

Article

Ancient Connections of Sinitic

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Abstract: Six main alternative linkage proposals which involve the Sino-Tibetan family, including Sinitic and other language families of the East Asian area (Miao-Yao, Altaic/Transeurasian, Austroasiatic, Tai-Kadai, Austronesian) are briefly outlined. Using the standard techniques of comparative linguistics, a remote linkage between the Sino-Tibetan languages, including Sinitic, the Yeniseian languages of Siberia, and the Na-Dene languages of northwest North America is demonstrated. This includes cognate core lexicon showing regular sound correspondences, morphological similarities of form and function, as well as similarities in social structure. The other proposals for linkages that connect Sinitic and other languages of the East Asian area appear not to be based on a genetic linguistic relationship but rather due to contact: millennia of loanwords from Sinitic into the languages of those families and some lexicon borrowed into Sinitic. More remains to be done to further document the status of the linkage between Sino-Tibetan and Dene-Yeniseian.

Keywords: Sinitic/Chinese; Sino-Tibetan; Tibeto-Burman; Yeniseian; Na-Dene; Austronesian; Tai-Kadai; Miao-Yao; Austroasiatic; Altaic/Transeurasian

1. Introduction

There is considerable controversy about the wider genetic linguistic position of Sinitic and its remote linkage relationships. The most widespread view, which involves no controversial remote comparison, is that Sinitic is the earliest-attested branch of Sino-Tibetan (ST), which includes Tibeto-Burman (TB) as the other branch; and that Miao-Yao, Tai-Kadai, and Austroasiatic are separate families which show substantial contact similarities with Sinitic, while Austronesian is another family of Taiwan which diversified and spread southward, and Altaic or Transeurasian is another family which originated further north and spread westward. There are various views about whether and, if so, how these six families are related to each other in remote linkages.

- (1) A traditional view is that ST also includes Tai-Kadai and Miao-Yao as branches close to Sinitic (Li 1973).
- (2) An erroneous old view links Austroasiatic and Austronesian as Austric (Schmidt 1906).
- (3) The connection between Tai-Kadai and Austronesian was solidly demonstrated by Benedict (1942) and is now accepted by most scholars.
- (4) Another poorly-supported recent view is that there is an East Asian linkage which includes ST, Miao-Yao, Tai-Kadai/Austronesian, and Austroasiatic (Starosta 2005). Some proponents of this view use the term Trans-Himalayan instead of ST.
- (5) A further recent view is that ST (including Sinitic) is one component of Sino-Tibeto-Austronesian or STAN, with Austronesian including Tai-Kadai as the other component (Sagart 2005).
- (6) Finally, the view documented here is that there is a linkage that includes ST and Dene-Yeniseian; a related proposed linkage known as Sino-Caucasian (Starostin [1984] 1991) includes various other language families such as Northwest and Northeast Caucasian and some other languages beyond.

Proponents of all these views attribute the original homeland of the Sinitic speakers to the upper Yellow River valley in what is now central China. However, the period proposed for Sinitic is also rather wide. One view is that Sinitic was spoken during the Longshan



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Culture (5–3.9K YBP); others suggest that the earlier Yangshao Culture (7–5K YBP) was Sinitic; finally, some propose that Sinitic was spoken during the Peiligang Culture (9–7K YBP) or even before. The dates of these and other periods are summarised in [Liu and Chen \(2012\)](#). [Wang \(1998\)](#) suggested a date for Proto-ST of 6.5K YBP, which also points to Yangshao Culture. Given the archaeological evidence of crops and domestic animals, it appears that Proto-ST was spoken during the Yangshao Culture, which divided into Sinitic in the late Yangshao and ongoing Longshan cultures spreading eastward versus Proto-TB represented by the Majiayao Culture (5.3–4K YBP) further west and spreading southwestward ([Bradley 1997, 2023, forthcoming](#)).

