "3. couler librement et s'introduire en coulant (se dit, p.ex., de l'eau)" [BK I 1078-1079] ||| Eg. sr "Schmutz" (GR, Wb IV 191, 14) ||| SBrb.: Wlmd. tə-ziri (n-tə-dis-t) [Brb. *z < *c?] "dysenterie" [A. Basset apud Prasse] ||| Bed. sār (m) "contents of stomach of slaughtered animals" [Roper 1928] || HECu.: Burji sīr- "to have diarrhoea", sirr-a "diarrhoea"[31] vs. ser-a and sarr-a (unless < *sāl-)[32] "excrements of horned cattle" [Sasse 1982: 164-165] = sarr-a, ser-a "dung of cattle" [Hudson 1989: 54] (Cu.: Blažek 1994 MS Bed., 32; 2020: 89) ||| CCh.: Makeri sero "dirt" [Allison 2005 quoted in CLD] || ECh.: Mokilko sìirí "excrement" [Jng. 1990: 174]. For Eg.-Burji-Mokilko: HSED #486 and Eg.-Ch. in CLD III 99-100, #333.[33]

417.10. SBrb. *√srr [PAM]:[34] Ayr i-ṣrar (≈ EWlmd. i-ḳfay) "être frais (lait)", a-ṣrir (m) "sorte de gomme (d'un arbre du Niger méridional; sert de remède contre il rhume des enfants)" [PAM 2003: 737] may display an *r variety to the match of CCh.: Lame sēlé "sève épaisse sécrétées par un arbre, sp." [Sachnine 1982: 423] ||| ECu. *sill-V "first milk of cow" [GT] discussed above (entry no. 417.3).

[30] Puzzled about the etymology of the Ahaggar, K.-G. Prasse (l.c.) wondered if it is "peut-être id(entique). à" Wlmd. tə-ziri (n-tə-dis-t) "dysenterie" [A. Basset], which points towards a relationship with the root family of Eth.-Sem. *√zry: Tna. zaräyä "couler doucement (eau)", zara "eau qui coule doucement, ruisseau", Tigre zara, Argobba, Harari zär "rivière", (?) Gafat zärä^{y}ä "rosée" (ES: DRS 796, ZRY6) vs. Eth.-Sem. *√zrr: Amharic tä-žarrärä "être dilué, mélangé à l'eau", žärärr alä "sortir avec force (liquide)", Tigrinya zärär bälä "couler, ruisseler, dégouliner", Gurage žära amännä "mélanger un peu de lait avec beaucoup d'eau (faire žära)" (ES: DRS 805, ZRR11) ||| Ch. *(n)-zVr- "to drip" [CLD III 140, #535].

[31] Derived by Ch. Ehret (2000 MS: 116-117, #1551) from his AA *-sū/īr- "to leak out".

[32] Derived by H.-J. Sasse (1982: 164) from HECu. *sāl- "cow dung". Semantically fully legitimate, albeit phonologically obscure.

[33] Most recently, O.V. Stolbova (CLD l.c.) left out Burji from her Eg.-Makeri-Mokilko comparison, which she extended onto some further semantically vague Chadic *comparanda* explained from her PCh. *sVr- "dirt, excrements" in her entry no. 333.

[34] The emphatization of s- in EWlmd.-Ayr appears to be non-phonemic (such words are listed in the PAM under s-). Thus, its semantically tempting comparison with, e.g., Sem.: Ar. ṣaḥara I "faire bouillir le lait jusqu'à ce qu'il devienne ṣaḥīr-at-", ṣaḥīr-at- "lait chauffé par l'immersion d'une pierre rougie au feu, que l'on boit en y ajoutant du beurre et de la farine", ṣuḥār- "1. sueur (chez les cheveax), 2. fièvre" [BK I 1313-1314] *eo ipso* falls out (let alone for its entirely different root meaning having to do with the heat).

417.11. SAA *√sw/yr "nasal mucus" [GT][35] > CCh.: Daba sèrí "rhume, morve, crachat (CLD: sniffles, spittle)" [Lienhard & Giger 1982 apud CLD, not found in Mouchet 1966] ‖ WCh.: PSuroid *si-s^{w}ōr ~ *si-s^{y}ōr (in partial reduplication) "nasal mucus" [GT] = *(cV)-cVw/yVr (sic: *c-) "slime" [CLD]: Sura šíšwɔ́ɔr "Rotz, dicker Schleim" [Jng. 1963: 83], Mushere šišiyor "running nose", an ku šišiyor "I have running nose" [Diyakal 1997 MS: 377] (AS: Takacs 2004: 328-329; Daba-AS: CLD III 155, #630 with further, albeit semantically dubious, Ch. cognates)[36] ||| ECu. *si/urn- (root ext. *-n?) "Nasenschmutz, Rotz" [Sasse 1976: 127] = *si/urn- "nasal mucus" [Sasse 1979: 32; Ehret 1991: 219] ||| Eg. srj.t[37] (spitting mouth determinative) "Krankheitserscheinung, ob: Husten?" (Med., Wb IV 192-193) = "cough" (FD 235) = "Husten (Verbindung mit Schleimstoffen)" (WMT 773-774) = "Husten" (Westcar, GHWb 728; ÄWb II 2281b).

417.12. PAA *√ʗ̌r "to (e)je(c)t, pour out some bodily secretion (milk, urine, excreta etc.)" [GT], a root variety with a glottalized initial sibilant, attested in PCh. *ʗ̌Vr- "to pour into" [CLD II 215, #990] > i.a., CCh.: Paduko čɨra [cira] "jaillir" [Jarvis-Lagona 2005 quoted in CLD], cf. also ECh.: EDangla ḍéeré [ḍéɛrɛ́] "1. se gonfler (de lait), 2. se dresser" [Dbr.-Mnt. 1973: 92], WDangla ḍààrè "se gonfler de lait (seins)" [Fédry 1971: 204] ||| NOm.: a semantically obscure, albeit phonologically perfect match (???)[38] ||| HECu. *ṭūr- (tr. vb.) "to milk" [Hudson 1989: 99] ||| NBrb.: Qabyle √ẓr: i-ẓiṛ "jet de lait sortant de la mamelle", ti-ẓiṛi "gorgée de lait prise au sein" [Dallet 1982: 955] ‖ SBrb.: EWlmd.-Ayr te-ẓ̌ăre, Ayr te-ẓ̌ărăy "jet de liquide qcq., p.ex. jet de lait sortant d'une mamelle" [PAM 2003: 923] vs. EWlmd.-Ayr ẓ̌ărr-ăt "1. jaillir (liquide qcq.), 2. être lancé en jet (liquide / lumière / balles)", Ayr ẓ̌ərr-ăt "1. jet d'urine, 2. diarrhée avec tranchées gastriques" [PAM 2003: 923] vs. EWlmd. ẓ̌ərəgg-ət [-VggV- < *-VwwV-?][39] "jaillir, sortir brusquement (pierre/balle)" [PAM 2003: 925] ||| Sem.: Ar. ẓarā "1. couler (eaux), 2. avoir la diarrhée" [BK I 1313; DRS col. 1133a: isolated in Sem.]. Ch.-Ar.: CLD II 215, #990.

417.13. In **PAA *√ʗ̌r** "to flow (esp. of blood?)" [GT], we can see its root variety with a lateral sibilant *Anlaut* (Sem. *ɬ̣- < AA *ʗ̌-), cf. PCh. *ʗ̌Vr- (*ɬ'-) "to suck" (any relation to #366, *ɬ'VrV "blood-sucker"?) [CLD II 117, #349], PCh. *ʗ̌VrV (*ɬ'-) "to spit, to expectorate" (derived < "to pour" or < "to suck"?) [CLD II 117, #349.a], PCh. *ʗ̌VrV (*ɬ'-) "liquid", as

[35] One wonders if the underlying verbal root (sg. like PAA *√sw/yr "to secrete nasal mucus" [GT]?) has eventually an etymological connection to Sem.: Akk. wuššuru D (factitive) stem "lâcher, laisser aller", wuššurtu "affranchissement" [DRS 648, WŠR2].

[36] The semantically convincing Daba-Suroid match was equated by O.V. Stolbova (CLD III 155, #630) with cognates some other derived from her PCh. *cVr- "to clean nose" [CLD]: WCh.: Bole siru "to inhale through the nose" [GAB in CLD] ‖ ECh.: Lele sìr "se moucher" [WP 1982 quoted in CLD] (Stolbova: "Lele rather belongs to this root, than to Ch **lVr-*, *CLD II N 257*") | DM *sĒr- "to blow one's nose" [GT]: Migama séeró (séèré, séráa) "se moucher" [JA 1992: 123], Bidiya siir (siirí, siirèŋ) "se moucher" [AJ 1992: 114], WDangla sìirè "se moucher" [Fédry 1971 quoted in CLD], EDangla sííṛé "sich die Nase putzen (clean one's nose)" [Ebobisse 1979; 1987 quoted in CLD].

[37] Eg. IIIae inf. roots are supposed to regularly correspond to IIae w/y ones in Sem./Brb. (cf. Vycichl 1953).

[38] Cf. perhaps Dizi *ʗ̌ūr- "to wash" [GT after Bender 2003: 219, #144]?

[39] The shift of *ww > gg occurs also in southern Twareg according to Prof. M. Kossmann (kind p.c. on 10 March 2023).

vb. “to pour” [CLD II 120, #361], PCh. *ĉVrV (*ɬ’-) “pus” [CLD II 120, #365],[40] CCh.: PKotoko *ĉVrV (*ɬ’-) “blood-sucker, leech” [CLD II 121, #366] ||| Sem.: Ar. √ḍrw > ḍarā I “1. (said of a vein:) it shed blood, it quivered and gushed with blood or made a sound by reason of the blood coming forth, 2. (said of a wound:) it ceased not to flow (with blood)”, also √ḍry > ḍarā I “(said of a vein:) it flowed and ran (with blood)” [Lane 1789c] = √ḍrw > ḍarā I “1. saigner (se dit d’une plaie ou d’une artère coupée), 2. couler” [BK II 25] = √ḍry “fliessen” [Levy 1924 IV col. 218b]. Ch.-Ar.: CLD II 120, #361.

417.14. NAA *√ç/č/ĉr(C3) (perhaps ***-w/g**^{w}?) “some resinuous fluid substance issuing from some kind of tree” [GT], perhaps deriving from either of the AA roots discussed in the preceding entries (nos. 417.13 and 417.13?), supposed to be retained by: SBrb. *√ẓrg/w (???) > EWlmd.-Ayr ta-ẓărăgg-at [-VggV- < *-VwwV-?][41] (adj.vb.) “gomme d’adăras[42] liquide (durcie elle s’appelle taγəlbas)” [PAM 2003: 925] (isolated in Berber,[43] of an uncertain Berber etymological background)[44] ||| Sem. *√ṯrw “sorte de baume” [DRS] = *ṣ/ṭ/ḏVrw- (???)

[40] Hence, e.g., i.a. ECh.: DM *ḍyir- “pus” [GT]: EDangla ḍyīrà (m.gen.) “le pus” [Dbr.-Mnt. 1973: 99], WDangla ḍyírà (pl.) “pus” [Fédry 1971: 250], Bidiya ḍyìrà (m) “pus” [AJ 1989: 73].

[41] The shift of *ww > gg occurs also in southern Twareg, e.g., in the imperfective forms of √CwC verbs, according to Prof. M. Kossmann (kind p.c. on 10-11 March 2023).

[42] By having checked a bit further, Prof. M. Kossmann (kind p.c. on 11 March 2023) has stated: “The resin in question is a well-known fumigation (bdellium), and (at least traditionally) widely traded. Adaras trees are mainly found in the Sahel zone (where they originate), and not present in the mountains.”

[43] Seems isolated in Twareg (not found in Nehlil 1909; Foucauld 1951-2 or in WSKT I 797 and II 330-331): “Everything looks like the noun is a relatively recent derivation, unique to Niger. It is evidently not used in Ahaggar, which has different terms - and if it had existed, Foucauld would have known. Heath has different words for bdellium too, and the only noun derivation in Mali from z’rgg-t has a very different meaning.” Irrespective of such an assessment of his, even M. Kossmann (kind p.c. on 11 March 2023) was surprised by the lack of its mention in the WSKT: “I find it unexpected that Ritter doesn’t mention it, but this may be because he could not confirm its existence with his spokespeople (it could also just be a very rare omission).” M. Kossmann seems convinced by the inner Berber evidence that it can hardly be a primary noun: “I would say that the chances that the term is old in this meaning are extremely low. ... Interestingly, the terms for the resin (fluid and solidified) seem to be all different according to the dialects, while the name of the tree is found all over Tuareg. Not sure what to make of this – I would have expected a trade commodity to be more homogenous in its lexical expression than a tree (even though trees are very stable lexemes in Tuareg).”

[44] In the PAM, l.c., it is treated as a fem. verbal adjective of the homophonous verbal root which, if it was once applied also for the gum issuing from the stem, may/might be reasonable, although this is not the case, cf. EWlmd. ẓərəgg-ət “jaillir, sortir brusquement (pierre/balle)” [PAM 2003: 925]. Supporting this idea, M. Kossmann (kind p.c. on 11 March 2023) stated: “the ‘pop out’ verb from which it seems to be derived, ... is at least pan--Tuareg.” At any rate, our verbal root in question is indeed cognate to SBrb.: Ahaggar ẓeregg-et “1. percer, commencer à paraître, poindre, jaillir, paraître en partie, sortir en partie, paraître au dehors en sortant vivement (en partie ou en totalité) (se dit, p.ex., du soleil, de la lune, d’une étoile qui commencent à paraître à l’horizon, d’une montagne, d’un arbre, d’un homme, d’un animal, d’une chose qcq. qui commencent à poindre à l’horizon; d’un piquet qu’on enfonce dans un mur qui point de l’autre côté); d’un clou qu’on enfonce dans une planche qui point de l’autre côté; d’une pierre d’un mur qui dépasse l’allignement des autres et sort en partie du mur; de l’os d’un bras ou d’une jambe cassés qui sont en partie du bras ou de la jambe; du noyau d’un fruit mûr qui, par suite de pression, sort en partie du fruit; d’une épine entrée dans la main, du pus d’un abcès, qui, par suite d’une pression, paraissent au dehors en sortant vivement partiellement ou totalement; d’objets qui sont dans un sac et dont une extrémité en sort un peu, soit par un trou du sac, soit par sa bouche), 2. (p.ext.) ’être perçant (le sujet étant la voix d’une personne ou d’un animal)” [Foucauld 1951-2: 1990] = ẓərəgg-ət [Delheure] || NBrb.: Qabyle zrireg (sic: plain z-) “couler, filer rapidement sur une surface lisse” [Dallet 1982: 957] | Mzab ə-zrəg (sic: plain z-) “poindre, paraître au dehors en sortant vivement, jaillir”, a-zrag, pl. i-zrag-ən “rejet, petite proéminence qui pousse au bout

[GT]: Macro-Canaanite *ṣ/ẓurw- “(storax, liquidambar, resin of) *Styrax officinalis* L.” [GT pace Löw et al.][45] vs. Arabian *ḍa/irw- “(mastix, resin of) *Pistacia lentiscus* L.” [GT],[46]

d’une tige, bouton, bourgeon” [Delheure 1984: 254], Wargla zəṛṛəg “1. jaillir, couler en jet fort, 2. (p.ext.) uriner avec force” [Delheure 1987: 397]. But cf. perhaps Ahaggar é-ẓereğ (-ġ) nom d’un arbrisseau” [Foucauld 1951-2: 1991]. Its resemblance to Ar. ṣārūğ- “1. chaux vive, 2. mélange de chaux vive et d’arsenic” [BK I 1328] = “quick lime, and the mixtures thereof; with which ars plastered watering-troughs, or tanks, and baths etc.” [Lane 1675a] is illusory this latter term being a Persian loanword (arabicized from čārū).

[45] Attested by Ug. ẓrw “(a commodity listed after ‘barley’ & ‘oil’, but in a new section after a scribal line beside nbt ‘honey’)” [Gordon 1965: 407, #1057] = (alphabetic) ẓrw vs. (in syllabic transcription, i.e., EA 48:8) /ẓurwu/ (?) or /ṣurwu/ (?) “(aromatic) resin” [Huehnergard 1987: 131] = ẓrw “bálsamo (¿resina de estoraque?)” [DLU 552-553] = ẓrw “(die botanische Identifikation ... ist nicht zu eruieren)” [Sima 2000: 270] = ẓrw “balsam, storax resin (?)” [DUL 1006], Amarna Akk. (occured so far solely in EA 48:8, on which Huehnergard 1987: 131: “the Ugaritic provenance of EA 48 is likely, but not certain”, DLU 552: “procedencia probable: Ugarit”; DUL 1006 also: “probl. from Ugarit”) ṣurwa “balm (probably storax)” [CAD ṣ 261] = karpatu riqqu ZU-ur-wu “jar of aromatic substance: resin” (it is likely that ZU-ur-wu does not actually gloss Akk. riqqu, but rather qualifies it, specifying the precise substance) [Huehnergard 1987: 131] = ṣurwa “a herb” [KB 1055] = √ṣry$_2$ > ṣú/zu$^?$-ur-wa “balm, balsam” [DNWSI 975 pace Nielsen, Knauf, Vitestam] = ZU-ur-wa “(die botanische Identifikation ... ist nicht zu eruieren)” [Sima 2000: 270], Hebrew ṣŏrī “balsamisches Harz, eine Spezerei von Rauchwerk” [Levy 1924 IV col. 218b] = “1. (seit Luther durch Mastix unrichtig wiedergegeben, stattdem:) Storax, der heutige flüssige Liquidambar (*Styrax officinalis* L., aus diesem Baume, der vorzüglich in Syrien wächst, fliesst ... ein sehr wohlriechendes, balsamisches Harz, das angezündet die würzigsten Düfte aushaucht; der wervolle Saft von ṣŏrī ist grün wie Eselsmilch und wird von Betrügern mit dieser verfälscht, oder lieber mit Eselstalg), 2. wohlriechende Harzarten überhaupt, Balsam” [Löw FJ 1928 I 196, 1924 III 389-390] = “genus balsami” [CR 1931: 227b] = ṣŏrī ~ ṣərī (probably primary noun) “(not?) mastic (but balsam, since mastic from Chios was first known only in the Hellenistic Period)”, cf. ṣərī (PN of a Levite from the clan of Jeduthun) “mastic balsam” [KB 1055] = ṣōrī (sic: -ō- for -ŏ-) “(Bedeutung nicht eindeutig geklärt:) entweder *Commiphora opobalsamum* (L.) Engl. (Stol 1970: 50ff.) oder *Liquidambar orientalis* L. (Zohary) (da ... στύραξ > latin storax, styrax den zuletzt genannten bezeichnet und aus einer nordwestsemitischen Sprache entlehnt wurde; ist die Bestimmung von Zohary vorzuziehen; die falsche Identifikation mit Mastix, dem Harz von *Pistacia lentiscus* L. ... beruht einzig auf dem Vergleich mit dem arab. *ḍirwun*)” [Sima 2000: 269-270, fn. 37] and MHebrew ṣŏrī “ein wohlriechendes Harz” [Dalman 1922: col. 367b] = “Harz” [Levy 1924 IV col. 218b] = “resin, balsam” [Jastrow 1950: col. 1301a] = “a fragrant resin” [KB 1055] | Syriac ṣarwā “1. fructus pini, 2. cortex cedri, 3. μάκηρ / macir” [Brockelmann 1928: col. 637b] = “(die Bedeutung ist offenbar recht unklar) περὶ μάκερος” [Sima 2000: 270, fn. 38].

