Studies in African Linguistics
Volume 52 Supplement 13, 2023.

Is Ts'ixa (Kalahari Khoe) a dialect of Shua? A comparative take on nominal gender marking and alignment patterns[1*]

Anne-Maria Fehn
CIBIO, Centro de Investigação em Biodiversidade e Recursos Genéticos

The endangered language Ts'ixa (Kalahari Khoe), spoken on the eastern fringe of Botswana's Okavango Delta, is generally assumed to be a member of the Shua dialect cluster. In this paper, I reconsider this classification by taking a closer look at the interconnected domains of nominal gender and the marking of grammatical relations. Using doculect data assembled from both published and unpublished sources, I explore formal and functional aspects of Shua pronominal paradigms and a set of associated clitics commonly referred to as Person-Gender-Number (PGN) markers. While both Ts'ixa and Shua may represent nominal referents by a set of corresponding pronouns, the two languages differ in whether grammatical gender is optionally marked on [- animate] nouns by a PGN clitic: Ts'ixa marks ~70% of noun phrases for gender and number, while in Shua, grammatical gender marking is generally absent with [- animate] nouns. In both Ts'ixa and Shua, a subset of pronouns and PGNs have two paradigms that are associated with different grammatical roles: while Shua encodes a two-case opposition between subject/object and clausal dependents, Ts'ixa pronouns and PGN clitics display accusative alignment, distinguishing between subject/clausal dependents and objects. In both languages, the object of the clause may further be marked by a postposition *(?)à* that occurs across Kalahari Khoe and probably grammaticalized from a copula. An additional strategy, indexing of pronominal objects on the verb, is exclusively found in the Deti dialect of Shua. Taken together, the commonalities between Ts'ixa and Shua rarely transcend cross-Khoe patterns, while the differing alignment patterns support a well-delimited genealogical split. Further comparison with Khwe, a Kalahari Khoe language spoken to the north and west of Shua-speaking territory reveals a closer link between Khwe and Shua than previously assumed, with Ts'ixa remaining differentiated from both.

Keywords: Khoe-Kwadi, nominal morphology, person-gender, number, case-alignment

1. Introduction

1.1 Ts'ixa. Ts'ixa is a Kalahari Khoe language spoken by less than 300 individuals (Brenzinger 2013: 20-1) in the North-West district of Botswana. All known speakers can be traced to the modern village of Mababe (see Figure 1 below), at the western fringe of the area now covered by Chobe National Park, one of Botswana's major conservation areas. Oral histories collected during

[*]Data on Ts'ixa was collected under a research permit issued by the Ministry of Youth, Sports and Culture of the Government of Botswana and funded by the a.r.t.e.s. Graduate School of the University of Cologne, the German Academic Exchange Service (Deutscher Akademischer Austauschdienst) DAAD, the project "The Kalahari Basin area: a 'Sprachbund' on the verge of extinction" within the European Science Foundation EUROCORES programme EUROBABEL, and by the Humboldt University of Berlin. The author is currently funded through contract CEECIND/02765/2017 financed by the Foundation for Science and Technology (FCT, Portugal), and this paper was written as part of the FCT-funded projects PTDC/BIA-GEN/29273/2017 and 2022.06259.PTDC (doi.org/10.54499/2022.06259.PTDC)

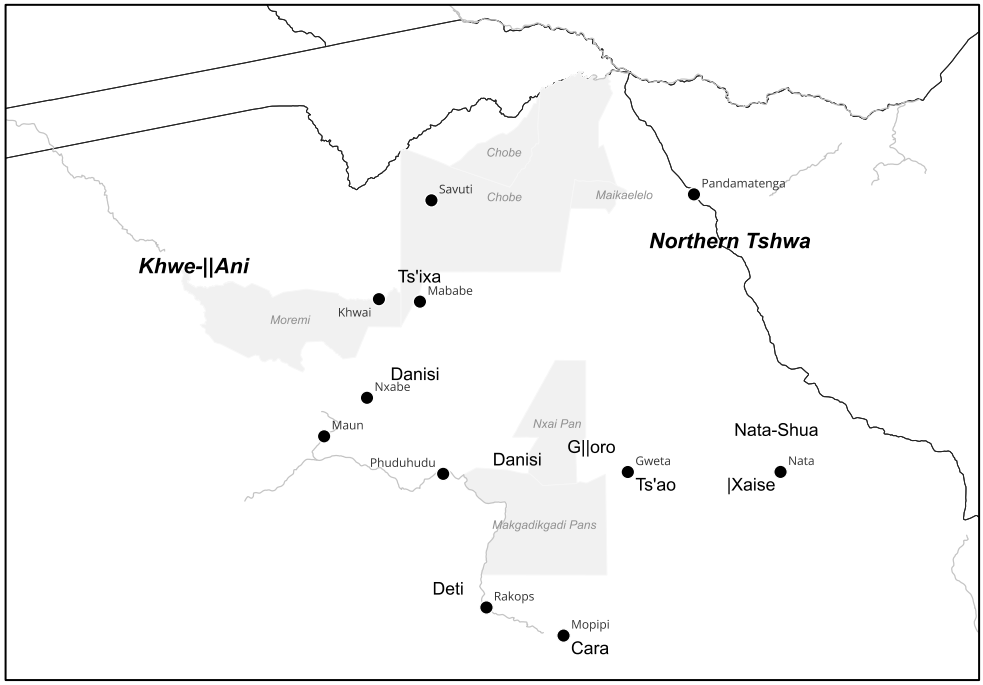
fieldwork 2010-2022 suggest that prior to the establishment of the park in 1967, Ts'ixa speakers were fully mobile hunter-gatherers who frequented various sites between the Okavango Delta in the west and the Savuti swamps in the north. No other ethnic group is known to lay claims on the same area, and it may be assumed with some certainty that the modern community known as Ts'ixa is what remains of the foragers who once inhabited the western part of Chobe National Park.

The speech community is divided into three major subgroups associated with distinct hunting grounds and water resources: 1) the Handakhoe 'people of the plains' who identify as former inhabitants of the Mababe depression and original speakers of Ts'ixa; 2) the Hiyokhoe 'people of the bush' who dwelled to the northeast of the Handa in the area of modern Savuti; and finally 3), the "Danisi", who say that their ancestors spoke a different language before shifting to Ts'ixa. It may be assumed that "Danisi" here is not necessarily referring to the Shua dialect known under the same name, but is rather used as a more general term for other Kalahari Khoe speakers who lived to the south and east of the Ts'ixa.

At present, the Ts'ixa are in close contact with speakers of Bugakhwe who reside in the neighboring village Khwai, about 30km to the west of Mababe. Speakers of Buga and Ts'ixa intermarry, leading to widespread bilingualism in both villages. In addition, Ts'ixa from the "Danisi" subgroup often have relatives in Shua-speaking areas to the east, including Phuduhudu, Gweta and Pandamatenga. Although Ts'ixa displays tangible substrate influence from a Kx'a language (Fehn 2016: 290ff), speakers do not remember any interaction with Ju|'hoan or !Xun speakers within their traditional territory. While all Ts'ixa speakers are bilingual in Setswana (S31a), Botswana's national language, their primary Bantu contact is with the Yeyi (R41) who live in the Delta and in settlements to the south of Mababe. During interviews and informal conversations, community elders also suggested that Subiya (K42) and Mbukushu (K333) speakers interacted with the Ts'ixa when frequenting their wells and trading in skins and honey.

1.2. Shua. The Shua dialect cluster is a sparsely documented Khoe-Kwadi language which has been classified as part of a presumed Eastern Kalahari Khoe subgroup (Vossen 1997). It is considered endangered, counting less than 2,000 elderly speakers (Brenzinger 2013: 20-1) who no longer use Shua as a medium of everyday conversation. The historical distribution of Shua covers the eastern part of Chobe National Park, the Makgadikgadi and Nxai Pan areas of northeastern and east-central Botswana, as well as the Botletle and Nata River basins (Passarge 1907, Cashdan 1986: 157-9, Barnard 1992: 117, Chebanne 2011). The few remaining speakers predominantly reside in bigger settlements shared with other ethno-linguistic groups, such as Phuduhudu, Gweta, Nata, Pandamatenga, and Rakops. However, Shua-speaking families can still be found in scattered homesteads and on cattle posts as far west as Maun (cf. Figure 1).

Figure 1. Geographical distribution of Ts'ixa and Shua dialects referred to in this article, with approximate locations of the related language complexes Khwe-ǁAni and Northern Tshwa. The areas outlined in grey correspond to the National Parks of Botswana (UNEP-WCMC & IUCN 2023).



The Shua are traditionally foragers who used to explore both savannah and riverine environments (Cashdan 1986: 160-1, Barnard 1992: 123). Unlike the hunter-gatherers of the Central Kalahari, they have a long history of contact with agropastoral Kalanga (S10) and Tswana speakers for whom they would act as herd boys. Some groups, like the Deti, gradually acquired livestock and were found farming on the banks of the Botlele River by the late 1970s (Cashdan 1986: 158-60; Barnard 1992: 123-4). Their intense contact with Kalanga-speaking communities resulted in long-term bilingualism and eventual language shift, leading to the near-disappearance of the Deti dialect of Shua (Vossen 2013a: 11).

The term 'Shua' is a geographical designation and refers to the Sowa pan southeast of Nata. At present, only speakers residing in and around Nata use it as a term of self-reference. Others use landscape terms like Ts'aokhoe (lit. 'bush people'), or non-specific clan labels like ǀXaise. Again others use 'Kuakhoe' (lit. 'servant people'), which is also found with Kalahari Khoe speakers in the Central Kalahari (Valiente-Noailles 1993) and does not refer to a distinctive linguistic or ethnographic entity (Güldemann 2014: 6). As none of these labels seems to encompass the full linguistic and ethnic diversity of the dialect cluster while remaining clearly distinct from other "Khoe"-speaking communities, I will continue to use the term Shua as established in the literature on Kalahari Khoe by Köhler (1962, 1963, 1971) and Vossen (1997).

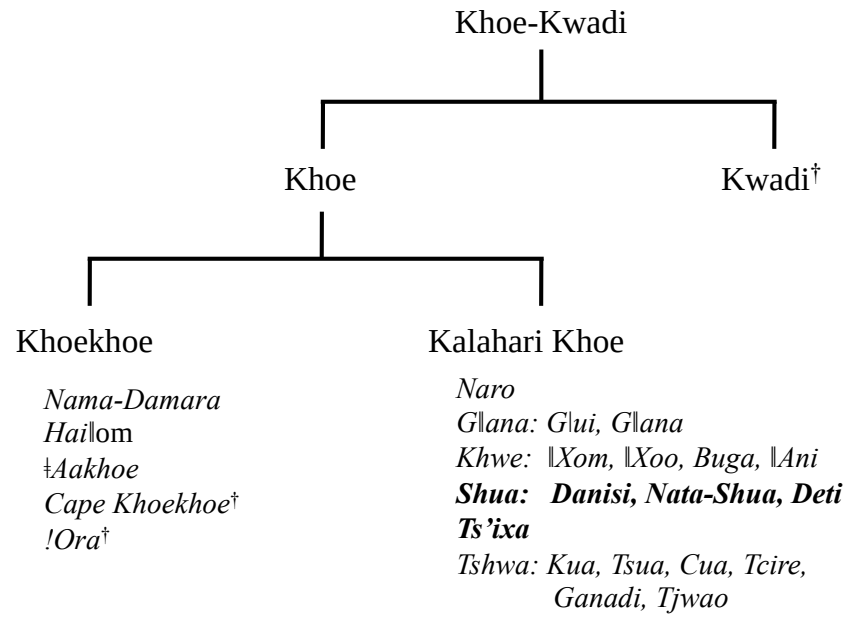
1.3 Previous classifications. Although it is clear that Shua constitutes an agglomeration of distinct varieties, rather than one homogenous language, its members and internal classification are still far from resolved. Köhler (1971) lists eleven dialects (Shuakhoe, ǁʔAye, Danisa, Tshumakhoe, ǁKoreekhoe, ǀXaise, Tçaiti, Hura, Deti, Ts'ixakhoe, Borekhoe), while Westphal (1971) counts ten (Gǁoro, Nǁoo, ʃua, ǁʔaiye, Danisi(-n), Tshuma, ǁoree, ǀhaise, Tʃidi, Mahura). He further treats Deti as an independent linguistic variety, and Ts'ixa (referred to as "Handa") as a member of the Khwe cluster. More recently, Vossen (1997) established Shua as a dialect cluster within his unit Eastern Kalahari Khoe and lists Cara, Danisi, ǀXaise, Deti and Ts'ixa as individual dialects. A classification of Ts'ixa within Shua is indeed supported by a subset of formal properties of the pronoun system, which align with the Shua profile (§2.1 below), as well as by the presence of a dedicated imperfective negation suffix *-tã(ã)* (Vossen 1997, Fehn 2016). Furthermore, loss of the palatal and alveolar click influxes as observed in Ts'ixa, Shua and Tshwa has been evoked as a genealogical relevant sound shift demarcating an "Eastern Kalahari Khoe" subgroup. However, a cross-Khoe-Kwadi survey shows click loss to be a widespread sound change that occurred in various unconnected regions on the fringes of the Kalahari Basin (Fehn 2020a). Its additional attestation in Non-Khoe languages of the Kx'a and Tuu families (Sands 2020, Fehn 2020b) further challenges the classificatory value of the phenomenon.