The dates from one recent Bayesian study of the ST lexicon ([Zhang et al. 2019](#)) support this view with a date for the separation of Sinitic and Proto-TB of 5871 YBP; the others ([Sagart et al. 2019; Zhang et al. 2020](#)) suggest unlikely earlier dates: [Sagart et al. \(2019\)](#) 7184 YBP and [Zhang et al. \(2020\)](#) 7983 YBP, a range of over two millennia. However, the methodology which underlies the chronologies in all Bayesian studies is problematic and often produces dates incompatible with well-established comparative linguistic results and genetic, archaeological, and historical facts. It is preferable to triangulate from archaeology, genetics, and comparative linguistic results to reach a hypothesis that fits with all known data. Linguistic and genetic evidence supports view (6), a remote linkage between ST and Dene-Yeniseian that predates the Neolithic, then a period of common Neolithic development in the upper Yellow River valley up to 5.3K YBP which corresponds to Proto-ST, followed by a divergence between Proto-TB in the Majiayao Culture and later cultures to the west and Sinitic in the late Yangshao and Longshan cultures to the east ([Bradley forthcoming](#)), with later internal divergence within Proto-TB and within Sinitic. As Sinitic came to dominate the entire East Asian area over many millennia, a large number of Sinitic loanwords entered all the other languages of the area, including related TB languages as well as other unrelated languages.

2. Materials and Methods

All of the generally-agreed indigenous language families represented in East and Southeast Asia, ST, Austroasiatic (Mon-Khmer), Austronesian, Tai-Kadai, Miao-Yao, and Altaic/Transeurasian, have long been in contact, leading to the spread of lexicon among them. Thus, care is needed to avoid proposing genetic relationships based solely on lexical similarity in non-core vocabulary; even some core vocabulary, such as numerals, is also borrowed. Several of these families have also spread beyond this area into South Asia, Central Asia, Siberia, the Pacific, and far beyond, and come into contact with languages of other families, such as Indo-European, among others.

The traditional view of Proto-ST among some linguists in China remains (1) a language family which includes ST, Tai-Kadai, and Miao-Yao; for example, [Li \(1973\)](#). This view is also supported by [Shafer \(1966–1976\)](#). However, nearly all of the lexical evidence for this connection is loanwords from Sinitic into Tai-Kadai and Miao-Yao, as Li and others have shown. Shafer and others suggest that Sinitic, Tai-Kadai, and Miao-Yao form a subgroup within ST, but actually, Tai-Kadai and Miao-Yao each have distinct basic vocabulary. As [Benedict \(1975\)](#) has shown, there is also some Tai-Kadai lexicon borrowed into Sinitic; but borrowed vocabulary, no matter how extensive, does not support a genetic connection. The extremely solid reconstruction of Proto-Miao-Yao by [Ratliff \(2010\)](#) clearly identifies the many Sinitic loans. She prefers to use the term Hmong-Mien rather than Miao-Yao, using the autonyms of the two largest groups, which have also spread beyond China into Southeast Asia.

Another old proposal for linkage among the language families of this area is (2) Austric, [Schmidt \(1906\)](#), directly connecting Austronesian and Austroasiatic; this has few recent proponents, but see [Shorto \(1976\)](#) and [Reid \(2005\)](#). Both are part of Starosta's Proto-East-Asian, in different branches. [Diffloth \(1994\)](#) shows that the Austric linkage hypothesis is unsustainable.

Much more solidly, [Benedict \(1942\)](#) showed (3) a very close relationship with a large number of cognates between Tai-Kadai and Austronesian in a family which he called Austro-Thai; this connection is fairly widely accepted, and Tai-Kadai is subsumed within (4) Starosta's East Asian and (5) Sagart's STAN as part of Austronesian. [Benedict \(1975\)](#) expanded Austro-Thai to include Miao-Yao, and [Benedict \(1990\)](#) extended it to Japanese; these two suggestions are less well supported, and the latter is contradicted by recent work showing that Altaic includes Japanese and Korean along with Manchu-Tungus, Mongolic, and Turkic; Altaic has recently been renamed Transeurasian, with a reconstruction ([Robbeets and Savelyev 2020](#); [Robbeets et al. forthcoming](#)) showing that there is no genetic linguistic relationship with ST, but some contact with Sinitic.

