

Ket (Yeniseian)

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The Siberian microfamily Yeniseian contains the extinct Yugh, Arin, Pumpokol, Assan, and Kott (Werner 2005), as well as the severely endangered Ket language, spoken fluently by no more than a few dozen elders in isolated villages near the Yenisei River. The family's two best attested primary branches, Ket-Yugh and Kott-Assan, are fairly closely related and probably separated no earlier than 2500 years ago. The scantily attested Arin and Pumpokol may also have been primary branches, though a few features of Arin verb structure appear to be innovations shared with Ket-Yugh. Yeniseian grammatical morphology consists of possessive prefixes and case suffixes on nouns, postpositions joined to nouns by possessive morphology, and a strongly prefixing finite verb that differs

strikingly from all other word types, except insofar as infinitives (action nominals) are derived from it. Morphologically complex noun stems are built mainly through root compounding, but also involve a few extremely productive derivational suffixes. Finite verb morphology is templatic and largely prefixing, with lexical and grammatical morphemes intertwined in linearly complex patterns. Ket, with three surviving dialectal forms¹, is the family's best-described member (Werner 1997c, Vajda 2004, Georg 2006). Yugh died out in the 1970s and was also well documented (Werner 1997b). Kott was last described in the 1840s on the eve of its extinction but was much better recorded than the other extinct southern languages (Castrén 1858, Werner 1997a, Werner 2005).

Phonemic tones, possessive prefixes, and a templatic prefixing verb are Yeniseian typological features that differ starkly from other North Asian families (Vajda 2007). Morphological and lexical evidence supports a distant genealogical connection with the Na-Dene family of northwestern North America (Vajda 2011).

¹ Examples are Southern Ket except where otherwise noted. The Northern, Central, and Southern Ket dialects differ in some aspects of phonology and vocabulary and are mutually intelligible.

1 The typology of Yeniseian word formation

The Yeniseian lexicon can be divided into three basic morphosyntactic classes: nouns, modifiers, and finite verbs. Nouns (defined as forms capable of taking possessive prefixes and case suffixes) are morphologically of three types. Many basic nouns are non-derived monosyllables such as *kε't* ‘person’, *ām* ‘mother’, *tīk* ‘snow’, *kùn* ‘wolverine’, *sul* ‘sled’, *sē's* river, *qɔ'n* ‘conifer branch’, *dīk* ‘resin’, *qu'j* ‘birchbark’². Other noun stems contain what could be described as prefixes or suffixes, though nearly all such nominal affixes appear to have originated from compounded noun roots. The suffix *-kit* (< *kλ'd* ‘offspring’) derives nouns denoting immature trees, fish or animals: *bε's* ‘rabbit’ > *bεskit* ‘baby rabbit’, *qūr* ‘pike (fish)’ > *qurgit* ‘immature pike’, *uul* ‘aspen’ > *uulgit*

² Southern Ket monosyllables have four phonemic tones: \bar{v} - high-even tone on a half-long vowel; v' - abrupt rising tone on a short vowel ending in laryngealization or optionally with a glottal stop; v - rising-falling tone on a geminate vowel; \hat{v} falling tone on a short vowel (Yugh has a long pharyngealized vowel in falling tone words: \hat{v}^h). There are seven vowel phonemes: i , ϵ , a , ɔ , Λ , u , u . The vowel u , often transcribed by Ketologists as i , is a high back unrounded vowel (the phonetic equivalent of \ddot{i} in Turkological transcriptions). The mid-vowels ϵ , ɔ , Λ have raised allophones under high-even tone: $\bar{\epsilon}$, $\bar{\text{ɔ}}$, $\bar{\Lambda}$. The vowel phoneme $\text{ɤ} \sim \Lambda$ has often been transcribed as ə though it is mid-back rather than mid-central. Ket multisyllabic words usually have a rising-tone peak on the first syllable, less often on the second – both tending to become non-tonal word stress in connected speech (see Vajda 2004, Georg 2006).