Notwithstanding all existing similarities, it was noted early on that Ts'ixa deviates from Shua in possessing a larger click inventory as well as grammatical gender marking on [-animate] nouns (§2.2 below). To escape the classificatory dilemma, Vossen (1991, 2011) argues that Ts'ixa reintroduced a subset of its palatal and alveolar click influxes, along with nominal gender marking, in contact with the Buga dialect of Khwe. This argument, however, is difficult to support; evidence from oral histories strongly suggests that Bugakhwe-speakers only migrated into the Khwai area during the first half of the 20th century (Bolaane 2002). Hence, it is unlikely they were in contact with Ts'ixa-speakers before the establishment of the present settlement. Furthermore, while speakers of Ts'ixa and Buga in the neighboring villages of Khwai and Mababe are generally bilingual and in close contact with one another, there is little evidence that what sets Ts'ixa apart from Shua can actually be explained by borrowing from Buga.

My own comparative work on Shua taking into account phonological (Fehn 2018) and morphosyntactic features (Fehn & Phiri 2022, unpublished notes) minimally suggests the existence of a western (here: Danisi) and an eastern dialect (here: Nata-Shua); a third dialect, Deti, is substantially different from the other two, but probably forms a valid part of the cluster. As will be further substantiated within the present study, Ts'ixa does not share some of the defining characteristics of Shua and should be classified as an independent language within Kalahari Khoe (Fehn 2016, 2018).

The position of Ts'ixa and Shua within the Khoe-Kwadi family is provided in Figure 2 below:

Figure 2. The Khoe-Kwadi language family; Ts'ixa and the Shua dialect cluster appear in bold (cf. Vossen 1997, Güldemann & Vossen 2000, Güldemann 2014)



Despite recent efforts to increase our knowledge on the Kalahari Khoe languages spoken along the eastern Kalahari Basin fringe, Shua remains severely under-documented. Published materials stem from Vossen's survey of Khoe (Vossen 1997, 2013b), from McGregor's (2014a-b, 2015, 2017, 2018) comprehensive documentation of the dialectal variety spoken in Nata, from the author's comparative assessment of northeastern Kalahari Khoe phoneme inventories (Fehn 2018) and complex predicates (Fehn & Phiri 2022), and from Cashdan's (1986) ethnographical study. In addition, unpublished field notes from surveys undertaken between 1950 and 1990 are available: Westphal's (n.d.) collection hosted at the University of Cape Town Archive features data from several Shua varieties (Nata-Shua, Danisi, Deti, G‖oro), and A. Traill's field notes include a comprehensive Deti wordlist. More recently, in 2013, lexical and grammatical data from Danisi, Nata-Shua and Deti was collected by W.B. McGregor, Blesswell Kure and the present author during a survey of Kalahari Khoe varieties spoken in northern Botswana.

1.4. The present dataset. This work intends to reassess the relationship between Ts'ixa and the linguistic varieties generally considered to be part of a wider "Shua" dialect cluster by examining the closely linked domains of nominal gender, alignment and participant marking. Rather than focusing on a single variety, I use a doculect-based dataset consisting of a) published, b) archival and c) newly collected data, encompassing Shua varieties from all major areas of distribution (Table 1). According to their phoneme inventories and morphosyntactic features, the available doculects can be grouped into three major dialects (Danisi, Nata-Shua and Deti) plus four doculects whose affiliation remains unclear (G‖oro, Cara, Ts'ao, ǀXaise). A preliminary comparative analysis, based on unpublished lexical, phonological and morphosyntactic data, suggests that G‖oro and Ts'ao may form a central dialect group encompassing areas to the south and east of Gweta, while

the limited data from Cara and ǀXaise display similarities with Nata-Shua (but see McGregor 2014: 46 and 2015: 55 for a different assessment).[2] Although the available data is not evenly distributed and displays a noticeable lack of texts, there is a good coverage of elicited material that allows for the language-wide conclusions drawn in this paper.

The Ts'ixa data is taken from my own fieldwork and materials previously published in Fehn (2016, 2017). For comparative purposes, I additionally use data from the Kalahari Khoe language Khwe (Kilian-Hatz 2008) which is believed to have exerted contact influence on various domains of Ts'ixa morphosyntax (Vossen 1991, 1997, 2011). Due to the limited amount of data available for the Botswanan Khwe varieties Buga and ǁAni, I restrict myself to the closely related ǁXom variety documented in the West Caprivi of Namibia.

To facilitate comparison, all published data was transliterated according to standards of the International Phonetic Association (IPA); if available, tone marking was included, but should be treated with caution, as a reliable analysis of tonal melodies and sandhi is presently only available for Khwe and Ts'ixa (Kilian-Hatz 2008, Fehn 2019, Fehn & Phiri 2022). Data available on recording were transcribed and analyzed by myself.

1.5. Structure of the present paper. The following sections offer a comparative discussion of person-gender-number (PGN) in the Shua dialect cluster, Ts'ixa and Khwe, with a special focus on functional properties of PGN-marking in the languages under discussion. Section 2 provides a short overview of the nominal morphology of Shua and Ts'ixa, including the pronominal paradigm (§2.1) and gender-number marking on nouns (§2.2). In section 3, morphological marking of core participants will be explored, focusing on case-alignment, which is generally seen as a cross-linguistically stable feature well-suited for telling areal from genealogical relations (Nichols 1992: 167). Section 4 considers the findings from a comparative perspective and discusses possible implications for the history of the Khoe-Kwadi language family's Kalahari subgroup. Section 5 offers a brief conclusion.

[2] Note that neither Vossen (1997, 2013) nor McGregor (2014a, b; 2015; 2017) present a subclassification of Shua, beyond identifying what they consider dialects or distinctive varieties whose relationship to other doculects mentioned in the literature is often unclear.

Table 1. Ts'ixa and Shua doculects used in this study; locations in brackets indicate place of recording (if not identical with place of origin of speaker). The approximate location of each doculect is provided in Figure 1 above.

Dialect	Location	# of speakers	Lexicon	Phoneme Inventory	Grammatical elicitation	Texts	Publication(s)
Ts'ixa	Mababe	docu	✓	✓	✓	✓	Fehn (2016, 2018), f.n.
Danisi	Mababe[3]	1	✓	✓	✓	✗	Vossen (1997, 2013)
			✓	✓	✗	✓	f.n.
	Nxabe	3	✓	✓	✓	✗	f.n.
	Phuduhudu	3	✓	✓	✓	✗	Fehn (2018)
	Gweta	1	✓	✓	✓	✗	f.n.
	Gweta	1	✓	✓	✓	✗	Westphal (no date a)
G|oro	Gweta	1	✗	✓	✓	✗	Westphal (no date b)
Cara	Mopipi (Serowe)	1	✓	✓	✓	✗	Vossen (1997, 2013)
Ts'ao	Gweta	1	✓	✓	✓	✗	f.n.
|Xaise	Nata (Mmashoro)	1	✓	✓	✓	✗	Vossen (1997, 2013)
Nata-Shua	Nata	1	✗	✓	✓	✗	Westphal (no date c)
		docu	✓	✗	✓	✓	McGregor (2014a, b; 2015, 2017)
		1	✓	✓	✓	✗	Fehn (2018)
Deti	Rakops	1	✓	✓	✓	✗	Westphal (no date d)
		3	✓	✓	✓	✗	Vossen (1997, 2013)
		2	✓	✓	✓	✗	Fehn (2018)

Abbreviations: docu 'documentation project'; f.n. 'field notes'

2. Nominal morphology

This section discusses aspects of nominal morphology that are relevant to the marking of grammatical relations. Inherited Shua and Ts'ixa nouns display the common bimoraic templates CVV, CVN, and CVCV, whereas loanwords may deviate from this norm (Fehn 2018: 15). While all Khoe-Kwadi languages may represent nominal referents by a set of corresponding pronouns (§2.1), Ts'ixa and Shua differ in whether [-animate] nouns are optionally marked for gender and number by a so-called person-gender-number (PGN) clitic: Ts'ixa, like Khwe, treats PGN clitics as specific articles and marks ~70% of noun phrases for gender and number. In Shua, on the other hand, PGN clitics are mainly used for the disambiguation of biological sex and hence do not appear with [-animate] nouns (§2.2).

[3] The data from Vossen (1997, 2013) and myself were recorded with the same speaker, the late Mr. Haanatoo "Pekenene" Mosesane, then a resident of Mababe. I have therefore decided to lump both datasets in the present study under the label "Danisi_Mababe".

2.1 The pronominal paradigm. Shua, Ts'ixa and Khwe, like other Khoe languages, distinguish between three-person (1st, 2nd, 3rd), three gender (masculine, feminine, neuter) and three number (singular, dual, plural) categories (Tables 2 and 3).

All languages[4] further exhibit at least two paradigms (I, II) that differ in the final vowel of the 1st person singular (1sg), as well as of the 3rd person singular and dual. In the majority of Shua dialects, the paradigms I and II correspond to a minimal two-case opposition of a direct case used for subjects and objects (I), and an oblique case used for dependent participants (II) (Nichols 1986: 78, McGregor 2014: 49). The same pattern is found in Khwe (Kilian-Hatz 2008, cf. Table 2 below), but not in Ts'ixa, which shows almost full formal correspondence with Shua while displaying predominant accusative alignment: paradigm I always refers to clausal objects and appositional subjects, while II is used for subjects and dependent noun phrases (Fehn 2016, 2017, cf. Table 2 below).

The limited data available for Deti suggests a restricted three-case opposition distinguishing subject (I), dependent (II) and object (III); however, no pronominal category displays distinct forms for all three cases, and no supporting examples could be obtained from the data. While a three-case opposition indeed exists in other Kalahari Khoe languages like G|ui (Nakagawa 1993) and the wider Tshwa dialect cluster (Fehn & Phiri 2017; Pratchett no date), the paradigms given for Deti should be taken with a grain of salt, especially since all examples under consideration align with the rest of Shua by displaying an opposition between direct and oblique case.

The significance of pronominal paradigms for marking grammatical relations in Shua will be further discussed in §3.1 below.

Formally, the pronominal paradigms present a fairly coherent picture across Shua dialects (Vossen 2013b: 215f): the pronouns of the 3rd person are complex and consist of a distance neutral demonstrative base *ʔe-* plus a suffix. An exception is constituted by the pronoun for the 3rd person singular neuter (3sg.C), which consists of the demonstrative base *ʔe-* (or *ʔi-*) only. This form only exists in G‖oro, Cara, and Nata-Shua. In contrast to the complex 3rd person forms, pronominal forms for the 1st and 2nd person are non-analyzable entities.

Deti also expresses a subset of 1st and 2nd person referents with complex pronominals involving a demonstrative base *ʔa-*. However, these forms exclusively occur in the elicited paradigms quoted by Vossen (1997: 248, 2013b: 206) and Köhler (1962: 540f) and do not actually feature in the available examples. There is a further discrepancy between Köhler's and Vossen's data in the 1st person plural feminine (1pl.F) and neuter (1pl.C), and in the 2nd person plural: Köhler's data displays complex forms, while Vossen's data does not. It therefore cannot be excluded that the complex forms in Deti constitute emphatic forms, or rare forms that were initially lost and later reintroduced through analogy with the 3rd person forms. An apparent reduction of Vossen's Deti paradigm is also evident in the absence of dedicated feminine forms in the dual, as well as in the 2nd and 3rd person plural, leading to leveling of the contrast between feminine and neuter. In the 1st person plural, a dedicated neuter form is missing, resulting in the masculine form being recruited to express both categories. While imminent language loss (Vossen 2013b: 216) may certainly

[4] Vossen (1997, 2013) did not consider the paradigmatic differences between direct case and dependent forms. While for Cara, the dependent forms of paradigm II could be deduced from the examples available, this was only partially possible for |Xaise and Deti. It may nevertheless be assumed that these doculects display patterns similar to other Shua varieties.

explain the gaps and other eccentricities of the Deti paradigm, other historical explanations or contact seem possible as well (see also Pratchett no date, on Tshwa).

Despite the overall similarities, some minor points of (mostly phonological) variation within the Shua cluster can be observed. They are discussed below with respect to the Proto-Khoe reconstructions by Güldemann (2004) provided in the first column of Tables 2 and 3.

1. Voicing: Cara displays voicing in some forms (*dzé* '1pl.C', *dzáró* '2du.M', *gáó* '2pl.M', *dó* '2pl.C', *ʔé.dzàrá* '3du.M') which appear voiceless elsewhere. Likewise, Vossen's (1997, 2013b) Deti voices the 1st person plural masculine (*dzé*/*dzá* '1pl.M') and the pronouns of the 2nd person plural (*dó* '2pl.C/.F', *gáó* '2pl.M). In all instances, the voiced forms do not correspond to the available Proto-Khoe reconstructions (Güldemann 2004), and it appears they constitute a rare case of fortition otherwise not attested in the lexicon of Shua.

2. Palatalization: The 1st person plural masculine is palatalized in Cara (*jé* '1pl.M'), and in Deti (*ʔà.cé/ ʔà.cá* '1pl.M').

3. Vowel changes: The westernmost dialect of Danisi recorded by Vossen and myself at Mababe displays /u/ in the first person dual feminine (*súḿ* '1du.F') and masculine (*tsúḿ* '1du.M'), as well as /o/ in V_1 of the 2nd person dual feminine (*sóró* '1du.F') and masculine (*tsóró* '1du.M'). Historically, the observed vowel changes should be interpreted as regressive vowel assimilation with respect to the Proto-Khoe reconstructions *sa/tsa/k^{h}a-mu '1du' and *sa/tsa/k^{h}a-do '2du' (Westphal 1971; Güldemann 2004, 2019). Within the same historical scenario, all other Shua dialects display progressive vowel assimilation. The trigger for the regressive assimilation in the Danisi variety of Mababe is presumably contact influence from Ts'ixa.