[Starosta \(2005\)](#) suggested (4), a Proto-East Asian (PEA) linkage of ST, Miao-Yao, Austroasiatic, Tai-Kadai, and Austronesian in which Miao-Yao and Austroasiatic are grouped as Proto-Yangzian, and Tai-Kadai is a subgroup of Austronesian; [van Driem \(2021, p. 169ff.\)](#) associates PEA with the O (M175) haplogroup of the Y chromosome. Starosta lists a couple of morphological similarities, but there is no other comparative linguistic work supporting PEA, and Y chromosome results have been superseded by whole genome studies. [Sagart \(2022\)](#) explicitly rejects PEA; the traditional but incorrect Chinese view (1), which directly connects ST, Miao-Yao, and Tai-Kadai but does not include Austroasiatic or Austronesian. Derived from PEA, the view of [van Driem \(2021\)](#) is that Proto-ST is one of several waves of the spread of PEA from northeast South Asia, with Sinitic eventually reaching the Yangshao Culture area. Instead of ST, he prefers to use the term Trans-Himalayan, which he attributes to [von Klaproth \(1823\)](#). This is in part based on two claims in [van Driem \(2001\)](#) and frequently repeated by him elsewhere but since shown to be incorrect, (1) that the maximum diversity within Proto-ST is in northeast South Asia, and (2) that Sinitic is not the first branch from Proto-ST, but rather a divergent outlying creoloid. This Indocentric view is followed by [Blench and Post \(2013\)](#) and some others. The apparent diversity within TB in northeast South Asia has all but disappeared due to recent comparative research ([Wu et al. 2022](#)), confirming the subgrouping first proposed by [Bradley \(1997\)](#), who grouped nearly all the languages of this area into a Central branch of Proto-TB. This Central branch was one of the early offshoots of Proto-TB, perhaps moving far to the south during a period of population pressure and unfavorable climate and floods in the Majiayao Culture area just after the arrival of bronze circa 4.1K YBP and subsequently diversifying westward into South Asia, with three main sub-branches: North, Sal and South Central ([Bradley 1997, 2022](#)). The status of Sinitic as the first branch from Proto-ST, and the shared developments which characterize the TB languages, are outlined in [Bradley \(forthcoming\)](#).

The Sino-Tibetan–Austronesian (STAN) linkage (5) proposed by Sagart in 1999, summarised in [Sagart \(2005\)](#) and updated regularly in <[stan.hypotheses.org](#)>, suggests that STAN originated near the coast of eastern China in the Houli Culture (8.5–7.5K YBP) of what is now Shandong, a society which cultivated rice. According to this view, Sino-Tibetan later moved west to become the Yangshao Culture, while Austronesian later moved to Taiwan, bringing cultivated *Setaria* and *Panicum* millets as well as rice. It is more generally agreed that Austronesian developed and diversified in Taiwan, and later Tai-Kadai spread onto the mainland of south China and Malayo-Polynesian dispersed by sea across Southeast Asia, the Pacific, and beyond. The etymologies for rice and other relevant crops and artifacts proposed by Sagart are unconvincing, though he has attempted to show some phonological correspondences.

(6) A remote linkage between Dene-Yeniseian and Proto-ST is outlined in Section 3 below. This is supported by comparative linguistic evidence, also archaeological and genetic evidence, as summarised in [Bradley \(2023\)](#) and here. Dene-Yeniseian is the recently-documented language family which comprises Yeniseian in north central Siberia and the Na-Dene (ND) languages of northwest North America ([Vajda 2010, 2018](#)); the ND languages were the last group to cross the area of the Bering Strait and enter North America from Siberia, presumably just before a major sea level rise circa 7K YBP which submerged the Bering Strait. An earlier but less well-supported proposal instead connects ST and the

North Caucasian languages in the Sino-Caucasian linkage (Starostin [1984] 1991); some scholars (Bengtson 1991; Ruhlen 1994; Starostin 2012, 2017) combine the two linkages to include both ST/Dene-Yeniseian and North Caucasian and various other language isolates further west.

This is not the place to recapitulate comparative linguistic methodology. This relies on finding regular sound correspondences in a cognate lexicon, thus establishing reconstructed cognate etyma in core vocabulary, also showing morphosyntactic parallels which use related forms and structures to express similar grammatical functions. None of these procedures are completely clear-cut; in particular, how regular and well-supported by what number of examples the sound correspondences must be, how similar the meanings of the proposed cognates must be, how extensive the shared vocabulary must be, and how well this vocabulary fits with known archaeological and historical facts, and whether the morphosyntactic parallels may be affected by general typological tendencies or areal similarities due to contact.