‘aspen sapling’. The singulative suffix *-dis* (< *dēs* ‘eye’) derives count nouns denoting a small, individuated portion of a larger pourable mass: *imdis* ‘single pine nut’, *qondis* ‘glass bead’, *uldis* ‘water droplet’ (< *īm* ‘pine nuts’, *qōn* ‘beads’, *ūl* ‘rain, water, liquid’). Less easily to detect as an underlying root is the suffix **p^hul* ‘growth, mass, accumulation’, found in Ket and Yugh as the second element in a number of count nouns: Ket *aspul*, Yugh *asful* ‘cloud’ (< **ēs* ‘sky’ + **p^hul* ‘mass’), Ket *nanul* ~ *nanl*, Yugh *n^hen^hful* ‘bun, roll’ (< **n^ha^hn^h* ‘bread’ + **p^hul* ‘mass’). This element is not found as a free root in Ket or Yugh, yet has a cognate in the Kott verb root *-fel* ‘grow’. The feminine derivational suffix *-a* found in Kott and Ket-Yugh, which would appear to be a purely derivational element, probably originated from parallel borrowing of the Russian feminine-gender inflection *-a*. Rather than shared between Ket-Kott cognates, it appears in different lexemes, such as Kott *d’äle-a* ‘girl’ (< *d’äle* ‘child’) or Ket *Sala*, a female personal name derived from the male name *Sa’l* meaning ‘sharp edge’.

Many Arin loanwords end in the syllable *-ok* (Werner 2005:149), which resembles the Russian diminutive suffix *-ok* that may have spread analogically to mark all loan vocabulary: Arin *gorox-ok* ‘peas’, *kuris-ok* ‘hen’ (< Russian *gorox* ~

gorošek ‘peas’, *kuritsa* ‘chicken’), also Arin *kajak-ok* ‘butter’, *altin-ok* ‘gold’, *kumiš-ok* ‘silver’ (cf. Old Turkic *kanak* ‘clotted cream’, *altın* ‘gold’, *kümüš* ‘silver’).

The fact that most Ket noun affixes retain an etymological connection to noun roots suggests that even nouns built through productive derivational processes originated as root compounds structured semantically as modifier + head. One particularly clear example is *-oks* (< *ōks* ‘tree, stick’), a suffix found in many nouns expressing long wooden objects: *bejoks* ‘(ship’s) mast’ (*bēj* ‘wind’), *tunteroks* ‘stick used to hang a kettle over the fire’ (*tu’n* ‘kettle’, *təd* ‘across’). Another is *-am* (< *qim* ‘woman’) in *ennam* ‘daughter-in-law’, *qannam* ‘tsarina’, *jukkam* ‘Yugh woman’ (cf. *èn* ‘son-in-law’, *qān* ‘khan, tsar’, *jūy* ‘Yugh person’). Yet another is the generic body-part suffix *-at* (< *a’d* ‘bone’): *kil-at* ‘hip, thigh’, *laŋ-at* ‘hand’, *ul-at* ‘rib’, *qov-at* ‘back’ (apparently found also in Kott *ul-aj* ‘rib’, *hap-ar* ‘back’). Overall, there are about a dozen noun-deriving suffixes of this sort, which Werner (1997c:50-54) aptly calls ‘half-affixes’ to underscore their transitional nature between compounded root and derivational affix. A few serve as the first, or modifying element of the compound: *haŋrip* ‘female dog’,

haŋrit ‘female spruce grouse’ (< *hàŋ* ‘female animal’ + *tīp* ‘dog’, *dīt* ‘spruce grouse’); *uktip* ‘male dog’, *ugdit* ‘male spruce grouse’ (< *uʔk* ‘male animal’).

