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Transeurasian core structures in Turkic

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In this paper I investigate to what extent the core structures of Turkic might be inherited from those of proto-Transeurasian. The label "Transeurasian" is used for the grouping that includes the Japonic, Koreanic, Tungusic, Mongolic, and Turkic languages. The term "core structures" refers to a concentration of proto-typical linguistic features that delimit a group of languages vis-à-vis their neighbors. After evaluating 20 core structures of the Transeurasian languages, I argue how the languages may have come to share these features, considering as possible explanations areal diffusion, universal tendencies, genealogical relationships or an interaction of these factors.

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1. Introduction

After fifty-five years of dedication to the past and present of the Turkic languages, Johanson (2015) takes a moment's pause to reflect upon the specific core structures of Turkic. Observing that Turkic shares most of its basic typological properties with the Mongolic, Tungusic, Koreanic and Japonic languages, Johanson (2015: 591) asks: "Are the core structures of Turkic common Transeurasian structures?" and thereby touches upon the still open question of whether the core structures of Turkic have been inherited from those of proto-Transeurasian.

In the present paper, I will delimit a number of core structures shared by the Transeurasian languages, paying attention to the extent to which these are reflected in the Turkic languages and weighing different historical motivations that may account for them. One of my aims is to show that there are a number of core structures that delimit the Transeurasian languages from the Uralic languages, with Turkic behaving like a proto-typical Transeurasian branch under Uralic influence. This view goes against Janhunen's (2014: 13) claim that "it is also relevant to emphasize once more that speaking of "Altaic" instead of "Ural-Altaic" is a misconception, for there are no areal or typological features that would be specific only to "Altaic" without Uralic".

The term "Transeurasian" refers to a large group of geographically adjacent languages in Northern Eurasia. They stretch from the Pacific in the East to the Baltic and the Mediterranean in the West and include up to five different linguistic families: Japonic, Koreanic, Tungusic, Mongolic, and Turkic (Johanson & Robbeets

2010: 1–2). I distinguish "Transeurasian" from the more traditional term "Altaic", which I reserve for the linguistic grouping consisting of Tungusic, Mongolic and Turkic languages only.

The question of whether all similarities between the Transeurasian languages should be accounted for by language contact or whether some are the residue of a common ancestor is one of the most debated issues of historical comparative linguistics. However, reserving the term "core structures" for a concentration of prototypical linguistic features that delimit a group of languages from neighboring languages, independent of how these features developed historically, I will refrain from excluding features *a priori* because they may be the result of code-copying or inheritance. Only after evaluating 20 structural features shared across the Transeurasian languages, will I consider how the insights from the data are relevant for historical statements about the ways by which the languages may have come to share these features, considering as possible explanations areal diffusion, universal tendencies, genealogical relationship or an interaction of these factors.

As representatives of the contemporary varieties of Transeurasian, I will use Turkish (Turkic), Khalkha Mongolian (Mongolic), Evenki (Tungusic), Korean and Japanese (Japonic). For retrieving linguistic data underlying the feature values, I consult Göksel & Kerslake (2005) for Turkish; Janhunen (2012) for Khalkha Mongolian; Bulatova & Grenoble (1999) and Nedjalkov (1997) for Evenki; Martin (1992) and Sohn (1994) for Korean and, Martin (1988), Kaiser et al. (2001) and Iwasaki (2006) for Japanese. To allow for a diachronic perspective, I will supplement the contemporary languages with the oldest reliable historical varieties, consulting Erdal (2004) for Old Turkic, Street (1957), Weiers (1966) and Rybatzki (2003) for Middle Mongolian, Poppe (1954) for Written Mongolian, Gorelova (2002) for Manchu, Martin (1992) and Lee & Ramsey (2011) for Middle Korean and, Vovin (2005, 2009) and Frellesvig (2010) for Old Japanese. In order to delimit external boundaries, I have included Ainu (Ainuic), Nivkh (Amuric) and Rukai (Austronesian) as adjacent languages to the east, Mandarin Chinese (Sino-Tibetan) to the south, and Kolyma Yukaghir (Yukaghiric), Ket (Yenisseian) and Eastern Khanty (Uralic) to the north; see Figure 1. For retrieving linguistic data underlying the feature values, I use Gruzdeva (1998) for Nivkh; Maslova (2003) for Kolyma Yukaghir; Werner (1997), Vajda (2004) and Georg (2007) for Ket; Filchenko (2007) for Eastern Khanty; Li & Thompson (1989) for Mandarin; Zeitoun (2007) for Mantauran Rukai; and Shibatani (1990) and Tamura (2000) for Ainu. Some of the data underlying this paper are drawn from Robbeets (2017), but the approach taken here differs from that paper in that it is focused on Turkic, the concept of core-grammar and the typological distinction between Uralic and Transeurasian.

Figure 1: The distribution of the contemporary Transeurasian languages and neighboring languages included in the sample (generated with WALS tools)

The paper is structured as follows. In Sections 2 to 5, I address different core structures of Transeurasian on the level of phonology, lexico-semantics, morphology and syntax respectively. In Section 6, I deal with core-patterns of grammaticalization shared by the Transeurasian languages. In Section 7, I summarize the presence of the 20 examined features in the selected languages, using a tabular overview and assess different reasons that could account for the correlations such as universal tendencies, copying and common ancestorship. Finally, I conclude this paper in Section 8.

2. Phonological core structures

CS 1. Presence of tongue root vowel harmony

The most general harmony phenomenon in Turkic is palatal harmony, which prompts all vowels within a domain to be exclusively front or back (e.g. Tk. *ip-ler* [rope-PL] 'ropes' vs. *pul-lar* [stamp-PL] 'stamps'); see Johanson (1993). Most Turkic languages also employ a rounded vs. unrounded harmony, which causes neutralization of the roundness distinction in high vowels. Certain languages also apply this harmony to suffixes with non-high vowels. Palatal harmony is also found in most Uralic languages, such as in Khanty. Since the western Mongolic languages Oirat and Kalmuck display palatal harmony as well, it has been proposed that the original system of Mongolic harmony was palatal (Poppe 1955, Svantesson 1985). However Ko (2012) demonstrated that the original vowel harmony in Mongolic was in fact based on the opposition between the advanced vs. retracted position of the tongue root, rather than on a palatal contrast. He argued that the tongue root retraction system in Khalka (e.g. *od-oːs* [feather-ABL] vs. *ɔd-ɔːs* [star-ABL]) represents

retention rather than innovation. Furthermore, he supported the view that Tungusic vowel harmony is RTR based, as it is in Manchu and Evenki, and that the reduced vowel harmony in contemporary Korean derives from a tongue-root based system in Middle Korean. Contemporary Japanese and Ryukyuan languages do not have vowel harmony. In Old Japanese, however, there is a restriction on the shape of root morphemes, whereby the vowel o_2 cannot occur in a root together with the vowels u, o_1 or a. This phenomenon, known as Arisaka's law, has been taken as a kind of vowel harmony, but it has been excluded from comparisons with other Transeurasian languages because it does not reflect palatal harmony, the type of harmony which was attributed to the Transeurasian languages until recently (Frellesvig 2010: 44). In the light of the reconstruction of a 7-vowel system in proto-Japonic by Frellesvig and Whitman (2008), however, the harmony-like opposition in Old Japanese implies an underlying opposition between pJ *i, *ə and *u, *o, *a, which does not exclude an original RTR based contrast. Therefore, it appears that RTR harmony may have been a core structure of proto-Transeurasian, with proto-Turkic perhaps having shifted to a palatal contrast under the influence of the neighboring Uralic languages. Whereas Vovin (1993: 50–51) and Bugaeva (2015: 465–467) reconstruct palatal harmony in Ainu, Shibatani (1990: 15) speculates that the Ainu opposition between o and u, a might have its origin in tongue root harmony, but here the indications are even weaker than in the Japanese case. According to Maslova (2003: 35), Yukaghir might be more appropriately described as having tongue root harmony than palatal harmony. Chukchi also displays tongue-root harmony. Although Gruzdeva (1998: 10) suggests that Nivkh leaves traces of height harmony, Janhunen (1981) and Ko, Whitman and Joseph (2014) interpret the system in terms of tongue root harmony. Cross-linguistically, tongue root harmony seems to be rather rare (Ko 2012: 11–12). A rough estimate would be that less than 10% of the world's languages have a tongue root vowel harmony system.