[46] Cf. OSA ḍrw “genus arboris odoriferae (a fragrant tree), *Pistacia lentiscus*” [CR 1931: 227b (as glossed in English by Biella)] = “mastic balsam” [as quoted in KB 1055b referring to Müller 1963: 314 without OSA rendering] = ḍrw “encens” [Avanzini 1980: col. 235b] = ḍrw (written on on incense burners) “1. an aromatic resin or fruit used as incense, 2. incense burner (specifically for ḍrw incense?)” [Biella 1982: 436] = (Sabaic) ḍrw “kind of aromatic (sorte d’aromate)” [SD 42] = (Qatabanian) ḍrw “balsam, aromatic resin or fruit used as incense” [Ricks 1989: 140] = “wahrscheinlich das Mastix genannte Harz von *Pistacia Lentiscus* L. [*Terebinthus Lentiscus* (L.) Moench] oder das Chios-Terpentin genannte Harz von *Terebinthus Lentiscus* L. (beide kämen für Südarabien nur als Importwaren in Frage), wenig wahrscheinlich ist *Salvia merjamie* [= *S. nudicaulis* Vahl *var. nubia*] (*Labiatae*)” [Sima 2000: 269 pace Hager quoted in fn. 31-32], Ar. ḍarw- and ḍirw- “fruit du lentisque, fruit de l’arbre kamkām-” [BK II 25] = ḍarw- and also ḍirw- “a species of tree of sweet odour, with the wood of which the teeth are rubbed and cleansed, and the leaves of which are put into perfume (the places of its growth are mostly in El-Yemen; some say that the ḍirw- is the buṭm- or terebinth-tree or the fruit thereof; when a girl rubs and cleanses her teeth with a stick of the tree called ḍirw-, the saliva with which the stick is moistened from her mouth is like honey)” [Lane col. 1790a] = ḍirw- “*Pistacia Lentiscus* L., Mastixstrauch (Lentiscusharz des Baumes ḍirw ... fliesst elastisch aus, schwarz wie Pech)” [Löw FJ I 197] = ḍa/irw- “fruit of the gum tree (*Pistacia Lentiscus*)” [Müller 1962: 75 quoted by Biella l.c. and Ricks l.c.] = ḍirw- “lentisque” [Dozy II 9] = ḍarw- “a type of sweet-smelling tree” [KB 1055] = ḍirw- “(die Angaben der arabischen Lexikographen ... sind widersprüchlich, weisen aber doch eindeutig auf einen Baum oder Strauch hin, der wahrscheinlich als *Pistacia lentiscus* L. ... oder *Pistacia terebinthus* L. ... zu identifizieren ist (der vielzitierte Vers des Nābiġa al-Ğaᶜdī X 5 ..., der von den ḍirw-Bäumen von Barāqiš und

perhaps both derivable < CSem. *ṣ/ṯ/ḏVrw- "resinous matter issuing from some tree" [GT][47] of disputed etymology[48] (Sem.: Huehnergard 1987: 131; KB 1055; DLU 552-553; Sima 2000: 269-270; DUL 1006; DRS 1132, ṯrw). The unity of the Canaanite (with *ẓ-?) vs. Arabian terms (with ḍ-), that has been accepted and maintained as granted by most of the authors dealing with this term (quoted partly herein), was firmly denied by A. Sima (2000: 269-270, also fn. 38) regarding the disagreement of Syriac ṣ-[49] ≠ Ar. ḍ- as decisive (explained by some as the sign of being borrowed of the former),[50] let alone for the anomaly (?) of Ug. ẓ-[51] (he

Haylān spricht, ist völlig fantastisch (keine der fraglichen Pistacia-Arten wächst in Südarabien!) und trägt zur Sache nichts bei, hatte aber zur Folge gehabt, dass *ḍirwun* in dieser Bedeutung von den arabischen Lexikographen fälschlich als im Jemen beheimatet angesehen wurde)" [Sima 2000: 269, fn. 34], Modern Yemeni Ar. ḍa/orw "aromatic shrub" [Rossi 1940: 311 quoted by Biella l.c., so also Nielsen 1986: 18, 61-62 and Crone 1987: 62-65 quoted by Ricks l.c.] = ḍarw (ein Baum) "ein einfacher wohlriechender Strauch, der kein Harz liefert, vielleicht ... eine Bezeichnung für den baṭam-Baum, der aber in der Qaᶜṭabān-Gegend kein Harz liefert (wir hätten dann zwei verschiedene Pflanzen unter ḍarw zu verstehen)", ḍirw "Pflanze, liefert Brennholz, ist *Salvia nudicaulis* Vahl" [Glaser apud Behnstedt 1993: 130-131] = ḍarw "*Salvia merjamae* Forssk." [Al-Hubaishi & Müller--Hohenstein 1984: 202 apud Behnstedt] = ḍa/orw "aromatischer Strauch, als Medizin gegen Herzschmerzen benutzt (aromatic shrub used as a medicine against heart pains)" [Deboo 1989: 52] = ḍarū, ḍarw, ḍirw "die *Salvia nudicalis* (sic: *-cal-*) (d.h. S. merjamie)" [Sima 2000: 269, fn. 34].

[47] Although he has named no reconstructed form for this Semitic term, in the testimony of his statements, J. Huehnergard (1987: 131-132) may have been bearing in mind apparently sg. like *ḏurw- as the underlying etymon: on the basis of the OSA and Ar. data, on the one hand, he assumed that "the initial consonant was originally *ḏ*", whereas in the light of the Ug.-Hbr. reflex, he supported "the *qutl* pattern" (as opposed to the *ḳaṭl- one in Syr.-Ar.).

[48] There has been no agreement on the (common) origin of the Semitic term, where "la correspondance n'est pas réguilière" (DRS col. 1132b), which would *eo ipso* suggest borrowing. Still, J. Levy (1924 IV col. 218b) linked the Hebrew reflex with Ar. √ḍry "fliessen". M. Jastrow (1950: col. 1301a), in turn, derived it from MHbr. √ṣry and PBAram. √ṣrʔ "to split, tear" which allowed him literally rendering the noun as "that which runs through cracks". The ambiguous assumption of the CAD (ṣ 261), that the Amarna "Akkadian" "word may be Hurrian, as the letter EA 48 suggests, hence possibly *surwa*, but the WSem. etymology seems plausible", which was not based on any direct etymological evidence, testifies to the perfect failure of the *communis opinio* in determing whether it was "WSem. or foreign word". J.C. Biella (1982: 436) linked the OSA-Ar. term to Ar. ḍāra "to bleed", which is incorrect as Ar. √ḍwr I: ḍāra denotes "1. nuire, faire du mal à qqn." etc. [BK II 45]. By the way, J. Huehnergard (1987: 131) listed the EA 48:8 form among syllabically written Ugaritic words. KB (l.c.) has yielded hardly anything on this puzzle of origins beside an uncritically adopted comparison to Ar. ḍaraʔa "to bleed", which is unprecise as Ar. ḍaraʔa (in its stem VII) denotes "être tué, égorgé", while only √ḍrw > ḍarā I "1. saigner (se dit d'une plaie ou d'une artère coupée), 2. couler" [BK II 16 and 25, resp.]. Prof. J. Huehnergard (kind p.c. on the 15 March 2023) too, is reserved as to having two homophonous Semitic "resin" etyma: "It is an interesting idea to split the attested forms into two lemmata with different referents, but I cannot judge whether it is a correct idea (!)."

[49] A. Sima (2000: 270, fn. 38) categorically confirmed that, as is well-known, "Die syrische Form mit *ṣ* kann nicht auf **ḍrw* zurückgehen, sondern ist wahrscheinlich über die hebräische Vorlage der Peschitta ... aus dem Hebräischen entlehnt". He doubted R.C. Steiner's (1977: 149-151) theory on that "in bestimmten phonetischen Umgebungen **ḍ* im Aramäischen zu *ṣ* verschoben wurde. Seine Beispiele sind im einzelnen von sehr unterschiedlicher Evidenz, im Fall von syr. *ṣarwā* überzeugen sie mich nicht." Prof. J. Huehnergard (kind p.c. on the 15 March 2023) too "would disagree with Sima ... concerning Steiner's suggestion that Proto-Semitic *ṣ́ (ḍ) > Aramaic ṣ when the root contains r — there are many examples."

[50] J. Huehnergard (1987: 131): the Syriac reflex "is presumably a loanword" since "cognates in Arabic *(ḍa/irw)* and Sabaean *(ḍrw)* indicate that the initial consonant was originally *ḏ* ..."; following J. Blau (1970: 59--60), also A. Sima (2000: 270, fn. 38): the Syr. word was borrowed from Hbr.

[51] The Sem. etymon with the supposed *ḏ, in the hypothesis of J. Huehnergard (1987: 131-131), "should yield Ugar. */ṣurwu/*, an equally possible normalization of the syllabic writing. It is possible, if rather unlikely, that

left untouched), and the different botanical identification. Highly noteworthy is in this context Ar. √ṣrb I: ṣariba "1. boire du lait aigre, 2. manger de la gomme", IV "donner du lait aigre à boire à qqn., VIII "préparer du lait aigre en mettant petit à petit du lait doux dans un autre lait aigre", ṣarb- "1. lait doux auquel on a mêlé du lait aigre, 2. lait aigre, 3. espèce de gomme rouge qui coule de l'arbre ṭlḥ (sorte d'acacia)", ṣarab- "1. lait aigre, 2. espèce de résine rouge qui coule de l'arbre ṭlḥ" [BK I 1327].

417.15. PAA *√čr "to jet (of some fluid issuing from body)" [GT] > PCh. *čUr- "to urinate" [GT][52] > WCh.: Daffo-Butura sâṛ "urinieren", Bokkos šáá (sic: no -r) "Urin, Blase", Sha zòḥ [-ḥ/ʕ regular *-r][53] "Urin" (Ron: Jng. 1970: 146, 220, 289) || CCh.: PMasa *čor "to urinate" [GT]:[54] Masa-Bongor čò:rà (p. 125) = čô:rà (p. 147) "uriner", čórā (présent inaccompli), čòrá (parfait, narrative), čōrāwā (passé simple) [Jng. 1971/2 MS: 125, 147], Gizey/Wina čór zùmùr, Masa čór zùmùr, Ham čór súrùm, Musey čóó súmúú, Lew čór súmúr, Marba čór súmúr "uriner" [Ajello et al. 2001: 55] || ECh.: Kwang kó-čōr [Jng.], Kwang-Mobu kò-ǯóor [Jng.] | Lele čóòró [Garrigues in JI] | Sokoro sóóri [Lukas] (Ch.: JI 1994 II 334-335; Skinner 1992: 356) ||| NBrb.: Shilh šərš "to urinate", i-šərš-in (pl.) "urine" [Skinner] ||| Sem.: Ar. ṯarra I "1. faire sourdre l'eau (se dit de la source), 2. avoir et donner beaucoup de lait (se dit des femelles), 3. faire jaillir abondamment un torrent d'eau, de sang, da paroles (se dit d'un nuage, d'un coup de lance, de la bouche)", ṯarr- "1. abondant en eau, qui en verse ou fait jaillir par torrents (nuage, source) ayant le canal du pis large (se dit des femelles) etc." [BK I 220]. Shilh-Ch.: Skinner 1992: 356.[55]

*

/ṣurwu/ is in fact the underlying Ugar. form, and that *ẓ* in alphab. *ẓrw* is in both instances the result of intervocalic voicing (in sandhi ...)."

[52] The Chadic root has striking a areal match in Niger-Kordofanian/Congo, cf. the parallels listed by J.H. Greenberg (1963: 159).

[53] As it has been abundantly demonstrated by H. Jungraithmayr (1966).

[54] That Masa *č is the regular match of Sem. *ṯ < AA *č we can ascertain about it also from the isogloss of PMasa *čo/ar "1. to rise" [GT]: Musey čól, Lew čól, Marba čól "(se) lever" [Ajello et al. 2001: 33], Lame cár (ts-) "1. se lever, 5. + wá (ʔá sū) se révolter, s'énerver, se fâcher contre qqn." [Sachnine 1982: 398], Zime-Dari cār (ts-) "se lever", cār wā "s'énerver" (litt.: "lever + tête") [Cooper 1984: 25] ||| Sem.: Ar. √ṯwr I ṯāra "1. être soulevé et se répandre dans l'air (se dit de la poussière, des nuées de sauterelles), 2. s'élever (se dit du tumulte), 3. fondre sur qqn., assaillir avec colère et impétuosité, 4. se déclarer et paraître à la surface du corps (se dit des pustules, de la moiteur)", II "1. soulever, exciter (la poussière), allumer la guerre, faire naître le tumulte, 2. faire lever les chameaux couchés à terre" etc. [BK I 241] || MSA (from Ar.): CJibbali ṯórəh "revolution" [Johnstone 1981: 286], Mehri ṯáwrəh and EJibbali ṯáwrah "rebellion" [Johnstone 1987: 419] etc. < PAA *√čwr "to (up)rise" [GT]. Or cf. CCh.: Lame cár (ts-) "3. être abondant, bien donner, bien produire (pour une récolte), 7. + ʔír (oeil) a) s'enrichir, prospérer, réussir dans la vie, b) ressusciter" [Sachnine 1982: 398] || WCh.: Hausa čár "emphasizes fullness of vessel", čárčár "fullness of a vessel or bag with grain or with any solid sold by measure, 2. (adv.) in full" [Bargery 1934: 151] = čárčár "brimful, in full, complete" [Abraham 1962: 133] | Suroid *čar ~ *čer "many, much" [GT]: Sura čár "Kopflast vermehren" [Jng. 1963: 61], Kofyar kóe-čer "many" [Netting 1967: 18] (Suroid: Takács 2004: 47) ||| Eg. wsr "1. mächtig, stark (gegenüber Feinden), 3. reich (sein an) usw." (OK-, Wb I 360-361) ||| Sem.: Ar. √ṯrw I: ṯarā "1. être nombreux (se dit des hommes, des bestiaux, etc.), 2. être plus riche en troupeaux, 3. rendre nombreux", ṯariya "être riche, posséder beaucoup de troupeaux ou d'autres biens" [BK I 222] < presumably PAA *√čr "to be numerous" [GT].

[55] Affiliated by N. Skinner (1992: 356) with ECu. *sāl- "feces", Ar. usar- (sic) "retention of urine", Cu. (sic) *√ṣl "feces".

Abbreviations of languages and other terms

(A): Ahmimic, AA: Afro-Asiatic (Afrasian, formerly: Semito-Hamitic), Akk.: Akkadian, Amh.: Amharic, Ar.: Arabic, Aram.: Aramaic, AS: Angas-Sura, Ass.: Assyrian, (B) Bohairic, Bab.: Babylonian, BAram.: Biblical Aramaic, BD: Book of the Dead, Bed.: Bed'awye (Beja), Bln.: Bəlnəng, BM: Bura-Margi, BN: Bade-Ngizim, Brb.: Berber (Libyo-Guanche), BT: Bole-Tangale, C: Central, CAA: Common AA, Can.: Canaanite, Ch.: Chadic, Cpt.: Coptic, CT: Coffin Texts, Cu.: Cushitic, DB: Daffo-Butura, Dem.: Demotic, DM: Dangla-Migama, E: East, EA: Amarna letters, Eg.: Egyptian, ES: Ethio-Semitic, Eth.: Ethiopian, Eth.-Sem.: Ethio-Semitic, (F): Fayyumic, GR: Ptolemaic and Roman period, H: Highland (in Cushitic), Hbr.: Hebrew, Hgr.: Ahaggar, IE: Indo-European, IL: Institute of Linguistics, irreg.: irregular, JAram.: Jewish or Judeo-Aramaic, Jbl.: Jibyal, Jkt.: Jakato, JPAram.: Jewish Palestinian Aramaic, KK: Kera-Kwang group, L: Late, L: Low(land), LP: Late Period, M: Middle or Medieval, Mag.: magical texts, Math.: mathematical papyri, Med.: medical texts, MK: Middle Kingdom, MM: Mafa-Mada group, MSA: Modern South Arabian, MT: Mubi-Toram, N: New, N: North, NE (or NEg.): New Egyptian, NK: New Kingdom, NS: Nilo-Saharan, O: Old, OK: Old Kingdom, Om.: Omotic, OSA: Old South Arabian, OT: Old Testament, P: Proto-, PB: Post-Biblical, PT: Pyramid Texts, reg.: regular, S: South, (S): Sahidic, Sab.: Sabaic, Sem.: Semitic, Syr.: Syriac, TA(ram).: Aramaic of Talmud, Tna.: Tigrinya, Ug.: Ugaritic, W: West, (E)Wlmd.: (East) Tawllemmet, Y: Young(er).