Among noun-deriving elements, only the extremely productive nominalizer Ket *-s*, Yugh *-su*, Kott *-še* does not seem to derive from an earlier noun root (its origin is unclear). It creates a large, in fact potentially open-ended, number of nominalizations (discussed in 2 below). The remaining Ket nouns are root compounds based, with varying degrees of transparency, on the same model of modifier + head described above in connection with the Ket-Yugh half affixes: *higdul* ‘boy’ (*hīγ* ‘male’, *dūʔl* ‘child’), *untip* ‘puppy’ (*hʌna* ‘little’, *tīp* ‘dog’), *kanqo* ‘Venus’ (*κʌʔn* ‘bright’, *qəχ* ‘star’), *ēγ sul* ‘automobile’ (*ē* ‘iron’, *sul* ‘sled’). Certain possessive constructions have become lexicalized as nouns: *destuj* ‘eyeball’ (lit. ‘eye’s belly’ < *dēs* ‘eye’ + *di* ‘inan.-class poss.’ + *hūj* ‘belly’); *destqar* ‘eyebrow’ (lit. ‘eye’s fur’ < *dēs* ‘eye’ + *di* ‘inan.-class poss.’ + *qār* ‘fur’); *mɔrat bōʔk* ‘aurora borealis, northern lights’ (lit. ‘sea’s fire’ < *mɔra* ‘sea’ + *di* ‘inan.-class poss.’ + *bōʔk* ‘fire’), *ekkanna qəʔt* ~ *aqqot* ‘rainbow’ (lit. ‘path of thunders’ < *ekŋan* ‘thunders’ + *na* ‘animate-class plural poss.’ + *qəʔt* ‘path’). Modifier + head compounds, including half affixes and lexicalized

possessive constructions, when considered together with nouns derived by nominalizing *-s*, account for nearly all morphologically complex noun stems.

Modifiers include adjectives, adverbs, numerals, as well as infinitive forms (to be discussed in 4 below). As a morphological category, modifiers can be defined as any content word that is not a finite verb and which cannot take inflectional suffixes without first being nominalized by the universal nominalizer *-s*. Modifiers used predicatively normally take subject agreement suffixes, whereas nouns do not: *ā't ōp* 'I am a father' (I + father), but *ā't aqta-di* 'I am good' (I + good-1SG.PRED.AGR.), *ā't kisεŋ-di* 'I am here' (I + here-1SG.PRED.AGR.). Adjectives may be simple roots (*ki* 'new', *aqta* 'good', *sē'l* 'bad') or contain a fossilized adjective suffix *-aŋ*, as in *hilaŋ* 'sweet' < *hi'l* 'birch sap' + *aŋ* (adj. suff.). This suffix may have been more widespread in the past, as a couple dozen Ket adjectives seem to have reanalyzed *-aŋ* as the homophonous nominal plural marker, so that it has come to be used in conjunction with plural nouns, while elsewhere disappearing or reducing to falling tone (less often to another tone): *qà* ~ *qàŋ* 'big'; *bɔ'l* ~ *bɔlaŋ* 'fat', *ugdε* ~ *ugdεŋ* 'long'. This reanalysis explains an otherwise idiosyncratic feature in a strongly head-marking

language like Ket (Vajda, in press)³. Denominal adjectives conveying the underlying noun's presence or quality are productively formed by suffix Ket *-tu*, Yugh *-čouŋ* (the latter probably retaining the original adjective suffix **-əŋ*): Ket *qim-tu*, Yugh *χem-čouŋ* 'with a wife, married (said of a man)'; Ket *sul-tu*, Yugh *sur-čouŋ* 'bloody'; Ket *tas-tu*, Yugh *čas-čouŋ* 'stony, full of rocks'.