CS 2. Absence of r- in initial position

Across the Transeurasian languages, the consonant r- is not allowed to occur word-initially, except in copies (e.g. J *rajio*, K *latiwo*, Even *radio*, Khal. *radio*, Tk. *radyo* 'radio'). This is also true for Kolyma Yukaghir. Ket lacks a phoneme /r/ altogether. Although initial *r- is not reconstructed for proto-Uralic, Khanty is atypical in this sense, e.g. *raɣta* 'to drop, slide' and *räɣ* 'garbage'. Nivkh, Ainu, Mandarin and Rukai also have native words in initial r-. Outside Uralic and Transeurasian, a fair number of languages such as proto-Indo-European, Basque, some Melanesian languages, Efic (Niger-Congo), ancient Caucasian, Susu, Diyari (Australian), and Piro (Arakawan) lack r- in word initial position. A rough estimate would be that less than 30% of the world's languages lack r- in initial position

CS 3. Absence of initial velar nasal

In most Turkic languages, as well as in Mongolic languages and Korean, the velar nasal *ŋ-* cannot appear in word-initial position. Japanese lacks a velar nasal phoneme. In the Tungusic languages, with exception of Manchu however, *ŋ-* can appear word-initially, but generally it is restricted to a specific phonological environment, notably when it is followed by the sonorants *n, r, l, m, y,* e.g. Evk. *ŋene-* 'to go', Ma. *genu-* 'to go together', Evk. *ŋe:le-*, Ma. *gele-* 'to fear'. According to Poppe (1964: 4) the initial velar nasal in Tungusic is the result of secondary assimilation of pTg **g-*, which implies that originally **ŋ-* was absent in Tungusic as well. The assimilation was probably triggered by influence from languages in the Siberian area, such as Nivkh, which allow initial velar nasals (Anderson 2006). It is under the same influence that initial *ŋ* became allowed in Dolgan (Turkic), e.g. *ŋassa* 'pipe'. In Khanty, Ket, Kolyma Yukaghir, Ainu and Mandarin *ŋ-* does not occur in word-initial position. Rukai allows an initial velar nasal, e.g. *ŋaɭai* 'saliva'. In Anderson's (2005: 42) sample of 468 languages, 69% lack an initial velar nasal. Among the languages of the world that have a velar nasal phoneme, as is the case with most Transeurasian languages, only 35% do not use it in word-initial position.

CS 4. Presence of voicing distinction for stops

Turkic, Mongolic and Tungusic languages share a voiced-voiceless opposition for stops, and voicing distinction can be reconstructed for proto-Transeurasian. In Contemporary and Middle Korean, stops display an opposition between lax (p), aspirated (ph) and tensed (p'). Even if the lax stops become lightly voiced between voiced sounds, there is no phonemic voicing distinction. The Japanese and Ryukyuan voicing distinction for stops is a secondary development, as voiced stops derive from prenasalized voiceless stops. Therefore, the ancestor of Japanese lacked voicing distinction. Khanty lacks voicing distinction for stops, a feature characteristic of proto-Uralic, although many contemporary Uralic languages have developed an original singleton-geminate contrast into a voicing distinction. Ket and Yukaghir display a voicing distinction, but languages on the northeast Pacific Coast such as Ainu, Nivkh and Chukchi do not. Mandarin, like Nivkh, has a distinction between aspirated and unaspirated stops, but lacks a voiced-voiceless opposition. Characteristic of most Austronesian languages, Rukai also displays voicing distinction for stops. In Maddieson's (2005: 24) sample of 566 languages, 61% display a voicing distinction for stops.

3. Lexical and semantic core structures

CS 5. Preference for non-verbal strategy for (extra-family) verbal copies

As far as the mechanisms of loan verb accommodation are concerned, most recipient languages can be categorized into two distinct groups: one where copied verbs arrive as verbs needing no formal accommodation, and one where they arrive as non-

verbs and need formal accommodation (Wohlgemuth 2009). The Turkic languages can be assigned to the second category because their copied verbs need formal accommodation by a suffix or a light verb; copying the English verb 'to click (with a mouse)', for instance, Turkish integrates the loanverb by applying either a verbalizer, e.g. Tk. *klik-le-* or a light verb, e.g. Tk. *klik et-*. A similar strategy is reported for Mongolic, southern Tungusic Korean and Japanese Khal. *zee-l-* << Mandarin *zhài* 'borrow, lend'; Ud. *tancewa-la-* << Russian *tancewa-t'* 'to dance'; K *coking ha-*, J *zyogingu suru* 'to jog' << English *jog;* J *demo-r-* << English *demonstrate.* The northern Tungusic languages, however, prefer to borrow verbs through direct insertion, e.g. Evk. *vypolńaj-* << Russian *vypolnja-t'* 'to fulfill, carry out'. Since we have no information about verb borrowing in the historical stages, I mark them with +/-. In contrast to the Transeurasian languages, Ainu, Sinitic languages such as Mandarin, Uralic languages such as Khanty, and Austronesian languages such as Rukai show a strong preference for direct insertion (Wohlgemuth 2009: 158, 161; Tamura 2000: 267). Yukaghir and Nivkh did not integrate any recognizable verbal borrowings from Russian or other foreign languages into their lexicons. In Wohlgemuth's (2009: 157) sample, 55% of languages worldwide are found to use direct insertion, while the remainder prefer non-verbal strategies such as indirect insertion and the light verb strategy.

CS 6. Presence of a two-way proximal-distal distinction in demonstrative pronouns

Although Old Turkic displays a two-way distinction in its demonstratives, i.e. OT *bo/bun-* 'this' vs. *ol/an-* 'that', many contemporary Turkic languages such as Turkish make a three-way distinction, e.g. Tk. *bu* 'this', *şu* 'that', *o* 'that (over there)'. Demonstrative pronouns in earlier and contemporary varieties of Mongolic and Tungusic exhibit a proximal-distal distinction: MMo. *ene* 'this' vs. *tere* 'that', Khal. *e-* 'this' vs. *te-* 'that', Ma. *ere* 'this' vs. *tere* 'that' and Evk. *er(i)* 'this' vs. *tar(i)* 'that'. Demonstrative pronouns in Contemporary and Middle Korean, however, show a proximal-mesial-distal opposition: K *i* 'this', *ku* 'that', *ce* 'that over there' and MK *i* 'this', *ku* 'that', *tye* 'that over there'. This is also true for Contemporary Japanese: J *ko-* 'this', *so-* 'that', *a-* 'that over there'. In contrast to most accounts of Old Japanese demonstratives, which posit a three-way contrast between OJ *ko₂* 'this', *so₂* 'that' and *ka* 'that over there', Frellesvig (2010: 139–142) argued that OJ *ka* was not a productive member of the demonstrative system and that pre-Old Japanese had a simple proximal-distal distinction. Similarly, in Yaeyama Ryukyuan the opposition between demonstratives is restricted to proximal *kuri* 'this' vs. distal *uri* 'that' (Aso 2015: 429). While Khanty distinguishes between proximal *timi* 'this (here)' and distal *tomi* 'that (there)', Yukaghir, Ket and Ainu have a three-way opposition, with each demonstrative pronoun denoting a different degree of proximity: Yukagir *tiŋ* 'this' (proximal), *adiŋ ~ ediŋ* 'that' (mesial), *taŋ* 'that' (distal); Ket *tu-* 'this, that' (neutral), *ki-* 'this, that' (proximal); *qa-* 'this, that' (distal) and Ainu *ta an* 'this'

(distal), *ne an* 'that' (mesial), *to an okai* 'that over there' (distal). Nivkh makes as many as five distinctions: *tyd'* 'this' (near and visible), *hyd'* 'this, that' (distant), *ad'* 'that' (more distant and visible), *aixnt* 'that' (most distant), *kud'* 'that' (absent).[1] Rukai distinguishes four demonstrative pronouns in terms of visibility and distance: *'ina* 'this' (proximal), *ana* 'that' (mesial), *ona* 'that over there' (distal but visible), *dhona* 'that over there' (distal and invisible). Mandarin has a two-way distinction between proximal *zhè(ge)* 'this' and distal *nà(ge)* 'that', which developed from a three way-distinction in Classical Chinese between neutral, proximal and distal. In Diessel's (2005: 170–173) sample of 234 languages, 54% exhibit a two-way distance contrast in demonstratives, while 38% exhibit a three-way contrast.

CS 7. Property words are verbally and nominally encoded such that some property words exhibit switched encoding

Cross-linguistically, adjectives have no prototypical encoding strategy of their own; they will align themselves either with verbs or with nominals. The large majority of property words in the contemporary Turkic languages are nominally encoded. Originally, in proto-Turkic, the encoding of property words appears to have been mixed because, at least in Old Turkic, both the nominal and the verbal strategy was used. There seems to be a tendency to apply the verbal strategy in the case of time-unstable properties such as OT *bädü-* 'to be(come) big, great', OT *isi-* 'to be hot', OT *kat-* 'to be hard, firm, tough', OT *kïz-* 'to be red', OT *tumlï-* 'to be cold', OT *tïnči-* 'to be(come) putrid, smell foul', OT *us-* 'to be thirsty', OT *yeni-* 'to be(come) light', OTk. *tïgra-* 'to be tough', OTk. *iglä-* 'to be(come) ill'. Contemporary Turkic languages maintain a few reflexes of these verbal property words, for instance for 'to be(come) big', Tk. *büyü-*, SUig. *pezi-*, Az. *böyü-*, Khalaj *bidi-*, Tuva *bedi-*, Gag. *bü:-*, Karaim *büyü-* and for 'to be(come) red, red-hot', Turkm. *Gïz-*, Tur. *kïz-*, Yak. *kï:s-*, but in the majority of cases, the earlier verbal property word has been derived with a deverbal noun suffix and became lexicalized as a nominal property word, e.g. OTk *bädük* 'big, great; greatness' and Tk. *büyük* 'big'; see also Johanson (2006).