Abbreviations of author names

Abr.: Abraham, AJ: Alio & Jungraithmayr, Alm.: Alemayehu, AMS: Amborn, Minker, Sasse, Apl.: Appleyard, BK: Bieberstein Kazimirsky, Brt.: Barreteau, CR: Conti Rossini, Ctc.: Caïtucoli, Dbr.: Djibrine, Dlg.: Dolgopol'skij, DM: Drower & Macuch, EEN: Ehret, Elderkin, Nurse, FH: Farah & Heck, Frj.: Frajzyngier, Ftp.: Fitzpatrick, GAB: Gimba, Ali, Madu Bah, GB: Gesenius & Buhl, GT: Takács, Ibr.: Ibriszimow, IL: Institute of Linguistics, IS: Illič-Svityč, JA: Jungraithmayr & Adams, JI: Jungraithmayr & Ibriszimow, Jng.: Jungraithmayr, Jns.: Johnstone, JS: Jungraithmayr & Shimizu, KB: Koehler & Baumgartner, KM: Kießling & Mous, Mnt.: Montgolfier, Nct.: Nachtigal, NM: Newman & Ma, NZ: Naït-Zerrad, OS: Orel & Stolbova, PAM: Prasse, Alojaly, Mohamed, PH: Parker & Hayward, RB: Rapp & Benzig, TG: Takács, TSL: Tourneux, Seignobos, Lafarge, WP: Weibegué & Palayer.

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Mubi-Toram lexicon and Afro-Asiatic IV: Addenda with *b- (Part 2)

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In memoriam Prof. Khalil Alio,[1] master of East Chadic B

Abstract: Gábor Takács, *Mubi-Toram lexicon and Afro-Asiatic IV: Addenda with *b- (Part 2).* The Poznań Society for the Advancement of Arts and Sciences, PL ISSN 0079-4740, pp. 103-131

The paper is another part of a planned longer series designed to step by step reveal the Chadic and wider Afro--Asiatic cognate heritage in the lexical stock of the Mubi-Toram languages which represent the easternmost (26th) group of the vaste Chadic (i.e., 6th) branch of the gigantic Afro-Asiatic family.

Keywords: Afro-Asiatic (Semito-Hamitic) comparative linguistics, Chadic, etymology

Introduction

Mubi-Toram (MT), as a Chadic language group, is the member of the immense Afro--Asiatic (Semito-Hamitic) macrofamily comprising six equipotential branches: Semitic, Egyptian, Berber, Cushitic, Omotic, and Chadic. The classification of the languages supposed to belong to the MT group as well as their position in East Chadic in general, have

[1] It was during the work on the final draft of this paper that I have learnt about the tragical fact of his passing away in October 2022. He was a native Bidiya speaker and among the local scholars, he has become an outstanding figure of the linguistic research over the Dangla-Migama and Mubi-Toram group languages forming the majority of East Chadic B. As professor of linguistics, the sometime deputy vice-chancellor (1996-7) and vice-chancellor (1997-9) of the University of N'Djaména as well as holder of numerous other public positions, he distinguished himself in the Chadian publicity also. He had been tightly associated with the Chadic linguistic researches of Prof. H. Jungraithmayr at the Frankfurt a/M J.W. Goethe University where I had the privilege to collaborate with him, a.o., on the lexical parallels between Bidiya and Egyptian (2002), which greatly inspired my series devoted to the inherited lexical treasure in "Dangla-Migama and Afro-Asiatic".

been intensely researched over the past quarter of a century by both field-researchers and comparatist V. Blažek, whose results and the state-of-the-art were surveyed by the present author recently in a separate paper.[2]

By elaborating the cognate sets of the Mubi-Toram group in this series of papers, we hope to gain, on the one hand, a more solid vision on their historical phonology, sufficient to make out another special study, than our current working hypothesis. On the other hand, this series embodies, in fact, the author's ongoing project for an etymological dictionary of the Mubi--Toram languages.[3] Finally, it is here that I must thankfully acknowledge the expertise of several AA colleagues yielded for my work on some puzzling glosses that at times proved very difficult to etymologically identify.[4]

Mubi-Toram *b- + dentals

78. Jegu bide "Festtanz für den Himmelsgott (mit großer Trommel)" [Jng. 1961: 110] ||| Sem.: Ug. bd "chanter (?), jouer de la musique (?)" [DRS] = "song" [DUL 214], Hbr. *baddīm "notes (?)" [DRS], occuring in: baddē-šōpār "at the call of the trumpet" [Pope apud DRS] (isolated in NWSem., cf. DRS 44: BDD4) < **PAA *√bd** "to play music" [GT]. Further root varieties:

78.1. SAA *√bʒ "to play music" [GT] > CCu./NAgaw: (???) Kemant and Qwara baz- "to sing" [Apl. 2006: 124: isolated in Cu.] ||| WCh.: Hausa bóózà "drumming and playing before chief on Friday night" [Abraham 1962: 111].

78.1. SAA *√br (via rhotacism) "to sing and dance" [GT] > SCu.: WRift: PIraqw *baraʕ "to sing and dance" [DRS]: Iraqw barāʕ "to sing while marching or working", Gorowa barāʕ "to sing and dance" (WRift: KM 2004: 70-71) ||| Kafa *barbir- (?) [TG] > Kaffa babbir- "dance" (n.) [Cerulli (?) in Bender 2003: 339, #18] ||| PCh.[5] *ḅrg "to dance" [JS 1981: 83J]

[2] Marginal notes on the project for an etymological dictionary of the Mubi-Toram languages. = *Lingua Posnaniensis* 63/2 (2021), 77-94. This paper was primarily supposed to accompany the second part (comprising all the addenda with *b-) of this series "Mubi-Toram lexicon and Afro-Asiatic" which ended up in an all too gigantic length for an article, and so we decided with editors of Lingua Posnaniensis to publish that mega-intro with my survey on the MT classification separately from the etymological entries that had also to suffer being divided into several parts, but all this has been agreed on only after the publication of the third part this series in which, following the numeration of entries of the original mega-part II (running from #73 to #150), the numbering of entries begins with #151. This is why the distinguished readership should not be embarrased about that part II ends with #77 and this part IV (continued from part II) starts with #78, while part VII is supposed to close the abundant addenda with *b- at #150.

[3] At this point, I specially express my cordial thanks to Prof. Krzysztof Tomasz Witczak (Department of Classical Philology, University of Łódź) for encouraging and supporting me to successfully apply for the ARR grant of his home university, in the frames of which this old project of mine (since 2008) is recently being carried out.

[4] I am greatly indebted to a few linguists specialized on some AA branch for their friendly favour of consulting on a number of puzzling details: Prof. J. Lentin (Paris, GLECS, on Arabic), Prof. M. Kossmann (Leiden, on Berber), Prof. G. Banti (Naples, on Cushitic) and Dr. M. Vergari (Castelnuovo, Saho). Naturally, any error or shortcoming in this paper is solely my responsibility.

[5] Based on Sura (?), Gisiga (?), Mofu, Mokilko (?) parallels. Reference is made to CCh.: PMandara *√ḅl "to sing" [JS 1981 229G].

= *√br “to dance” [GT] > WCh.: (???) Zaar bwa [Shimizu] || CCh.: Gisiga-Dogba ḅurak [Lukas], Mofu (Mok.) -ḅárg- [Brt.] || ECh.: Kwang-Mobu bər kən kərów [Jng.] | Mokilko bérè (n.) [Jng.] (Ch.: JI 1994 II 100-101).

79. MT *bēdew (?) “to be bad” [GT] > Mubi bèedéw (bìidîw, bìidéèw) “être mauvais” [Jng. 1990 MS: 4; Jng. 2013: 161], Ubi beere [-r- < *-d-?] “mauvais” [Alio 2004: 268, #27] ||| NBrb. *√bdw “to be fool” [GT]:[6] Nefusa beddu “être fou”, beddiw “fou”, Mzab biddu “perdre la raison, être/devenir fou”, ta-biddwa “folie, aliénation mentale”, a-beddiw “1. fou, aliéné mentale, 2. bête”, Wargla a-beddiw “faible d’esprit, idiot, niais, et aussi fou, mais non furieux” (NBrb.: DRB 24) ||| Sem. *√ʔbd “to wilden (animal), be furious” [GT]:[7] Ar. ʔabada “s’enfuir (animal), devenir sauvage (bétail)”, ʔabida “s’irriter contre qqn.”, ʔabid-at- “malheur, chose extraordinaire, étrange” [DRS] = ʔabada “to become wild (cattle), shy away” [Leslau] || ES: Geez ʔabda “to be insane, become enraged, rage, be mad, be out of one’s mind, become a fool, be foolish”, ʔabādi “ignorant, stupid, mad”, ʔəbud “foolish, stupid, mad, insane, enraged, furious”, ʔəbad “folly, foolishness, madness, insanity senselessness, being out of one’s senses” [Leslau] = ʔabda “1. fuir,[8] errer, 2. agir sottement, être fou” [DRS/B], Tigre ʔabbädä “tromper”, ʔabəd “fou” [DRS], Tna. ʔəbud “fou” [DRS], Amharic abbädä “être fou, furieux”, əbd “fou” [DRS/B] (Sem.: DRS 2, ʔbd/t1 with some semantically far-fetched parallels; Leslau 1987: 2-3) **< PAA *√bd** “1. bad, 2. fool” [GT].

80. Mubi bàḍáŋ (bèḍíŋ, bìḍáàŋ) “chuchoter” [Jng. 1990b MS: 4; 2013: 161] ||| LECu.: Afar baḍāḍaʿ-ite “to chatter (bavarder)” [PH 1985: 65] ||| SBrb.: Ahaggar biṭ “bruit produit par un vent sortant du fondement” [DRB 27, bḍ6: isolated][9] ||| Sem.: Ug. *bṭ(w) “jaser, bavarder (?)”[10] [DRS], Hebrew *bāṭa “bavarder, parler inconsidérément” [DRS] | Ar. (Syrian dialect) baṭbaṭ “lâcher des vents (à la selle)” [DRS] || ES: Amharic tämboḉäboḉä “faire le bruit

[6] In the view of K. Naït-Zerrad (DRB 25), this root and Twareg: Ahaggar ă-biddaw “singe” “sont probablement liés” to the ES parallels.

[7] The DRS 2 filed this root among the NSemitic reflexes of a homophonous root denoting “être perdu, périr” remarking that: “Les sens concordent largement, mais posent quelques problèmes: l’ak. donne à la forme simple une valeur tr., tandis que tous le sém. occ. lui donne une valeur intr. interne. À l’intérieur même du sém. occ., il y a des divergences: h(ébreu). et aram. ont pour sens principal «se perdre, périr», tandis que le v(erbe). ar(abe). signifie principalement «s’enfuir, devenir sauvage» et qu’en éth. le sens prédominant à côté de «errer», rare en g(uèze)., est «être fou». La valeur centrale semble bien être «transgression des limites (du groupe, du monde familier, de soi-même)»: «s’enfuir, errer à l’aventure seul, être égaré, perdu, hors de soi», etc. Dans ce cas *ʾBD* pourrait être une forme à élargissement initial de *BD* qui connaît par ailleurs un élargissement par *-W-* médial en syr. avec *bād* «périr», et serait à rapprocher de *BDʾ/W*. Faut-il comparer éth. amh. *abädät* «qui marche très lentement (homme ou bête)»?” W. Leslau (1987: 2-3) too treated this Semitic root as one with Sem. *√ʔbd “to perish” from a common basic meaning “1. to be lost, go astray (either by not finding the way or in one’s mind, i.e., become mad, wild), 2. disappear, perish, be destroyed”.

[8] As W. Leslau (1987: 2) notes, this meaning is irrelevant: “Dillmann 760 also translates *ʾabda* ‘run away’ on the basis of 1 Kings 25:10, but the Asmara Bible edition has *taḫaṭʾa*”.

[9] K. Naït-Zerrad (DRB 27) referred to *√brḍ “avoir la diarrhée”.

[10] According to the commentary of DRS l.c.: “... d’ap(rès). une interprétation (douteuse) de WUS 47; une autre hypothèse *tbṭ* = h(ébreu). *tubbaṭ* «elle est vue» *(NBṬ)* est aussi peu sûre selon UT 371 (nº 456); mais TO traduit *bh btt ltbṭ, wbh tdmmt ảmht* par «ne voit-on pas ici la honte et l’inconduite des servantes ...».”

de l'eau agitée dans un récipient" [DRS] (Sem.: DRS 59) < **SAA *√bṭ** "to emit some sound" [GT].

81. Birgit bíḍḍèŋ (m), bíyáḍḍèŋ (f), pl. níyáḍḍèŋ "petit" [Jng. 2004: 351] || CCh.: Lame bíḍém (adj.) "court, ras, rabougris" [Sachnine 1982: 286] ||| NOm.: (???)[11] Mao-Bambeshi bɔçɛmale "narrow" [Atieb & Bender] (isolated in Mao apud Bender 2003: 356, #63) ||| NBrb. *√bẓn (regular < AA *√bçn) "small" [GT]: Mzab a-beẓẓan "petit, jeune", Wargla a-beẓẓan "jeune, petit, enfant" (NBrb.: DRB 157: isolated in Brb.) < **SAA *√bçN** "small" [GT].

82. MT *baḍy- "...-in-law" [GT]: Toram bàḍye "belle fille", bàḍyeet "belle soeur", bàḍyiti "beau frère" [Alio 2004: 252-3, #35-37], Birgit bà?ʒìitù "mon beau-père" [Jng. 2004: 351] | WDangla bàḍyà (f) "mariage, ou plus exactement phase décisive du mariage", báḍyé "passer une phase décisive du processus de mariage, se marier" [Fédry 1971: 76-77], Bidiya bàaḍyò (m) "demande en mariage" [AJ 1989: 55] < ECh. *baḍy- "to be related by marriage" [GT] ||| LECu.: Afar bàḍuw (m) "young unmarried girls (jeunes filles non mariées)", baḍuwwīnu (m) "being of marriageable age (of girl), nubility (fait d'être en âge nubile)", baḍuww-use "preparing a girl for marriage (préparer une fille au mariage)" [PH 1985: 66], cf. perhaps also Afar buḍa "1. family, 2. home, occupied house, household" [PH 1985: 74] **< SAA *√bč̣** "to marry" [GT].[12] Part of a widespread PAA root family[13] that may be distributed in the following "sister roots":

82.1. PAA *√bč̣ "1. to press into (out?), penetrate, 2. copulate"[14] [GT] > Sem.: cf. perhaps Classical Ar. baẓẓa (baḍḍa) "faire des efforts, travailler avec zèle et assiduité à qqch." [BK I 139; DRS 61, bt̬t̬1: isolated in Sem.] ||| NBrb. *√bẓ "1. enfoncer, 2. plonger, tremper" [GT]: i.a., Qabyle e-bbeẓ "plonger, enfoncer", bbeẓbeẓ "être mouillé, trempé (vêtement, sol ...)" [Dallet 1982: 61] | Mzab ə-bbəẓ "1. piquer d'une pointe quelconque, 2. tremper, plonger dans un liquide ou ailleurs, 3. coïter" [Delheure 1984: 17] = bbeẓ [DRB], Wargla bbeẓ "tromper, plonger, piquer, enfoncer une pointe, un objet quelconque par un bout dans un liquide" [Delheure in DRB] | Tamazight bbeẓ "1. plonger, immerger (dans un liquide), 2. (s')enfoncer (dans un liquide)" [Taïfi 1991: 43] (NBrb.: DRB 154-155, bẓ5) || SBrb.: Ahaggar biliteral *√bẓ "to press" [GT] > a-ġbeẓ "1. presser dans la main en la refermant (les doigts et en serrant entre eux), 2. (p.ext.) masser (une partie du corps qcq. assez étroite pour être à demi enfermée dans la main) en la serrant dans la main à demi fermée" and e-rbeẓ "1. presser en tous sens avec la main ouverte (ou demi-ouverte), 2. (p.ext.) masser (une partie du corps qcq.) avec la main ouverte (ou demi-ouverte)" vs. beẓbeẓ "copulation (entre 2 personnes de

[11] GT: unless it is to be segmented as a compound like *bɔçɛ-male.

[12] One is tempted to seek here an (alternative?) etymological connection to SBrb.: Ahaggar a-beẓ "1. saisir à main fermée, 2. prendre par bouchées, 3. prendre par poignées", ti-bbiẓ-t "poignée, bouchée", Niger a-beẓ "prendre, saisir" (SBrb.: DRB 154, bẓ2) in the light of banal analogies. Cf., e.g., Akk. aḫāzu "1. nehmen, 2. heiraten, 3. lernen" [AHW 18b] < Sem. *√ʔḫd "prendre, saisir" [DRS 15, ʔḫd1] or Hung. el-vesz "takes away" > "gets married".

[13] On which cf. also Takács 2022a (MTAA III), 80-82, no. 153 in its full details.