4. Diphtongization: Danisi, G‖oro, Nata-Shua and Deti display diphthongization of V_1 in the 3rd person dual neuter (*ʔe.k^{h}oara* '3du.C'). Again, the explanation is probably historical: it appears that the form *k^{h}o(a)ra* (3du.C) in Shua goes back to *k^{h}oe-ra ('person'-*da*). While one pronunciation variant involves deletion of /e/, leading to *k^{h}ora*, the other involves regressive vowel assimilation, triggering what looks like diphthongization in *k^{h}oara* (Güldemann 2019).

5. Variation in the suffix of the 3rd person plural neuter (3pl.C): G‖oro and Nata-Shua display two variants for the 3pl.C form of paradigm I: *ʔe.na* and *ʔe.n.ʔae* '3pl.C'. The semantic difference between them is unclear and cannot be deduced from the available examples. It should be noted that *ʔe.n.ʔae* is frequent in Westphal's (no date c) data from Nata-Shua, but entirely absent in the examples assembled from the publications of McGregor (2014a,b, 2015, 2017). Formally, *ʔe.n.ʔae* is a complex form constituted by the 3pl.C form of paradigm II *ʔe.n* plus an element *ʔae* of unknown meaning.

In comparison with its western neighbors Ts'ixa and Khwe, Shua – like Khoekhoe and languages of the Tshwa dialect cluster – has a voiceless velar stop onset /k/ (~/c/) instead of a lateral click /‖/ in all masculine plural forms (*ke* '1pl.M', *kao* '2pl.M', *-ku(a)* '3pl.M'). Although some Shua dialects display loss of lateral click onsets in a restricted number of lexical items (Fehn 2018, 2020a), /k/ is not a regular replacement for the lateral click in eastern Kalahari Khoe languages. The explanation may therefore be of greater time depth and ultimately go back to the

formation of Proto-Khoe masculine plural forms involving the Ju plural suffix *!a- plus a final element *o or *e marking person and number (Güldemann 2004, 2019). Historically, the /k/ forms found in Khoekhoe and Eastern Kalahari Khoe could therefore be explained as the result of regular replacement of the alveolar click /!/, while the lateral click of Western Kalahari Khoe would be the variant in need of explanation (Güldemann 2004, 2019; Fehn 2020a). Khwe and Ts'ixa also deviate from the Shua pattern in having a single form *tí* for the first person singular, rather than case forms *tá* and *tí* corresponding to paradigms I and II respectively.

Khwe differs from all other varieties given in Tables 2 and 3 in the forms of the 2nd and 3rd person dual by displaying a CVV, rather than a CVrV structure. It may be assumed that historically, the medial /r/ goes back to an element *-da which was deleted in Khwe, but retained in Ts'ixa and Shua. Khwe further differs in having *té* (rather than *tsé*) for the 1st person plural neuter (1pl.C), as well in the pronominal base used to form the complex pronouns of the 3rd person (*xa-* in Khwe vs. *ʔe-* in Ts'ixa and Shua).

Table 2. The pronominal paradigms of Khwe, Ts'ixa, and the Shua doculects Danisi and Gǁoro. The leftmost column shows the Proto-Khoe reconstructions proposed by Güldemann (2004).

	Proto-Khoe	Khwe		Ts'ixa		Danisi		Gǁoro	
	Güldemann (2004)	Kilian-Hatz (2008: 171, 180)		Fehn (2016: 62)		Vossen (1997: 246f), Köhler (1962)		Westphal (no date b)	
		I	II	I	II	I	II	I	II
1sg	*ti, *ta	tí		tí		tá	tí	tá	tí
1du.F	*sa -m(u)	ʃám̀		súḿ		súḿ/sáḿ*		ʃáḿ	
1du.M	*tsa -m(u)	tʃám̀		tsúḿ		tsúḿ/tsáḿ*		tsáḿ	
1du.C	*kho -m(u)	kʰámà		kʰúḿ		kʰáḿ		kʰáḿ	
1pl.F	*sa -e	ʃé		sé		sé		ʃé	
1pl.M	*!a -e	ǁé		ǁé		ké		ké	
1pl.C	*ta -e	té		tsé		tsé		tʃé~tsé	
2sg.F	*sa	hấ		sá		sá		ʃá~sá	
2sg.M	*tsa	tʃá		tsá		tsá		tsá	
2du.F	*sa -da -o	ʃáò		sórò		sóró/sáró*		ʃáró	
2du.M	*tsa -da -o	tʃáò		tsórò		tsóró/tsáró*		tsáró	
2du.C	*kho -da -o	kʰáò		kʰórò		kʰáró		kʰáró	
2pl.F	*sa -o	ʃó		só		sáó		ʃáó	
2pl.M	*!a -o	ǁáó		ǁó		káó		káó	
2pl.C	*ta -o	tó		tó		tó		tó/tó.ʔàè	
3sg.F	*si	xà.hɛ́	xà.ʃĩ	ʔé.sà	ʔé.sì	ʔé.sà	ʔé.sì	ʔé.ʃà	ʔé.ʃì
3sg.M	*bi	xà.má	xà.ḿ	ʔé.mà	ʔé.m̀	ʔé.mà	ʔé.m̀	ʔé.mà	ʔé.m̀
3sg.C								ʔé	
3du.F	*sa -da	xà.ʃá		ʔé.sérà		ʔé.sárà		ʔé.sárà	
3du.M	*tsa -da	xà.tʃá		ʔé.tsérà		ʔé.tsárà		ʔé.tsàrà	
3du.C	*kho -da	xà.kʰá		ʔé.kʰórà		ʔé.kʰórà/ ʔé.kʰòarà*		ʔé.kʰòrà/ ʔé.kʰòarà	
3pl.F	*di	xà.ʤí		ʔé.dzà	ʔé.dzì	ʔé.dzà	ʔé.dzì	ʔé.dzì	
3pl.M	*!a -u (> *!u)	xà.ǁúá	xà.ǁú*	ʔé.ǁùà	ʔé.ǁù	ʔé.kùà	ʔé.kù	ʔé.kùà	ʔé.kù
3pl.C	*nV	xà.ná	xà.ń	ʔé.nà	ʔé.ǹ	ʔé.nà	ʔé.ǹ	ʔé.nà/ ʔé.né.ʔáé	ʔé.ǹ

*Köhler only

Table 3. The pronominal paradigms of the Shua doculects Cara, ǀXaise, Nata-Shua and Deti. The leftmost column shows the Proto-Khoe reconstructions proposed by Güldemann (2004).

	Proto-Khoe	Cara		ǀXaise	Nata-Shua		Deti		
	Güldemann (2004)	Vossen (1997: 246f)		Vossen (1997: 246f)	Westphal (no date c)		Vossen (1997: 246f), Köhler (1962: 540f), Westphal (no date d)		
		I	II		I	II	I	II	III
	*ti, *ta	tá	tí	tá	ta	ti	tá	tí	
1du.F	*sa -m(u)	sáḿ		sáḿ	sam		ʔà.kʰáḿ/ʔà.sáḿ*		
1du.M	*tsa -m(u)	dzáḿ		tsáḿ	tsam		ʔà.tsáḿ		
1du.C	*kho -m(u)	kʰáḿ		kʰáḿ	kʰam		ʔà.kʰáḿ		
1pl.F	*sa -e	sé		sé	se		dzé/ ʔà.sé*		dzá **
1pl.M	*!a -e	jé		ké	ke		ʔà.cé		ʔà.cá **
1pl.C	*ta -e	dzé		tsé	tse		ʔà.cé/ ʔà.tsé*/ cé***		cá**
2sg.F	*sa	sá		sá	ʃa		sá		
2sg.M	*tsa	tsá		cá	tʃa		tsá	tsi***	
2du.F	*sa -da -o	sáró		sáró	saro		ʔà.kʰáró/ʔà.sóró*		
2du.M	*tsa -da -o	dzáró		tsáró	tsaro		ʔà.tsáró/ʔà.tsóró*		
2du.C	*kho -da -o	kʰáró		kʰáró	kʰaro		ʔà.kʰáró		
2pl.F	*sa -o	sáó		sáó	sao		dó/ ʔà.sáó*		dóá **
2pl.M	*!a -o	gáó		káó	kao		gáó/ ʔà.káó*		gáó-ã**
2pl.C	*ta -o	dó		tó	to		dó/ ʔà.tó*		dóá **
3sg.F	*si	ʔé.sà	(ʔé.sì)	ʔé.sà	ʔe.ʃa	ʔé.ʃì	ʔé.sà	ʔé.sì***	
3sg.M	*bi	ʔé.mà	ʔé.m̀	ʔé.mà	ʔe.ma	ʔé.m̀	ʔé.mà		
3sg.C		ʔí			ʔé				
3du.F	*sa -da	ʔé.sàrà		ʔé.sàrà	ʔe.sara		ʔé.kʰòàrà/ʔá.sàrà*		
3du.M	*tsa -da	ʔé.dzàrá		ʔé.tsàrá	ʔe.tsara		ʔé.tsàrà		
3du.C	*kho -da	ʔé.kʰórà		ʔé.kʰòrà	ʔe.kʰoa/ ʔe.kʰoara		ʔé.kʰòàrà		
3pl.F	*di	ʔé.dzì		ʔé.dzì	ʔe.dzi		ʔé.nà/ʔá.dzà*		
3pl.M	*!a -u (> *!u)	ʔé.kùà	ʔé.kù	ʔé.kùà	ʔe.kua		ʔé.kùà		
3pl.C	*nV	ʔé.nà	ʔé.ǹ	ʔé.nà	ʔe.na/ ʔe.n.ʔae	ʔé.ǹ	ʔé.nà		

*Köhler only, **Vossen only, ***Westphal only

2.2. Nominal gender marking. All Khoe-Kwadi languages have a set of clitics attaching to nouns and noun phrases that minimally encode the categories of gender and number (Vossen 2013b: 215). These portmanteau morphemes are commonly referred to as PGN ('person-gender-number'), and I will keep using the term for reasons of convenience. It should however be noted that the 'person' category is not relevant to the clitics found in Ts'ixa (Fehn 2016: 64) and Shua (McGregor 2014a: 49), which are article-like noun markers, rather than pronominals (cf. Khoekhoe and Naro).

Like in other Kalahari Khoe languages, the PGNs of Shua and Ts'ixa are identical with the second element of the complex 3rd person pronouns (cf. Tables 2 and 3 above). They also mirror

the pronominal paradigm in displaying a direct case form (I) for subjects and objects, as well as a dependent form (II) for possessor nouns, nouns headed by a postposition, and nouns acting as the subject of subordinate predications (§3.1).

With the exception of the westernmost Danisi varieties (ex. 1a-b), Shua nouns are not marked for grammatical gender.

(1) [- human] referents

a. *máé* *tsá* *kà* ***mà=má*** *ʔà* *gádzé-káxù-à-hà?*
who 2sg.M POSS **head=sg.M:I** OBJ hurt-CAU-J-PRF
'Who has hurt your head?' (Danisi_Mababe, Vossen 2013b: 222)

b. *máé* *dì* *ʔè* ***ŋg‖ábé=s*** *ɪ̃ɪ̃̌=sà?*
who POSS COP **pipe=sg.F:II** DEM=sg.F:I
'Whose pipe is this?' (Danisi_Mababe, Vossen 2013b: 220)

Nouns marked for feminine or masculine gender are either [+human] (ex. 2a-c) or anthropomorphized entities (ex. 5). Most examples that appear in the dataset are either kinship terms, or [+human] terms lacking inherent gender semantics. With *‖ʉ́ʉ̃̄* 'parent' (ex. 2a), *ǀʉ́ã́* 'child' (ex. 2b), and *cáā.xū* 'older sibling' (ex. 2c), the PGN is used to distinguish biological sex.

(2) [+ human] referents

a. *ʔé.m̀* *kà* ***‖ʉ́ʉ̃̄=m̄*** *kè* *‖ʔóó.*
3sg.M:II POSS **parent=sg.M:II** IPFV die
'His father was dying.' (Danisi_Mababe, Fehn f.n.)

b. *ǀʉ́ã́=ʃà* *kè* *ʔɪ̃ɪ̃̌=ʃà* *màrí* *ʃɛ́è-tūm̄-hà* *támè.*
child=sg.F:I IPFV DEM=sg.F:I money take-NEG-PRF QUOT
'The girl says that she did not take the money.' (G‖oro, Westphal no date b)

c. *tí* *bāā* *kè* *‖ʔóó=ʃà* *tí* ***cáā.xù=mà*** *ʔà.tʰi.à* *ʔájā-kʰòè*
1sg.II father IPFV die=SUB 1sg:II **e.sibling=sg.M:I** and.then headman
síí-nà-hà.
become-J-PRF
'When my father died, my brother became headman.' (Nata-Shua, Fehn f.n.)