As in Turkic, most property words in Mongolic and Tungusic languages are nominally encoded, but some are verbally encoded (e.g. WMo. *qala-* 'to be(come) warm'; Khal. *ayu:-* 'be afraid', Ma *aka-* 'to be sad', Evk. *buli:-* 'to be sad'). In Japanese and Korean many property words are verbally encoded, but others are nominally encoded (J *sizuka*, OJ *siduka* 'quiet', J/OJ *taka-* 'to be high', K *kippu-* 'to be happy', *phikon ha-* 'be tired'). In line with most Uralic languages, property words in Khanty are exclusively nominally encoded. This is also true for Ket. In Yukaghir, Ainu and Nivkh, however, property words are exclusively verbally encoded. As in the case of most Transeurasian languages, Ainu property verbs express both the

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1   Note that this analysis deviates from the feature values given for distance contrasts in demonstratives by Diessel (2005: 170–173), since he marks Ainu, Nivkh, Yukaghir and Turkish as having a two-way contrast.

property and the process leading to the property, e.g. *pirka* 'to be(come) good'. In line with Mainland Southeast Asian and Austronesian languages, Mandarin and Rukai use verbal encodings for property words.

Generally, the mixed encoding of adjectives in the Transeurasian languages is split in the sense that most property words have only a single encoding option. Turkish *güzel* 'beautiful', for instance, has nominal encoding and cannot be inflected as a verb. However, in Old Turkic, some doublets such as OT. *ač* 'hungry' / *ač-* 'to be hungry', OT. *keč* 'late, slow' / *keč-* 'to be late, slow', OT *köp* 'abundant' and OTk *köp-* 'to swell, boil over' and OTk. *karï* 'old' and *karï-* 'to become old' exhibit traces of original switching, whereby the same property word can have both nominal and verbal encoding; see Doerfer's (1982: 104–112) list of so-called 'Nomenverba'. Similar traces of switching are found in the other Transeurasian languages, especially in the earlier varieties, e.g. MMo. *bulqa* 'hostile; hostility' / *bulqa-* 'to be hostile'; Ma. *jalu* 'full' / *jalu-* 'to be full', Ma. *sula* 'loose, free' / *sula-* 'to be loose, be free'; MK *toso-* vs. MK *toso ho-* 'to be warm'; OJ *taka* 'high' / *taka-* 'to be high', OJ *opo* 'big / OJ *opo-* 'to be big'. None of the neighboring languages exhibits such behavior. In Stassen's (2005b: 478–481) sample of 386 languages, 27% have mixed encoding in predicative adjectives. Logically, the proportion of languages exhibiting mixed and switched encoding will be lower.

CS 8. Partial emphatic reduplication of nominal property words

Partial emphatic reduplication is a phenomenon whereby the first consonant (if present) and vowel of a nominal property word are repeated with the addition of another consonant to indicate the presence of the property to the utmost degree. In Turkic languages the phenomenon is widespread, e.g. Tk. *bem-beyaz* 'snow white', *up-uzun* 'extremely long', OT *kap-kara* 'quite black'. Whaley and Li (2000) found that it is also recurrent in Mongolic and Tungusic, e.g. Khal. *xob-xoldu:* 'frozen through', WMo. *ub-ulayan* 'completely red', Evk. *ab-aya* 'very good'. I am unable to find examples in Manchu, but the phenomenon is present in Sibe, a currently spoken variety of Manchu, e.g. *fak-farxun* 'extremely dark'. In Tungusic, emphatic reduplication is restricted to Sibe, Kile-Nanai, Solon Evenki and Oroqen, i.e. the languages spoken on Chinese soil, which have been under strong influence from the Mongolic languages Khalka and Dagur. On the basis of this distribution, and because the greatest flexibility (in terms of both the number of reduplicated words and the type of concepts they denote) is found in Turkic, Whaley and Li (2000: 358) argued for a diffusion of the feature from Turkic to Mongolic to Tungusic. Japanese, Korean and the neighboring languages under examination do not display partial emphatic reduplication. In Rukai, however, descriptive verbs are partially reduplicated in comparative constructions (see CS 17).

4. Morphological core structures

CS 9. Inflectional morphology is predominantly suffixing

Bound units in Turkic are postponed; i.e. they are suffixes rather than prefixes or infixes. Across the strongly suffixing Transeurasian languages, prefixation is rare and is restricted to derivational morphology, such as the partial emphatic reduplication in Core Structure 8 and some derivational prefixes in Korean (e.g. K *yel-* 'young, new' in *yel-cwungi* 'a chick out of its shell') and in Japanese (e.g. *ma-* intensive in *ma-siro* 'snow white'). As is the case for most Uralic languages, Khanty is strongly suffixing, as is Yukaghir. Nivk is considered to be weakly suffixing. In Ket, nominal inflectional morphology is strongly suffixing, whereas verb inflection is predominantly prefixing. In Ainu and Rukai, inflection makes use of both prefixes and suffixes. Probably due to Transeurasian influence, Mandarin is hard to assign unequivocally to either the isolating or weakly suffixing type, but Sinitic varieties in general tend towards the isolating pole. In Dryer's (2005a: 110–113) sample of 894 languages, 43% are strongly suffixing.

CS 10. Absence of obligatory numeral classifiers

Although in Turkic and Mongolic some nouns of low countability may be accompanied by a unit of measure by means of which they can be counted, e.g. Tk. *sekiz bardak su* (8 glass water) 'eight glasses of water', OT *yeti tutum talkan* (7 handful parched.grain) 'seven handfuls of parched grain', Khal. *gourben debter nom* (3 volume book) '3 volumes of books', these languages do not make use of sortal numeral classifiers. The same is true for the Tungusic languages, except Manchu. Under Chinese influence, Manchu has developed about 70 sortal numeral classifiers, such as *fesin,* which is used for objects equipped with a handle, e.g. *ilan fesin loho* (3 CLAS sword) 'three swords'. However, the use of these classifiers is not obligatory in Manchu. *Loho ilan* (sword 3) 'three swords', for instance, is equally possible. Whereas the standard pattern in Middle Korean was to modify a noun with a preposed numeral, e.g. *twu kalh* (2 knife) 'two knives', under Chinese influence Contemporary Korean increased its use of classifiers, e.g. *pus se:k calwu* (writing.brush three CLAS) in which *calwu* denotes long objects with handles. However, the original pattern surfaces in expressions such as K *twu nala* 'two countries' and the use of classifiers remains optional in Korean, e.g. *kalh hana-ka issta* (knife one-NOM be.present) 'there is one knife'.[2] While there is an extensive list of obligatory classifiers in Contemporary Japanese, e.g. *enpitu san-bon* (pencil three-CLASS) 'three pencils', the use of classifiers is much less developed and is not obligatory in Old Japanese, where Chinese influence is restricted to a minimum. Numeral classifiers are absent in Uralic languages such as Khanty, as well as in Yukaghir and Ket.

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2   Note that my evaluation differs from Gil's (2005: 228–229) interpretation that Korean has obligatory numeral classifiers.

Ainu and Nivkh make use of a set of obligatory classifiers. The obligatory use of classifiers is a widespread feature shared by Mandarin and the languages of Southeast Asia, but the use of classifiers in Classical Chinese was the exception rather than the rule. In Rukai, the use of classifiers is optional in the sense that it uses a set of unaffixed numerals without classifiers as well as a set of bound numerals, which combine with five different sortal classifiers to form verbs. In Gil's (2005: 226–229) sample of 400 languages, 80% lack obligatory numeral classifiers.