[14] This semantical shift is paralleled, e.g., by Hungarian basz- "to copulate" borrowed < OTurkic bas- "to press" whence the same secondary sense has also evolved in a Tartarian folk song and Karachay too (MNyTESz I col. 256b).

sexes différents)" [Foucauld 1951-2: 114, 116, and 118, resp.; DRB 154, bẓ4: isolated in Brb.][15] ||| CCh. *ḅVc- < **bVç- "to press, squeeze" [CLD]:[16] Higi-Bana ḅəsə "presser, extraire beaucoup de liquide" [CLD < Giger & Lienhard?] | Paduko ḅičə "serrer" [CLD < Jarvis & Lagona?] | Lamang ḅica "to press (through sieve)" [Wolff], cf. also Lamang əbica (sic: -b-) "to squeeze" [Hamm], Vemgo ḅicu "to squeeze" [Hamm] (CCh.: CLD VI 75, #153a) || ECh.: Birgit ḅàaǯí (ḅàaǯá, ḅàaǯò)[17] "foquer" [Jng. 2004: 351].

82.2. PAA *√bč̣ "(male) genitalia: penis" [GT] > Sem.: NSyriac (?) būṯā [-ṯ- regular < Sem. *-ṯ- < AA *-č̣-] "pénis" [DRS 51-52: dubious Sem. etymology][18] ||| NBrb.: Shilh a-baẓẓa "verge (membre viril)" [DRB 155, bẓ7: isolated in Brb.?][19] ||| LECu.: Afar buḍḍḗ (-ddˇ-) (f) "das männliche Glied" [Reinisch 1890: 825] = buḍḍe (f) "penis" [PH 1985: 139][20] = Saho-Afar buḍḍe (-ddh-) "Penis" [Lamberti: -ddh- < *-ḍ-], Saho buḍḍe (-dhdh-) "penis (pene)" [Vergari 2003: 57] (not found in Reinisch 1890) | Oromo biṭṭoʔ "penis" [Lamberti][21] > SOromo dialects biṭī "penis" [Stroomer 1987: 274] ||| NOm.: PYemsa *buḍ- (???) [GT] > Yemsa burʔà [GT: -rʔ- < *-ḍ- may be regular] "Penis" [Lamberti 1993b, 333: isolated in Om.] (Yemsa-LECu.: Lamberti 1993b, 333).[22]

82.3. NAA *√bč̣ "1. to eject fluid (by pressing?), 2. ejaculate (semen)" [GT] > Sem.: Syrian Ar. baẓẓ "1. faire jaillir en pressant, lancer, rendre par jets, 2. procréer des enfants en grand nombre" [DRS 61, bṯṯ1: isolated in Sem.] vs. Ar. √bwẓ I "1. injecter, lancer le sperme dans l'utérus" [BK I 178] = "éjaculer, copuler" [DAFA 917b] = "éjaculer" [DRS 51: isolated in

[15] Affiliated by K. Naït-Zerrad (DRB l.c.) himself with NBrb.: Mzab ə-bbəẓ "1. tremper, plonger dans un liquide ou ailleurs, 2. coïter" [Delheure 1984: 17] etc. (above).

[16] Based by O.V. Stolbova (CLD VI 75, #153a) on a semantically unreliable comparison with CCh.: Zulgo (Zelgwa) buc "masser, pétrir avec la main" [CLD < HLDPBMA], Mafa mbác- "piétiner" [Barreteau], Muyang ámbàc "to crush an object" [CLD < Smith]. She even took note of Lamang əbica [Hamm] vs. Lamang ḅica [Wolff] and Zulgo bac, ḅac "1. briser, casser; 2. tuer" [CLD < HLDPBMA], although she too admitted that a "secondary emphatization (*ḅVc- > ɓVc-*) is not regular", but "in a number of languages two emphatics are not compatible in one word". Her comparison of all these diverse CCh. parallels with Sem.: Ar. √bṣw I "presser (son débiteur en réclamant de lui son dû)", II "rendre eunuque" [BK I 133] is either semantically or phonologically vague (or both).

[17] Regular < *bāč̣- via metathesis of the glottalization. Note that its coincidence with ECh.: Kabalay and Nancere bažaž "engendrer" [Hamm 2002 MS: 26, #154] may, however, prove to be illusory as these may represent a distinct root to which their typical verbal prefix ba- was added, while the root itself contains just a plain fricative ž (j), not the affricate ǯ (dj).

[18] Cf. Sem. *bawṣ/ṭ- "bottom" [GT]: Mandaic buṭa "bottom, anus (still used)" [Drower-Macuch 1963: 54] = "anus, derrière" [DRS 51], NSyriac būṣā "croupe" (borrowed < Ar.) [DRS] | Ar. būṣ- "fesses" and bawṣ- "3. chairs grasses et molles de fesses", cf. √bwṣ II (denom.) "avoir les fesses très-grandes" [BK I 178] = būṣ- and bawṣ- "croupe saillante, callypigie" [DRS], cf. also Ar. buʿṯuṭ- (root ext. -ʿ- and -ṯ-?) "2. fondement, derrière avec les parties de la génération" [BK I 140].

[19] Affiliated by K. Naït-Zerrad (DRB l.c.) with a phonologically apparently distinct root, cf. EBrb.: Ghadames ta-baḥṣuṣṣ "queue d'animal (cheval, chacal)" [Lanfry 1973: 7, #43] || SBrb.: Kel Ui ta-basus-t "queue" [DRB] || NBrb.: Shilh a-baṣṣa ~ a-ṣabba "queue (d'animal)" [DRB] | Tamazight a-baṣṣa, pl. i-baṣṣ-iw-n "queue (d'animal)" [Taïfi 1991: 35] = a-bassa ~ a-baṣṣa ~ ta-bzza-t [DRB] (Brb.: DRB 130, 133, 148).

[20] Equated by Ch. Ehret (1995: 112, #101) with Ar. baẓẓ- (verbal noun) "to grow fat" and NOm.: Bench(non) ṗûč̣ "many, much" < AA *-ṗûç- "to increase (intr.)".

[21] M. Lamberti (l.c.): "Entsonorisierung des Ejektivs" in Oromo.

[22] Whence M. Lamberti (l.c.) set up an "altkuschitische" stem *b/muḍ- "penis" which he eventually derived from the homophonous verbal root "sprossen" assuming an interchange of *b- vs. *m-.

Sem.] ||| NBrb.: Qabyle bbiẓeẓẓ “1. couler à petit jet, 2. couler goutte à goutte”, a-biẓẓeẓ “petit filet d’eau” [DRB] | Shilh biẓẓi “jaillir” [DRB][23] (NBrb.: DRB 155, bẓ7: isolated in Brb.?).

82.4. PAA ***√bč̣**, var. ***√bĉ̣** “1. seed, 2. semen (???)” [GT] > Sem. *√byṭ: Ar. bayẓ- “1. aqua spermatica seu semen genitale admissarii, vel viri, vel mulieris, 2 item: uterus mulieris” [Freytag 1837: 51] = “1. liqueur nécessaire à la génération, 2. sperme” [BK I 185] = “sperme” [DRB 155, byṭ: isolated in Sem.?][24] ||| ECu. *bVḍ(aḥ)- (*-ḍ- obscure) “seed” [GT]: Arbore bā́ḍ-o (f) “seed prepared for sowing” [Hayward 1984: 345] | Gawwada poḍaḥḥo “Saat” [AMS 1980: 264] ||| NOm.: Zergulla bic̣̆ɛ-tta “seed” [Siebert-Hoeft in Bender 2003: 93, #114a] || (???) SOm. *ḅēt-a “seed” [GT]:[25] Ari ḅēta [Tsuge], Banna ḅeta [Masuda apud Tsuge], Hamer beta [Fleming] = ḅeta [Tsuge], Karo ṗeta [Fleming] (all Aroid reflexes signifying “seed”, quoted from: Bender 1994: 157; 2003: 216: #114; Tsuge 1996: 169, #184).

82.5. A further, remotely related, root variety might be **PAA** ***√bĉ̣** “(to hatch an?) egg” [GT] (with deviant lateral affricates in the C_2) > Sem. *bayḍ/ĉ̣-at- “egg” [Dlg., SED]:[26] cf. esp. Ar. bayḍatu ’l-ǧanīni “ovule, [goutte de] sperme (?) / [drop of] sperm (?)”, bāʔiḍ- (adj.) “pondeuse, couveuse (poule, etc.) / laying, brooding (hen etc.)”, bāḍa I “pondre (oiseau etc.)” [DAFA 948a-949a] ||| EBrb.: (?) Siwa ta-beṭao-t “egg" [Paradisi 1961: 299] ||| WCh.: Ngizim ḅàḅə̂ú “to hatch out of egg” [Schuh 1981: 29] || ECh.: Kwang-Mobu bèḍī “to hatch out (eggs) / incuber, couver (les œufs)” [Jng. 1973a MS: 32, #775], Kwang-Ngam bèḍi “incuber, couver (des œufs)” [Jng. 1973a MS: 9]. In the light of the Ngizim reflex, Kwang can hardly be just an Arabic loan. The variety ***√bĉ̣** with the non-glottalized lateral C_2 may be reflected in WCh.: SBauchi *mbūŝ$_{1}$ì “egg” [Shimizu][27] || CCh.: Mbara mbòs “yolk, jaune d’oeuf” [TSL 1986: 291]. The Sem.-SBauchi match is due to the Muscovite AA team of I.M. D’jakonov.[28]

[23] O.V. Stolbova (CLD VI 76, #160) combined NBrb.: Shilh biẓẓi “jaillir” [DRB 155] with CCh.: PMafa--Mada *ḅaç- < PCh. *baç- “to pour, sprinkle out” [CLD]: Muyang ábác “to sprinkle water out of bowl using hand” [Smith], Mafa ḅac- (+ ‘water’) “verser de l’eau pour arroser” [Barreteau] ||| Sem.: Akk. baṣāṣu (lexicographical lists) “to trickle” [CAD b 134] || Ar. √bṣṣ, √bṣʿ “couler, suinter” [BK I 131f].

[24] Of course, the DRS (l.c.) attempts at rendering this isolated form as a variation of Sem. *√byṣ “white”. L. Kogan and A. Militarev (SED I 41, #43), in turn, were perhaps the first to reckon with this conventional Semitological etymology being better disposed to assume in this term for “sperm” a trace of a PSem. variety *bayṭ- “egg” that would be reflected, in their view, in MSA also: Harsusi bēḍeh “egg” [Johnstone 1977: 21], EJibbali béḍ “egg” [Johnstone 1981: 60], Mehri bīḍayt “egg” [Johnstone 1987: 60]. Alternatively, the authors of SED regarded the MSA forms (displaying not the expected sibilant C_3 reflex) as Arabisms. Nevertheless, it seems wiser to treat Ar. bayẓ- rather as a root variety to √bwẓ.

[25] Provided it displays the same glottalization metathesis (i.e., *ḅēt-a < **bēṭ-a < **bēc̣̆-a???) that has so far been only known in Chadic. Otherwise, one is disposed to affiliate it with Om. *√bd “(to sow) seed” [GT]. Cf. Takács 2022: 128, #85.

[26] Sem. data: DRS 63; Dlg. 1986: 80-81, #24; Militarev-Kogan 2000 MS: 47-48, #43; SED I 41, #43.

[27] Cf. Zaar-Kal & Lusa bùùŝ, Polchi mbwòŝ, Saya mbuŝ, Geji mbuuŝì, Zem mbòòše ~ mbùŝ ~ mbòŝ, Barawa mbuŝ ~ mboŝ, Buli mbiŝ (SBauchi: Shimizu 1978: 23 & 18).

[28] See SISAJa I 35, #43 (Sem.-Ometo-Bauchi-CCh.); Diakonoff et al. 1986: 22; Diakonoff 1992: 11-12 (Sem.-NBauchi-Siwa-Ometo); OS 1988: 76, #37 (Sem.-NBauchi); Militarev-Stolbova 1990: 50 (Sem.-WCh.); Stolbova 1991 MS: 8; 1995: 62 (SBauchi-Ar.); HSED #354 (Sem.-SBauchi adopted also in the SED I l.c. supra). See also EDE II 363-364.

82.6. The same biradical core root survives presumably in **Sem. *√bṯr** [DRS] > ***bi(n)ṯur-** "clitoris, vagina" [SED][29] (with a nasal and a C_3 *-r root extension?): Akk. (OBab., Standard Bab.) biṣ(ṣū)r-u "weibliche Scham" [Holma] = biṣṣūr-u "female genitals" [CAD b 268] = biṣṣūr-u "weib. Scham, vulva" [AHW 131a] = "vulve" [DRS] || Ar. baẓr- ~ baẓar- ~ bayẓar- ~ bunẓur- "clitoris" [BK I 139] = baẓr- "clitoris", cf. baẓr-at- ~ buẓ(ūr)r-at- "1. excroissance (de la lèvre supérieure), 2. (qqf.) touffe de poils (sous l'aisselle, etc.)" [DAFA 695], cf. a root variety in baḍr- "clitoris feminae quae praecidi solet" [Freytag I 128] (Sem.: Holma 1911: 101; DRS 61; SED I 35, #37).

82.7. PAA *√bǰ "offspring, child" [GT] > NBrb. *√bẓ: Wargla ta-bẓa "marmaille, enfants, jeunesse", Figuig a-bẓiẓ "garçon", Snus l-beẓẓ "marmaille", a-bẓeẓ "petit enfant" | Tamazight beẓẓ (var. de bezz) "enfanter" (NBrb.: DRB 155, bẓ11: var. to *√bz?) ||| LECu.: Saho and Afar bā́ḍ-ā, fem. -ā́ "Kind: 1. Sohn, Tochter, Knabe, Mädchen, 2. bei Tieren das Junge" [Reinisch 1886: 829-830; 1890: 83-84],[30] Saho barha (-rh- standing for -ḍ-) "son", barhä "daughter" [Vergari 2003: 53], Afar bā́ḍ-ā "figlio", fem. bāḍ-ā́ "figlia" [Colizza 1887: 112] = baḍa "daughter" vs. bàḍa "son" [PH 1985: 65] ||| NOm.: PYemsa *buḍ- (???) [GT] > Yemsa bur(ʔ)ussi (nur als Plural belegt) in: burus-nì kit/yó "Kinder, Buben", burussí-sà kit/yó "die Kinder, Buben" [Lamberti 1993b: 333: isolated in Om.] ||| WCh.: Hausa báḍḍò "girl born after several males" [Abraham 1962: 56].

83. Birgit (Magrane) bat^{h}a "rivière" [MMW 2007 MS: 44, #67] ||| SOm. *√bt "river" [GT]: Ari bōda [Bender & Tully], Hamer baiti [Fleming][31] (isolated in Aroid apud Bender 2003: 255 and 350, #74) < **SAA *√bt** "river" [GT]. Cf. also Sem. *batt- "measure for liquids" [GT]: Hbr. bat, pl. battīm "ein Maß für flüssige Dinge (an Inhalt gleich d. Epha)" [GB 122][32] || ES: Geez bet ~ bāt "measure of fluid" [Leslau], Tigre bat "mesure pour les liquides" [DRS] (Sem.: DRS 90; Leslau 1987: 112) ||| PCh. *√bt [GT]: i.a. CCh. *bVt- "to pour" [CLD]: Higi-Futu bìtìyi "to pour" [Kraft] | Zelgwa (Zulgo) bàbùt "déborder en bouillant" [HLDPBMA] | Mbedam (Mbudum) bə̀t "verser" [Ndokobai]. For this Sem.-Ch. comparison cf. CLD VI 50, #60, where the Chadic parallels were explained by O.V. Stolbova from her pre-PCh. **bVṭ- > PCh. *ḅVt- "to flow, pour".

[29] The AA etymology of the Semitic stem has been obscure. The authors of the DRS l.c. assumed a triliteral root manifesting itself in baẓr- (baḍr-) which was secondarily enlarged by an infixed nasal or -y- extension: "L'ar connaît d'autres formes à élargissement" in bunẓur- (bunḍur-), bayẓar- (bayḍar-). One wonders if and how Ar. biẓrir- (biḍrir-) "(femme) vulgaire, à la langue bien pendue" and ta-baẓrama (ta-baḍrama) "se montrer vulgaire" (Ar.: DRS 61) are also connected to this triradical root. Regarding their reconstruction as "reliable, though attested in Akk. and Ar.", L. Kogan and A. Militarev (SED l.c.), in turn, were disposed to regard the nasal as part of the original quadriliteral root: in their view, Akk. -ṣṣ- "may point to *-*nṣ*-".

[30] Of course, neither of the comparisons (Somali wil or Macro-Canaanite *√bn, *√br "son") offered by L. Reinisch (1886: 829) is phonologically convincing.

[31] To be distinguished from Hamer bʌš, baz- (?) [Lydall]?

[32] GB l.c.: Hbr. bat < *bad-t = BAram. bad "Kelter". Leslau l.c.: ES < Hbr.

84. Kujarke bíítà “louse” [Bender & Doornbos 1983: 77, #49] ||| NAgaw *bət- “louse” [Apl. 1984] = *bətt-[33] “louse” [Apl. 2006]: Bilin bəta, Hamtanga bətta, Hamta bĭt, Kemant bəta, Qwara bəta, Kaïliña biṭa (NAgaw: Apl. 1984: 41; 1996: 16; 2006: 95) < **SAA *√bt** “louse” [GT].[34] The Kujarke-PAgaw comparison was first suggested in an unpublished work by P. Whitehouse (from 2005)[35] on African isolates (which “points to its particular lexical links with Cushitic and Chadic”) as we learn from R.M. Blench (2008a-b MS: 2). Then, V. Blažek (2015: 80, #49) recorded the same match (extended to an uncertain Beja parallel)[36] on his own also, independently, just as I have done also now by my research for the MT comparative lexicon where I have accumulated the authentic sources in the first place. Further PAA root varieties:

84.1. PAA *√bṭ “sort of small parasite insect: flea (?)” [GT]: WCh.: Bole ḅùdòti “mosquito” [Kraft in JI] = bòḍòtì “mosquito” [GAB] < *b/puḍ- [GT] | Ngizim ḅàḅə́t, pl. ḅàḅə̀tàtín, var. ḅàḅə̀tàučín “flea” [Schuh 1981: 28][37] ||| NOm.: Zaysse bāčō “bedbug (vermin)” [Fleming apud Bender 2003: 82, #7] ||| NBrb.: Shawya a-bḍiḍ “pou du chien” [DRB 30: isolated in Brb.].[38]

84.2. PAA *√Pṭ (*p-/*f-) “some small insect” [GT]: ECh.: WDangla páḍà “small mosquito” [Fédry in JI] (Ch.: JI 1994 II 242-243) ||| NBrb.: Iznasen, Senhazha, Rif a-fḏiḏ “tique (acarien femelle gros et gris)” [Renisio 1932: 297] = a-fḍiḍ [DRB], Figuig a-fḍiḍ “parasite des chameaux” [DRB], Beni Snus a-fḍiḍ “pou des chiens” [DRB] | Shilh a-fḍuḍ “tique des moutons, des chameaux, des bovins” [DRB] || SBrb.: Ahaggar ĭ-fûḍiḍ, pl. i-fûḍîḍ-en “petit pou gris de chameau” [Foucauld 1951-2: 305] (Brb.: DRB 532, fḍ4).