There are several key methodological issues in comparative linguistics. One is whether using the cognate lexicon alone is sufficient, which also involves the question of how to identify cognates without first investigating regular sound correspondences; such procedures are inherently very dubious. Another is the maximum time depth that can be reached using comparative linguistics; most scholars suggest 6000 years, though Bickel (2013) suggested that morphosyntactic phenomena may persist over longer time frames. A third is how to relate actual chronology in the development and expansion of human societies to the retention of shared core vocabulary, whether one calls this lexicostatistics, glottochronology, or Bayesian phylogeny; here, the assumption of a constant or near-constant (Bayesian 'relaxed clock') rate of lexical replacement is wrong.

The generally-recognized ST and Austronesian language families are relatively thoroughly and securely reconstructed based on regular sound correspondences in a large core vocabulary of cognate lexicon along with various morphosyntactic patterns, and reconstruction within Tai-Kadai, Miao-Yao, Austroasiatic, and Altaic/Transeurasian is also fairly advanced. While (3) Austronesian and Tai-Kadai are both more recent and better documented, of the others, only the proposed linkage (6) of ST and Dene-Yeniseian discussed in Section 3 below, is supported by the same level of evidence, even though it goes beyond the 6000-year timeframe.

3. Results

This section is divided into four parts: Section 3.1 Syntax, Section 3.2 Morphology, Section 3.3 Phonology, and Section 3.4 Lexicon, with a brief summary in Section 3.5. The main sources for the Proto-ST reconstructions are Benedict (1972) and Bradley (1979, 1997, 2016, 2022); the main sources for Ket data are Vajda (2010, 2013, 2018) and Kotorova and Nefedov (2015), and for Na-Dene reconstructions 7 (Leer 1999; Bradley 2011) unless otherwise cited.

3.1. Syntax

There are numerous syntactic similarities between ST, Yeniseian, and ND languages. Nearly all languages are verb-final; the main exception is Chinese, whose shift from verb-final to verb-medial was not complete by the Classical Chinese period (2.5K YBP onward) as copula clauses were still copula-final (Bradley 2023, forthcoming). Of the TB languages, the only ones with verb-medial main clause word order are Bai, which has been under very strong Chinese influence for two millennia, and the Karenic languages, mainly in Burma, in contact with various verb-medial Austroasiatic languages there for millennia. All Sinitic and Karenic languages, as well as Bai, show a wide variety of conservative syntactic characteristics more typical of verb-final languages, which they share with other ST and Dene-Yeniseian languages.

These include various suffixes on nouns and on verbs; relative clauses marked with a clause-final relative marker followed by the head noun; nominalized clauses marked by

a clause-final nominalizer; noun possessor preceding possessed noun, and so on. There are also some less widespread parallels. There is a tendency to conflate relativization and nominalization strategies by using similar markers and often having no following head noun; adjectives are a subclass of verbs; nouns are often absent from sentences when they are already clear from the context, with zero anaphora; and so on.

3.2. Morphology

It is typologically normal for verb-final languages to have suffixing morphology. However, all three language families show extensive prefixing morphology, both productive and fossilized. This tendency to prefixing is extreme on verbs in Yeniseian and ND languages, which have long sequences of highly productive prefixes for a wide variety of functions, many exactly parallel between the two; Vajda (2010) discusses these parallels in depth. There is also evidence for prefixing on nouns and related forms.

All three language families also have some suffixing morphology, particularly on nouns. In Proto-ST, there is also more innovative prefixing and suffixing morphology; some categories expressed by prefixes in Yeniseian and in ND languages are expressed by suffixes in ST languages. These include verbal markings such as tense/aspect, agreement with nouns, and so on.