CS 11. Presence of mi-Ti *opposition in first vs. second singular personal pronouns*

Nichols (2012) observes that *m-T* pronominal paradigms with first person labial nasal *m* and second person apical or palatal obstruent *t*, *c*, *s*, etc. are much more common in northern Eurasia than elsewhere in the world. Janhunen (2013: 213) adds that there is a smaller group of *mi-Ti* languages extending from Uralic in the west, to Turkic, Mongolic and Tungusic in the east, and Yukaghir in the north, in which not only the initial consonant but also the root vowel of the singular stems shows a basic similarity in that it contains a non-low unrounded front vowel *i* or *e*. Although *m* is absent in the nominative first person singular in the Turkic, Mongolic and Tungusic languages, e.g. Tk *ben*, OT *ben*, Khal. *bii*, MMo. *bi*, Ma. *bi*, Evk. *bi:*, it has developed in oblique forms in assimilation to the nasal oblique suffix -*n*, e.g. OT *min-ii* [GEN], Khal. *min-ii* [GEN], MMo. *mi-nu* [GEN], Ma. *min-*, Evk. *min-*. The second person singular forms all reflect a voiceless dental T, e.g. Tk. *sen*, OT *sen*, Khal. *cii*, MMo. *ci*, Ma. *si*, Evk. *si:*. The Korean pronouns are first singular K/MK *na* and second singular K/MK *ne* among others. In Japanese, J *watasi* and OJ *wa* among others are used in the first singular, while a variety of contemporary pronouns and OJ *na* are used in the second singular. Although the proto-Uralic first and second singular pronouns **mun* and **tun* reflect not a *mi-Ti* though still an *m-T* distinction (Janhunen 1982: 35), Khanty is deviant in having first singular *mä* and second singular *nöŋ*. In Yukaghir, however, the *mi-Ti* opposition is present in first singular *met* vs. second singular *tet*. In Nivkh, the distinction is absent in the singular pronouns, first person *n'i* vs. second person *či*, but it is present in the opposition between the first plural inclusive *mir/mer* and the second plural pronoun *čiŋ*. The opposition is not found in Ket, Ainu, Chinese and Rukai. In Nichols and Peterson's (2005: 546–551) sample of 230 languages, 13% display an *m-T* opposition in first vs. second person pronouns. Logically, languages reflecting a *mi-Ti* opposition will represent an even smaller proportion.

CS 12. Formation of a secondary nasal oblique stem in personal pronouns

In most contemporary Turkic languages, the nominative and oblique forms of the personal pronouns have merged, e.g. Tk. *ben* for the first singular nominative and oblique, but in Old Turkic the first singular nominative *ben* is distinguished from the oblique stem *min-*, which can be derived from an original pTk **bi-n-* [1SG-OBL-].

Similarly, the Mongolic and Tungusic languages derive oblique pronominal stems from the nominative roots through a nasal suffix, for instance in the first person plural pronouns MMo. *ba* [NOM] vs. *man-* [OBL] and Khal. *bid* [NOM] vs. *bidn-* [OBL] and in the first person singular pronouns Ma. *bi* [NOM] vs. *min-* [OBL], Evk. *bi:* [NOM] vs. *min-* [OBL]. There are no oblique pronominal stems in Contemporary Japanese, but in Old Japanese traces remain of an oblique nasal suffix in some case forms, e.g. in the Eastern OJ first person singular dative *wa-nu-ni* in alternation with Western OJ *wa-ni*. Vovin (2005: 229–230) further found that an original Japonic pronominal oblique *-n- is well supported by Northern Ryukyuan dialects where the first person pronoun uses *waa-* as the nominative and genitive base and extended *waN-* in the oblique cases. Hence, with the exception of Korean, the Transeurasian languages share a tendency of forming a secondary oblique stem of the personal pronouns by means of a suffix, which can be identified phonologically as the dental nasal *-n-*. The oblique nasal suffix is an important element in the Uralic pronominal paradigm as well, e.g. the Khanty first person pronoun *mä* [NOM] vs. *män-* [OBL]. Ket, Yukaghir, Ainu and Mandarin, however, do not derive secondary oblique stems. The third person singular pronoun in Nivkh has both regular and suppletive case forms, e.g. *if-øn* [3SG-NOM] vs. *if-toX* ~ *e-rx* [3SG-DAT/ADD], but here the oblique form is not derived from the nominative base. Rukai personal pronouns have different shapes for nominative, topic, genitive and oblique cases, e.g. the first person singular *-lrao* [NOM], *ilrae* [TOP], *-li* [GEN] vs. *-iae* [OBL], in which the oblique seems to be formally derived from the nominative base by means of the same *i- ...-e* marking as in the topic form.

5. Syntactic core structures

CS 13. Dependent-marking of clause arguments

In the clause, the verb is the head and the arguments are dependents. Morphological marking, reflecting the syntactic relations in the clause, may be located on the head, on the dependent, on both, or on neither. Even if they may have subject-verb agreement on the verb, the Turkic languages are dependent-marking because they tend to mark agreement and case government more on dependents than on verbs; see the subject-verb and case agreement in the Turkish example in (1). Most Mongolic languages are strongly dependent-marking, as they mark case and lack verb agreement; see the Khalkha example in (2). Tungusic languages have case and verbal agreement with the subject; see the Evenki example in (3). Having case and lacking verb agreement, Korean and Japanese are strongly dependent marking, as illustrated in (4) and (5).

(1) Turkish
     Bu   ev-i   Ahmet-e   yap-tı-m.
     this   house-ACC   Ahmet-DAT   make-PF-1SG
     'I built this house for Ahmet.' (Göksel & Kerslake 2005: 146)

(2) Khalkha
     Öwgön-iig   ger-t-ee   ury-jee.
     old.man-ACC   home-DAT-REFL   invite-PF
     'He [the tiger] invited the old man to his home.' (Janhunen 2012: 296)

(3) Evenki
     Nungan eri   gule-ve   o:-ra-n.
     he   this   house-ACC   make-PF-3SG
     'He built this house.' (Nedjalkov 1997: 83)

(4) Korean
     Minca-nun   halapeci-kkey   ton-ul   tuli-ess-eyo.
     Minca-TOP   grandfather-DAT   money-ACC   give-PST-POL
     'Minca gave her grandfather some money.' (Sohn 1994: 84)

(5) Japanese
     Miki-ga   Yamada   sensei-ni   tegami-o   mise-ru.
     Miki-NOM   Yamada   teacher-DAT letter-ACC   show-NPST
     'Miki shows the letter to professor Yamada.' (Iwasaki 2006: 122)

Having subject-verb and case agreement, Khanty is weakly dependent-marking. It illustrates the tendency of gradually changing from double-marking to dependent marking in Uralic languages (Nichols 1986: 89). Yukagir and Mandarin Chinese are dependent-marking. However, Nivkh, Ainu and Ket, the isolates in Eurasia, are all head-marking, as is Rukai. In Nichols and Bickel's (2005a: 98–101) sample of 235 languages, 27% are dependent-marking in the clause.

CS 14. Dependent-marking in possessive noun phrases

In possessive noun phrases, the possessed noun is the head and the possessor is the dependent. Morphological marking, reflecting the syntactic relation between the possessor and the possessed, may be located on the head, on the dependent, on both, or on neither. The Turkic languages are double marking, e.g. *Ali-nin oğl-u* [Ali-GEN son-3SG.POSS] 'Ali's son', *oda-nïn kapï-sï* [room-GEN door-3SG.POSS] 'the door of the room'. Old Turkic is commonly double-marking, e.g. OT *ton-nuŋ bit-i* (clothe-GEN louse-3SG.POSS] 'clothes' louse', but there are also cases in which it is head-marked, e.g. *köl tegin atï-sï* [Köl Tegin nephew-3SG.POSS] 'Köl Tegin's nephew' or unmarked, e.g. *balïk kapag* [city gate] 'city gate'. The Mongolic languages are dependent marking, e.g. Khal. *min-ii eej* [I-GEN mother] 'my mother', WMo. *šabi-yin nom* [pupil-GEN book] 'the pupil's book'. Except for Manchu, where possessive

relations are dependent-marked, e.g. *ama i bo:* [father GEN house] 'father's house', genitive case is absent in most Tungusic languages, since possessive relations are head-marked, e.g. Even *svinija ulrə-n* [swine meat-3SG.POSS] 'swine's meat, pork'. Both Contemporary and Middle Korean are dependent-marking, e.g. K *na-uy yenphil* [I-GEN pencil] 'my pencil', MK *mo·l-oy hyang* [horse-GEN scent] 'the scent of horses'. This is also true for Contemporary and Old Japanese, e.g. J *anata no ata-ma* [you-GEN head] 'your head' OJ *Yamato-no kuni* [Yamato-GEN land] 'the land of Yamato'. Proto-Uralic was originally head-marking like Khanty, e.g. Khan. *qul-əm* [fish-2SG.SG] 'your fish'.[3]

The loss of head-marking patterns and extension of dependent-marked ones in western Uralic languages results from the influence of the Indo-European languages to the west. Given the fact that Turkic is double marking in the possessive noun phrase, while it has the proto-typical Transeurasian pattern of dependent marking in the clause, it is likely that it acquired double marking under the influence of the proto-typical Uralic pattern. This is supported by the observation that Turkic nominal possessive suffixes precede case suffixes (Johanson 2002: 22–23), while possessive suffixes were word final in proto-Uralic (Nichols 1986). This indicates that the Turkic possessive marker lies more toward the derivational than the inflectional end of the continuum, and that it functions as a semantic component of the noun rather than an agreement marker as in Uralic. Yukaghir and Mandarin are dependent marking, e.g. Yuk. *tude kerewe-d ugurce* [3SG cow-GEN leg] 'the legs of his cow' and Man. *bâba de máma* [father GEN mother] 'the mother of father'. However, the Eurasian isolates are prototypically headmarking, e.g. Ainu *eci-siki-hi* [2PL-eye-GEN] 'your eyes', Nivkh *vit-ɣaŋ* [2SG-book] 'your book' and Ket *b-a:m* [1SG-mother) 'my mother'. Rukai is head-marking as well, e.g. Ruk. *tolropongo-ni dhipolo* [hat-2SG.GEN Dhipolo] 'Dhipolo's hat'. In Nichols and Bickel's (2005b: 98–101) sample of 235 languages, 42% are dependent-marking in the possessive noun phrase.