85. Mubi bùtúutú (coll.) “brouillard” [Jng. 1990b MS: 6; 2013: 163] | DM *bōt- “smoke” [GT]: WDangla bòòtè “faire suffoquer, empester l’air” [Fédry 1971: 93], Migama bóttó[39] “enfumer” [JA 1992: 71], Bidiya bòt “enfumer trou pour déloger un gibier (écureuil)” [AJ 1989: 60] ||| SBrb.: EWlmd. a-ḥotta, pl. i-ḥotta-n [ḥ ~ h reg. < *b] “vapeur (chaude)” [PAM 1998: 138] ||| LEg. bhd[40] “1. Duft einatmen, Wohlgeruch riechen, 2. atmen, 3. (ein Gebäude, mit einem Duft) durchräuchern, jem. beräuchern (mit Wohlriechendem)” (XXII. and GR, Wb I 467, 12-14 and 468, 1-4) = “1. to inhale, sniff, smell, 2. fumigate” (Ptolemaic, PL 323) and bhd (but written bht) “Wohlgeruch, Duft, 2. duftender Stoff (mit dem das Auge voll

[33] In the view of D. Appleyard (2006: 95), “The geminate *-tt-* is required not only to explain the same in Xam(tamnga)., but also to account for the absence of the change *t* > *y* in Kem(ant).”

[34] To be distinguished from NOm.: Sezo *bizil-E “louse” [GT after Bender 2003: 276, #84] ||| Sem.: Ar. baddala “mépriser, dédaigner” || MSA: Soqotri bédel “être sale”, bédol “salir” (Sem.: DRS 47, BDL1 among false comparanda) < PAA *√bƶl “to despiseful (?)” [GT].

[35] Which I could not check when writing this paper, this manuscript being unavailable to me at the moment.

[36] He compared Beja b’ūt “wood-boring beetle” [Roper 1928] also, although it remains semantically rather vague.

[37] Equated by Ch. Ehret (2000 MS: 458, #3167) with Eg, pj “flea” < AA *pay- “flea”.

[38] Reference is made to NBrb.: Shawya i-wṭeḍ “lente” | Qabyle i-weṭṭ || SBrb.: Ahaggar ă-woḍ.

[39] The geminated *-tt- might be perhaps due to an assimilation from *-ht-? In this case we may assume either an irregular correspondence of Eg. -d < AA *-t or LEg. bhd < OEg. *bht.

[40] In principle, it may well be actually a late writing of *bht also.

gemacht wird)" (Ptolemaic, Wb I 467, 15-16) < PAA *√bht "smoke, steam, vapour" [GT]. Cf. EDE II 279-280; EAAN I 39, #131.

85.bis. Toram biitim (sic: -ii-) "grand tambour" [Alio 2004: 253, #55] | Lele ḅīrīm "medium drum (placed on the ground)" [Simons 1981 MS: 11, #140b] = ḅìrìm "tambour sp." [WP 1982: 10] < ECh. **biṬ/ṭim (?) → *ḅiTim "kind of drum" [GT]. Etymology ambiguous:
85.bis.1. Perhaps akin to Chado-Sudanese Ar. bātin "1. very large bowl of metal, 2. bath" (Lethem) [RL 1969-1972: 42: no Ar. etymon; DRS 90: not even listed among the Sem. roots], albeit its origin is obscure for me, via a semantic shift "bowl, kettle" → "drum"?
85.bis.2. Or might ECh. **biṬ/ṭim derive via metathesis < **Ṭ/ṭimb-? Perhaps cf. HECu. *dimb-e "small drum" [Hudson 1989: 53] < *dibb- [Leslau 1988: 186-187][41] ||| Sem.: Ar. dabdāb- "tambour" || MSA: Soqotri deba/obeh "tambour" || ES: Geez dəbb(a) ʿanbasā and Amharic dəbb ambässa "timbale, grand tambour", Tigre and Tigrinya däbay "grand tambour", Gurage dəbbi, dibbe "sorte de tambour" (Sem.: DRS 205, DBB2 and 207, DBDB2)[42] with metathesis?
85.bis.3. Or akin to Eg. tbn "Handpauke, Trommel" (GR, Wb V 262, 5) = "die runde Rahmentrommel (wird bei ihrem frühen Auftauchen mit tbn bezeichnet)" (E. Hickmann, LÄ VI 769)[43] via metathesis?

[41] A.B. Dolgopol'skij (1966: 75, #5.33) compared mostly ECu. -bb- reflexes except for Burji dimba (without reconstructing any ancestral form), which suggests he may have meant it to be just an areal *Wanderwort*. The HECu. reflexes were compared by H.-J. Sasse (1982: 56) with LECu.: Konso timp-a [Sasse] and Dullay: Harso and Gawwada simp-o (ignoring Gollango timpo) "Trommel" [AMS 1980: 275] < a common ECu. *zimb- noting "similar forms in" LECu.: Rendille ǯibanǯib and even Somali durb-ān (without any attempt to explain the rather strange phonetic shifts it would presuppose), a comparison that is very hard to follow. At any rate, Oromo and the HECu. languages reflect *dibb-. No surprise that W. Leslau (1988: 186-187) has, in turn, listed further HECu. comparanda corroborating an etymon *dibb-a, which he affiliated with the Semitic root above.

[42] In both cases, the DRS (ll.c.) lists the terms for "drum" among the reflexes of an onomatopoeic root signifying, a.o., "to hit", cf. esp. Sem *√dbdb > Ar. dabdab-at- "bruit produit par les sabots des chevaux", Geez dabdaba "frapper, écraser", Tigre dəbdəb belä "piétiner", Amharic däbäddäbä and Gurage dəbädäbä "battre, frapper" (Sem.: DRS 207) ||| Eg. dbdb "klopfen (vom Herzen)" (Med., Wb V 442, 5) ||| NBrb.: Qabyle ss-debdeb "cogner, frapper" | Shawya debdeb "1. sonner le creux, 2. résonner (tambour ...), donner des coups de poing dans le dos" || SBrb.: Ahaggar deb (mot sans signification figurant le son d'une tape, onomatopée), EWlmd.-Ayr dăbdăb "taper sur pour lisser (corde, etc.), être lissé pour tapage" (Brb.: DRB 283, DB3) < NAA *√dbdb "to beat" [GT] ||| ECu. *dub- "to beat" [Ehret] ||| WCh.: PGoemay *dap "to strike with hand" [GT]: Goemay dap "to strike with the flat hand" [Sirlinger 1937: 28] = dap "to slap" [Hellwig 2000 MS: 4] (AS: Takács 2004: 65). Eg.-Sem.: Vycichl 1958: 382; 1985: 171, §10; Eg.-Sem.-Brb.: HCVA IV 9-10, #252; Eg.-Sem.-ECu.: Ehret 2000 MS: 58, #1283.

[43] Usually combined with Sem. *ṭabl- "drum" [OS]: Akk. ṭabālu (wohl Fehler) ṭabal- [AHW 1376] = ṭabal-, var. tab/pal- "drum, tambourine" [HCVA] || Syr. ṭabl-ā "cymbal, tambourine" [HCVA] | Ar. ṭabl- "1. tambour, 2. timbale" [BK II 57] = "Pauke" [AHW 1376] = ṭabl-at- "тимпан, тамбурин, бубен" [OS] = "(kettle) drum" [HCVA] || MSA: Harsusi ṭabl, Jibbali ṭē/ā̃l, Mehri ṭābel "drum" (MSA: Johnstone 1977: 128) ||| Brb. *ṭVbVl- "drum" [OS]: NBrb.: Qabyle ə-ṭṭbəl || SBrb.: Ahaggar and Wlmd. e-ṭṭebel (Brb.: HCVA, not in DRB 445). The Semitic, Egyptian and Berber root was equated by the Russian authors (OS 1988: 75; HCVA III 30, #222; HSED #2450) also with WCh. *tambal- "барабан" [OS]: Hausa támbàríí "1. hemispherical drum" [Abr. 1962: 847 adopted in HCVA] = "полусферический барабан" [OS] | Ngizim támbàl "large type of drum" [Schuh 1981: 156: < Kanuri tə̀mbàl < Ar.] = "барабан" [OS] = "drum" [HCVA] || ECh. *tambal- "барабан" [OS]: Kera dəmàl "Trommel(art) / tambour sp." [Ebert 1976: 40] | Tumak tə́məl [HCVA: < *ṭVmbVl < *ṭabl̥] "tambour (tenu sous le bras, employée seulement les jours de fête, en l'honneur d'un chef)" [Caprile 1975: 95] | Sokoro támbal

86. Masmaje ʔàmbìtìnytìny “oiseau sp.” [Alio 2004: 280, #7] | Somray bádənyā (compound?)[44] (m) “oiseau sp., rapace” [Jng. 1993 MS: 3] || WCh.: perhaps Hausa bìǐčìlmíí vs. (Sokoto dialect) bìǐtìlmíí (regular palatalization of shift či < (*)ti) “black ostrich” [Abraham 1962: 98 and 106, resp.]?

MT *b- + sibilants

Ad MTAA I 326-327, #37: in the light of MT *bis- “mosquito” [GT] | DM *bis- “mosquito” [GT] | Mokilko péssò [Jng.] | Kabalay təsəbə́ [Caprile] < *təbəsə́ (via metathesis) < **ta-bis- [GT], Lele tèmsé [Gowers] < *te-bse [GT] | PKera-Kwang *tōsi < **ta-bsi [GT based on JI], a common ECh. *bis- “mosquito” [GT] was suggested in 2009 precisely as done by O.V. Stolbova a decade later in 2019 (CLD VI 72, #141) who equally focused purely on the ECh. reflexes with *-s without a mention of the wider Chadic context. Still, further Chadic data suggest a puzzling C_2 other than *-s, cf. ECh.: PSomray *bēd- “mosquito” [GT]: Somray bédē “2. moustique” [Jng. 1993 MS: 4], Sarwa ɓétè “mosquito / moustique” [Jng. 1973b MS: 13, #312], Tumak beta “mosquito” [Jng. in JI] = bēéd “moustique” [Caprile 1975: 48], Ndam bídé “mosquito” [Jng.] || CCh.: Bata awide [Mouchet] < *-vid- (?) [GT] || WCh.: AS *mfu$_2$t (with nasal prefix) [GT: AS *fu/^{w}- regular < Ch. *b^{w}-] “mosquito” [Takács 2004: 113] | Tsagu véesən “mosquito” [Skinner], Pa’a vìtùwí “mosquito” [M. Skinner] | BN *-vədùwà “mosquito” [GT]: Ngizim vədàdùwà [Schuh], Duwai əvədùwà [Schuh], WBade əvdàdùwan [Dagona] (Ch.: JI 1994 II 242-243). On the basis of the BT-BN-Somray parallels, O.V. Stolbova (CLD VI 46, #46) isolated PCh. *bVd- without mentioning anything beyond in all other Chadic branches. The ultimate etymon PCh. *-bd(s), assumed in JS 1981: 184A along with the sub-varieties like A_1 ECh. *b-s and A_2 ECh. *tbs and A_3 W/CCh. *-bd (Ron-Tera?), does not satisfy us either as the groups of *-ds, apparently visioned as the source of the altering C_2 in the reflexes, does not occur at a time in any of the parallels known from the available sources. In my view, the enigma may only be resolved by assuming a PAA sibilant affricate like *ǯ or *č (well-known to yield both plosive and fricative reflexes in NAA)[45] in the C_2, whose regular reflexes have not yet been sufficiently studied, I am afraid. Remotely related may be the following root varieties (equally with an affricate C_2):
37.1. PAA *√bʒ “a parasite insect sp.” [GT] > NOm.: Sezo *bizil-E “louse” [GT after Bender 2003: 276, #84] > Sezo I bìzílɛ vs. II bìzíli “louse” [Siebert-Wedekind 1994: 14, #136] ||| EBrb.: Ghadames bizbiz “punaise” [Motylinski 1904: 151] = bezbiz “punaise”, bezbez “être infesté de punaises” [DRB: 147-148, BZ24]. Cf. also Takács 2022b: 137, #100 discussed s.v. NOm.: Sezo *bizil-E “louse” [GT].

“Trommel” [AF quoted in Lukas 1937: 39] < PAA *ṭab$_̥$ “drum” [HCVA] = *ṭabVl- “drum” [OS], derived by them eventually from their PAA *ṭab III [HCVA] = *ṭab- “container” [OS]. See also Wb l.c.; Orel 1994 MS: 4.

[44] The element bádə́-, however, occurs in a number of Somray (compound?) zoonyms, cf. bádə́čùdàngʌ (f) “moule sp.”, bádə́kʌŋ (f) “mante réligieuse”, bádə́kwʌlbə́ (m) “margouillat”, bádə́ŋădī (f) “sauterelle sp., comestible”, bádəpàpà (m) “oiseau sp., tacheté (oiseau porte-malheur)” (all exx. *ibidem*).

[45] Cf. PAA *ǯ > e.g., Aram. d, Eg. both z and d, Brb. both *z and *d or PAA *č > e.g., Aram. t, Eg. both s and t, Brb. both *s and *t.

37.2. PAA *√pc “an insect sp.” [GT] > NOm.: Gimirra-Benesho pas-ap (cf. ≈ inč-ap) “worm” [Breeze apud Bender 2003: 345, #110: isolated] ||| LECu.: Oromo fāčā “1. biting, flying insect” [Gragg 1982: 137] = “mosquito” [Hudson 1989: 102] ||| Sem.: Ar. fasfas- “1. punaise, 2. certaine plante puante”, fisfis-at- “punaise” [BK II 594] = fasfas- “bug” (sic) [OS]. ECh.: Mokilo pesso was first equated with Arabic and LECu.: Oromo fāča by V. Orel and O. Stolbova (HSED 422, #1968). For this match cf. also OmoAA VI = Takács 2021a: 95, #209.

87. Ubi bòǯìrà “aveugle” [Alio 2004: 268, #37] must have ultimately stemmed as a loan from some local Arabic dialect, cf. modern Ar. baṣīr which has come to signify dialectally “blind” also by an alleged euphemism.[46] This term is used and widely spread over immense territories in the western hemisphere of northern Africa as indicated in the WAD I 195-196:[47] namely, around Tripoli,[48] Tunisia,[49] Northern Algeria,[50] Morocco,[51] and Mauritania,[52] whereas in the eastern one, it allegedly occurs only in Yemen and, henceforth (although this is not indicated in the map of the WAD I 194), it may have passed into Eritrea also as indirectly evidenced by Tigre[53] and Saho.[54] Anywhere else in the Arabic dialects of North Africa, as we learn, at least, from the WAD I 196, only the etymologically original sense of Class. Ar. baṣīr- is attested: “qui voit bien, qui a une bonne vue” [TC] = “sehend, klar sehend” [WAD],[55] which cannot be entirely true. Although, as indicated in the WAD, the lexicons of Chadian Arabic indeed ignore the sense “blind”[56] and only list the signification of Class. Ar. baṣīr-,[57] our Ubi word convinces us otherwise. It could, having no convincing Chadic

[46] V. Loubignac (1952): “on préfère l’euphémisme *bṣyr*”. WAD I 196: “Speziell im Maghreb genanntes *bṣīr*, *bṣēr* ... ein Euphemismus”.

[47] My thanks go to M. Vergari (kind p.c., 25 Jan. 2023) for making this part of the WAD accessible to me.

[48] Cf. Libyan Ar. (Tripoli) baṣīr beside aʿma [FB = “Fragebogen”, i.e., questionnaires quoted apud WAD I 196].

[49] Tunisian (Sous) bsīr beside aʿma [Talmoudi 1980: 40, 114 quoted after WAD I 196].

[50] Cf. Algerian Ar. bṣyr (WAD: unvokalisiert) “aveugle, borgne, qui ne voit pas clair” [Beaussier apud WAD I 196].

[51] Cf. Moroccan Ar. (Zaër) bṣyr [Loubignac 1952 apud WAD I 196] and (Casablanca) bsīr [FB = “Fragebogen”, i.e., questionnaires quoted apud WAD I 196].

[52] Cf. Hassaniyya (Ar. dialect of Mauritania) baṣīr “aveugle, qui ne voit pas clair” [TC 1988: 102].

[53] Here, cf. ES: Tigre basīr (sic: plain -s-) “blind” (attested in the zone of Nakfa, Eritrea) [Idris 2005: 247]. I must gratefully acknowledge the information on the Tigre word provided by M. Vergari (kind p.c., 25 Jan. 2023) who confirmed that “Saleh la trascrive senza enfatica: basir (quindi immagino in fidel ባሲር)”.

[54] LECu.: Saho basīr (m), pl. basīrīn “blind man (cieco)”, basīra (f) “blind woman (cieca)”, imbissire “1. to be blind” [Vergari 2003: 54, 100, not listed in Reinisch 1890] not found in Afar (either in Reinisch 1886 or PH 1985). Neither M. Vergari (kind p.c., 25 Jan. 2023) could locate it in Afar.