3.2.1. Verb Morphology

There are very striking similarities in some highly frequent and productive preverbal and postverbal grammatical elements. These include the negative, prohibitive, and valency-increasing prefixes and the nominalizer suffix shown in Table 1. Note that all reconstructed forms in Table 1 and all other forms below have been adjusted to standard International Phonetic Alphabet symbols. Proto-ST etyma are from Benedict (1972), and Proto-Athapaskan etyma are from Leer (1996) except where noted. Proto-Athapaskan forms are cited instead of Proto-ND forms as the latter have few generally-agreed reconstructions; Athapaskan includes all but two ND languages, Tlingit and Eyak.

Table 1. Verb morphology in Proto-ST, Ket, and Proto-Athapaskan.

	Proto-ST	Ket	Proto-Athapaskan
Negative	*ma-	bən-	*iʔ-/ʔi- or *s-
Prohibitive	*ta-/da-	ət-	*da-
+Valency	*s-	s-	*ɬ-
Nominaliser	*-su	-s	*hi-

In Ket, as we will see in Section 3.4.1 below, metathesis as in the prohibitive prefix and the negative prefix is very frequent in Ket cognates of forms reconstructed for Proto-ST and/or Proto-ND. The Proto-Athapaskan negative prefix appears not to be cognate with the Proto-ST and Ket forms, but it is still a prefix, which, as noted in Section 3.1 above, is unexpected in a verb-final language. In some cases, the functions of the cognate forms differ; for example, the Proto-ST *-su suffix is an agentive nominalizer, but in Ket, the /-s/ suffix is an abstract nominalizer. Terminological differences have also obscured cognacy: the Proto-ST valency-increasing verb prefix *s- has since Wolfenden (1929) been called a causative prefix, but the Proto-Athapaskan valency-increasing verb prefix *ɬ- is called a classifier. In addition to the cognate /-s/ suffix, Ket also has an innovative and more productive valency-increasing verb suffix /-q/; both are also sometimes called causatives.

3.2.2. Noun Morphology

There is little prefixed noun morphology that can be reconstructed across the three families, but noun stems, to a greater extent than verb stems, show a number of prefixes that can be reconstructed, particularly within Proto-ST; these may reflect earlier noun compounding and/or morphology. There is also some shared suffixing morphology, such as a female suffix *-ma related to the ‘mother’ etymon (see Section 3.4.1 below).

Most Proto-ST noun morphology is innovative and often transparently grammaticalized. For example, there is a body-part prefix **m-*, which is presumably derived from the Proto-ST noun **mi* PERSON, as seen in LIVER in Table 3 below. Some of the apparent irregularities in phonological correspondences of initial consonants in noun forms may be due to differences in prefixation. For example, numerals (Section 3.4.3) show various different prefixes and suffixes in Proto-ST, Yeniseian, and Proto-ND, which obscure cognacy.

In most ST languages other than Chinese, and in Yeniseian and ND, case, topic, and other grammatical markings are postpositions after the noun, as normal in a verb-final language. Both Yeniseian and ND languages often incorporate nouns into the verb, usually in the middle of the prefixes which precede a verb stem; the origin of the verb agreement system of Proto-ST is pronouns that have been incorporated as suffixes after the verb stem.

3.3. Phonology

There are various strong parallels between the reconstructed sound systems of Proto-ST and Proto-ND, some of which are shared with Yeniseian Ket. The initial consonant systems of Proto-ST and Proto-ND are very complex, with three distinct manners of syllable-initial stops and coronal affricates, also some typologically unusual places of articulation, including uvulars. Ket has merged nearly all manners of articulation, maintaining only a distinction between /t/ and /d/; otherwise, all Ket stops are underlyingly voiceless. There are also complex consonant clusters reconstructed in syllable-initial position, also actually attested in some modern languages; maximally, one or two consonantal prefixes, an initial, then a medial liquid or glide. In many languages, and in the Proto-ND reconstruction, some such clusters are separated by weak vowels; this is also seen in a variety of modern ST languages.

By contrast, in Proto-ST, the syllable-final consonants are very restricted: usually only one consonant, with only one manner of stop consonants, **p *t *k *q*, three nasal consonants **m *n *ŋ*, liquids **r* or **l*, or occasionally with a suffixed **s* following a vowel or following another consonant. Proto-ND has somewhat fewer restrictions on final consonants, and Ket, of course, has a reduced consonant system overall.