CS 15. Extensive use of converb

Converbs, also known as gerunds or adverbial participles, can be defined as nonfinite verb forms whose main function is to mark adverbial subordination (Haspelmath 1995: 3). Originally coined by the Altaic scholar Ramstedt, the term converb was adopted from Transeurasian linguistics to denote a cross-linguistic category. All Transeurasian languages are converb-prominent languages in the sense that they use converbs rather than adverbial subordinators as found in many European languages; see the examples below.

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3   In Khanty, the possessive suffix makes reference to the number and person of the possessor, as well as to the number of the entity possessed (Filchenko 2008: 80).

(6)   Turkish
      Ali   gel-ince   şaşır-dı
      Ali   come-CONV   be.surprised-PST3SG
      'When Ali came, he was surprised.' (Johanson 1995: 314)

(7)   Khalkha
      Ger-ees-ee   gar-aad
      house-ABL-REFL   exit-PFV.CONV
      deuc-en   jil-iin   daraa   ol-d-lao.
      forty-ADN   year-GEN   after   find-PASS-FIN
      'She went away from home and was found forty years later.' (Janhunen 2012: 280)

(8)   Evenki
      əmə-mme:n   iri-l-i-m.
      come-CONV   cook-INCH-NPST-1SG
      'As soon as I arrive, I will start cooking.' (Bulatova & Grenoble 1999: 44)

(9)   Korean
      Kiho-nun   nol-ko   ca-ss-eyo.
      Kiho-TOP   play-CONV   sleep-PST-POL
      'Kiho played and then slept.' (Sohn 2009: 300)

(10) Japanese
      Taroo-ga   bangohan-o   tabe-te   furo-ni   hai-ta.
      Taroo-NOM   dinner-ACC   eat-CONV   bath-DAT   enter-PST
      'Taroo took a bath after he ate dinner.' (Alpatov & Podlesskaya 1995: 473)

Although the Uralic languages are characterized by extensive use of converbs, Khanty is rather atypical in this sense because it has only a single converb in *-min*, which is the least frequent nonfinite verb form. Yukaghir and Nivkh also use a variety of converbs to link clauses. Ainu, however, employs subordinating conjunctions. Ket has no converbs or serial verb constructions of any kind. In Mandarin, verbs or verbal phrases are merely juxtaposed, the relation between the items being largely unmarked. Rukai marks adverbial subordination through a variety of means such as subordinating conjunctions, changes in word order and nominalized verb forms.

CS 16. Use of locative existential constructions to encode predicative possession

The Transeurasian languages show a clear preference for expressing the concept "X has Y" on the basis of an existential sentence, whereby the possessed noun phrase functions as the grammatical subject of the 'exist'-predicate, while the possessor noun phrase is in a dative-locative case form. Although locative possessive constructions were standard in Old Turkic, Turkish uses genitive existential sentences as well as locative existential sentences. 'I have a book', for instance, can be expressed by *Ben-de bir kitab var* [I-LOC a book exist] or by *Ben-im bir kitab-ım var*

[I-GEN a book-1SG.POSS exist]. Middle Mongolian and Khalkha make use of either a conjunctional possessive which construes the possessor noun phrase as the grammatical subject of the copula and marks the possessed with the comitative *-tai*, e.g. Khalkha *Bi nom-tai bai-n'* [I book-COM be-DUR], or a locative possessive, e.g. *Nad-ed nom bai-n'* [I-DAT book be-DUR]. As is the case for most Tungusic languages, Manchu and Evenki employ locative existential constructions, e.g. Evk. *Min-du: kniga bisi-n* [I-DAT book be-3SG]; Ma. *Min-de bithe bi* [I-DAT book be]. Korean uses a locative existential construction, e.g. K *Na-hanthey chayk-i issta* [I-LOC book-NOM exist], but the possessor can also be construed as the topic of the noun phrase, e.g. *Na-nun chayk-i issta* [I-TOP book-NOM exist]. This is also true for Japanese, e.g. *Watashi-ni hon-ga aru* [I-DAT book-NOM exist] and *Watashi-wa hon-ga aru* [I-TOP book-NOM exist]. Topic possessives may have developed under the influence of Chinese, since they represent the standard strategy in Mandarin. Among the strategies used to encode predicative possession in the Uralic languages, we find locative possession, as in Finish and Hungarian, genitive possession, as in Nenets, and possession encoded by a transitive verb 'to have', as in Khanty. Whereas Yukaghir employs a conjunctional possessive and Ainu a 'have'-possessive, Ket and Nivkh use locational possessives. Although many Austronesian languages employ topic possessives, Rukai makes use of locative and genitive possessive constructions. In Stassen's (2005a: 474–477) sample of 240 languages, 20% use a locative existential construction to encode predicative possession.

CS 17. Use of the ablative case form to encode predicative comparison

The Transeurasian languages all form comparative constructions in which the standard noun phrase is constructed in the ablative case form, e.g. Tk. *bu araba-dan daha büyük* [this car-ABL more big] 'bigger than this car', OT *barča-da üzä-räk* [everything-ABL high-COMP] 'higher than anything else', Khal. *ene xun-ees iluu* [this person-ABL good] 'better than this person', MMo. *qola-sa qola* [far-ABL far] 'farther than far', Evk. *oron-duk gugda-tmar* [deer-ABL tall-COMP], Ma. *ere niyalma ci sain* [this person ABL good] 'better than this person', OJ *ware-yo₁ri mo₂ mantusi-ki₁ pi₁to₂* [I-ABL PT be.poor-ADN person] 'people poorer than me' and J *chikyu:-yori omoi* (globe-ABL be.heavy) 'heavier than the globe'. In literary Korean, the ablative marker *eyse* 'from' can be used in comparative constructions, e.g. K *i eyse te khu-n salang* [this ABL more be.big-ADN love] 'a greater love than this', but it is more common to use a comparative particle *pota* 'than', e.g. K *kicha pota ppaluta* [train PT be.fast] 'faster than a train', MK *nyey pwota thak.wel hota* [past PT superior be] 'superior to the past'. The Uralic languages differ from one another with regard to comparative constructions; languages to the west, such as Finnish and Hungarian, use more particle comparatives as in European languages, languages to the east, such as Nenets and Udmurt, mark the comparative standard with the ablative case ending, as in the Transeurasian languages. In Khanty, the marker of comparison is a postposition *niŋə* 'since, from', which has ablative-like semantics but differs from

the standard ablative case ending *-oɣ* or the ablative-elative ending *-i*. Yukaghir and Ket mark the comparative standard with the ablative case ending. In Nivkh, the comparative suffix *-yk* is traditionally considered a separate case form, as there is no evidence to relate it to the formally similar locative-ablative suffix *-(u)ɣe*; *-(u)x* (Gruzdeva p.c.). Ainu forms comparative constructions by means of the particle *kasuno* 'than'. In comparative constructions in Mandarin, the standard noun phrase is constructed as the direct object of a verb 'to exceed'. In Rukai, a comparative construction is formed through partial reduplication (CVV) of the descriptive verb stem. In Stassen's (2005c: 490–493) sample of 167 languages, 47% use locational comparatives, but the proportion of languages that specifically use the ablative case form to encode predicative comparison is logically expected to be lower.

6. Core-grammaticalizations

CS 18. Direct insubordination

The Transeurasian languages display a recurrent tendency to reanalyze non-finite suffixes as finite ones without the omission of a specific matrix predicate, a tendency which I call "direct insubordination" (Robbeets 2015, 2016). Comparative evidence indicates that these markers originated as deverbal noun suffixes, marking a derivational process at the lexical level, which were then extended to function as (ad)nominalizers in dependent clauses at the syntactic level, and eventually— through a pragmatic role in discourse—were extended still further to mark finite forms in independent clauses. For instance, deverbal noun suffixes such as OTk -*(A)r* in OTk. *tug-* 'to be born, to rise (of sun) (intr.)' → *tugar* 'sunrise, east'; MMo. -*m* in MMo. *quri-* 'to come together (intr.)' →*qurim* 'feast'; Ma. -*rA* in *mute-* 'to be able' → *mutere* 'ability'; MK -*(·u/o)m* in *yel-* 'to bear' → *yelum* 'fruit' and OJ -*sa* in *naga-* 'to be long' -> *nagasa* 'length' develop over intermediate stages of clausal nominalizers and relativizers into finite suffixes, as illustrated in examples (11) to (15).