Alternatively, the adjectives *k'ao* 'male' and *g‖ae* 'female' may be used for gender-disambiguation with [+human] nouns. In the examples found in the dataset (ex. 3a-b), noun phrases derived in this way do not co-occur with PGN markers. This also applies to the lexicalized forms *k'aa.kʰo(e)* 'man' (lit. 'male person') and *g‖ee.kʰo(e)~ g‖aa.kʰo(e)* (lit. 'female person') which are commonly not marked with a PGN in Shua (ex. 3c-d):

(3) Adjectival modification with [+human] referents

a. *a* *ʔúí.ka* *tsá* *tí* ***ǀũ̃ã-g‖àé***[5] *mʉ́ʉ̃́-á-hà* *rè?*
Q yesterday 2sg.M 1sg:II **child-woman** see-J-PRF Q
'Did you see my daughter yesterday?' (Cara, Vossen 2013b: 402)

b. *k'ai.a* *ka* *ʔaka* *ŋg‖ao* ***k'ao-caa*** *hãã* *ǀúí=se* *ɲũũ* *e.*
before PP ANT old **male-elder** EXIST one=ADV stay REL
'Once upon a time there was an old man who stayed alone.' (Nata-Shua, McGregor 2014a: 56)

[5] It appears that *g‖ae* 'female' is here used as a noun with the meaning 'woman', while *ǀũ̃ã* 'child' acts as modifier, i.e., 'young/childlike woman'.

c. *tá* *ʔà* *tséé-ma* ***k'áà.kʰòè*** *xóḿ* *ʔǎǎ̃* *e!*
1sg:I OBJ send-BEN **man** land know REL
'Send me a man who knows the area!' (Cara, Vossen 2013b: 407)

d. *tsí* ***g‖àā.kʰóè*** *kè* *k'ôxú* *ŋ|óà* *rè?*
2sg.M:II **woman** IPFV meat cook Q
'Is your wife cooking meat?' (Deti, Westphal no date d)

In the available data, personal names for both sexes consistently appear with PGN markers (ex. 4):

(4) Personal names
a. ***Tʰābāré=má*** *tí* *cáà.‖ǘũ̃* *ʔè.*
PN=sg.M:I 1sg:II grandfather[6] COP
'Thabare is my grandfather.' (Danisi_Mababe, Fehn f.n.)

b. ***Pono=ʃi*** *ke* *k'ae.k'ae-sen* *kika* ***Pono=ʃa*** *ke* *k'ae.k'ae-sen.*
PN=sg.F:II IPFV laugh:REP-REFL if **PN=sg.F:I** IPFV laugh:REP-REFL
'If Pono giggles she giggles.' (Nata-Shua, McGregor 2015: 63)

In one example, an anthropomorphized animal ('frog') appears with a PGN (ex. 5):

(5) Anthropomorphized entities
ɲĩĩ̃ ***!obe-ʃi*** *xai* *ʔĩ̃.*
DEM **frog-3sg.F:II** again COP
'This is the (female) frog again.' (Nata-Shua, McGregor 2017: 861)

It seems plausible that PGNs may also be used to distinguish biological sex in animals. However, the only relevant example present in the data uses adjectival modification to express sex (ex. 6):

(6) Adjectival modification with animal nouns
g‖éē-bēē *|ʔǘǎ́*
female-cattle bone
'a cow's bone' (Nata-Shua, Westphal no date c)

Shua pronouns also display a gender distinction in plural and dual (cf. Tables 2 and 3), but this does not necessarily apply to PGNs (cf. also McGregor 2014a: 49). Only the Danisi dialect recorded at Mababe displays both dual marking (ex. 7a)[7] and a gender distinction in the plural with [-human] nouns (ex. 7b). The feminine plural clitic occurring with the noun *kx'òxú* 'animal' possibly implies that groups of animals are generally marked as feminine plural, similar to what has been observed in Ts'ixa (Fehn 2016: 65).

[6] lit. 'elder parent'
[7] Vossen (2013b: 215) also cites dual PGNs for Cara and |Xaise; however, there are no published examples from his data to showcase their actual use in spoken discourse.

(7) Exceptions in the Danisi dialect of Mababe

a. *ʔé.tsérà* *ǀúǎ=**tsérà*** *Kxòsítsílè=m̀* *kōrē* *ǁXá.dáò* *xàè* *ʔà,*
3du.M child=**du.M** PN=sg.M:II CONJ PN CONJ OBJ
ʔábà-nà *ʔé.m̀* *Tʰābàrè=mà.*
give.birth-PST 3sg.M:II PN=sg.M:I
'Thabare fathered two children, Kxositsile and ǁXadao.' (Danisi_Mababe, Fehn f.n.)

b. *kè* *kx'òxú=**dzì*** *hā̃ǎ̃-ŋò*
1pl.M animal=**pl.F:II** EXIST-NMZ
'the place where our animals dwell' (Danisi_Mababe, Fehn f.n.)

PGNs for feminine and masculine plural are further attested with [+human] referents in the Phuduhudu dialect of Danisi (ex. 8a), as well as in Cara (ex. 8b):

(8) Feminine and masculine plural with [+human] referents

a. ***gǁe.kʰoe=dza*** *ke* *beke* *ǀam.ǀam* *ʔai-a=se* *haa-ku.*
woman=pl.F:I IPFV bag two:REP carry-TAM=ADV come-REC
Prompted: 'The women are carrying two buckets each.' (Danisi_Phuduhudu, Fehn et al. f.n.)

b. *súri* *ʔúú* ***cáá.kʰoe=kùà*** *ǀʔĩ̃!*
tobacco take.to **elder=pl.M:I** ?give
Prompted: 'Give tobacco to the elders.' (Cara, Vossen 2013b: 405)

The other dialects (minus Deti) all use the neuter *=na* (3pl.C) as a default plural marker which appears with mixed groups of humans (ex. 9a), as well as with males (ex. 9b) or females (ex. 9c) only:

(9) *=na* with [+human] referents

a. ***kʰōé=nà*** *kè* *ɲáà-kū* *rè?*
person=pl.C:I IPFV dance-COLL Q
'Are the people dancing?' (Gǁoro, Westphal no date b)

b. *kao* *ǁóbé* ***k'aa.kʰoe=n*** *kao* *ke* *nãũ* *hĩ̃?*
2pl.M three **man=pl.C:II** 2pl.M IPFV what do
'What are you three men doing?' (Nata-Shua, McGregor 2014a: 56)

c. *ŋona* ***gǁee=ni*** ***kʰoe=na*** *ǀúí.ǀúí* *ʔa* *ʔemere=na*
three **female=pl.C:II** **person=pl.C:I** one:REP PP bucket=pl.C:I
ʔai-a-ha.
carry-J-PST
'Three women were carrying one bucket each.' (Nata-Shua, McGregor 2014a: 70)

Although examples are sparse, it may be suggested that *=na* is also used as a generic plural form with [-human] entities (ex. 10a-b). In the presence of a numeral, plural marking of [- human] nouns is optional (ex. 10c-d).

(10) *=na* with [-human] referents

a. *ĩ̃̌=è* *tí* ***zĩ̃̀=nà*** *ʔè.*
DEM=sg.C 1sg:II **foot=pl.C:I** COP
'These are my feet.' (Gǁoro, Westphal no date b)

b. *ʃa* *ʔaka* ***zibira=na*** *ʔa* *ǁʾaa-ha* *kika* *ʃa* *ʔaka* *ǀʾao*
2sg.F ANT **clothes=pl.C:I** OBJ wash-PRF if 2sg.F ANT money
mũũ-a-ta.
see-J-PST
'If you had washed the clothes you would have gotten (seen) money.' (Nata-Shua, McGregor 2015: 67)

c. ***ŋona*** ***pensili-na*** *ǀúí-ǀúí* *ʔa* *ǀʾao.cxai* *ǀxoa* *hãã.*
three **pencil-pl.C:I** one-one PP coin with EXIST
'The three pencils each have one coin with them.' (Nata-Shua, McGregor 2014: 70)

d. *ta* ***ǁobe*** ***ʞii*** *ǀʾee* *ʔa* *caa-na-ha.*
1sg:I **three** **stick** fire LOC enter-J-PRF
'I put three sticks on the fire.' (Nata-Shua, McGregor 2014: 55)

In addition to these, the Danisi dialect of Gweta (ex. 11a), Gǁoro (ex. 11b) and Nata-Shua (ex. 11c) sometimes use honorific plural marking with the nouns 'mother' and 'father'. This phenomenon has also been observed in Tshwa (Pratchett no date) and may constitute a contact feature adopted from neighboring Bantu languages (Pratchett 2021).

(11) *=na* with 'mother' and 'father'
a. *ti* ***ba=na*** *ke* *kʰoo* *ŋǀoro.*
1sg:II **my.father=pl.C:I** IPFV skin soften
'My father is softening skin.' (Danisi_Gweta, Westphal no date a)

b. *Kʰòbétékū=mā* ***ʔàbá=ń*** *ǀ'úī̄* *ʔè.*
PN=sg.M:I **my.father=pl.C:II** name COP
'Khobeteku is my father's name.' (Gǁoro, Westphal no date b)

c. ***ʔàdé=nā*** *ǀXáísé ʔè.*
my.mother=pl.C:I ǀXaise COP
'My mother is ǀXaise.' (Nata-Shua, Westphal no date c)

Deti formally differs from all other dialects in using a generic plural marker *-ri* (*~-li~-di*) for both [+human] (ex. 12a) and [-human] (ex. 12b) referents.

(12) *-ri* in Deti
a. ***kʰó-lì*** *ǁòè-kū-nā* *kè.*
person-pl sleep-COLL-TAM IPFV
'The people are asleep!' (Deti, Westphal no date d)

b. *jàâ* *è* ***ǀíí-ʔū-lī̄*** *ǀíí.*
dance ??? **sing-NMZ-pl** sing
Prompted: 'Sing a dancing song.' (Deti, Westphal no date d)

This form is probably related to the plural markers *-re* (ex. 13a) and *-rina* (ex. 13b) found exclusively with the noun 'child' in other dialects of Shua.[8]
(13) *-re* and *-rina* with the noun 'child'

[8] It may be speculated that these are actually suppletive plural forms. Suppletive plurals are attested in the extinct Angolan language Kwadi (Güldemann 2013: 262; Fehn & Rocha, forthcoming) and may have constituted a feature of Proto-Khoe-Kwadi.

a. *ti* **ǀũã-re** *ke* *ta* *ʔjũũ* ǁ*ʔaŋa-ma.*
1sg:II **child-pl** IPFV 1sg:I food buy:J-BEN
'I buy food for my children.' (Danisi_Phuduhudu, Fehn et al. f.n.)

b. ǁ*ʰara-ni* **ǀũã-rina** ǀ*am.*ǀ*am* *tʰa* *te-ŋɻoro* *kũũ-a* *tĩĩ.*
many-pl.C:II **child-pl:I** two:REP DRM ?-back go-J stand
'Many children are lined up in pairs.' (Nata-Shua, McGregor 2014a: 70)

Nominal gender marking in Shua differs acutely from its western neighbors Khwe and Ts'ixa: both languages display elaborate grammatical gender systems and mark more than 70% of all noun phrases for gender and number. While nominal gender marking in Shua is mostly restricted to the disambiguation of biological sex in [+human] entities, PGNs in Ts'ixa and Khwe serve the function of specific articles (Fehn 2016: 59). Nominal gender marking is exemplified for Ts'ixa in (ex. 14) below: gender is marked on both [-human] and [+human] nouns (ex. 14a-b). Gender is also distinguished in the dual (ex. 14c) and plural (ex. 14d-e). Plural marking for [-human] referents always occur in the feminine gender (ex. 14f):

(14) Nominal gender marking in Ts'ixa

a. ***xālásí=ḿ*** ***sīt̪úló=sí*** *kà* ***ɲɻórò=m̀*** *sìnà* *tĩ̃ĩ́.*
glass=sg.M:II **chair=sg.F:II** POSS **back=sg.M:II** LOC be.standing
'The glass is standing behind the chair.' (Ts'ixa, Fehn f.n.)

b. ***k'ārō=m̄*** *xà* ǀ*k'ɛ́ɛ́-ʔò.*
boy=sg.M:II SUBJ fall.down-DIR
'The boy might fall off.' (Ts'ixa, Fehn f.n.)

c. *ʔé.sérà* *kò* ***kʰōē=tsérà*** *ʔà* ǁ*k'áḿ.*
3du.F IPFV **person=du.M** OBJ hit
'They (du.f) hit the two men.' (Ts'ixa, Fehn f.n.)

d. ***k'ārō=ǁū*** *hīī=sà* *ʔà* *k'áà-xù-nà-tà.*
boy=pl.M:II tree=sg.F:I OBJ drink-CAU-J-PST
'They boys watered the tree.' (Ts'ixa, Fehn f.n.)

e. ***kʰōē=n̄*** *kò* ǁ*áú.*ǁ*àù-sì.*
person=pl.C:II IPFV bec.straight:CAU-REFL
'The people get ready.' (lit.: are straightening themselves) (Ts'ixa, Fehn f.n.)

f. ***dzūbárà=dzà*** *tũ̃ũ̃* *tí* *sámbà-nà-tà.*
clothes=pl.F:I already 1sg:II wash-J-PST
'I have already washed the clothes.' (Ts'ixa, Fehn f.n.)

3. Morphological marking of core participants

Shua and Khwe mark a subset of grammatical roles through their pronouns and PGN clitics, which encode a two-case opposition between subject/object and clausal dependents (Nichols 1986: 78, McGregor 2014a: 49). Conversely, Ts'ixa pronouns and PGN clitics display accusative alignment, with a two-case opposition between subject/clausal dependents and objects (Fehn 2017) (§3.1).

In all languages, the object of the clause may further be marked by a postposition *(ʔ)à* that occurs across Kalahari Khoe and probably grammaticalized from a copula (Kilian-Hatz 2008,

McGregor 2018) (§3.2). An additional strategy, indexing of pronominal objects on the verb, is exclusively found in Deti (§3.3).

3.1. Case-sensitive pronouns and PGN clitics. As noted previously, Shua personal pronouns of the 1st person singular as well as of the 3rd person singular and plural display an opposition between forms marking either the subject or object of the clause (I), and forms marking dependent nouns, such as possessor nouns, nouns headed by a postposition, and nouns acting as subject of a dependent clause (II). Deti may have an additional pronominal paradigm of object markers (see §2.1), which is however not attested in the present data and therefore cannot be discussed within the frame of this section.