Some adverbs also consist of what appears to be a simple root (*i'n* 'for a long time', *ən* 'many'). Temporal nouns can function as adverbs of duration without morphological modification (*sī* 'night', 'at night'; *qɔgdi* 'fall, autumn', 'in the fall'). Adverbial suffixes include **-p^ha*, added to numerals to denote number of repetitions: Ket *una*, Yugh *unfa* 'twice'; Ket *doŋa*, Yugh *doŋfa* 'thrice'. There is also the distributive suffix Ket *-sa*, Yugh *-so* 'each, 'every', probably derived from the Proto-Yeniseian root **suk* 'back, return': Ket *qonoks-sa* 'every morning', *bis-sa* 'every evening', *is-sa* 'every day', Yugh *ì^h-sɔ* 'daily'. Many nouns with relational suffixes such as the caritive suffix *-an*, which denotes absence, serve either as adjectival modifiers (*qim-an ke't* 'bachelor', lit., 'wife-less man') or verbal

³ Vajda (2004:80), following earlier Ketologists, described this suffix as a plural agreement marker, additionally suggesting it might mark 'tangible physical qualities'. Reanalysis of an original adjective suffix that elsewhere tended to erode is a more likely explanation.

complements (*qim-an duyaraq* ‘he lives without a wife’, lit., ‘wife-without he lives’). In this way, the numerous relational morphemes postposed to nouns (case endings and postpositions) fulfill the derivational function of creating modifiers by negating the noun’s syntactic head status (Vajda 2008). Many adverbs derive in this way. The prosecutive suffix *-bes*, meaning ‘passing by, along, through’, is added to plural nouns of nationality such as *ɔstuyan* ‘Ket people’ (< *ɔstuk* ‘Ket (Ostyak) person’) to denote communication in a language: *ɔstuyan-bes* ‘in Ket’, *kusn-bes* ‘in Russian’, *layʌn-bes* ‘in Selkup’, *hʌmban-bes* ‘in Ewenki’, etc.

Finite verbs differ morphologically from nouns and modifiers in being formed on the basis of a complex position class template. Templatic interrelationships between different verb stem patterns in Modern Ket are discussed in 3 below. Every conjugated verb form is polymorphemic and some fill as many as eight distinct affixal slots. The verb morphology of Yugh and Kott is similar, except that Kott innovated a new subject agreement suffix position at the very end of the verb. Because subject markers appear in most conjugated verbs, Kott superficially appears more strongly suffixing than it actually is. In

fact, Kott inherited seven prefixal positions from Proto-Yeniseian – positions likewise inherited by Ket-Yugh as slots P7–P1 in the model shown in (3) below.

So few Arin and Pumpokol verb forms were recorded that the relative prevalence of prefixing vs. suffixing in these languages is difficult to assess. At least some Arin verb forms (*ba-x-a-tum* ‘I go’) show prefixal strings that are clearly homologous with those of Ket (*bɔ-y-a-tɨ* ‘I go’) and Yugh (*bɔ-a-de* ‘I go’) – all presumably from Proto-Yeniseian or Proto-Ket-Yugh-Arin **ba-g-a-den^j* 1SG.SBJ-away-PRES-go.

Affixation or cliticization⁴ in Yeniseian is predominantly inflectional. Both types of syntactic heads – nouns and finite verbs – take many inflections and other bound relational morphemes. Nominal forms permit only a single possessive prefix (actually a clitic), but may take a concatenation of plural, case, and postpositional suffixal elements. The complex denominal modifier in (1) contains the postposition *bal* ‘between, among’, which arose through grammaticalization of an earlier noun root meaning ‘gap, space’ attached to the preceding noun by the use of possessive morphology. Postpositional

⁴ Vajda (2008) argues that most nominal inflections are actually clitics rather than affixes.

constructions are completed by a case marker such as the possessive + ablative combination *-di-ŋal* used in (1a) to signify ‘from’, or locative *-ka* used in (1b) to signify stationary location⁵:

(1) a. *da-huɓ-aŋ-na-bal-di-ŋal*

FEM.SG.POSS-son-PL-ANIM.POSS.PL-between-INAN.POSS-ABL

‘from between her sons’ (literally, ‘her-sons’-gap-’s-from’)

b. *b-huɓ-aŋ-na-bal-ga*

1SG.POSS-son-PL-ANIM.POSS.PL-between-LOC

‘located between my sons’ (literally, ‘her-sons’-gap-in’)