[55] WAD l.c.: “In anderen Quellen wird baṣīr nur als ‘voyant, clairvoyant’ angegeben”.

[56] This is now confirmed by Prof. J. Lentin (Paris, GLECS, kind p.c. on 12 Feb. 2023) also, who, as a specialist of Arabic dialectology, admits: “I don’t know if this meaning is attested in Tchadian Arabic, but it should be, as in many dialects. It is attested in Sudanese Arabic (‘Awn al-Šarīf Qāsim p. 98 ...)”.

[57] Cf. Ar. (Sudan and Chad) baṣīr “1. overseer in water – wheel, 2. native healer, 3. farrier” (Hillelson) vs. baṣīr “1. careful, 2. wise, 3. discreet” (Lethem) [RL 1969-1972: 52] and Chadian Ar. basîr “voyant(e), rebouteux (-euse), inventeur (-trice), créateur (-trice)” [Pommerol 1999: 255].

cognates,[58] hardly issue from the heritage of a common Chadic stock. On the other hand, since its -ǯ- does not directly reflect the medial -ṣ-, we are warned to search for a local mediation or other circumstance that may have resulted in voicing its C_2. The research for a *baṣīr "blind" in the Chadian Arabic dialect thus must remain open.

88. Kajakse ʔàmbaǯala "faucille" [Alio 2004: 239, #22] must be a loanword somehow deriving eventually from Class. Ar. manǧal- "faucille de moissonneur" [BK II 1208], whence we have dialectal Ar. (Sudan and Chad) munǧal- "scythe, sickle, reaping-hook (sed for cutting grass)" (Hillelson) vs. munǧele "scythe", munǧeile "sickle" (Lethem) [RL 1969--1972: 481], which, however, do not explain the special form of the Kajakse term and thus could not have served as its direct source of borrowing. The puzzle is comparable to the enigmatic *Lautgeschichte* of Ubi bòǯìrà "aveugle" [Alio] (discussed in the preceding entry above).

89. Masmaje beeče "tubercule sp." [Alio 2004: 280, #25] may etymologically be related to CCh.: Balda mbèč [irreg. mb- < *p-] "enfler" [Tourneux 1987: 55] ||| Sem.: Ar. bṯw > baṯāʔ- "sol tendre et uni" [BK I 85] = baṯāʔ- "1. grasse (bête) / fat (animal), 2. molle, grasse (terre) / soft, heavy (soil)" [DAFA 376] = biṯāʔ- "(bête, terre) grasse" [DRS 91, BṮW1: isolated in Sem.] < **PAA *√bč** "to swell" [GT], which is also known from a few root varieties with diverse C_3 root extensions in Arabic as well as with different C_1 and C_2 in Arabic:
89.1. Ar. baṯiṭa "être enflée (lèvre) (?)" [BK I 84; DAFA 373; DRS 91, bṯṭ: isolated in Sem.].
89.2. Ar. baṯiʿa "être gonflé, se gonfler de sang au point d'être près de crever (se dit des lèvres)", ʔabṯaʿu "qui a les lèvres gonflées de sang et rouges", baṯaγ- "incarnat des lèvres ou de toute autre partie du corps gonflée de sang (cp. baṯiʿa, qui ne se dit que des lèvres)" [BK I 84-85] = baṯiʿa "être congestionné, enflammée (lèvre, gencive, partie du corps)" vs. baṯaγ- "congestion, tuméfaction (du corps) / swelling (of the body)", baṯaʿ- and baṯaγ- "congestion, tuméfaction" [DAFA 373-374; DRS 91, bṯʿ/γ: isolated in Sem.] (DRS 91, bṯʿ/γ: isolated in Sem., reference to √bṯṭ).
89.3. Ar. baṯara "être couvert de pustules, de boutons", V "se couvrir, être couvert de pustules", baṯr-, pl. buṯūr-, nom d'unité: baṯr-at- "pustule, bouton" [BK I 84] = baṯr- "aphte, pustule, bouton" > denom. baṯura and baṯira I "se couvrir de pustules, de boutons (corps, etc.)" [DAFA 374] = baṯr- "pustule" [DRS 91, BṮW1: isolated in Sem.].
89.4. PAA *√pS (***√pŜ** or ***√pč**)[59] "to swell" [GT].[60]

[58] Thus, in the light of the dialectal Arabic evidence, one can hardly conceive it as comparable, e.g., with WCh.: Hausa bìǯírà and bùǯírà "became out of control", bíǯìréé "refused to follow one's orders" [Abraham 1962: 99 and 116] in spite of the perfect phonological match and the tempting semantics.

[59] Ar. and Eg. -š- speaks for an AA lateral *-Ŝ, but the WCh. reflexes support AA *-č, whose regular match in Ar. would be -ṯ = Eg. -s. It would be difficult to explain the Ar. and Eg. cognates from AA *√pč "to swell" [GT].

[60] Attested in Sem.: Ar. √nfš [root ext. n-] > muntafiš- & mutanaffiš- "gonflé et mou à l'intérieur" [BK II 1312] = "anything swollen or humid and loose or flaccid or soft within" [Lane 2830] ||| NEg. pšj "a disease: pustule, swelling (?)" (NE, Edwards 1963: 11, fn. 30, not in Wb) = "pustule (?)" (AL 77.1503) = "*Eiterbläschen" (GHWb 296) → Coptic (S) ⲡⲁⲓϣⲉ, ⲡⲁϣⲉ, ⲡⲉϣⲉ, ⲡⲓϣⲉ, (S^{A}) ⲡⲓⲍⲉ, (B) ⲫⲁⲓϣⲓ, (O) *ⲡⲁⲉⲓϣⲉ (f/m) "a disease producing pustules, swelling" (CD 278b) = "eine Hautkrankheit: Pustel, Blase" (KHW 145) = "ampoules, pustules" (DELC 159) ||| LECu.: Oromo fuš-ā "boil at the joint of two parts of the body", borrowed into ES:

Mubi-Toram *b- + velars

90. Ubi biigì “viande”, big-boorì [-g- < *-ḳ?] “animal sauvage” [Alio 2004: 268, #29] | Ma(h)wa bìì̀k “Fleisch” [Jng. 1978 MS: 2] | Saba bíki “animal” [DMT 1996 MS: 30, #64] = biki “animal” [CLD], Sokoro biiki “Fleisch” [Barth] = ri bigi “Fleisch” [Adolf Friedrich] = bíki “Fleisch”, cf. biika maŋgadii “wilde Tiere” [Lukas 1937: 31] = bìkò, pl. bìkɛ̰̀ŋ (-e- middle tone) “meat / viande” [Saxon 1977 MS: 4 and 17] = bìkò “meat” [Saxon apud JI] (Sokoro: JI 1994 II 233)[61] | Kera bèké “1. Vieh (bétail), 2. Reichtum (richesse)” [Ebert 1976: 31] < ECh. *bik- “1. wild animal, 2. meat (of a wild animal)” [CLD VI 63, #108.a] = *bik- or *bīk- “flesh” [GT] || CCh.: Mada bòkw “gros morceau de viande” [Barreteau apud CLD] | Masa *bege “1. cattle, 2. *pecunia*” [GT]: Marba bègè “1. animal domestique” [Ajello et al. 2001: 3], hence, in a secondary sense (as in Latin *pecunia*), also Masa, Musey, Lew, Marba bègè “2. richesse, biens” [Ajello et al. 2001: 49] vs. ECh.: Sokoro (Bedanga) buuko “ox” [Benton 1912 quoted in CLD] = búgoo (Lukas), buuko (Barth), búko (Adolf Friedrich) “Kuh, Rind, Ochse” vs. bóógoo “Haustiere” (Lukas) [Lukas 1937: 31] = būgō, pl. bùgìyí “ox / boeuf” [Saxon 1977 MS: 17] || CCh.: Gamergu (Malgwa) buk-sánugaa “cow” [Benton 1912 quoted in CLD] (Ch.: CLD VI 63, #108) < PCh. *buk- “1. cow, ox; 2. cattle” [CLD VI 63, #108][62] = *√bk “1. cattle, 2. flesh, meat” [GT]. For its wider AA background see Takács 2022d (OmAA V), 678-679, #126.2. This item may indeed be a neat indication of both Ubi and Mawa belonging to the Sokoro group.

91. Ubi bòg-in “1. dire, parler, 2. langue” [Alio 2004: 268, #34] = **bogiɛ** “dire” [Hutchinson & Johnson 2006 MS: 21, #154] | WDangla bóógé “chanter (pour un coq)” [Frédry 1971: 94], EDangla bòkē “1. chanter (pour le coq)” [Dbr.-Mnt. 1973: 48] < ECh. *bōg- “1. to sing, 2. speak” || CCh.: Musey bak “parler”, [bak-(ŋa)] “conversation” [Platiel 1968: 8, 50, 64, 80, 82, 85, 86] ||| Sem.: Ar. baʔağa I and II “crier (se dit de l'homme)” [BK I 78; DRS 40: isolated in Sem.] vs. Ar. bāğ-at- “cris, tumulte” [DRS 59, BWG3].

92. Kajakse booge “rhinocéros” [Alio 2004: 240, #43] | perhaps WDangla bákà (m) “Oryctérope *Afer* (quand on a tué un oryctérope en brousse, tout le village doit ‘rester à cause du sang’), tête et queue” [Frédry 1971: 78] = Karbo (Dangla) baká “ant-eater” [el Minai n.d. MS: 14] ||| HECu. *bōkeʔe “(wild) pig” [Hudson 1989: 406]. Astonishing match with Kajakse in spite of the enormous geographical and genealogical distance.

92.1. An extension of the same root is presumably[63] represented by **CCh.: Masa *bagum** “pig” [GT]: Masa bākum [bàgūm-nā] (m) “le cochon”, fem. [bàgūm-tā] “la truie” [Caïtucoli

Gurage-Ennemor fušä “boil at the joint of two parts of the body” [Leslau 1979 III 247] ||| WCh. *pačw- “to swell” [Stolbova]: Daffo-Butura fos “geschwollen sein” [Jng. 1970: 214] | NBauchi *√pč [GT]: Warji pəč- “to swell” [Skinner], Pa’a pɨčùù “to swell, puff up (as stomach after eating too many beans)” [M. Skinner 1979: 200] = puču [Skinner], Diri fəču “to swell” [Skinner] (NBauchi: Skinner 1977: 43; WCh.: Stolbova 1987: 145, #9; 1996: 116) || CCh.: Mofu-Gudur -pəč- “germer, pousser” [Brt. 1988: 216]. Cf. EDE II 521; EAAN I 79, #359.

[61] Where JI are pretending as if this root were isolated in ECh.

[62] Equated by O.V. Stolbova (CLD l.c.) with NBrb.: Nefusa bɣu “veau (calf)” [DRB 83].

[63] Unless it is somehow related to PAA *√bKm “belly” [GT] (about which see entry #100 below).

1983: 48], Masa-Bongor bà:gúm-ná (m) “cochon” [Jng. 1971/2 MS: 155], (???) Zime byam, pl. bibyam [< *bgam?] “phacochère, cochon sauvage” [Beavon 1996 MS: 15].[64]

93. Kofa bògrá (f), pl. **bógràn** “quiver” [Jng. 1977b MS: 7, #137] ǁ WCh.: PBauchi *bang^{w}ar “quiver” [GT]: cf., e.g., NBauchi *baŋgw-r- “quiver” [Skinner]: Miya, Mburku, Kariya baŋgwar [Skinner] = Miya boŋgwər “quiver” [Kraft 1981 I 147, #236] = bàngwar, pl. bàngwaráràw “quiver” [Schuh 2002 MS: 7], Pa’a baŋgwara [M.G. Skinner 1979], Jimbin baŋgura [Skinner], Tsagu bogare [Skinner] (NBauchi: Skinner 1977: 35). Puzzled about the origins of this Bauchi term, both N. Skinner (l.c.)[65] and H. Jungraithmayr (JS l.c.)[66] failed to recognize the ECh. match, which makes the secondary (epenthetic) nature of the nasal C_3 as well as a primarily triliteral PCh. root like *√bgr clear. Whether this term is etymologically identical with the container name like ECh.: Tumak bɔgrā (m) “sac” [Caprile 1975: 50] is ambiguous,[67] but upon the analogy of WCh.: AS *ba$_{2}$ŋ “calabash” > *ba$_{2}$ŋ-ḅaw “quiver”, lit. *“calabash of arrows” [Takács 2004: 10], its etymological connection with PAA *√bgr (perhaps *bugur)[68] “sort of vessel” [GT][69] is conceivable.

Ad MTAA I #55: Birgit bùgùr (m), pl. **búgúréy** (f), pl. **búgúréy** “varan” [Jng. 2004: 351] has already been equated in my first MT paper 12 years ago with NBrb.: Shilh a-bγur “variété

[64] Unless its -y- was originally a glide also and thus it has in fact nothing to do with Masa *bagum “pig” [GT]. Cf. entry no. 105 (in part V of this MTAA series, forthc.) for Kofa ʔémbèn (m), pl. ʔèmbín “hedgehog” [Jng. 1977b MS: 12, #294].

[65] N. Skinner (l.c.) only could quote but the NBauchi parallels with this quadriliteral root, which he segmented ambiguously. In the very entry, he quotes an etymon implying by the hyphen as if we had to do here with a stem *baŋgw- extended for some (unexplained) reason with an extension *-r- (of unknown function). At the same time, in his footnote 174 on the same page, Skinner was undisturbed to voice *expressis verbis* an entirely different (albeit equally dubious) derivation: “*? ba/o-* and old prefix or separate morpheme.” That was all. We did not learn anything on his theory other than but quoting Hausa kwari among the extra-NBauchi *comparanda*.

[66] Not all of the languages listed in JS 1981: 209C have in fact this word: Goemay, N-SBauchi. Certainly, Goemay pang-bo (so, p-) “quiver” [Ftp. 1911: 219] = bang-ḅau “same shaped calabash used as quiver” [Sirlinger 1937: 11] = ban-ḅau [resolved < *baŋ-ḅaw?] “quiver” [Hellwig 2000 MS: 1, 3] and Montol bang “quiver” [Ftp. 1911: 219] represent common AS *ba$_{2}$ŋ “calabash”, hence *ba$_{2}$ŋ-ḅaw “quiver” (cf. *ḅaw “arrow”) as demonstrated by G. Takács (2004: 10). Instead of setting up a WCh. etymon, however, JS l.c. only quoted a Bauchi form without an asterisk, which reveals to what degree this term had remained an enigma to the authors.

[67] Alternatively, it might be affiliated with the etymon of ECh.: Jegoid *bōk “bag” [GT] (cf. entry no. 94 below). But since this is a borrowed cultural term, it is little likely that it was provided with a root extension -ra in Tumak.

[68] A.Ju. Militarev (in Militarev & Šnirel’man 1984: 38) reconstructed a certain PAA *bag^{w}-ar “kind of vessel (from various materials), вид сосуда (из различного материала)” (for which, however, he has given no data) suggesting that *-r did not belong to the original root.

[69] Cf. Sem.: Akk. (jBab.) bugurru “ein Gefäß” [AHW 96: “Lehnwort unbekannter Herkunft”] ǁǁ Eg. bd̲3 [if from *bgr] “Topf aus gebranntem Ton” (OK, Wb I 488, 11) = “jar” (MK, FD 86) = “Tiegel, Backform” (NBÄ 789, n. 993) = “a pot” (CED 23) = “ein Tontopf” (Satzinger 1994: 199) = “1. Topf (aus gebranntem Ton), 2. tulpenbechförmiges Model, Brotform" (GHWb 267) ǁǁ CCh.: Logone bugeru “Eßtopf” [Lukas 1937: 148] | Musgu bugur “Kalebasse” (Décorse) [Lukas 1941: 48], Munjuk-Puss (Musgu) buguru (m) “bol en bois” [Tourneux 1991: 78] ǁ ECh.: Somray bàgór “récipient creux en bois” [Jng. 1993 MS: 4], Sarwa bùkùr “calabash” [Jng. 1973b MS: 7, #124c] | WDangla bùgùrù (m) “gourde en doum des arabes" [Fédry 1971: 100], Mokilko bògòrò “recipient (pour les femmes)” [Jng. 1990a: 66]. Cf. EDE II 366; EAAN I 29, #70.

de lézard" [DRB 84: isolated in Brb.] and WCh.: Angas-Sura (Goemay) *boγor/*ba$_3$γa$_3$r ~ (Suroid var.) *-peγer "hedgehog" [Takács 2004: 18] with some hesitation (Birgit-AS-Shilh: Takács 2009: 333, #55), where now I would only leave the Shilh parallel as valid (either as cognate or areal *Wanderwort*). The Birgit-Shilh match may now be affiliated with ECh.: Kwang-Mobu kʌ-bʌgʌ́r (m), pl. kō-bōgōró "varan (plus petit que kīsítē)" [Jng. 1973a MS: 12a, #301b] || CCh.: PMasa *bu(ḷu)ru ~ *bu(gu)ru ~ *buru(gu) "varanus lizard sp." [GT]: Masa-Bongor búḭ́ú:rá (-ɧ-) "lézard (*Psylodactyle*)" [Jng. 1971/2 MS: 97], Gizey/Wina bùrú, Masa bùḭ̀ùr ~ bùḭ̀ùrù, Ham bùrù, Musey bùrùù ~ bùrùgù zùr, Lew bùgùrù mógórò, Marba mógòrò "varan terrestre", Musey bùrùgù zín and Lew bùgùrù zízí "varan aquatique" [Ajello et al. 2001: 57], Musey [buuru-na] "le varan" [Platiel 1968: 26], Mesme bùgùrú (jamais en variation avec *bùkùrú) "varan" [Kieschke 1990: 66], Lame bùkùrú "'margouillat' sp. comestible" [Sachnine 1982: 290]. We cannot know as yet whether the underlying (Berbero-???)Chadic *√bKr "varanus sp." [GT] represents in fact any CAA/PAA etymon.