The typologically unusual uvular stops are retained in Proto-ND and many modern ND languages and in Ket. They have been merged with other consonants in most ST languages but can be reconstructed for Proto-ST, both initially (Baxter and Sagart 2014) and finally (Sagart 2017).

There is a widespread tendency for ST, Yeniseian, and ND languages to develop systems of tones; these often include not only pitch differences but also phonation differences (breathy, modal, or creaky voice) and other characteristics. It is likely that the Proto-ST system already had a two-way tone contrast. Some unrelated languages in close contact with ST languages develop tone systems in parallel ways; this includes all Tai-Kadai languages and all Miao-Yao languages, as well as some Austroasiatic languages spoken in areas strongly influenced by speakers of Sinitic languages, such as Vietnamese.

In comparing cognate lexical material and reconstructing phonology in related languages, there are systematic sound correspondences showing the same sound change; sometimes, the sound changes are very substantial but consistent. Caveney (2014) has identified one such correspondence: in some etyma, reconstructed Proto-ST initial velar nasal **ŋ* corresponds to reconstructed Proto-ND labialized velar stops and reconstructed Proto-Athapaskan palatoalveolar affricates. Table 2 shows that most Ket forms have a voiceless uvular or occasionally velar stop in their cognates. For another possible example, see FIVE in Section 3.4.3, and for a partial parallel, see the first person pronoun in Section 3.4.4.

Table 2. Correspondences in Proto-ST, Yeniseian, Proto-ND, and Proto-Athapaskan.

	Proto-ST	Ket	Proto-ND	Proto-Athapaskan
CRY	*ŋu	qoʔd	*k ^w əχ	*tʃrəɐ
EVIL	*ŋan	qiliŋ	*k ^w a:n	*tʃ'ra:
WOMB	*ŋal	daqaj 'nest'	*k ^w a:l	*tʃra:tʃeʔ
SUN	*ŋi	i/iqot	*g ^w e	*dʒre:j
WRINKLED	*ŋar	kudaj	*k ^w al	*tʃ'rətʃ'

As more reconstructions for Proto-Dene-Yeniseian become available, we will probably find many additional correspondence patterns.

3.4. Lexicon

Various sources have listed many possible lexical cognates between ST and ND, including Shafer (1952, 1957, 1969), Nikolaev (1991), Bengtson (1991), and Ruhlen (1994). Vajda (2010, 2013) identifies a large number of likely Yeniseian and ND cognates, some contested by Starostin (2012), who cites ST, North Caucasian, and Burusho alternatives. The extremely valuable Ket dictionary of Kotorova and Nefedov (2015) now allows much more extensive comparison with Yeniseian than has ever previously been possible.

3.4.1. Basic Vocabulary

A few of the many apparent cognates in basic vocabulary across all three families are listed in Table 3. In some examples, forms in Ket, which is only attested over the last couple of centuries, have undergone a meaning change.

Table 3. Proto-ST, Yeniseian and Proto-Athapaskan cognates.

	Proto-ST	Ket	Proto-Athapaskan
HAND	*g-lak	laʔŋ	*tlaʔ
LIVER	*m-sin	seŋ	*sənt'
DOG	*kwin	kəqən 'fox'	*tʃEp-k'je
WATER	*twe	tik 'snow'	*tu
DRINK	*daq	dòd	*ta:

In some cases, the Yeniseian cognates show metathesis when compared to Proto-ST or Proto-ND forms; Table 4 shows some examples. PERSON is one of many examples where Yeniseian and ND show greater lexical similarity to each other than to Proto-ST. Here, the plural stem in Ket and the usual Proto-Athapaskan reconstructed form is cognate. The Proto-ST PERSON etymon persists in Ket only in the WOMAN etymon, where the metathesized Ket cognate has a possible cognate in the final syllable of the Proto-Athapaskan WOMAN etymon. The MOTHER etymon *ma is attested in Proto-ST and in Ket; the alternative Proto-ST form BREAST/MOTHER *nu may be related to the Proto-Athapaskan form.

Table 4. Cognates with metathesis in Yeniseian.