Shua is the only Kalahari Khoe language displaying a *ta* vs. *ti* opposition in the 1st person singular. *ta* (I) is used as the subject (ex. 15a) and the object (ex. 15b) of the main clause, while *ti* (I) appears as subject of dependent clauses (ex. 15c), as possessive pronoun (ex. 15d), and with postpositions (ex. 15e). This pattern is coherent across all dialects of Shua except Deti, which appears to use *ta* (I) in subordinate clauses as well. The examples below outline the complementary distribution of *ta* and *ti* in G‖oro.

(15) Complementary distribution of 1st person singular pronouns in G‖oro

Subject

a. ***tá*** *kē* *ʔé.kúà* *mű̀ǜ̀.*
1sg:I IPFV 3pl.M:I see
'I see them.' (G‖oro, Westphal no date b)

Object

b. *ʃá* *kè* ***tá*** *à* *mű̀ǜ̀.*
2sg.F IPFV **1sg:I** OBJ see
'You see me.' (G‖oro, Westphal no date b)

Subject (subordinate clause)

c. *[ǜ̀ű́-ŋò* *kè* ***tí*** *kű́ǜ̀=ʃà]$_{SUB}$* *kè* *tá* *‖'àḿ-é.*
there IPFV **1sg:II** go=SUB IPFV 1sg:I beat-PASS
'If I go there, I'll be beaten.' (G‖oro, Westphal no date b)

Dependent (possessive)

d. ***tí*** ***hémpè*** *ts^{h}é-á-hà.*
1sg:II **shirt** tear-J-PRF
'My shirt is torn.' (G‖oro, Westphal no date b)

Dependent (with postposition)

e. *ʔǜ̀á́* *màrí* ***tí*** ***ʔò.***
bring money **1sg:II** **DIR**
'Bring the money to me.' (G‖oro, Westphal no date b)

Pronouns of the 3rd person, as well as PGN markers show a matching opposition: pronouns and PGNs ending in *-a*, i.e., those of paradigm I, are used for the subject (ex. 16a) and the object (ex. 16b) of the main clause, while those ending in *-i* or a nasal (paradigm II) appear as subjects of dependent clauses (ex. 16c), as possessive pronouns (ex. 16d), and with postpositions (ex. 16e). The examples below outline the complementary distribution of paradigms I and II in 3rd person pronouns and PGNs for Nata-Shua:

(16) Complementary distribution of 3rd person pronouns and PGNs in Nata-Shua
Subject
a. ***ʔé.mà*** *kē* *tá* *ʔà* *mṵ̋̃.*
3sg.M:I IPFV 1sg:I OBJ see
'He sees me.' (Nata-Shua, Westphal no date c)

Object
b. *tá* *kē* ***ʔé.mà*** *ʔà* *mṵ̋̃.*
1sg:I IPFV **3sg.M:I** OBJ see
'I see him.' (Nata-Shua, Westphal no date c)

Subject (subordinate clause)
c. *tá* *ʔé.mà* *ʔà* *djàrà-hà* *xòrè* *[**ʔé.m̀***** *tá* *à* *k'òxú*
1sg:I 3sg.M:I OBJ ask.for-PRF COMP **3sg.M:II** 1sg:I OBJ meat
‖ʔàŋà-mà]$_{SUB}$
buy-BEN
'I asked him to buy meat for me.' (Nata-Shua, Fehn f.n.)

Dependent (possessive)
d. *ndēbé=má* *kē* ***ʔé.m̀*** ***g‖ēè.kʰòè*** *‖'ám̀.*
so.and.so=sg.M:I IPFV **3sg.M:II** **woman** beat
'So-and-so is beating his wife.' (Nata-Shua, Westphal no date c)

Dependent (with postposition)
e. *ti* *ʔnṵ̋̃* *ʔii.je* ***ʔaba=n*** ***ka*** *ʔnũ̃ũ̃-e-ha.*
1sg:II food all **dog=pl.C:II** **PP** eat-PASS-PRF
'All of my food was eaten by the dogs.' (Nata-Shua, McGregor 2014a: 84)

Khwe, like Shua, has a two-case system distinguishing two paradigms for 3rd person pronominals and PGN markers (cf. Tables 2 and 3 above): I marks subjects and objects (ex. 17a), and II marks clausal dependents, like possessor nouns (ex. 17b), and nouns headed by a postposition (ex. 17c). Unlike in Shua, subjects of dependent clauses are never expressed by dependent pronominals or PGNs (ex. 17c-d). The dependent form of the 3rd person singular masculine (3sg.M:II) *=m* also occurs before the object marker *(ʔ)à* (ex. 17.e).

(17) Complementary distribution of 3rd person pronouns and PGNs in Khwe
Subject/Object
a. ***kʰó=mà*** *tí* *kī* *ǂxà-rá-tā* ***mākē=hɛ̀*** *ɛ̀.*
person=sg.M:I 1sg to give-J-PST **cigarette=sg.F:I** OBJ
'The man gave me a cigarette' (Khwe, Kilian-Hatz 2008: 66)

Dependent (possessive)
b. ***Dìvúndū=ʃī*** ***dī*** ***ʃtórà*** *ʔà.*
GN=sg.F:II **POSS** **store** COP
'It is the store of Divundu.' (Khwe, Kilian-Hatz 2008: 73)

Subject of a subordinate clause / Dependent (with postposition)
c. *[á* ***lǜ=hɛ́*** *nyáḿ-á-gòè* *nò]$_{SUB}$* *té* *tòé-à-gòè* *tā́*
DEM war=sg.F:I start-J-FUT when 1pl.C move-J-FUT other
ŋú=ʃī ***kà.***
land=sg.F:II **PP**
'If the war starts, we move to another country.' (Khwe, Kilian-Hatz 2008: 327)

Subject of a subordinate clause

d. *tí ǂˀóā-rā-tɪ̃̄ **[xà.má** tí ʔà mbòrótò ʔà (ʃĩĩ)*
1sg ask-J-PST 3sg.M:I 1sg OBJ bread OBJ MOV
ǂũ̀-à-má-ʃā]$_{SUB}$.
buy-J-BEN-PURP
'I asked him to buy bread for me (lit. 'I asked that he buy bread for me').' (Khwe, Kilian-Hatz 2008: 337)

3sg.M with object marker *(ʔ)à*

e. ***Màtìàʃì=mǹ** **ʔà** ǀˀáò ʔà tí xàró-á-tā.*
PN=sg.M:II **OBJ** money OBJ 1sg give-J-PST
'I gave money to Matthew.' (Khwe, Kilian-Hatz 2008: 63)

Ts'ixa differs from both Khwe and Shua in having a two-case system displaying clear accusative alignment: I marks the object of the clause (as well as appositions) (ex. 18a), II marks the subject of main and subordinate clauses (ex. 18a-b), possessor nouns (ex. 18c), and nouns headed by a postposition (ex. 18d).

(18) Complementary distribution of 3rd person pronouns and PGNs in Ts'ixa

Subject/Object

a. ***ʔé.mǹ** kò **kʰōē=sà** ʔà jábà.*
3SG.M:II IPFV **person=SG.F:I** OBJ love
'He loves the woman.' (Ts'ixa, Fehn f.n.)

Subject (subordinate clause)

b. *ʔé.mà ʔà tí ɻīrà-nà-ta **[ʔé.mǹ** tí ʔà k'ōxú ká*
3SG.M:I OBJ 1SG ask-J-PST **3SG.M:II** 1SG OBJ meat PP
ǂũ̃ũ̃-à-mà]$_{SUB}$ tà.
buy-J-BEN COMP
'I asked him to buy meat for me (lit. that he buy meat for me).' (Ts'ixa, Fehn f.n.)

Dependent (possessive)

c. *góɛ̀=sì **ʔé.mǹ** **k'áí.ʔò** ŋ.kúà tɪ̃̃-nà.*
cattle=SG.F.II **3SG.M:II** **front** LOC be.standing-STAT
'The cow is standing in front of him.' (lit. 'The cow is standing in his front.') (Ts'ixa, Fehn f.n.)

Dependent (with postposition)

d. *[Khwai] ŋ.kúà tí **ʔé.mǹ** **ǀxòà** ‖k'áé-kù-nà-tà.*
GN LOC 1sg **3SG.M:II** **COM** meet-REC-J-PST
'I met him at Khwai.' (Ts'ixa, Fehn f.n.)

3.2. Differential object marking and indexing. In all dialects except Deti (see below), clausal objects may receive further marking by means of the postposition *(ʔ)à*. *(ʔ)à* only attaches to a subset of objects in the dataset, and its appearance is driven by pragmatic considerations. Shua, like other Kalahari Khoe languages (Fehn 2016, 2017; McGregor 2018) therefore displays a phenomenon commonly referred to as "differential object marking" (Bossong 1991, Aissen 2003, Dimmendaal 2010). Use of *(ʔ)à* in Nata-Shua is detailed in McGregor (2018: 256): *(ʔ)à* is near-obligatory with pronouns and personal names; objects not marked by *(ʔ)à* have to be read as backgrounded. *(ʔ)à* commonly occurs on PGN-marked nouns, but is rare on unmarked [+/- human] nouns. With unmarked nouns (and occasionally with PGN-marked ones as well), *(ʔ)à* assigns prominence to the direct object. Prominent objects are those that occur unexpectedly, those that

contrast with another filler of the same role, and those that are affected more than would be expected (McGregor 2018: 257).

Although more data, especially non-elicited, will be needed to obtain a more complete overview of *(ʔ)à*-marking across the Shua cluster, some preliminary observations can be made: In the dataset, *(ʔ)à* occurred with direct objects of monotransitive clauses, and with indirect objects (beneficiaries/recipients) of ditransitive clauses. All varieties mark about 50% of their objects, whereas pronominal objects are more likely to be marked by *(ʔ)à* than nominal ones. This is in line with an animacy scale where pronouns and personal names rank highest in prominence (Aissen 2003: 437), and matches McGregor's (2018: 256-7) findings for Nata-Shua. Unlike in Ts'ixa (Fehn 2016: 231), word order does not appear to be a relevant criterion for the presence or absence of *(ʔ)à*, possibly due to the overwhelming dominance of default SOV clauses in the language (§4.1 below).

The examples in (ex. 19) below exemplify postpositional marking of pronominal objects:

(19) *(ʔ)à* with pronominal objects

a. *mṵ̋ʉ̰* *kè* ***tsá*** ***ʔà*** *tá.*
see IPFV **2sg.M** **OBJ** 1sg:I
'I see you.' (Danisi_Mababe, Vossen 2013b: 401)

b. *ʃá* *kè* ***tá*** ***à*** *mṵ̋ʉ̰.*
2sg.F IPFV **1sg:I** **OBJ** see
'You see me.' (G‖oro, Westphal no date b)

c. *tá* *kē* ***ʔé.mà*** ***ʔà*** *mṵ̋ʉ̰.*
1sg:I IPFV **3sg.M.I** **OBJ** see
'I see him.' (Nata-Shua, Westphal no date c)

The data contains only two examples for PGN-marked singular nouns appearing with *(ʔ)à* (ex. 20a-b). It may, however, be assumed that this is merely a gap in the data, especially since texts are lacking for most varieties:

(20) *(ʔ)à* with PGN-marked objects

a. *máé* ***tsá*** ***kà*** ***mà=má*** ***ʔà*** *gádzé-káxù-à-hà?*
who **2sg.M** **POSS** **head=sg.M.I** **OBJ** hurt-CAU-J-PRF
'Who has hurt your head?' (Danisi_Mababe, Vossen 2013b: 222)

b. ***Blesi=ma*** ***ʔa*** *ta* *deti=na* *ŋg‖éé-ma-na-ta.*
PN=sg.M.I **OBJ** 1sg:I brick=pl.C.I count-BEN-J-PST
'I counted the bricks for Blesswell.' (Nata-Shua, McGregor 2014a: 84)

With objects not marked by a PGN, *(ʔ)à* more frequently appears with [+ animate] than with [- animate] entities (ex. 21):

(21) *(ʔ)à* with unmarked objects

a. *sexai* *ka* *Kure-ma* *kʰara-ha* ***tsxoa*** ***ʔa.***
spear PP PN-sg.M:I stab:J-PRF **elephant** **OBJ**
'Kure stabbed the elephant with a spear.' (Danisi_Nxabe, Fehn et al. f.n.)

b. *ʔǎǎ́* *tá* ***kʰōē*** ***ʔà*** *mű̀ű̃-túm̀-hà.*
no 1sg:I **person** **OBJ** see-NEG-PRF
'No, I saw nobody.' (G‖oro, Westphal no date b)

c. *ʔe.tsara* ***ʔaba*** ***a*** *ǀ'ũ̃ũ̃-a-ha.*
3du.M **dog** **OBJ** kill-J-PRF
'They killed a dog.' (Nata-Shua, Fehn f.n.)

(ʔ)à also appears with objects marked for plural (ex.22):

(22) *(ʔ)à* with plural objects
a. *ɲŋǎà* *ʔà* *kè* ***ǀíí-nà*** ***ʔà*** *ŋ‖áè?*
dance PP IPFV **song-pl.C:I** **OBJ** sing
'Sing a dancing song.' (G‖oro, Westphal no date b)

b. *ʔǔ̀ű́* *è* *ʔă.kā* *ʔúú-á-tá* *?ʔì̀* ***ʔnű́ű̀-nà*** ***ʔà.***
DEM 3sg.C ANT bring-J-PST ?DEM **food-pl.C:I** **OBJ**
'Each one brought his one food.' (Nata-Shua, Westphal no date c)

Like Shua, Khwe and Ts'ixa also make use of the object marker *(ʔ)à*. While in Khwe, *(ʔ)à* doubles as a focus marker which may also appear with a small subset of clausal subjects, Ts'ixa, like Shua, exclusively attaches it to objects. Kilian-Hatz (2008: 51) states that two thirds of all clausal objects in Khwe are marked with *(ʔ)à. (ʔ)à* marking is obligatory with indirect objects, irrespective of whether they are pronouns, or nouns with or without a PGN. It is also obligatory with proper nouns and PGN marked nouns, but optional with personal pronouns and generic and unspecific nouns not marked with a PGN.