(11) Old Turkic
     Ölüm-tä   *oz-upan*   *ögir-ä*   *savin-ü*   *yorï-**r**.*
     death-ABL   escape-CONV   rejoice-CONV be.happy-CONV go.on-**FIN**
     'Having been saved from death it happily goes on with its life.' (Erdal 2004: 325)

(12) Middle Mongolian
     Udurit-   *basu*   *ber*   *ulu busire-**m**.*
     guide-COND PT   NEG   believe-**FIN**
     'Even if you guide them, they don't believe.' (Weiers 1966: 144)

(13) Manchu
*Si   nene-me   isinji-ci   uthai   sin-de   bu-**re**.*
you be.first-CONV   come-CONV   at.once   you-DAT give-**FIN**
'If you come first, I shall give [it] to you straight away.' (Gorelova 2002: 256)

(14) Korean
*Onul-un swuep-i   eps-**um**.*
today-TOP   class-NOM   not.exist-**FIN**
'No class today.'

(15) Old Japanese
*Punapi₁to₂-wo   mi₁-ru-ga   to₂mo₂si-**sa**.*
boat.people-ACC   see-NML-GEN   be.enviable-**FIN**
'How enviable it is to see the boat-people!' (Wrona 2008: 206)

The Uralic languages also display a recurrent tendency toward direct insubordination. Deverbal noun suffixes such as proto-Uralic *-*k*, *-*pÄ*, *-*mə* and *-*śÄ* are thought to have developed into finite markers for present-day (*-*k,* *-*pÄ*) and past (*-*mə,* *-*śÄ*) tense, either in proto-Uralic or after the separation of the daughter languages (Collinder 1965: 110–115; Janhunen 1982: 36–37). Eastern Khanty preserves only a faint trace of this development since the finite form of the negative verb can be marked with the perfective participle *-əm*, as illustrated in example (16).

(16) Eastern Khanty
*Məta wajaɣ   lök   ənt-**im**.*
some animal   track   NEG-**FIN**
'There is not a single animal track.' (Filchenko 2007: 429)

In Nivkh the deverbal action noun and infinitive suffix *-ď* has developed into a finite form *-ď*, as illustrated in example (17). However, rather than being a case of "direct insubordination", Gruzdeva (2016: 196) attributes this development to the lexicalization of a modally marked form of the copular verb *ha-* 'do so'. When the modally marked copula was lexicalized into a modal particle, *-ď* was reanalyzed as a finite form.

(17) Nivkh
*If   hum-ď   hyjm-**ď**.*
he   live-NML   know-**FIN**
'He knows the living one/(his) life.' (Malchukov 2013: 200)

As in Nivkh, clausal nominalization in construction with a copula is the main source for developing new finite constructions in Yukaghir and Mandarin (Yap & Matthews 2008: 20, Malchukov 2013: 192–195). Ket displays yet another strategy for developing finite markers, namely to reduce the matrix predicate to an affix on the

former dependent verb (Malchukov 2013: 196–197). In Ainu, deverbal noun suffixes appear to function as both derivational suffixes and syntactic clausal nominalizers, but there is no indication that they have developed into finite endings. Ainu lacks other nonfinite markers such as participial or converb affixes that could be open to developing into finite markers. Similarly, Rukai does not exhibit traces of direct insubordination.

CS 19. Grammaticalization from negative verb to verbal negator over a construction comprising an inflected negative auxiliary and an invariant lexical verb

In Turkic, we find indications that the verbal negative suffix OT -*mA*- originated as an inflecting negative auxiliary verb plus an invariant derivationally complex lexical verb. These include the stem-internal position of negation in Turkic, sandwiched between derivation and inflection; the occurrence of the adnominal negative suffix OT -*mA-z*, which seems to have developed from an aorist -*r* in unaccented position; the observation that Chuvash *mar* acts as an independent negative verb, taking an nominal argument in petrified constructions such as (18); and the analysis of the Chuvash optative first person singular as an auxiliary negative form, whereby inflection has shifted to the lexical verb, e.g. *vula-m mar* [read-1SG NEG] 'I will not read'. In addition, we can find independent lexical cognates for pTk **ma*- 'not to exist' in the other Transeurasian languages (Robbeets 2015: 203–204).

(18)   Chuvash
     Epĕ   kil-melle   mar.
     I   come-DEB   NEG

     *Kel-me-lle   ma-r.
     come-NML-DIR   NEG-FIN
     'I don't have to come.'

This proto-typical Transeurasian grammaticalization cycle is more explicitly recoverable in the Tungusic languages; see examples (19) and (20). In (19a) Evenki *e*- is an independent negative verb 'not to exist, not to live'. In example (19b), the negative verb acts as a finite auxiliary to the lexical verb, which assumes an invariant adnominal form, and in (21c) the negation has shifted to a postposed position. The Nanai example in (20) represents the final stage of the negative cycle, i.e. fusion, whereby the auxiliary negative verb has assumed the status of derivational suffix on the lexical verb and its phonological form is reduced to lengthening of the stem-final vowel.

(19)   Evenki
       a.
       Esile   e-dyeli-m   tadu-gla.
       now   NEG-FUT-1SG   there-ENCL
       'Now I will not be (live) there.' (Nedjalkov 1994: 27)

       b.
       Nungan   nekun-mi   e-ce-n
       he   younger.brother-POSS.REFL   NEG-PST-3SG
       suru-v-re.
       go.away-CAUS-ADN
       'He did not lead his younger brother away.' (Nedjalkov 1994: 11)

       c.
       Nungan   songo-ro   e-ce-n.
       he   cry-ADN   NEG-PST-3SG
       'He did not cry [—what's the use of crying?].' (Nedjalkov 1994: 8)

(20)   Nanai
       Xola:-ci-si.
       read.NEG-PST-2SG
       'You didn't read.'

Similarly, Middle Mongolian *ese-* acts as an independent negative verb, meaning 'not to be, not to exist' inflected with past *-be* in (21a), but gradually the negative auxiliary came to be used as an invariant form, transferring its entire inflection to the lexical verb; e.g. the past marker *-be* is attached to *ire-* 'to come' in example (21b).

(21)   Written Mongolian
       a.
       Ükü-be-üü   ese-be-üü.
       die-PST-INTER   NEG-PST-INTER
       'Did [he] die or did [he] not?' (Poppe 1954: 175)

       b.
       Manu   baɣši   ese   ire-be.
       our   teacher NEG   come-PST
       'Our teacher did not come.' (Poppe 1954: 175)

Old and Contemporary Japanese use an independent negative existential adjective *na-* 'to be non-existent, not to exist', which is thought to derive from the same origin as the Old Japanese negative suffix *-(a)n-*. The Korean verbal negator MK *a·ni*, K *an(i)* can also be derived from an original negative verb **an-* and the suffix MK *-i* that derives both nouns and adverbs from verbs (Robbeets 2014).

Similar to the Transeurasian languages, one of the characteristics of the Uralic languages is the expression of negation by means of a construction comprising a fully inflected negative auxiliary and a largely invariant lexical verb (Comrie 1981; Janhunen 1982: 37; Payne 1985: 215–221; Honti 1997; Suihkonen 2002: 173). In the case of the Khanty negative particles *əntə*, the negative auxiliary has become totally free of inflections and turned into an invariant verbal negator, which recalls the situation in Mongolic in (22b). However, there are no examples in Uralic in which the negative auxiliary ultimately becomes a suffix, as it does in Turkic, Tungusic and Japanese. In Yukaghir there are no language-internal indications that the proclitic clausal negation *el-* originated in a negative verb or auxiliary. For Nivkh and Chinese, we find indications that the verbal negator originated as an independent verb, but this did not follow the same pathway, through a construction comprising a fully inflected negative auxiliary and a largely invariant lexical verb. For Khanty, Nivkh and Chinese, we find indications that the verbal negator originated as an independent verb, but only in Uralic did this happen along the same pathway, through a construction comprising a fully inflected negative auxiliary and a largely invariant lexical verb. Ainu uses a negative particle that precedes the verb and cannot be derived from a verb. Neither are there indications that the Ket negative particle *bə:n* or the Rukai negative suffix *-ka* originated from a negative verb. Worldwide, the expression of negation via negative auxiliaries is a minor type to begin with, being found in only 40 (17%) out of 240 languages in Dahl's (1979) sample, which is areally biased towards Uralic and Altaic languages, in 45 (4%) out of 1011 languages in Dryer's (2005b) sample, and in 16 (5%) out of the 297 languages in Miestamo's (2005) sample. As a consequence, the particular development of negative verbs to auxiliaries to particles or suffixes is even rarer.