	Proto-ST	Ket	Proto-Athapaskan
MOTHER	*ma/*nu	am	*ʔEne:
FATHER	*ba	op	*waʔ
PERSON	*mi	keʔd SG deʔŋ PL	*dEne:
WOMAN	*C-mi	qim	*tʃ ^h rêqe:
GRANDFATHER	*puw	qip	*Owe
COUSIN	*mdu 'nephew'	amdu-	*u:de:

3.4.2. Up and Down

The basic motion verbs for upward and downward motion reconstructed for Proto-ST appear to be cognate with the Ket directional forms for uphill and downhill motion and with the Proto-ND directional forms for upward and downward motion. The forms are presented in Table 5. Leer (1999) discusses the Proto-ND forms, and Vajda (2013, p. 11) connects the Proto-ND and Ket forms.

Table 5. Upward and downward motion in Proto-ST, Yeniseian and Proto-ND.

	Proto-ST	Ket	Proto-Athapaskan
(GO) UP	*dak	-aged	*dəq
(GO) DOWN	*jak	-igd	*jəχ

3.4.3. Numerals

It is often but not always the case that lower numerals tend to be stable cognates. In the East Asian linguistic area, even these have been borrowed, for example, from Sinitic into Tai-Kadai for all but ONE and from Sinitic into Miao-Yao for all but TWO and THREE. However, as there has been no recent contact between ST, Yeniseian, and ND languages, any similarities must be residual. There is also considerable internal diversity in the reconstructed form of ONE in Proto-ST. The Kott forms in Table 6 are from Werner (2004). Note that there is various innovative morphology: several alternative prefixes in Proto-ST, a /-k/ suffix in some forms in Yeniseian, which voices to [g] when intervocalic in Kott, a distinct animate stem for ONE in Ket, an /-a/ suffix in Kott and so on. Proto-Athapaskan also has various animate and inanimate suffixes which are not included in the forms given here.

Table 6. Numerals in Proto-ST, Yeniseian and Proto-Athapaskan.

	Proto-ST	Ket/Kott	Proto-Athapaskan
ONE	*it/*kat/ *g-tjik	animate qəʔk inanimate qu:s/hu:tʃa	*tɬʌqʻ
TWO	*g-ni-s	in/i:na	*nâ(dE)qe
THREE	*g-sum	dəʔŋ/to:ŋa	*ta:q
FOUR	*b-li	si:k/(t)ʃe:ga	*denk
FIVE	*l-b-ŋa	qa:k/kega	*nelaʔi
SIX	*d-ruk	aʔ/χelutʃa	*qUSDeta:nɪ
SEVEN	*s-/k-ni-s	əʔn/χelina	*kjuskʻjEdi/ *qUnEtsʻEʃeji:

Once the affixes are stripped off, there are resemblances between Proto-ST and Yeniseian for all seven numeral stems listed, which extend to Proto-Athapaskan for ONE to FOUR.

The Ket form for TWO again shows metathesis compared to Proto-ST. In FIVE, we again see a velar nasal initial corresponding to a Ket uvular voiceless stop initial as in Table 2, but the Proto-Athapaskan forms for FIVE, SIX, and SEVEN appear not to be cognate with Proto-ST or Yeniseian forms. Note also some parallels in compound forms, especially SEVEN (5 + 2) in Proto-ST and Kott. It is notable that without Kott data, it would be difficult to discern some of the links between Proto-ST and Yeniseian; with more data from the many Yeniseian languages which are no longer spoken, perhaps even more could have been done.

3.4.4. Pronouns

Pronouns form a small closed grammatical system and often have stable forms and meanings, especially for Speech Act Participant (SAP, 1st and 2nd person) forms. Table 7 shows the SAP pronouns. We see likely cognates for all three reconstructed forms. The

Proto-ST 1st and 2nd person forms are from [Benedict \(1972\)](#) as usual; the 1st inclusive form (you and I) is reconstructed in [Bradley \(1979, etymon 442-1\)](#). The 1st person form shows a velar nasal initial in Proto-ST corresponding in this case to a Proto-Athapaskan labialized palatoalveolar affricate, similar to the correspondence we saw in [Table 2](#), but the Yeniseian forms do not follow the expected pattern: Ket has an innovative form for both 1st and 2nd person, while Kott has a 1st person form identical to the Proto-ST form. We again see metathesis in the Ket 1st inclusive pronoun.