Kilian-Hatz (2009) analyzes *(ʔ)à* as an object marker where it is obligatory, and as a focus marker where it is optional. As *(ʔ)à* is present with the majority of clausal objects, McGregor (2018: 262-3) suggests that its absence is actually more significant than its presence and possibly relates to backgrounding of the unmarked participant.

Like in Khwe, *(ʔ)à* marking in Ts'ixa is more frequent than non-marking (Fehn 2017): it is obligatory with pronouns and PGN-marked nouns in SOV and SVO predications[9], but optional with PGN-marked nouns in OSV clauses where *(ʔ)à* marking indicates contrastive focus (ex. 23c-d).

(23) Differential object marking with *(ʔ)à* in Ts'ixa
a. *ʔé.‖ù* ***xāḿ=sérà*** ***ʔà*** *‖āó-hà.*
3pl.M:II **lion=du.F** **OBJ** shoot:J-PST
'They shot the (two) lionesses.' (Ts'ixa, Fehn f.n.)

b. *[Mary]=sì* *‖k'áḿ-nà-tà* ***ʔé.mà*** ***ʔà*** *!ʔā̃ǎ́=sì* *ʔà.*
PN=sg.F:II hit-J-PST **3sg.M:I** **OBJ** face=sg.F:II LOC
'Mary hit him in the face.'

c. ***ʔābá=mà*** *tsá* *‖k'áḿ-nà-tà?*
dog=sg.M:I 2sg.M beat-J-PST
'Did you beat the dog?' (Ts'ixa, Fehn f.n.)

[9] Both SOV and SVO can be considered "basic" or unmarked in Ts'ixa (Fehn 2016, 2017).

d. *ʔĩ̄ĩ̄, **ʔābá=mà** tí ǁk'áḿ-nà-tà ʔíté, **k'ārō=mà** **ʔà** tí ǁk'áḿ-nà-tà.*
no **dog=sg.M:I** 1sg beat-J-PST NEG **boy=sg.M:I** **OBJ** 1sg beat-J-PST
'No, I did not beat the dog, I beat the boy.' (Ts'ixa, Fehn f.n.)

(ʔ)à is optional with unmarked nouns, whereas its appearance seems to follow prominence criteria assigned along an animacy scale: [+human] nouns without PGN are marked more frequently than unmarked animals and inanimates (ex. 24).

(24) *(ʔ)à*-marking with unmarked nouns in Ts'ixa
a. *Gǀóó.xà=m̀ ŋ.kùà ǀú.xùà tsá kò **khōē** **ʔà** kúḿ k'ūí kò=sè.*
GN=sg.M:II LOC sometimes 2sg.M IPFV **person** **OBJ** hear speak IPFV=ADV
'At Gǀoxa-Hill, you can sometimes hear people speak.' (Ts'ixa, Fehn f.n.)

b. *!xáō kò **ʔābá** péè.*
hippo IPFV **dog** chase
'A hippo is chasing a dog.' (Ts'ixa, Fehn f.n.)

While the Deti dialect of Shua has no attested occurrences of *(ʔ)à*, it still displays a type of differential object marking: although Shua, like other Khoe languages, is primarily zero or dependent marking (Nichols 1986), Deti makes use of a head-marking strategy in indexing a subset of direct objects on the verb. The paradigm of object suffixes attested for Deti is probably incomplete, but clearly resembles the Khwe dialect ǁAni[10], the only other known Kalahari Khoe language displaying the same phenomenon (Table 4):

Table 4. Object suffixes attested in Deti and their counterparts in ǁAni (Khwe, Kalahari Khoe); forms in brackets are variants noted in Vossen (1997, 2013b)

	Deti (Westphal no date d)	ǁAni (Vossen 1997: 237)
1sg	-tī (-tè)	-tì
2sg.M	-tsī	-tsì
3sg.M	-mī	-m
3sg.F	-sī	-sì
3du.M	(-tsè)	-tsà
3pl.M	-kū	-ǁù

In Vossen's (2013b: 225) data, object indexing in Deti is only attested with pronouns. Based on comparative data from ǁAni, the author hypothesizes that this may be a lack of data, rather than a restrictive pattern (Vossen 2013b: 225). However, neither Westphal's (no date d) nor my own data contain instances of nominal objects indexed on the verb, and it may be assumed that the agreement is restricted to, or at least prefers pronominal objects. Incidentally, this pattern would correspond to the same animacy-related criteria set up for *(ʔ)à* marking in other dialects of Shua.

Examples for pronominal object indexing in Deti are provided in (ex.25a-c) below.

[10] Vossen (1997) describes object indexing for the Khwe dialects ǁAni and Gǀanda (the Buga variety spoken at Khwai). However, my own data from Gǀanda does not contain examples for object indexing. Whether the phenomenon is more widespread in Khwe therefore remains a question of future research.

(25) Indexing of pronominal objects in Deti

a. *tsá ʔúí kà tá gáó-**tè**-hà re?*
2sg.M:I yesterday PP 1sg:I see-**1sg**-PRF Q
'Did you see me yesterday?' (Deti, Vossen 2013b: 404)

b. *tá kè tsá mű̀ǔ̀-**tsī**-nā.*
1sg:I IPFV 2sg.M:I see-**2sg.M**-TAM
'I see you.' (Deti, Westphal no date d)

c. *tá ʔé.kúà mű̀ǔ̀-**kū**-tà̀à̀.*
1sg:I 3pl.M:I see-**3pl.M**-NEG.IPFV
'I don't see them.' (Deti, Westphal no date d)

4. Discussion

This paper has outlined formal and functional properties of person-gender-number (PGN) marking in Shua, Ts'ixa and Khwe, in order to provide possible insights into the genealogical relations between the three languages. As the PGN system is overt in the pronominal paradigms of all varieties under discussion, formal properties of personal pronouns were compared first, followed by an analysis of nominal gender marking and a comprehensive assessment of the association between PGN and the marking of grammatical relations. In none of the domains surveyed, Ts'ixa shows a full correspondence with the internally largely coherent languages of the Shua cluster while also remaining clearly distinct from Khwe.

Formally, the personal pronouns of Ts'ixa mostly resemble the Shua cluster: all dual forms display a CVCV-structure (vs. CVV in Khwe), the 1st person common gender plural is *tsé* (vs. *té* in Khwe), and the pronoun base employed to form the pronouns of the 3rd person is *ʔe-* (vs. *xa-* in Khwe). However, the masculine plural pronouns follow Khwe in involving a lateral click /ǁ/, rather than the velar stop /k/ attested in Shua. Finally, the pronouns of the 1st and 2nd person dual differ from both Khwe and Shua in displaying a rounded vowel in V_1 as a result of regressive vowel assimilation. The historical significance of these observations is somewhat inconclusive. Following Güldemann (2004: 297), the CVCV dual forms found in Shua and Ts'ixa represent a more conservative stage than the CVV forms found in Khwe (see also Tables 2 and 3 above). Khwe therefore displays an innovation not shared with either of them.[11] Conversely, the 1st person common gender plural is more conservative in Khwe (*te*), while affrication of the onset (*tse* or *tsi*) is attested across Vossen's (1997) "Eastern Kalahari Khoe" subgroup, i.e., in Ts'ixa, Shua, and some Tshwa varieties (Fehn & Phiri 2017; Pratchett no date). A similar distribution is displayed by the pronoun base *ʔe-*, which is attested in Ts'ixa and Shua, but also in Tshwa (Fehn & Phiri 2017; Pratchett no date) and in the Buga variety of Khwe (own data). In contrast, the distribution of the lateral click onset in masculine plural forms roughly overlaps with Vossen's (1997) "Western Kalahari Khoe" subgroup, including Khwe, Naro, G|ui-G‖ana and Ts'ixa. However, it may be argued that the alveolar stop /k/ is actually the more conservative variant, as it also appears in Khoekhoe and can be directly traced to the proto-form *!a- reconstructed by Güldemann (2004, 2019). Hence, the otherwise unrecorded shift from an alveolar to a lateral click onset would have to be considered an innovation (see also Fehn 2020a: 322).

[11] Deletion of C_2 in C_1VC_2V roots is not a common sound shift in Khwe, and its singular occurrence in the context of the pronominal paradigm has to be considered a question of future research.

An alignment of Ts'ixa with Khwe can also be observed in the domain of nominal gender marking: while in Shua, PGNs are mainly restricted to personal pronouns and occasional appearances in the context of biological sex disambiguation, both animate and inanimate nouns in Khwe and Ts'ixa are regularly marked for gender and number. Overt nominal gender marking by means of PGN clitics can be observed with about 70% of nouns in both languages. Arguably, these PGN clitics fulfill the function of specific articles in the sense that they distinguish specific (marked) from non-specific (unmarked) nominal referents (Fehn 2017: 137). The historical significance of nominal gender marking in Khoe-Kwadi is a matter of ongoing debate. While it is clear that Khoe-Kwadi as a family is characterized by a sex-based gender system which markedly differs from the gender systems found in the neighboring families Kx'a, Tuu and Bantu (Güldemann 2008: 111; Güldemann & Fehn 2017: 503, 515), the scope and functional properties of nominal gender marking are not coherent across Khoe-Kwadi or even Kalahari Khoe. To account for these interlinguistic differences, Heine and Kilian-Hatz (1997: 20) argue that PGN-marking on nouns, noun phrases and nominal modifiers did not exist in Proto-Khoe, but evolved gradually over time. They propose a four-stage scenario in which PGNs evolve from personal pronouns (Stage 0), to specifying pronouns (Stage I), specific articles (Stage II), and, finally, markers of nominality (Stage III) (Heine & Kilian-Hatz 1997: 22). In this framework, both Ts'ixa and Khwe would correspond to Stage II, while Shua dialects would have to be located between Stage 0 and Stage I. The complication arises when Stage III – obligatory nominal gender marking – is considered: near-obligatory marking is, in fact, attested in all three branches of Khoe-Kwadi (cf. Fig. 2 above), namely in Kwadi (Fehn & Rocha, forthcoming; Güldemann 2013; Westphal no date e), Khoekhoe (Haacke 2013: 141, Hagman 1977: 22) and in the Kalahari Khoe language Naro (Visser 2022: 56ff). Instead of assuming that nominal marking evolved independently and on multiple occasions throughout the family, it may therefore be more parsimonious to place obligatory nominal marking at the root and interpret deviations from this norm as innovations. In this scenario, both Khwe and Ts'ixa would have shifted from obligatory to article-like noun marking, while Shua and Tshwa would have lost the system altogether, possibly in contact with unrelated languages of the Bantu family. Regardless of which scenario is preferred, it is clear that Ts'ixa aligns with Khwe by sharing the innovation of article-like PGN marking vs. languages of the Shua and Tshwa clusters which either retain a more conservative stage or display a separate shift towards zero marking.

The final feature considered in this work, alignment patterns of pronouns and PGN clitics, sets Ts'ixa apart from both Khwe and Shua. This is especially interesting as alignment has been identified as cross-linguistically stable and characteristic of genealogical, rather than areal relations (Nichols 1992: 167). While both Shua and Khwe display a two-case opposition between subject/object and clausal dependents, Ts'ixa morphosyntax is profoundly influenced by the language's clear preference for accusative alignment. While accusative alignment is a typological feature of the Khoe-Kwadi language family as such and also intrinsic to the differential object marking patterns described in §3.2 above, accusative case aligned pronoun systems are otherwise found in languages of the G|ui-G|ana and Tshwa clusters which are predominantly distributed across central and eastern Botswana, nowhere close to where speakers of Ts'ixa reside today. Furthermore, G|ui-G|ana and Tshwa pronoun systems are tripartite, corresponding to a nominative, accusative and genitive division as exemplified for Tjwao (Tshwa) in Table 5 below.

Table 5. The pronominal paradigm of Tjwao (Fehn & Phiri 2017)

	ACC	GEN	NOM
1sg	tia	tire	ti, tire
1du.F	saba	sam	sabe
1du.M	tsaba	tsam	tsabe
1du.C	kʰaba	kʰam	kʰabe
1pl.F	???		
1pl.M	ka		
1pl.C	tʃoa.ra	tʃoa.n	tʃoa.re
2sg.F	ʃa		
2sg.M	tʃa		
2du.F	saro		
2du.M	tsaro		
2du.C	kʰaro		
2pl.F	dzao		
2pl.M	kao		
2pl.C	to/toa		
3sg.F	ʔe.ʃa	ʔe.ʃi	ʔe.ʃe
3sg.M	ʔe.ba	ʔe.m	ʔe.be
3sg.C	ʔe		
3du.F	ʔe.sara		
3du.M	ʔe.tsara		
3du.C	ʔe.kʰora/ʔe.kʰoara		
3pl.F	ʔe.dzi	ʔe.dzi	ʔe.dzia
3pl.M	ʔe.kua	ʔe.ku(a)	
3pl.C	ʔe.na	ʔe.n(a)	

Like in Ts'ixa, forms of the 3rd person ending in *-a* are associated with accusative case marking, while those ending in *-i* or a nasal correspond to the dependent genitive forms. A form ending in *-e* corresponding to nominative case is absent in Ts'ixa. Note that unlike in Ts'ixa, Shua and Khwe, a case distinction also exists for the 1st person dual and the 1st person plural common gender.