CS 20. Grammaticalization of plural/collective markers to express inclusive/ exclusive distinction on first person pronoun

With regard to the hypothesis of Transeurasian relatedness, Johanson (2002: 154) notes that "an inclusive vs. exclusive distinction might have belonged to the old affinities. ... In the Turkic languages still containing traces of the distinction, as we have seen, it can hardly be considered a result of contact-induced copying". In my view, this argument becomes even stronger in the light of a particular grammaticalization pattern shared across the Transeurasian languages, by which plural and collective suffixes on the first person pronoun grammaticalize into an inclusive/exclusive distinction. Among the Turkic languages, there are no unique pronominal forms that distinguish inclusive from exclusive person forms, although traces of the distinction remain in the imperative paradigms of Yakut, Tofa, Tuvan, Turkmen, Khakas, Shor, Altay and Chulym (Schönig 1987, Nevskaya 2010: 122). Nevertheless, Old Turkic and most currently spoken varieties of Turkic distinguish between a first person plural (Tk./OT *biz* 'we') and an augmented plural form (Tk./OT *biz-ler* 'we (as a group)'). Nevskaya (2010: 124) argues for a collective interpretation of the

augmented plural, denoting "an isolated group of people who want to oppose them-selves to the others", rather than an inclusive interpretation as suggested by Grön-bech (1936: 81). However, the collective interpretation seems to be an intermediate stage on the way from augmented plural to inclusive/exclusive distinction, because in the imperative paradigms of Khakas, Shor, Altay and Chulym, the inclusive is de-rived from the first plural marker augmented with the plural marker -LAr. As the person endings on verbs have grammaticalized from original person pronouns, it seems safe to assume that the augmented plural first person markers developed into inclusive markers at some stage in pre-Old Turkic.

The Middle Mongolian distinction between exclusive *ba* and inclusive *bida* is formally preserved in the Khalka oblique paradigm in the variation between formal-ly exclusive *man-* and formally inclusive *bidn-*, but the functional distinction has been lost. Etymologically, the Middle Mongolian inclusive *bida*, reflected in the Khalkha formally inclusive oblique *bidn-*, derives from the first person singular MMo. *bi* 'I' and a plural suffix -*dA*, which also occurs in the plural demonstratives pronouns MMo. *e-de* 'these' vs. *te-de* 'those' (Doerfer 1985: 2; Domii 2006; Nev-skaya 2010: 119).[4] Domii argues that originally *ba* and *bi-da* complemented each other as plural pronouns, and that the distinction between exclusive and inclusive meaning was a secondary development.

In the Tungusic languages, the inclusive-exclusive opposition is generally well preserved, e.g. exclusive Ma. *be*, Evk. *bu* vs. inclusive Ma. *muse*, Evk. *mut ~ mit*.

The Tungusic exclusives Evk. *bu* and Ma. *be* can be derived from the first person plural pTg *bö* and an augmented plural *bö-(x)e*, respectively (Doerfer 1978: 81–83, 95–96; Janhunen 2013: 217), whereas the inclusive Evk. *mut ~ mit* may go back to pTg *bö* plus the collective suffix pTg *-ti* (Benzing 1955: 1020), and the inclu-sive Ma. *muse* may be an extension of this root with the collective suffix -*sA* (Ben-zing 1955: 1017–1018).

Similar to the Turkic languages, Middle and Contemporary Korean distinguish between a first person plural (K/MK *wuli* 'we') and an augmented plural form (K *wuli-tul*, MK *wuli-tolh* 'we (as a group)') in which K *tul*, MK *·tolh* is a collective marker. A similar tendency can be found in the history of Japanese, where the first person singular/plural OJ *wa-* 'I, we' coexists with the same form augmented by a collective marker OJ *wa-re* 'we', a form which in its turn was later augmented into *ware-ra* 'we'. Like contemporary Japanese, Old Japanese lacks a real inclusive-ex-clusive distinction, but the distinction is well preserved in the Ryukyuan languages; for example, in Kikai (Amami), Sesoko (Okinawa), Ikema (Miyako), Irabu (Mi-yako), Tarama (Miyako), Hateruma (Yaeyama), and Yonaguni (Yaeyama) (Shimoji 2014). In most cases the exclusive can be derived from the first person singular plus a plural suffix, while the inclusive is based on the same form plus a collective suffix,

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4 An alternative analysis, deriving the inclusive MMo *bida* from the first singular pronoun *bi* 'I' plus the second plural pronoun *ta* 'you (many)' is proposed by Janhunen (2013: 215), but the voicing of the medial dental stop would represent an irregular development.

e.g. the Kikai exclusive suffix *-naa* is also used as a plural suffix in the second and third person plural pronouns, while the inclusive suffix *-tjaa* is also used as a collective suffix on human nouns. Therefore, it seems sensible to assume a recurrent tendency whereby plural and collective pronouns grammaticalized into an inclusive-exclusive distinction in proto-Japonic.

As is the case in many Uralic languages, Khanty marks a dual distinction, but not an inclusive-exclusive distinction, on its person pronouns. While Ket and Yukaghir lack the distinction, Nivkh distinguishes between exclusive *n'yŋ* and inclusive *mer* ~ *mir*, and Ainu between exclusive *cóka* and inclusive *aoka,* but there is no indication that the distinction derives from augmented plural or collective marking.[5]

The inclusive-exclusive distinction found in the first person plural pronouns between exclusive *wǒmen* and inclusive *zánmen* 'we' of Beijing and certain other northern Chinese dialects may be due Transeurasian influence. Such a distinction was not found in Old Chinese, and it began to appear in North China during the period of Altaic rule. It is significant in this regard that both Middle Mongolian, spoken under the Yuan dynasty, and Manchu, spoken under the Qing dynasty, distinguish exclusive and inclusive forms. Rukai distinguishes exclusive *-nai* ~ *nai-* [NOM] from inclusive *-mita* ~ *ta-* [NOM], a feature characteristic of Austronesian languages, but the forms in Rukai are not derivable from each other. In Cysouw's (2005: 166–167) sample of 200 languages, 31% differentiate inclusive and exclusive in independent pronouns. Therefore, the percentage of languages that developed the distinction from plural/collective marking on first person pronouns will logically be much smaller.

7. How to explain the Transeurasian core structures in Turkic

Table 1 lists the languages under discussion as horizontal comparison points and the 20 selected core structures as vertical comparison points. The presence of a given feature is indicated with plus (+), absence with minus (-) and uncertainty with (+/-). In the final row, the number of plus values are added up and the percentage of core structures present in a particular language is calculated.

Table 1: Feature values for selected Transeurasian languages along with their historical stages and representative neighboring languages

Frequency world-wide	CS	Tk	(pre-) OT	Khal	(pre-)MMo	Evk	(pre-)Ma	K	(pre-)MK	J	(pre-)OJ	Khan	Ket	Yuk	Niv	Ain	Ch	Ruk
< 10%	01	-	-	+	+	+	+	-	+	-	+/-	-	-	+	+	+/-	-	-
< 30%	02	+	+	+	+	+	+	+	+	+	+	-	-	+	-	-	-	-
35%	03	+	+	+	+	-	+	+	+	+	+	+	+	+	-	+	+	-

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5   In Robbeets (2017), I mistakenly analyzed Ainu as lacking an inclusive-exclusive distinction on first person plural pronoun.

61%	04	+	+	+	+	+	+	-	-	+	-	-	+	+	-	-	-	+
45%	05	+	+/-	+	+/-	-	+/-	+	+/-	+	+/-	-	-	-	-	-	-	-
54%	06	-	+	+	+	+	+	-	-	-	+	+	-	-	-	-	+	-
< 27%	07	-	+	-	+	-	+	-	+	-	+	-	-	-	-	-	-	-
	08	+	+	+	+	+	-	-	-	-	-	-	-	-	-	-	-	-
43%	09	+	+	+	+	+	+	+	+	+	+	+	-	+	-	-	-	-
80%	10	+	+	+	+	+	+	+	+	-	+	+	+	+	-	-	-	+
< 13%	11	-	+	+	+	+	+	-	-	-	-	-	-	+	-	-	-	-
	12	-	+	+	+	+	+	-	-	-	+	+	-	-	-	-	-	-
27%	13	+	+	+	+	+	+	+	+	+	+	+	-	+	-	-	+	-
42%	14	-	-	+	+	-	+	+	+	+	+	-	-	+	-	-	+	-
	15	+	+	+	+	+	+	+	+	+	+	-	-	+	+	-	-	-
20%	16	+	+	+	+	+	+	+	+	+	+	-	+	-	+	-	-	+
< 47%	17	+	+	+	+	+	+	+	-	+	+	-	+	+	-	-	-	-
	18	+	+	+	+	+	+	+	+	+	+	+	-	-	-	-	-	-
	19	+	+	+	+	+	+	+	+	+	+	+	-	-	-	-	-	-
	20	-	+	+	+	+	+	-	-	-	+	-	-	-	-	-	-	-
	+	13	18	19	20	16	19	12	13	12	17	8	5	11	3	2	4	3
	%	65	90	95	100	80	95	60	65	60	85	40	25	55	15	10	20	15

7.1. Turkic in the middle

In accordance with the definition given in the introduction, the 20 feature values listed in Table 1 can be regarded as "core structures" because they represent a concentration of proto-typical linguistic features that delimit the Transeurasian languages from their neighbors. This is clear from the fact that 60% or more of the structures are represented in the Transeurasian languages compared to 55% and less in the neighboring languages. Although Khanty (40%) and the Uralic languages in general show more typological similarity with the Transeurasian core structures than do other neighboring languages, it is still possible to delimit the Transeurasian languages in relation to their Uralic neighbors. This seems to contradict Janhunen's statement quoted in the introduction.