Table 7. SAP pronouns in Proto-ST, Yeniseian, and Proto-Athapaskan.

	Proto-ST	Ket/Kott	Proto-Athapaskan
1	*ŋa(i)	ad/ŋai	*fwín
2	*naŋ	u	*nin
1 + 2	*ni	ətn	*nen

Pronouns are often cliticized onto other forms. In these languages, SAP possessive pronouns, sometimes in shortened forms, are cliticized before the possessed noun, as shown in [Table 8](#). This Possessor + Possessed order is also found for possessed nouns when the possessor is not a pronoun. Note also that we see a likely cognate for the second person pronoun in the Ket possessive ‘your’ form, which has been replaced in the free pronoun form; also, Kott has retained, but Ket has lost the cognate first person form. Possessive prefixes are phonologically reduced in Proto-Athapaskan, Yeniseian, and many ST languages.

Table 8. SAP possessives in Proto-ST, Yeniseian, and Proto-Athapaskan.

	Proto-ST	Ket/Kott	Proto-Athapaskan
1	*ŋa +	b-/ŋ-	*fi-/*tsi-/*sə-
2	*naŋ +	n-	*nə-
1 + 2	*ni +	ətn	*ne-

3.5. Summary of Linguistic Evidence

As we have seen, there is substantial evidence of syntactic, morphological, phonological, and lexical similarities between ST, Yeniseian, and ND. These are particularly strong in stable areas such as basic structural features, including negation, prohibition, valency increase, and so on; also in SAP pronouns, lower numerals, basic kinship terms, and so on.

4. Discussion

Of the various remote linkages proposed concerning the genetic linguistic position of Sinitic and other languages in the same area, two traditional proposals, (1) ST including Tai-Kadai and Miao-Yao, (2) Austric including Austronesian and Austroasiatic as well as two more recent proposals, (3) the PEA/Trans-Himalayan linkage and (4) the STAN linkage all appear to be problematic; similarities are due to many millennia of influence from Sinitic into languages of other language families in eastern China, notably Tai-Kadai, Miao-Yao and parts of Austroasiatic, as well as more ancient contact with Austronesian. The linkage (5) of Proto-ST with Yeniseian and ND, which cannot be attributed to contact, is supported by various evidence briefly summarised above. The lexical evidence suggests a pre-Neolithic linkage, sharing only the domestic dog. The Yeniseian languages are to the northwest of Proto-ST in central Siberia; the ND groups later migrated from northeast Siberia into northwest North America. The linkage is also supported by genomic evidence presented in [Bradley \(2023, forthcoming\)](#). The shared linguistic retentions of ST and Dene-Yeniseian languages have persisted over great geographical distances, despite many millennia of lack of contact.

The generally-agreed location for the origins of Sinitic is the upper Yellow River valley. In the early Neolithic period corresponding to Proto-ST, cultivation of *Setaria* and *Panicum*

millet, *Glycine* (soybean), and the domestic pig started in this area and later diffused more widely. Etyma for these crops and this animal are reconstructed for Proto-ST and attested in Sinitic and nearly every branch of TB across East, Southeast, and South Asia (Bradley 2011, 2016, 2022). The chronology of the subsequent dispersal of Sinitic and the TB languages across this wide area can be traced through regular sound and morphosyntactic changes, as well as lexical innovation, including new vocabulary for new crops and new domestic animals over the period from 5.6K YBP to the present. For more discussion of the phylogeny and spread of Proto-ST, see Bradley (2022, 2023, forthcoming); Bradley et al. (forthcoming) and many other sources.

This chronology, along with archaeological and genomic findings summarised in Bradley et al. (forthcoming) and the early cognate etyma within Proto-ST, suggest that Proto-ST was possibly spoken during the Peiligang Culture and certainly during early to mid-Yangshao Culture in the upper Yellow River valley and that Sinitic was spoken during the late Yangshao and Longshan cultures, spreading downriver into northeast China, where Sinitic speakers took up the cultivation of rice and developed a high culture which they later spread and diffused across the rest of China (Bradley et al. forthcoming).

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