While the pronominal paradigm of Tjwao shows accusative alignment, it typologically differs from Ts'ixa by also distinguishing nominative and genitive forms. Nominative and genitive are both expressed by the *-a* lacking forms in Ts'ixa which effectively displays a two-paradigm system formally closer to Khwe and Shua than to the accusative-aligned paradigms of Tshwa and G|ui-G‖ana.

A further consideration of pronominal and PGN-paradigms in Naro (Visser 2013) and Standard Namibian Khoekhoe (Haacke 2013) suggests that the two-paradigm system may indeed be the historically older one, with the third paradigm constituting an innovation shared by G|ui-G‖ana and Tshwa. However, both Naro and Khoekhoe display PGN systems differing in some aspects from the rest of Kalahari Khoe (Tables 6 and 7). While pronouns and article-like clitics attaching to a noun or noun phrase do exist, both languages have additional sets of pronominal clitics which attach to a syntactic slot, rather than to a pronoun base. As only full pronominals and article-like noun markers have counterparts in the languages under discussion, the following comparison will be restricted to those paradigms. For Naro, paradigms for full pronouns and article-like noun markers differ slightly and are therefore provided side by side (Table 6). Note that Naro – like Khwe – has article PGNs for the first, second and third person.

Table 6. Full pronouns and article-like noun markers in Naro (Visser 2001, 2013)

	Core	Dependent	Core	Dependent
1sg	tíí.ra	ti	=ra	=r
1du.F	xa.sáḿ		=sam	
1du. M	xa.tsáḿ		=tsam	
1du.C	xa.kʰáḿ		=kʰam	
1pl.F	xa.sé		=se	
1pl.M	xa.ǁáé		=ǁae	
1pl.C	xa.tá		=ta	
2sg.F	sáá.si	sa	=si	
2sg.M	tsáá.si	tsa	=tsi	
2du.F	xa.sáó		=sao	
2du. M	xa.tsáó		=tsao	
2du.C	xa.kʰáó		=kʰao	
2pl.F	xa.sáó		=sao	
2pl.M	xa.ǁáó		=ǁao	
2pl.C	xa.tú		=tu	
3sg.F	xa.sa	xa.s	=sa	=s
3sg.M	xa.ba	xa.m	=ba	=m
3du.F	xa.sárá		=sara	
3du. M	xa.tsárá		=tsara	
3du.C	xa.kʰárá		=kʰara	
3pl.F	xa.zi		=zi	
3pl.M	xa.ǁú		=ǁu	
3pl.C	xa.né		=ne	

Like Shua, Khwe and Ts'ixa, Naro has a two-paradigm system: one is used for the subject and object of the clause (ex. 26a), while the other is used for dependents, e.g. nouns headed by a postposition (ex. 26b) or acting as possessor in a possessive construction (ex. 26c):

(26) Case alignment of PGN clitics in Naro

a. *kʰóè=**ba*** *ko* *piri=**ba*** *ǀóá=**ba*** *máà*
person=**3sg.M** IPFV goat=**3sg.M** child=**3sg.M** give
'The man is giving a goat to the child.' (Visser 2013: 383)

b. *ŋǃuu=**m*** *koe*
house=**3sg.M** LOC
'in the house' (Visser 2013: 204)

c. *ŋǃuu=**m*** *ǃãã* *koe*
house=**3sg.M** back LOC
'behind (lit. in the back of) the house.' (Visser 2013: 204)

A formal difference between both paradigms exists only in the first-, second-, and third-person singular, whereas diverging forms for the 2nd person are restricted to full pronominals. Core forms for the 1st and 3rd person end in *-a*, while dependent forms end in *-i* or a nasal, mirroring the picture found in Khwe and Shua.

In Standard Namibian Khoekhoe (henceforth "Khoekhoe"), the article PGNs correspond to the second component of the full pronoun following the pronominal bases (*tii-*, *sii-*, *saa-*, *ǁʔĩĩ-*) and are therefore not provided separately (Table 7).

Table 7. Full pronouns in Khoekhoe (Hagman 1977, Haacke 2013)

	Nominative	Oblique
1sg	tii.ta	
1du.M	sii.kʰom (excl.) saa. kʰom (incl.)	sii.kʰoma (excl.) saa. kʰoma (incl.)
1du.F	sii.m (excl.) saa.m (incl.)	sii.ma (excl.) saa.ma (incl.)
1du.C		sii.mo (excl.) saa.mo (incl.)
1pl.F	sii.se (excl.) saa.se (incl.)	
1pl.M	sii.ke (excl.) saa.ke (incl.)	
1pl.C	sii.ta (excl.) saa.ta (incl.)	
2sg.F	saa.s	saa.sa
2sg.M	saa.ts	saa.tsa
2du.M	saa.kʰo	
2du.F	saa.ro	
2du.C		
2pl.F	saa.so	
2pl.M	saa.ko	
2pl.C	saa.tu	
3sg.F	ǁʔĩĩ.s	ǁʔĩĩ.sa
3sg.M	ǁʔĩĩ.p	ǁʔĩĩ.pa
3du.M	ǁʔĩĩ.kʰa	
3du.F	ǁʔĩĩ.ra	
3du.C		
3pl.F	ǁʔĩĩ.ti	ǁʔĩĩ.te
3pl.M	ǁʔĩĩ.ku	ǁʔĩĩ.ka
3pl.C	ǁʔĩĩ.n	ǁʔĩĩ.na

Khoekhoe distinguishes between two paradigms commonly labeled "nominative" and "oblique" in the literature (cf. Haacke 2013). Paradigms differ in the 1st person dual, in the 2nd person singular, as well as in the 3rd person singular and dual. Designated "nominative" forms end in a high vowel or in a consonant and are used for pronouns and PGN-marked nouns acting as subject and occupying the leftmost slot of the clause (ex. 27a-b), as well as for those headed by a subset of postpositions (ex. 27b) (Hagman 1977: 102-103). The "oblique" paradigm ending in *-a* is used for pronouns and PGN-marked nouns acting as object (ex. 27a-c), as well as for displaced subjects (ex. 27c).

(27) Case alignment of PGN clitics in Khoekhoe

a. *ʔao=**b*** *ke* *!ʔari=**sa*** *ra* *!ʔau.*
man=**3sg.M** DECL steenbuck=**3sg.F** IPFV hunt
'The man is hunting steenbuck.' (Haacke 2013: 149)

b. *piri=**s*** *ke* *tara=**s*** *xa* *ra* *ǀˀao-he.*
goat=**3sg.F** DECL woman=**3sg.F** by IPFV milk-PASS
'The goat is milked by the woman.' (Haacke 2013: 148)

c. *ǀõã=**sa**=b* *ke* *ʔaxa=**ba*** *tsau.ra.se* *ko* *ǂai.*
child=**3sg.F**=3sg.M DECL boy=**3sg.M** gently PST call
'The boy called the girl gently. (Haacke 2013: 329)

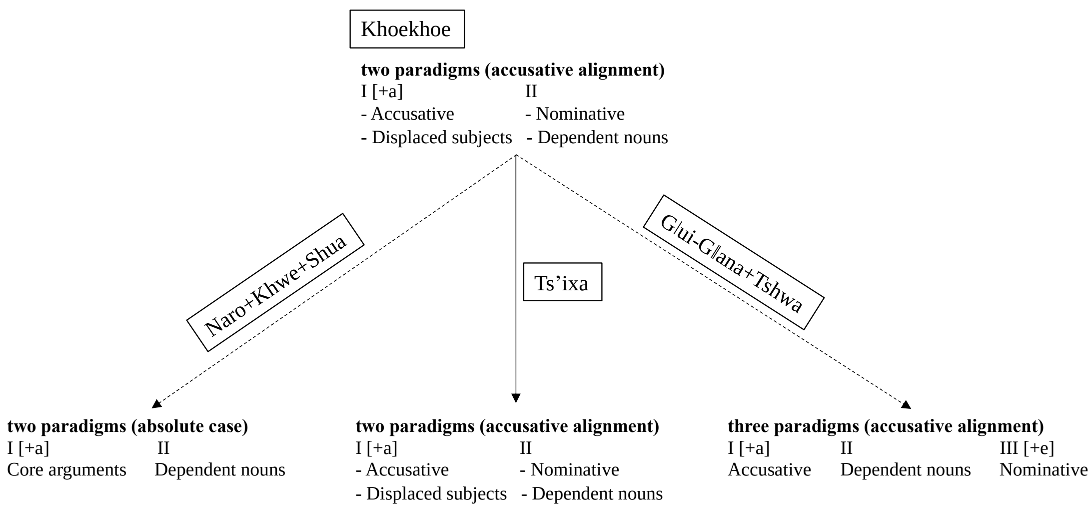
Ts'ixa too lumps clausal subjects and dependent nominals in one category, and accusative nominals and displaced subjects in another. However, unlike in Khoekhoe, only post-verbal subjects are treated as displaced (ex. 28).

(28) "Accusative" marking with displaced subjects in Ts'ixa
a. *tsxắằ* *ŋgǀè* *bĩjé-ǀűằ* *kà* *ǀúú=**sà***
be.tired SEQ zebra-DIM ATTR one.of=**sg.F:I**
'(It) got tired, one of the zebra fillies.'

b. *mĩ̋ĩ̋.tʰà* *ǀúí* *ʔé.ǹ* *kò* *k'ṹĩ̀=sè* *ǀṹắ=sì* *nè* *ǁˀōrá*
like.that only 3pl.C:II IPFV live=ADV child=sg.F:I SEQ grow.up
góὲ=sì *kà* *tṹã̄=**sà***
cattle=sg.F:II POSS friend=**sg.F:I**
'While they were solely living like that, the girl, the cow's friend, grew up'

If, as previously implied, the two-paradigm system is indeed the historically older one, the functional overlap between Khoekhoe and Ts'ixa may hint at the accusative alignment predating the absolute case system. Figure 3 below outlines a possible scheme for the evolution of alignment patterns in Kalahari Khoe from a hypothetical ancestor corresponding to the Khoekhoe profile.

Figure 3. Evolution of pronominal alignment patterns in Kalahari Khoe from a hypothetical ancestor corresponding to the Khoekhoe profile



If the scenario presented here is taken at face value, Ts'ixa would have preserved both accusative alignment and two paradigms, while Naro, Khwe and Shua retained the original paradigms but functionally switched to an absolute case system. The highest degree of innovation would accordingly be found in G|ui-G‖ana and Tshwa who innovated a third paradigm explicitly associated with nominative case marking. The historical implications remain unclear: while a closer genealogical association between G|ui-G‖ana and Tshwa is well worth considering and possibly in line with additional evidence (Pratchett no date), a grouping Naro-Khwe-Shua is more difficult to defend. The switch to an absolute case system may well constitute a parallel innovation or an areal feature which spread northwards from Naro and east along the Kalahari Basin fringe. Whatever the historical scenario, it seems clear that both Shua and Khwe underwent processes of syntactic change which Ts'ixa did not partake in. This, in turn, makes it rather more likely that Ts'ixa is either an outlier to one of the two clusters, or an independent language which possibly retained some more archaic features.

5. Conclusion

The domains of participant marking and alignment display a fairly uniform picture across different dialects of Shua, but do not line up with what has been described for Ts'ixa. The present survey of cross-Shua features therefore discourages a classification of Ts'ixa within the Shua dialect cluster but does not exclude a close genealogical relationship between Ts'ixa, Shua, and Khwe as separate branches of a single clade.

In fact, a preliminary phylogenetic study of lexical data from across the Khoe-Kwadi family clearly supports a closely related cluster consisting of Khwe, Ts'ixa and Shua (Fehn et al. 2022, Supplementary Material), which contrasts with Vossen's assumption of an Eastern (Shua-Ts'ixa-Tshwa) and a Western (Khwe-G|ui-G‖ana-Naro) Kalahari Khoe subgroup. Consideration in a phylogeographic framework (Fehn et al. 2022: 16) suggests that the ancestral population from which the present-day groups arose may have split to the south of the Okavango Delta, followed by a northward migration of Khwe-speakers along the western fringe of the Okavango Panhandle as far as southeastern Angola, a northeastward migration of Ts'ixa speakers into what is now the western part of Chobe National Park, and an eastward migration of Shua speakers into the vast plains of the salt pans now encompassed by Nxai Pan and Makgadikgadi National Parks. Notably, these migratory pathways would have led speakers of Khwe, Ts'ixa and Shua into distinct eco-geographic regions (Mendelsohn et al. 2010), which may have supported their development into distinct ethnolinguistic entities. A relatively early isolation of Ts'ixa from both Khwe and Shua is also supported by the present historical assessment of alignment patterns across Khoe, which suggests that Ts'ixa may retain a more conservative profile, while Khwe and Shua display innovations.

More generally, the domain of case alignment in the PGN paradigm presents an interesting field of study for subgrouping within the Khoe language family: the innovation of a tripartite PGN paradigm distinguishing nominative, accusative and genitive markers is clearly restricted to G|ui-G‖ana and Tshwa, supporting a closer genealogical relationship between the two language clusters than originally assumed.