Among the core structures that enable us to delimit the Transeurasian languages in relation to their Uralic neighbors are CS 1 presence of tongue root vowel harmony in Transeurasian vs. palatal harmony in Uralic; CS 4 presence of voicing distinction for stops vs. original singleton-geminate distinction in Uralic; CS 5 preference for non-verbal strategy for (extra-family) verbal copies vs. direct insertion in Uralic; CS 7 mixed and switched encoding of property words in Transeurasian vs. mixed and switched encoding of property words in Transeurasian vs. nominal

occur in less than half but more than a third of the languages worldwide. Six features are relatively uncommon in the sense that they occur in less than a third of the languages worldwide (e.g. CS 1, 2, 7, 11, 13, 16). Only 3 out of 20 (15%) of the core structures are common in the sense that they occur in more than half of the languages worldwide.

7.3. Eliminating code-copying

Johanson (2002: 148) aptly remarks that: "typological parallelisms do not necessarily imply genetic relationship .... If, for instance, Japanese and Korean ... are very similar today and exhibit typically "Ural-Altaic" syntactic features, this might be the result of early continental contacts between them as well as interactions with older forms of Tungusic and Mongolic (perhaps also Gilyak)". Indeed, the affiliation of the Transeurasian languages remains a subject of debate, but even critics such as Janhunen (1996: 220) would agree that before the first millennium B.C. the homelands of the individual language families concerned were concentrated in a compact area in southern Manchuria, adjacent to the homelands of Nivkh (Amuric) and Sinitic speakers. This geographical situation provided an opportunity for prehistorical contact. Although some of the core structures discussed here, such as CS 8, partial emphatic reduplication of nominal property words, and CS 11, presence of *mi-Ti* opposition in first vs. second singular person pronouns are almost certainly contact-induced, others appear to be the residue of common ancestral structures, as suggested by the following observations.

1. Geography: Isolated position of Japanese

Although the Sea of Japan and the Tsushima Strait form a strong geographical boundary separating Japanese from the other Transeurasian languages, Japanese is typologically closer to the Transeurasian languages than less geographically isolated languages such as Ket, Yukaghir, Nivkh and Chinese. Even if we assume that Japonic was once present on the continent, this indicates that the Transeurasian characteristics in Japonic did not exclusively arise through code-copying because Ket, Yukaghir, Nivkh and Chinese were also present in the region.

2. History: Core structures decrease with contact over time

The typological coherence seems to be greater for historical than for contemporary stages of the languages investigated: 90% in (pre-)Old Turkic vs. 65% in Turkish, 100% in (pre-)Middle Mongolian vs. 95% in Khalkha, 95% in (pre-)Manchu vs. 80% in Evenki, 65% in (pre-)Middle Korean vs. 60% in Korean, and 85% in (pre-) Old Japanese vs. 60% in Japanese. Therefore, it is fair to say that Transeurasian core-structures have decreased over the last millennium, mainly at the peripheries, under the influence of Chinese, Siberian or Uralic features.

3. Distribution: Increase of features in Japanese

With 85% of the core structures reflected, Old Japanese is closer to the proto-type than Middle Korean, with 65% structural uniformity. Within a scenario of gradual diffusion of features, we would expect the positive values in Japanese to be lower than in Korean. It is further difficult to explain how some Transeurasian features, such as the nasal oblique pronominal stems in CS 12 could show a gap in Korean, the nasal suffix having diffused into Japanese without a Korean intermediary.

4. Areal dominance: core structures borrowed into other families

In his description of core structures of Turkic, Johanson (2015: 586–587) notices that "these specific core structures have turned out to be dominant in all the numerous family-external contact situations without being overruled by copying. They have all maintained a high genealogical stability and resisted areal influence". Interestingly, some of the Transeurasian core structures discussed here have left a clear mark on the linguistic structure of surrounding language families, such as Sinitic. Examples include CS 6, the development of a two-way distinction in demonstratives as compared to the three way-distinction in Classical Chinese; CS 9, the weak suffixing tendency of Mandarin as opposed to other Sinitic languages; and CS 20, the development of an inclusive-exclusive distinction in first person plural pronouns in Beijing and certain other northern Chinese dialects, which was not found in Old Chinese.

5. Core dynamics: Core structures renewed by new morphological means

Johanson (2015: 588) also points out that "the stable place occupied by the aspect-tense categories in the structure of Turkic is also proven by the typical tendency to renew them by new morphological means". The last three core features involve shared patterns of grammaticalization. They are particularly good candidates for being inherited because they appear recurrently in different forms and at various chronological stages of the same language. Aikhenvald (2013) characterized contact-induced grammaticalization as "change against the grain" or atypical grammaticalization, while she regarded genealogically motivated grammaticalization as "change that reinforces similarities" because it tends to maintain uniformity between related languages. Given that languages tend to renew their formal encodings in cyclic processes of grammaticalization while maintaining their inherited grammatical categories, new forms are thus expected to grammaticalize along shared conceptual pathways to restore old categories (Heath 1998: 729, Robbeets 2013). Consequently, genealogically motivated grammaticalization is expected to recur on different formal encodings at various points in time, while contact-induced grammaticalization is expected to be restricted to a single formal encoding (or to a very limited number of encodings) during a certain period of contact. The repeated waves of grammaticalization and replacement involved in features 18 to 20 imply that the parallel patterns are genealogically motivated.

6. Isomorphism: core structures combine with formal correspondences

The observation that some core structures shared among the Transeurasian languages combine with a formal correspondence of the marker reflecting the particular feature is also indicative of genealogical retention. This is for instance the case for CS 5, the non-verbal strategy of verbal borrowing employing a deverbal noun suffix of the common shape *-lA- (Tk. -lA-, Khal. -l-, Ud. -lA-, J -r(a)-) to accommodate verbal borrowings (Robbeets 2015); CS 12, the formation of a secondary oblique stem of personal pronouns through a common suffix *-n- in all Transeurasian languages except Korean; and in CS 18 to 20, the grammaticalizations of finiteness, negation and inclusive-exclusive distinctions (Robbeets 2014, 2016). In such cases, the core structure is likely to be genealogically motivated.

8. Conclusion

As an attempt to answer Johanson's 2015 open question about the Transeurasian origin of certain core structures in Turkic, I delimited a number of core structures shared by the Transeurasian languages and focused on how these are reflected in the Turkic languages. My study shows that the cluster of core structures in Transeurasian is clearly delimited in relation to its neighbors to the west (Uralic), the north (Yeniseic, Yukaghiric), the east (Nivkh, Ainu) and to the south (Sinitic, Austronesian). Although my observations are in line with Janhunen's findings about a certain internal uniformity within the larger Ural-Altaic belt, they contradict his claim that there are no typological features that would be specific only to "Altaic" independent from Uralic. My research indicates that Turkic typically behaves as a language of the Transeurasian type, but deviates form the prototype under the influence of Uralic.

Admitting that many features shared between Turkic and the other Transeurasian languages ought to be a result of code-copying, my study further suggests that it is more parsimonious to attribute the majority of core structures discussed here to inheritance than to code-copying. The structural evidence advanced in this paper thus complements the evidence in support of Transeurasian genealogical continuity, which I proposed earlier on the basis of lexical and morphological comparison (Robbeets 2005, 2015). As a result, I believe in response to Johanson's question "Are the core structures of Turkic common Transeurasian structures?" it is legitimate to answer "partly yes".

Abbreviations

Linguistic forms

ABL	ablative		INTER	interrogative
ACC	accusative		LOC	locative
ADD	additive		NEG	negative
ADN	adnominalizer		NML	nominalizer
CAUS	causative		NOM	nominative

CLASS	classifier	NPST	non-past
COM	comitative	OBL	oblique
COMP	comparative	PF	perfect
CONV	converb	PFV	perfective
COND	conditional	PL	plural
CS	core structure	POL	polite
DIR	directive	POSS	possessive
DAT	dative	PROC	processive
DUR	durative	PST	past
ENCL	enclitic	PT	particle
FIN	finite	REFL	reflexive
FUT	future	SG	singular
GEN	genitive	TOP	topic
HON	honorific	→	derivation
INCH	inchoative	>>	copy

Languages

Ain.	Ainu	Niv	Nivkh
Ch.	Mandarin Chinese	WMo.	Written Mongolian
Evk.	Evenki	OJ	Old Japanese
J	Japanese	OT	Old Turkic
K	Korean	pJ	proto-Japonic
Khal.	Khalkha	pK	proto-Koreanic
Khan.	Khanty	pMo	proto-Mongolic
Ket	Ket	pTg	proto-Tungusic
Ma.	Manchu	pTk	proto-Turkic
MK	Middle Korean	Ruk.	Mantauran Rukai
MMo.	Middle Mongolian	Yuk.	Yukaghir

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