55.1. Noteworthily, a root variety like *√bKl(K)l denoting some creeping (lizard-like?) creature has also emerged in our researches, cf. NBrb.: Beni Menacer buγlal, pl. i-buγlal-en "escargot" [Basset 1885: 163] = (Algérie Centrale) buγlal "escargot" [DRB] | Tamazight ("Maroc Central") a-buγlal, pl. i-buγlal-n "1. escargot, 2. limaçon" [Taïfi 1991: 12] (NBrb.: DRB 83, bγl3) ||| WCh.: Geji ḅugɨllıl "chameleon" [Kraft 1981 I 185, #179] || ECh.: Kwang bàgólgólô (m) "margouillat" [Jng. 1973a MS: 4] | Sarwa ḅókólòm "tortoise / tortue" [Jng. 1973b MS: 12, #296].

55.2. Further root varieties with nasal C_3 are discussed s.v. Toram bookok "margouillat à tête rouge" [Alio] (cf. entry no. 98 below). In case all these variant roots are etymologically related, we could indeed assume a common biradical PAA etymon.

94. Jegoid *bōk "bag" (borrowed) [GT]: Jegu bɔɔk, pl. bɔɔke "Korb, Tasche (für die Jagd)" [Jng. 1961: 111], Kofa bòk (m), pl. bòkàn "bag (sac)" [Jng. 1977b MS: 7a, #149] | Lele bùú [GT: < *buhu < **bugu?] "sac en toile" [WP 1982: 33] = bugu [CLD] | Kera bùgú (m) "Sack (sac)" (*Lehnwort*) [Ebert 1976: 33] || CCh.: Mada buho, Muyang boho, Hurzo buhwa (MM: Skinner l.c. infra) | Masa *bugu ~/> *buḭu "sack" [GT]: Gizey/Wina bùgú "sac en jute" [Ajello et al.], Masa bù "sac en jute" [Ajello et al.] = bugu- [Skinner], Marba bùgù "sac en jute" [Ajello et al.], Lame bùhū "sac (mil arachide), (désigne) les sacs d'importation en toile de jute, de coton ou en fibre synthétique" [Sachnine 1982: 284] (Masa group: Ajello et al. 2001: 50)[70] || WCh.: Hausa bùhúú "1. sack, 2. any native cloth" vs. (>/<?) bùfúú "sack" [Abraham 1962: 114, 116] = buhu "bag, burlap sack" [Skinner] | Ngizim bùùfú, pl. bùùfàfín (borrowed from Hausa bùhúú) "large bag" [Schuh 1981: 27] = buuhu (sic: -h-) [Skinner]. Most of the Chadic parallels (sine Jegoid) were already combined by N. Skinner (1996: 25) (without clarifying the underlying ultimate source, however). The well-known Hausa shift of fu > hu would imply that all Chadic parallels are loans from this ultimate source as, e.g., Ngizim surely does, which, however contradicts to the plosive C_2 of some reflexes (Masa *-g-, MT *-k).

[70] It remains somewhat puzzling whether Musey mbùmbù, Lew bùmbù "sac en jute" [Ajello et al. 2001: 50] can also belong here and what kind of historical phonological processes may underlie. Still, one is disposed to group this form better with ECh.: Kofa bùḫùm (m), pl. búḫúmè "coffre à avoine (paille)" [Jng.].

95. Mubi bùk (m), **pl. bòogàk** “1. reins, 2. derrière, 3. tronc” [Jng. 1990b MS: 6; 2013: 163] | Sarwa búkòy “anus” [Jng. 1973b MS: 4, #34] | Modgel bégu-am ‘mein Arsch’ [Lukas 1937: 96] ||| LECu.: Baiso bʌga “back” [Fleming 1964: 46] = bɛgɛt “back” [Siebert 1994: 11] ||| SBrb.: (?) EWlmd.-Ayr băgăw “être injecté par l’anus (liquide servant de clystère)”, te-băgăw-t “tube servant à injecter un liquide par l’anus, clysoir” [PAM 1998: 6] **< PAA *√bg(w)** “1. back, 2. anus” [GT]. Part of a larger family of root varieties (cf. also Takács 2022d (OmAA V), 679-680, #127.):

95.1. PAA *√bḳ “1. thigh, 2. hind parts, 3. tail (?)” [GT].[71] Eg.: reflex dubious[72] ||| NBrb.: perhaps Shilh ta-baqqu-t ‘queue’, a-baqqu ‘verge’, var. (t)a-bakku-(t) “petite queue d’animal” [DRB 86, BQ9 and 48, BK21, resp.: both isolated in Berber] ||| NOm. *bU/ʌḳ- > *bunḳ- (via epenthetic nasal) “1. thigh, 2. buttocks” [GT] > POmeto *bunḳ- “thigh” [GT]: Gamu bunḳ- “buttocks” [Moreno in Bender 2003: 315, #10] | Ganjule ’būga “thigh” [Siebert & Hoeft] and Zayse ’buŋḳa “thigh” [Siebert & Hoeft] = buŋḳ- “thigh” [Hayward in Bender 2003: 89, #77], Zergulla būnḳa “upper leg” [Bender 2003: 87, #55b] (isolated in SEOmeto: Bender 2003: 336, #100) | Gimirra *baḳ “buttocks” [GT]: Benesho baḳ [Breeze] = bəq’ [Fleming], She bak [Montandon] “buttocks” (Gimirra: Bender 2003: 339, #10) | Dizoid *bok/g- (?) “thigh” [Bender 2003: 255, #A100]: in fact, Dizi bʌgʌn [Fleming], Sheko bòka [Aklilu] = boka [Fleming] “thigh” (isolated in Dizoid apud Bender 2003: 352, #100) Further varieties of this PAA root:

95.2. CCh. *√bKr (?) > *√bgl “back” [GT],[73] provided it was extended by a C_3 *-r,[74] cf. Tera bıgırsa ‘back’ [Meek apud JI, otherwise in Newman 1964] | Higi-Bana buguló-nga ‘(mein?) Rücken’ [Lukas 1937: 130] | PMusgu *bUgol “back” [GT]: Musgu *bogól, pl. *bogolakái “Buckel”, Lukas: “zu erschließen aus” že-bogól, fem. ebenso oder že-bugulíí “bucklig” (Krause) [Lukas 1941: 48], Mbara bùgól “derrière” [TSL 1986: 255] | PMasa *√bgr ~ *√bkr **>** *√bgl “back” [GT][75] (CCh.: JI 1994 II: 7).

[71] One wonders if the same root is retained by NBrb.: Nefusa te-bga “tibia” [DRB 33, BG18] | cf. also Tamazight ta-bužžu-t “biceps (muscles)”, a-bužž “(avant-)bras”, cf. ta-bža “1. étui à collyre, 2. flûte (en roseau)” [DRB 43, BJ3] ||| WCh.: (???) Gerka bak “leg”, bok “foot” [Ftp. 1911: 216, 208]. G. Takács (2004: 18) assumed Gerka gbàk (so, gb-) [Jng.] to be a misrecorded form of an irregular reflex of AS *kʷak ~ *ḳʷak “leg etc.” Is Gerka b- [Ftp.] < *gb- < *gʷ- < *kʷ- to be assumed just like in Gerka purrum “blacksmith” [Ftp. 1911: 215] < AS *ḳʷalam ~ *ḳʷolom “to forge iron”, where the shift of Gerka p- < *kʷ- via *kp- (?)?

[72] The even today mysterious etymology of Eg. bqs.w “Rückenwirbel, Wirbelsäule(nkanal)” (PT, Wb I: 480, 8-12) = “spine” (FD 85) is, in spite of numerous attempts (critically surveyed in EDE II: 331-332), full of stubborn puzzles, cf. also bgz.w “als Körperteil des Sternbildes ‘Riese’” (NK, Wb I: 483, 1) = bgz.t “*Hüfte (Teil des Sterbilds ‘Riese’ in den ramessidischen Sternuhren, zwischen Oberschenkel und Brust)” (GHWb 264). It would be tempting, of course, to segment in it the PAA root *√bḳ above, but we know of no nominal class marker *-s whatsoever that might be identified with its C_3.

[73] Where the third consonant might be a complement attached to the same biconsonantal PAA root (or its variety) that might be present in the rest of the biconsonantal parallels.

[74] Which is challenged by H. Jungraithmayr’s (JS 1981: 32A; JS 1994 I: 3A) hypothesis on its derivation from the biradical PCh. *-kr “back” by a prefix *b- of unknown signification. Still, much likelier appears the case of C_3 ext. *-r here, this latter here being not uncommon as a fossilized nominal class marker in some other segment of the AA anatomical terminology, cf. Takács 1995: 101, #2; 1997: 247.

[75] Hence: Masa būkol [bùgōl̲lā] “1. le dos, 2. l’arrière (p.ex. de la case), 3. derrière, 4. après, 5. [bùgōl̲tā] ensuite” [Caïtucoli 1983: 51-52] = búgol “dos” [Mouchet] = búgól-lá “Rücken” [Jng./JI], Masa-Bongor búgól-lá “dos” [Jng. 1971/2 MS: 71], Gizey/Wina bùgól, Masa bùgól ~ bògól, Ham bògól, Lew bògól, Marba bùgól

96. Muboid *buk- "2.[?][76] root" [GT]: Mubi búk (m), pl. bògàg "Wurzel" [Lukas 1937: 181; not listed with this sense in Jng. 2013: 163] = *búk "root" [Bender & Doornbos], Minjile *búk (?) "root" [Bender & Doornbos] (Muboid: Bender & Doornbos 1983: 77, #66, apparently isolated in Ch., cf. JI 1994 II: 276-277)[77] ||| NOm.: Sheko bōka "root" (Bender: "inside"?) [Bender 2003: 216, #109: isolated] || ECh.: Mubi búk (m), pl. bògàg "Wurzel" [Lukas 1937: 181] = *búk "root" [Bender & Doornbos 1983: 77, #66], Minjile *búk (?) "root" [Bender & Doornbos] < exclusive (?) SAA/Om.-ECh. isogloss *√b[k] "root" [GT]. See also Takács 2022d (OmAA V): 683, no. 134. This (")root(") is otherwise so far unattested in the whole AA family and no certain NAA reflex is known.[78]

97. Muboid *bŭk "cor" [GT]: Kajakse bûg "cor" [Alio 2004: 240, #46], Masmaje buuk "cor" [Alio 2004: 280, #28] | Bidiya búkúnaanà (m) "cor" [AJ 1989: 60] < ECh. *buk- "cor" [GT]: borrowed from Chadian Ar. bûg (modern literary Ar. √bwq) "trompette, clairon, trompe de chasse" [Pommerol 1999: 281] = Chadian-Sudanese Ar. bōg, pl. abwāg "trumpet" (Hillelson), būq "trompette" (Carbou) "1. wood trumpet, 2. horn for blowing, out of gourd or wood" (Lethem) [RL 1969-1972: 64] < modern literary Ar. bawq- and būq- "cor, clairon, trompette" [BK I 179, so also DRS] || ES: Geez buq "trompette" [DRS] = buq, bawq "trumpet", hence denom.: boqa "to blow the trumpet" [Leslau], (???) Harari būq "1. thin kind of bamboo, bride's quarters (it consists of bamboo canes between the bride's and the bridegroom's section of the house), 2. butchery (probably because the shop was made of bamboo)" [Leslau 1963: 43] = būq "sorte de bambou fin" [DRS][79] (Sem.: DRS 53, BWQ3; Leslau 1987: 115). The etymology of the Semitic root itself is disputable as the suggested borrowing from Latin is vague for formal considerations.[80] I would not exclude a cognacy

"derrière" [Ajello et al. 2001: 20], Ham, Lew bògól, Marba bùgól "derrière" [Ajello et al. 2001: 6], Gizey/Wina bùgól, Masa bògól, Ham bògól "dos, derrière" [Ajello et al. 2001: 21], Lame bākír "revers, dos" [Sachnine 1982: 287], perhaps also (via metathesis???) Zime-Dari kàʔbəròʔ "revers (tissu)" [Cooper 1984: 11].

[76] This meaning and, henceforth, this entire Muboid-Sheko isogloss may represent a secondary semantic evolution from the basic sense "bottom" of the AA root discussed in the preceding entry (no. 95).

[77] No trace outside Muboid unless one considers WCh.: Boghom bày [GT: so far *-k > -y unknown here] "root" [Shimizu in JI 1994 II 276], whose historical phonology is, however, uncertain.

[78] It is a matter of a highly uncertain speculation if either Ar. biḫāʿ- "veine qui traverse le long du dos et vas jusqu'aux os de la nuque" [BK I: 91, so also DRS 58: isolated in Sem.] = "veine jugulaire postérieure (?)" [DAFA = Blachère 1967 I: 411] or NBrb.: Shilh (t)a-bakku-(t) "petite queue d'animal" [DRB 48, BK21: isolated in Brb.] can have anything to do with our root. Curiously, both of these vague NAA *comparanda* lead us to an association with the bottom, hind parts.

[79] Its comparison with Ar. būq- and Geez buq "trumpet" (originally suggested by E. Cerulli) was regarded by W. Leslau (1963: 43) as "doubtful"; instead, he referred to Amharic and Sidamo mäqa.

[80] S. Fraenkel (1886: 284) was probably the first to assume here an Aramaic loan of an ultimate Latin etymology: "[ar.] *būq* ist entlehnt aus [aram.] *būqīnā* (*bucina*)". W. Leslau (1987, l.c.) too considered the Arabic term to be of Latin origin referring to būcina, also late Greek būkīnon (sic). E. Boisacq (1916: 137) derived Latin būcina "cor à bouquin" along with bucca "joue enflée", OGreek βυκάνη (f) "cor à bouquin" and OI bukkāra- (m) "le rugissement du lion" etc. from PIE *bŭq- "1. souffler, et (par là:) 2. produire un son sourd" (onomatopée). A. Walde and J.B. Hofmann (1938 = LEW I 121), in turn, explained Latin būcina "Wald-, Jagd-, Hirten-, Signalhorn" (whence OGreek βυκάνη "Trompete" also stemmed from) "nach dem Muster von *māchina* > *μηχάνη* umgesetzt" (pace Kretschmer, KZ 31, 452) as a probable result of *bou-canā < bōs and canō, i.e., as a compound etymologically denoting "das aus einem Rinderhorn gefertigte Blasinstrument", but "kaum als" *bū-canā "bzw."

with CCh. *mbɨkʷ-ɨm / *mbuk-um (???)[81] “horn” [Gravina 2014: 377-378] (if such an etymon existed at all)[82] ||| NOm.: SEOmeto *baḳ- “horn” [GT]: Koyra ussűmɛ baka [Brenzinger], Kachama (Haruro) bokkā [CR] = baḳḳe [Siebert-Hoeft], Ganjule baḳɛ [Brenzinger] = ’bakɛ [Siebert-Hoeft] (Ometo: Bender 2003: 89, #72) ||| HECu.: probably Kambatta boḳu-ta ~ boḳḳ-ākata “head” [Hudson 1989: 77: isolated] = boḳ-o “Kopf” [Lamberti 1993b: 330][83] ||| NBrb.: Qabyle a-bbaγ [γ < *ḳ] “1. tête, 2. calotte crânienne” [Dallet 1982: 32: “rare, unique example connu”; DRB 82: isolated in Brb.] < PAA *√bḳ “cranium” [GT]. Further varieties of this PAA root with diverse C_2 were examined by G. Takács (2022: 672-673, #119 and 677, #124).

98. Toram bookok “margouillat à tête rouge” [Alio 2004: 253, #60] may be perhaps better a cognate to Hassaniyya (Ar. dialect of Mauritania) √bkw > bekku, occuring in: ʿarrem bekku “lézard à la partie postérieure plus large que l’antérieure” [TC 1988: 130: isolated][84] than a loan from its merely supposable counterpart in the local (Chadian) Arabic dialect (if any, since no such form was located in Pommerol 1999). The existence of an underlying biradical AA root seems to be corroborated by varieties with C_3 nasal extensions:
98.1. ECh. *bUkUm- “sort of frog” [GT] > Kwang bákkɔ̀mgáálɛ̀ (m) “caméléon” [Jng. 1973a MS: 4] | Tumak ḅòōm [GT: < *boHom < **bokom?] (m) “batracien sp.” [Caprile 1975: 4] | DM *bōkum- “frog” [GT]: Karbo (Dangla) fōkamo “frog” [el Minai n.d. MS: 13], Bidiya bóokuma (f), pl. bóokumi “crapaud” [AJ 1989: 59], Migama bóokùmú (m), bóokùmá (f), pl. bòokòmmì “crapaud” [JA 1992: 71].
98.2. NAA *√bgn “frog, lizard” [GT] > Eg. ʿbḫn > ʿbnḫ (root ext. *-ʿ) “Frosch” (Med., Wb I 178, 16) = ʿbḫn “frog” (FD 41) ||| SBrb.: EWlmd. a-bəgəngən, pl. i-bəgəngən-ăn, var.

*būc-canā “die bū-Macherin urverw. mit gr. *βύκτης* usw.” D. Cohen (DRS l.c.), in turn, did not propose any comment on this matter pretending as if Ar. būq- were a native Semitic root. Prof. J. Lentin (Paris, Marseilles), specialist of Arabic dialectology (kind p.c. on 12 Feb. 2023) is also displeased with “the admitted etymology” (i.e. the one so persistent since S. Fraenkel 1886): “I am only half-convinced (why should such a big part of the word disappear?) but I can’t see any better proposition”, so he too supposes it is “most probably a *Fremdwort*.”

[81] The final *-um may be identical with the root extension occuring in anatomical terms (cf. Takács 1997: 261, #7.4.2.).