Abbreviations

I	gender-number series I ([+ a])
II	gender-number series II ([- a])
1	1st person
2	2nd person
3	3rd person
ACC	accusative
ADV	adverbial
ANT	anterior
ATTR	attributor
BEN	benefactive
C	common gender or consonant
CAU	causative
COLL	collective
COM	comitative
COMP	complementizer
CONJ	conjunction
COP	copula
DECL	declarative
DEM	demonstrative
DIM	diminuitive
DIR	directive
du	dual
EXIST	existential
F	feminine
f.n.	field notes
FUT	future
GEN	genitive
IPFV	imperfective
J	juncture
LOC	locative
M	masculine
MOV	movement
N	nasal
NEG	negation
NMZ	nominalizer
NOM	nominative
OBJ	clausal object
PASS	passive
PGN	person-gender-number
pl	plural
PN	personal name
POSS	possessive
PP	postposition
PRF	perfect
PST	past
PURP	purpose
Q	question
QUOT	quotative
REC	reciprocal
REFL	reflexive
REL	relative
REP	replication
SEQ	sequential
sg	singular
STAT	stative
SUB	subordination
SUBJ	subjunctive
TAM	tense-aspect-modality
V	vowel

References

Aissen, Judith. 2003. *Differential Object Marking: iconicity vs. economy*. Natural Language and Linguistic Theory 21,3: 435-483.

Barnard, Alan. 1992. *Hunters and herders of Southern Africa: a comparative ethnography of the Khoisan people*. Cambridge: Cambridge University Press.

Bolaane, Maitseo M.M. 2002. *Bugakhwe San community of Khwai: mapping its own territory*. Pula: Botswana Journal of African Studies 16,6: 86-97.

Bossong, Georg. 1991. *Differential Object Marking in Romance and beyond*. In Wanner, Dieter & Douglas A. Kibbee (eds.), New analyses in Romance linguistics: selected papers from the XVIII linguistic symposium on Romance languages, Urban-Champaign, April 7-9, 1988, 143-170. Amsterdam: John Benjamins.

Brenzinger, Matthias. 2013. *The twelve modern Khoisan languages*. In Witzlack-Makarevich, Alena & Martina Ernszt (eds.), Khoisan languages and linguistics. Proceedings of the 3rd international symposium, July 6-10, 2008, Riezlern/Kleinwalsertal, 5-31. Cologne: Rüdiger Köppe.

Cashdan, Elizabeth A. 1986. *Hunter-gatherers in the northern Kalahari.* In Vossen, Rainer & Klaus Keuthmann (eds.), Contemporary studies on Khoisan, 145-180. Hamburg: Helmut Buske.

Chebanne, Andy. 2011. *The Eastern Kalahari Khoe: a focus on inter-Khoisan ethno-language dynamics around the Makgadikgadi salt pans of Botswana*. In Hieda, Osamu, König, Christa & Hirosi Nakagawa (eds.), Geographical typology and linguistic areas: with special reference to Africa, 233-250. Amsterdam/Philadelphia: John Benjamins.

Dimmendaal, Gerrit J. 2009. *Introduction*. In Dimmendaal, Gerrit J. (ed.), Coding participant marking: construction types in twelve African languages, 1-22. Amsterdam/Philadelphia: John Benjamins.

Fehn, Anne-Maria. 2016. *A grammar of Ts'ixa (Kalahari Khoe).* Cologne: University of Cologne, PhD. dissertation.

Fehn, Anne-Maria, 2017. *Nominal gender marking and case in Ts'ixa*. In Fehn, Anne-Maria (ed.), Khoisan languages and linguistics. Proceedings of the 4th international symposium, Riezlern 2011, 121-156. Cologne: Rüdiger Köppe.

Fehn, Anne-Maria. 2018. *New data on northeastern Kalahari Khoe phoneme inventories - a comparative survey*. In Güldemann, Tom & Hirosi Nakagawa (eds.), Kalahari Basin sound structure - in memory of Anthony T. Traill (1939-2007). Africana Linguistica 24: 5-29.

Fehn, Anne-Maria. 2019. *Phonological and lexical variation in the Khwe dialect cluster*. Zeitschrift der Deutschen Morgenländischen Gesellschaft 169,1: 9-38.

Fehn, Anne-Maria, 2020a. *Click loss in Khoe-Kwadi*. In Sands, Bonny (ed.), Click consonants, 291-335. Leiden: Brill.

Fehn, Anne-Maria. 2020b. *Click replacement and loss in Ju*. In Sands, Bonny (ed.), *Click consonants*, 336-355. Leiden: Brill.

Fehn, Anne-Maria, Amorim, Beatriz & Jorge Rocha. 2022. *The linguistic and genetic landscape of southern Africa*. Journal of Anthropological Sciences 100: 243-265.

Fehn, Anne-Maria & Admire Phiri. 2017. *Nominal Marking in Northern Tshwa (Kalahari Khoe).* In Andrason, Alexander & Theresa Biberauer (eds.), Iets kleins/'n Klein ietsie: a festschrift to honour Johan Oosthuizen on the occasion of his retirement. Stellenbosch Papers in Linguistics Plus 48: 105-122.

Fehn, Anne-Maria & Admire Phiri. 2022. J*uncture-Verb Constructions in Northeastern Kalahari Khoe: a comparative perspective*. In Andrason, Alexander & Alexandra Y. Aikhenvald (eds.), The rise and fall of Serial Verb Constructions. Stellenbosch Papers in Linguistics Plus 65,1: 147-190.

Fehn, Anne-Maria & Jorge Rocha. Forthcoming. *Lost in translation: a historical-comparative reconstruction of Proto-Khoe-Kwadi based on archival data*. Diachronica.

Güldemann, Tom. 2004. *Reconstruction through "de-construction: the marking of person, gender, and number in the Khoe family and Kwadi*. Diachronica 21: 251-306.

Güldemann, Tom. 2008. *A linguist's view: Khoe-Kwadi speakers as the earliest food-producers of southern Africa*. In Sadr, Karim & François-Xavier Fauvelle-Aymar (eds.), Khoekhoe and the earliest herders in Southern Africa. Southern African Humanities 20: 93-132.

Güldemann, Tom. 2013. *Kwadi: morphology*. In Vossen, Rainer (ed.), *The Khoesan languages*, 261-263. London: Routledge.

Güldemann, Tom. 2014. *'Khoisan' linguistic classification today.* In Güldemann, Tom & Anne-Maria Fehn (eds.), Beyond 'Khoisan'. Historical relations in the Kalahari Basin, 1-40. Amsterdam/Philadelphia: John Benjamins.

Güldemann, Tom. 2019. *Person-gender-number marking from proto-Khoe-Kwadi to its descendants: a rejoinder with particular reference to language contact.* In Vossen, Rainer & Christa Königs (eds.), Patterns of linguistic convergence in Africa (Frankfurter Afrikanistische Blätter 27). Cologne: Rüdiger Köppe.

Güldemann, Tom & Anne-Maria Fehn. 2017. *The Kalahari Basin Area as a 'Sprachbund' before the Bantu expansion*. In Hickey, Raymond (ed.), The Cambridge handbook of areal linguistics, 500-526. Cambridge: Cambridge University Press.

Güldemann, Tom & Rainer Vossen. 2000. *Khoisan*. In Heine, Bernd & Derek Nurse (eds.), African languages: an introduction, 99-122. Cambridge: Cambridge University Press.

Haacke, Wilfrid H.G. 2013. *Morphology/Syntax: Namibian Khoekhoe (Nama/Damara)*. In Vossen, Rainer (ed.), The Khoesan languages, 141-151; 325-340. London/New York: Routledge.

Hagman, Roy S. 1977. *Nama Hottentot Grammar*. Bloomington: Indiana University Press.

Heine, Bernd & Christa Kilian-Hatz 1997. *On nominal gender marking in Khwe*. Khoisan Forum Working Paper 1. Cologne: University of Cologne.

Kilian-Hatz, Christa. 2008. *A grammar of modern Khwe (Central Khoisan)*. Cologne: Rüdiger Köppe.

Kilian-Hatz, Christa. 2009. *Participant marking in Khwe (Central-Khoisan).* In Dimmendaal, Gerrit J. (ed.), Coding participant marking: construction types in twelve African languages, 215-237. Amsterdam/Philadelphia: John Benjamins.

Köhler, Oswin. 1962. *Studien zum Genussystem und Verbalbau der zentralen Khoisan-Sprachen*. Anthropos 57: 529-546.

Köhler, Oswin. 1963. *Observations on the Central Khoisan language group*. Journal of African Languages 2,3: 227-234.

Köhler, Oswin. 1971. *Die Khoe-sprachigen Buschmänner der Kalahari: ihre Verbreitung und Gliederung*. Forschungen zur allgemeinen und regionalen Geographie (Festschrift Kurt Kayser), 373-411. Wiesbaden: Franz Steiner.

McGregor, William B. 2014a. *Numerals and number words in Shua*. Journal of African Languages and Linguistics 35,1: 45-90.

McGregor, William B. 2014b. *Shua kinship terminology*. In Barnard, Alan & Gertrud Boden (eds.), Southern African Khoisan kinship systems, 39-62. Cologne: Rüdiger Köppe.

McGregor, William B. 2015. *Four counter-presumption constructions in Shua (Khoe-Kwadi, Botswana).* Lingua 158: 54-75.

McGregor, William B. 2017. *Unusual manner constructions in Shua (Khoe-Kwadi, Botswana).* Linguistics 55,4: 857-897.

McGregor, William B. 2018. *Emergence of optional accusative case marking in Khoe languages*. In Seržant, Ilja A. & Alena Witzlack-Makarevich (eds.), Diachrony of differential argument marking, 243-279. Berlin: Language Science Press.

Mendelsohn, John, VanderPost, Cornelis, Ramberg, Lars, Murray, Mike, Wolski, Piotr & Keta Mosepele. 2010. *Okavango Delta. Floods of life*. Windhoek: Raison.

Nakagawa, Hirosi. 1993. *A preliminary report on ǀGui phonology and grammar* (in Japanese). Asia and Africa Bunpoo Kenkyuu 22: 55-92.

Nichols, Johanna. 1986. *Head-marking and dependent-marking grammar*. Language 62,1: 56-119.

Nichols, Johanna. 1992. *Linguistic diversity in space and time.* Chicago: University of Chicago Press.

Passarge, Siegfried. 1997 [1907]. *The Kalahari ethnographies (1896-1898) of Siegfried Passarge. Nineteenth century Khoisan- and Bantu-speaking peoples. Translations from German.* Cologne: Rüdiger Köppe.

Pratchett, Lee J. 2021. *Respect*in*g African languages: towards a typology of pronominal honorification in African languages*. Paper presented at the 24. Afrikanist*innentag, Institut für Afrikanistik, Goethe-Universität Frankfurt am Main. 1-3 July 2021.

Pratchett, Lee J. No date. *Centring the periphery: a comparative analysis of Tshwa pronominal systems and the implications for Kalahari-Khoe classification*. Unpublished manuscript.

Sands, Bonny. 2020. *Click consonants: an introduction.* In Sands, Bonny (ed.), *Click consonants*, 1-73. Leiden: Brill.

UNEP-WCMC & IUCN. 2023. *Protected Planet: The World Database on Protected Areas (WDPA) and World Database on Other Effective Area-based Conservation Measures (WD-OECM)* [Online], October 2023, Cambridge, UK: UNEP-WCMC and IUCN. (Available at: www.protectedplanet.net; accessed 7 October 2023).

Valiente-Noailles, Carlos. 1993. *The Kua: life and soul of the Central Kalahari Bushmen*. Rotterdam: A. A. Balkema.

Visser, Hessel 2001. *Naro dictionary. Naro – English. English – Naro*. D'Kar: Naro Language Project.

Visser, Hessel. 2013. *Morphology/Syntax: Naro*. In Vossen, Rainer (ed.), *The Khoesan languages*, 179-207; 379-394. London/New York: Routledge.

Visser, Hessel. 2022. *Translating person, gender and number into Naro. PGN markers in Naro and their impact on Bible translation*. Apeldoorn: Theological University, PhD. dissertation.

Vossen, Rainer. 1991. *What do we do with irregular correspondences? The case of the Khoe languages. History in Africa* 18: 359-379.

Vossen, Rainer. 1997. *Die Khoe-Sprachen: ein Beitrag zur Erforschung der Sprachgeschichte Afrikas.* Cologne: Rüdiger Köppe.

Vossen, Rainer. 2011. P*atterns of linguistic convergence in the Khoe-speaking area of southern Africa*. In Hieda, Osamu, König, Christa & Hirosi Nakagawa (eds.), *Geographical typology and linguistic areas: with special reference to Africa*, 189-200. Amsterdam/Philadelphia: John Benjamins.

Vossen, Rainer. 2013a. *Introduction*. In Vossen, Rainer (ed.), *The Khoesan languages*, 1-12. London/New York: Routledge

Vossen, Rainer. 2013b. *Phonology/Tonology/Morphology/Syntax: Shua subgroup.* In Vossen, Rainer (ed.), *The Khoesan languages*, 71-73/103-104/215-227/401-407. London/New York: Routledge.

Westphal, Ernst O.J. 1971. *The click languages of southern and eastern Africa*. In Sebeok, Thomas A. (ed.), *Linguistics in Sub-Saharan Africa*, 367-420. The Hague: Mouton.

Westphal, Ernst O.J. No date a. *Danisi field notes*.

Westphal, Ernst O.J. No date b. G‖oro field notes and recordings. Cape Town: University of Cape Town, unpublished manuscript.

Westphal, Ernst O.J. No date c. Shua field notes and recordings. Cape Town: University of Cape Town, unpublished manuscript.
Westphal, Ernst O.J. No date d. Deti field notes and recordings. Cape Town: University of Cape Town, unpublished manuscript.
Westphal, Ernst O.J. No date e. Kwadi field notes and recordings. Cape Town: University of Cape Town, unpublished manuscript.

.

Anne-Maria Fehn
CIBIO, Centro de Investigação em Biodiversidade e Recursos Genéticos
InBIO Laboratório Associado & BIOPOLIS Program in Genomics, Biodiversity and Land Planning
afehn@cibio.up.pt