[82] Which Gravina (l.c.) reconstructed on the basis of the Tera, Mafa-Mada, Musgu groups. The author thanks for V. Blažek’s (p.c., July 2022) kind remark about the addition of the Chadic root. Still, the real data do not really support such a proto-root which was, by the way, envisaged in JS 1981: 142A as a cluster of root varieties (with no definite ultimate etymon) like PCh. *√mk (Ngizim, Gude, Musgu, Masa, Kwang) > A_1 WCh. *$^{m}b^{y}$w (N-SBauchi) vs. A_2 *√km (Kotoko), which are, however, all too diverse to be traced back to one common parental root. Undisturbed by this fact, JI 1994 I 94A attempts at setting up a PCh. super-root *√myk “horn” as “a well documented gloss”.

[83] M. Lamberti (l.c.) erroneously explained this from ECu. *bVḳʿ- “Wange”, certainly a distinct root.

[84] E.g., not even a Classical Ar. etymon is known, not listed in DRS 64 etc. Even Catherine Taine-Cheikh, the worldwide number one expert on Zenaga today (kind p.c. on 17 and 20 Feb. 2023), can only guess on its origin in a funny manner as a result of a discussion with her husband (Abdel Wedoud Ould Cheikh): “Il n’a pas d’idée autre que: ‘faites pleurer’ (impératif pluriel du verbe *bäkkä* ‘faire pleurer’. Ce qui n’a pas beaucoup de sens. ... C’est vrai, ce n’est pas une piste bien convaincante. ... quand même que, m’interrogeant sur le prénom Sektou (*səktu*) ..., mon mari m’avait dit ‘je ne vois que «taisez-vous!»’ et j’ai appris, de la bouche de la petite-fille de Sektou (chantée par un poète) que c’était effectivement «taisez-vous!», ce que le père avait dit en apprenant qu’une fille lui était née: «ne dîtes rien! ne critiquez pas la naissance d'une fille!». N’est-ce pas une jolie histoire?”

bəgəngəni, pl. bəgəngəni-t-ăn "1. esp. de lézard gris, margouillat (esp. de lézard gros), 2. lézard qcq." [PAM 1998: 6 citing the 2nd sense only; 2003: 14] = a-begengen [DRB 35, BG/ĞN1: isolated in Berber].[85] Cf. also Tadghaq ă-bağən "varan", EWlmd. ă-bagən, EWlmd.-Ayr var. ə-bagən, pl. i-bagən-ăn (m) "esp. de petit crocodile vivant dans les mares" [PAM 2003: 14].

98.3. SAA *√PnK "frog, lizard" [GT] > NOm.: Male faŋko "frog" [Siebert 1994-5: 8] ‖ SOm. *fanḳ-a "frog, toad" [GT based on Bender 1994: 150] ||| WCh.: Miya əbàngu "lizard" [Kraft] | Burma bəngàlà (root ext. -l-) "lizard" [Kraft] ‖ CCh.: Ngwahyi bənǯà [-ǯ- < *-g-?] "frog" [Kraft]. A typical Omo-Chadic isogloss. Areal parallel: PKoman *ḅanḳo "frog" [Bender 1983: 281].

99. Toram bòkon "pièce, chambre" [Alio 2004: 253, #58]: a lexeme of controversial etymological background where three entirely different scenarios are offered:

99.1. On the one hand, it might be conceived as a semantically somehow somewhat transformed loan from the dialectal Ar. (Sudan and Chad) bakān "1. endroit, place (Trenga, Hillelson), 2. place, position, situation (Lethem)" [Roth-Laly 1969-1972: 57] = Chadian Ar. bakān "lieu, endroit, place" [Pommerol 1999: 235], a derivative of the well-known Class. Ar. makān- < √kwn, although one is disturbed by the vocalic difference and the limitation of the semantics to "apartment".[86]

99.2. On the other hand, it might be a metathesis of an etymon attested, e.g., by NBrb.: Tamazight ta-bniq-t "1. cellule de prison, cellule de fou, guérite, 2. pièce, chambre étroite, 3. petite pièce pour grains et huiles" [DRB 79, BNQ2: isolated].[87]

99.3. Thirdly, and semantically less likely, it could perhaps be affiliated with NBrb.: Shenwa ha-bɣun-tt "trou pour le foyer" [DRB 84, bɣn2: isolated in Brb.] ||| LECu.: Afar bukn-e "burial, covering, submersion" [PH 1985: 74]. As the analogy for the semantical shifts, cf. Sem.: OSA (Madhabi) nfq "sarcophage"[88] [Arbach 1993: 75] ||| NBrb.: Qabyle a-fniq, pl. i-fniq-en "1. coffre, 2. coffert" [Dallet 1982: 210] < SAA *√fnḳ "hole" [GT].[89]

[85] Combined by K. Naït-Zerrad (DRB l.c.) with EBrb.: Ghadames ụ-b̲əğğan, pl. b̲əğğān-en "1. rat, 2. (et aussi) souris (?)" [Lanfry 1973: 7, #0036] = a-beğğan (sic) [DRB] in spite of the semantical difference.

[86] Corroborated by Prof. J. Lentin (kind p.c. on 12 Feb. 2023) also: "As far as I know, makān for room/chambre/Zimmer is attested only in Yemen … But one has to remember that 'room/chambre/Zimmer' is not really a realis in many Arab countries, where one has to speak of unspecialised spaces, halls etc. used for various activities during the day and/or the night.", see WAD II 66 (map 199) and 67-69 (commentary), i.a., WAD II 68: "Typisch für den Jemen ist *makān*, das teils dreiradikalig geworden ist …, teils mit Sonderbedeutung 'Zimmer in den unteren Stockwerken' oder nur als 'Zimmer', für Hadramaut … 'pièce, chambre, en général'."

[87] Cf. the entry #107 for Kofa bíŋ (m), pl. béeŋè "house (hut)" [Jng. 1977b MS: 8, #162] in part V of this series (forthc.) for further cognates.

[88] Affiliated by M. Arbach (l.c.) with Sabaic nfq "exiger qqch. de qqn.", nfq "obligation", Qatabani nfwq "obligation".

[89] Cf. Sem.: ES (borrowed from Cu.): Amh. fʷanq ~ fənaqʷa "hole" ||| HECu.: Kambatta and Hadiyya fonq-a "hollow of tree" (ES-HECu.: Leslau 1979 III: 235) ||| NOm. *pEng-(iy)- "opening, door" [GT] ||| WCh.: perhaps AS *fuŋ "hole" [GT] (for details see Takács 2004: 111). It is not yet clear whether AS *fuŋ "hole" can be related, cf. alternatively LECu.: PSam *faḥn- ~ *fanḥ- "gap in upper tooth ridge" [Heine 1978: 58/80]. Cf. also AA *√bnk (var. *√bng?) "hole" [GT]. See HSED #803; EDE II 439-440; Takács 2009: 329, NB to #43; EAAN I 103, 488. The PCh. root for "mouth" is surely not related.

100. MT *bokoN “belly” [GT]: Toram bookont “ventre” [Alio 2004: 253, #61], Birgit (Agrab dialect) bɔ̀kʰɔ́ŋ “ventre” [MMW 2007 MS: 43, #13] || WCh.: Warji (Sirzakwai) būgə́iná “belly” [Skinner in JI 1994 II 20] = bugina (m), pl. “1. stomach, belly, 2. pregnancy” [Blench MS n.d., 14] ||| NBrb.: Shilh a-bekniḍ “ventre proéminent, gros ventre” [DRB 51: isolated in Brb.][90] ||| ES: perhaps Tigre bəgganät “vulve” [DRS 43, B/PGN5: isolated in Sem.] < **PAA *√bKn(T)** “belly” [GT], which seems to have an (inherited?) connotation of a female (preg-nant) belly. Of an ultimate biconsonantal origin[91] just as its root variety with a different nasal C_3 in:
100.1. PAA *√bKm “belly” [GT], cf. SBrb.: eventually Ahaggar bukem “1. être en chaleur (femelle de quadrupède carnivore), 2. être insatiable de plaisirs amoureux”, EWlmd.-Ayr bukem “être en chaleur (femelle de quadrupède carnivore)” (SBrb.: DRB 50, BKM: isolated in Brb.) ||| SCu.: Dahalo ḅágama “belly” [Ehret 1980: 142, §I.A.74, also 387, Table 4: isolated][92] = ḅágama “belly”, ḅágama kantid- “to make pregnant”, ḅágamām-ittse “pregnant” [Tosco 1991: 129] ||| WCh.: PGoemay *bəŋ or *ḅəŋ (q.v.) “stomach” [GT]: Goemay boeng (mistaken *b-?) [bəŋ] “stomach” [Sirlinger 1937: 18] = ḅeŋ (so, ḅ- & -e-) “stomach” [Hellwig 2000 MS: 3] (Goemay: Takács 2004: 15: isolated in AS). One wonders if CCh.: PMasa *bagum “pig” [GT][93] had derived from the same PAA root.

101. MT *bakal “to eat (hard food?)” > Mubi bàgál (bègîl, bìgáàl) “manger sans sauce (p.ex. du pain)” [Jng. 1990b MS: 4; 2013: 163], Masmaje bákkàl “manger des aliments” [Alio 2004: 280, #22] | EDangla bàkìlē “manger qqch. en poudre ou en grains fins (ce qui donne du travail aux dents), mastiquer, mâcher” [Dbr.-Mnt. 1973: 33], Bidiya bákàl (bákìlí, bákìleŋ), pl. bákàl (bákàalí, bákàaleŋ) “avaler des aliments tendres ou sans sauce” [AJ 1989: 56] < ECh. *bak(V)l- “to eat” [GT]. May be explained two alternative (?) ways (that may well eventually turn out to be ultimately interrelated):
101.1. Either it is to be regarded as a C_3 root extension derivative of the AA root attested by SBrb.: Ahaggar e-bek “se mettre / recevoir dans la bouche (une substance en poudre)” [Foucauld 1951-2: 45], EWlmd.-Ayr ə-bək “se mettre dans la bouche (une substance en poudre ou en grains)”, te-bek “bouchée (petite quantité en poudre qu’on peut mettre dans la bouche)” [PAM 2003: 17] (SBrb.: DRB 46-47, DRB 56-57, BK4: isolated in Brb.).
101.2. Or it could originate in the basic sense “to fill up” of **P[???]/SAA *√bkl** [GT], cf. Eg. bk3 [< *bkl?][94] “1. schwanger werden/sein (mit dem Samen, mit dem Kinde), 2. (übertragen:)

[90] Regarded by K. Naït-Zerrad (DRB l.c.) as a “formation expressive à préfixe b sur” the simplex root present in NBrb.: Rif a-gniḍ, Snus a-yniḍ, Tamazight i-gneḍ “cœur, mœll de palmier nain”, Shilh a-ḥniḍ “ventre (péj.)” and Central Algerian i-neḍ “datte”.

[91] Cf. the NBauchi parallels (in: JI 1994 II: 20) and the well-known match in LECu. *bUg- “belly” [GT] (reflexes in Dlg. 1973: 270 s.v. *bAk(k)^{w}- “живот” with false Oromo and Omotic *comparanda*).

[92] Ehret 1980: 142, §I.A.74: ~ Qwadza belendayo, pl. beʔesiko “shoulder” < SCu. *bʌḫ^{w}-/*boḫ^{w}-/*beḫ^{w}-/*bag-/*beg-/*bog- “chest”. Untenable.

[93] Attested by Masa bākum [bàgūm-nā] “le cochon”, [bàgūm-tā] “la truie” [Caïtucoli 1983: 48], Masa-Bongor bà:gúm-ná “cochon” [Jng. 1971/2 MS: 155]. Alternatively, cf. the entry (no. 92) for Kajakse booge “rhinocéros” [Alio] above.

[94] The old comparison of Eg. bk3 with Sem. *√bkr “to be first-born” (e.g. Albright 1927: 205; Cohen 1947: 173, #388; Hodge 1976: 11, 16; 1981: 406) is semantically less convincing. This etymology has been rightly abandoned already in HCVA II #89.

a) vom Felde, das schwanger ist (mit Pflanzen) (NK, GR), b) von übervollen (Scheunen) (XIX.), c) vom Himmel, der voll der Güte des Königs ist (XIX.)" (OK-, Wb I 481, 1-9) = "to be(come) pregnant" (FD 85)[95] ||| SBrb.: plausible nominal derivative from the primary sense *"to draw water"[96] ||| SCu. *bukul- "to fill up" [Ehret]: perhaps Ma'a -búku [regular loss of *-l] "to draw water" [Ehret][97] | Dahalo ḅukul- "to fill in hole" [Ehret & EEN 1989: 34] = ḅūkul- "to fill a hole" [Tosco 1991: 130] (SCu.: Ehret 1980: 141, §I.A.64).

*

Special symbols

P: any labial stop (f, p, b, ṗ), T: unspecified dental stop (t, d, ṭ), S: any voiceless sibilant and/or affricate (s, š, ŝ, c, č, ĉ), Z: unspecified voiced sibilant and/or affricate (z, ʒ, ǯ), K: any velar stop (k, g, ḳ), Q: unspecified uvular or postvelar etc. (q, ɢ, q̇, ḫ), H: any of the pharyngeals or laryngeals etc. (ʿ, γ, ḥ, h, ʔ). The vertical strokes signify the the degree of closeness of the language groups (e.g. Kotoko | Masa), sub-branches (e.g. North Berber || East Berber), and branches (Semitic ||| Egyptian), from which the individual lexical data are quoted.

Abbreviations of languages and other terms

(A): Ahmimic, AA: Afro-Asiatic (Afrasian, Semito-Hamitic), Akk.: Akkadian, Amh.: Amharic, Ar.: Arabic, Aram.: Aramaic, AS: Angas-Sura, Ass.: Assyrian, (B) Bohairic, Bab.: Babylonian, BAram.: Biblical Aramaic, Bed.: Bed'awye (Beja), BM: Bura-Margi, BN: Bade-Ngizim, Brb.: Berber (Libyo-Guanche), BT: Bole-Tangale, C: Central, CAA: Common Afro-Asiatic, Ch.: Chadic, CT: Coffin Texts, Cu.: Cushitic, Dem.: Demotic, DM: Dangla-Migama, E: East, Eg.: Egyptian, ES: Ethio-Semitic, ESA: Epigraphic South Arabian, Eth.: Ethiopic, Eth.-Sem.: Ethio-Semitic, (F): Fayyumic, GR: Ptolemaic and Roman period, H: Highland (in Cushitic), Hbr.: Hebrew, Hgr.: Ahaggar, Hung.: Hungarian, L: Late, L: Low(land), lit.: literature, LP: Late Period, M: Middle, Mag.: magical texts, Med.: medical texts, MK: Middle Kingdom, MSA: Modern South Arabian, MT: Mubi-Toram, Mzg.: Tamazight, N: New, N: North, NE (or NEg.): New Egyptian, NK: New Kingdom, O: Old, OK: Old Kingdom, Om.: Omotic, OSA: Old South Arabian, P: Proto-, PB: Post-Biblical, PT: Pyramid Texts, reg.: regular, S: South(ern), (S): Sahidic, Sem.: Semitic, Syr.: Syriac, Ug.: Ugaritic, W: West, Wlm(d).: Tawllemmet, Y: Young(er Babylonian).

[95] The semantic shift "full" → "pregnant" is evident, cf. Eg. dnj "nachfüllen (mit Wasser zum Verdünnen des Bieres)" (Math., Wb V 464, 3; GHWb 981), cf. jdn "erfüllen, ausfüllen" (CT, ÄWb II 456c; GHWb 118) ||| WCh.: Sura dùn "voll, nicht hohl (?)", cf. dùn kə wur "jungfräuliche Brust, die noch nicht gesaugt worden ist" [Jng. 1963: 63] ||| Sem.: Soqotri dínih "to be pregnant" [Leslau], Mehri dny "to conceive", dənyēt "pregnant" [Johnstone], Jibbali (Shahri) dínî "to be pregnant" [Leslau] || ES: cf. Gurage-Gyeto and -Ennemor dänʔa "to be covered (cattle), be coupled, conceive (cattle)" (MSA: Leslau 1938: 130-131; Johnstone 1987: 72). Sura-Sem.: Müller 1975: 68, #63.

[96] Cf. EWlmd. ă/ə-bokal "louche en métal ou en bois" [PAM 2003: 20] = e-bokal [DRB 59, BKL 2: isolated].

[97] Ehret l.c.: "i.e., 'to fill waterpot'".

Abbreviations of author names

Abr.: Abraham, AF: Adolf Friedrich (as quoted in Lukas 1937, 1941), AJ: Alio & Jungraithmayr, Alm.: Alemayehu, AMS: Amborn, Minker, Sasse, Apl.: Appleyard, BK: Biberstein & Kazimirski, Brt.: Barreteau, Dbr.: Djibrine, Djk.: D'jakonov, Dkl.: Diyakal, Dlg.: Dolgopolsky, DM: Drower & Macuch, DMT: Dakouli, Maaß, Toomey, EEN: Ehret, Elderkin, Nurse, FH: Farah & Heck, Frj.: Frajzyngier, Ftp.: Fitzpatrick, GB: Gesenius & Buhl, GT: Takács, HLDPBMA: Haller, Lawarum, Douatai, Pourtshom, Baitoua, Magdeme, Amadou, Ibr.: Ibriszimow, IL: Institute of Linguistics, IS: Illič-Svityč, JA: Jungraithmayr & Adams, JI: Jungraithmayr & Ibriszimow, Jng.: Jungraithmayr, Jns.: Johnstone, JS: Jungraithmayr & Shimizu, KB: Koehler & Baumgartner, KM: Kießling & Mous, MMW: Marti, Mbernodji, Wolf, Mnt.: Montgolfier, Nct.: Nachtigal, OS: Orel & Stolbova, PAM: Prasse, Alojaly, Mohamed, PH: Parker & Hayward, RL: Roth-Laly, SIL: Summer Institute of Linguistics, SPM: Shryock, Palomo, Martin, Srl.: Sirlinger, TC: Taïne-Cheikh,TC: Taïne-Cheikh, TSL: Tourneux & Seignobos & Lafarge, WP: Weibegué & Palayer.

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