Finite verb stems, in contrast to the other form classes, are constructed based on a templatic arrangement in which the derivational and inflectional material is syntagmatically interdigitated, creating a complex morphological

⁵ Three case endings (ablative, dative, adessive) require a possessive connector, while the others (locative, prosecutive, instrumental, caritive) do not. The reason for this pattern is inexplicable from the semantics and phonology of the modern language. Denominal postpositions (like *bal* ‘between’ < ‘gap’) also require a possessive connector. See Vajda (2008).

string that contrasts sharply with nominal morphology (see 3 below).

Incorporation (technically a type of compounding) is restricted to a few verb stems, while noun stem formation is frequently based on modifier + head compounds. The example in (2) shows a verb with an incorporated noun object:

(2) k-ul-a-dɔp-in

2SBJ-water-PRES-drink-ANIM.PL.SBJ

‘you (PL) drink water’

Only a few basic verb roots permit object incorporation; the majority of transitive stems do not allow it. Example (2) also illustrates how verb forms intersperse agreement and tense-mood inflections between positionally disjunct lexical morphemes. The model in (3) below will provide more information about finite verb structure.

Yeniseian derivational affixes are less numerous than inflectional affixes and clitics, even when the so-called half affixes are included. Very few

derivational suffixes, perhaps only nominalizing *-s* and adjectival *-tu*, are fully productive. There is no reduplication in either inflection or derivation. Ket is a strongly synthetic language in terms of its morphosyntax but its stem-building processes are based primarily on root compounding rather than affixation.

2 Nominalization

Virtually any modifier or grammatically inflected word form in Modern Ket can be nominalized by adding the suffix *-s*: *ka'n* 'bright, light colored' > *ka'ns* 'one that is bright, something shiny, someone light-skinned'; *sultu* 'bloody' > *sultus* 'something (or someone) that is bloody'; *ta'sthitiya* 'under a rock' > *ta'sthitiyas* 'one that is under a rock'; *qiman* 'wifeless' > *qimans* 'one that is wifeless, bachelor'; *kiseŋ* 'here' > *kiseŋs* 'one that is here'; *εŋŋuŋber* 'to build houses, house-building' > *εŋŋuŋbers* 'one that builds houses, carpenter', etc. Some nominalizations in *-s* have acquired idiosyncratic meanings, such as *qà* 'big' > *qàs* 'boss' (alongside the original meaning 'one that is big') and possibly *ku'ns* 'Russian' < *ka'n* 'bright, light-colored', referring to pale skin.

Nominalizations in *-s* can take possessive prefixes or case suffixes just like any other noun. Also like other nouns, they can appear as predicate nominal without the subject agreement suffixes typical of predicate adjectives and adverbs: *kε't qa-ru* 'the person is big' (with masculine-class singular predicative agreement suffix *-du*), but *kε't qa-s* 'the person is a big one' (with nominalizing *-s*). In rare cases nominalizing *-s* is added to a noun used predicatively to derive a more abstract meaning: *qīm* 'woman' > *qīm-s* 'is a female' (Werner 1998:61). The resulting nominalizations in *-s*, however, cannot serve as attributive modifiers, though the bare noun itself may serve as modifier in root compounds: *qimdul* 'girl' < *qīm* 'woman' + *dūr* 'child'. Their inability to serve as attributive modifier to another noun is the one trait that functionally distinguishes nominalizations in *-s* from other nouns.

The universal nominalizer can also be added to any finite verb forms to create a noun or headless relative clause: *dɔldaq* 'he lived' > *dɔldaqs* 'one who lived', *dbanbun* 'they repeatedly give me something' > *dbanbuns* 'those who repeatedly give me something', *dbanbilun* 'they used to give me something' > *dbanbiluns* 'those who used to give me something', *daqɔlajuksej* 'it has turned

yellow' > *daqalajuksejs* 'one that has turned yellow', etc. Nominalizing -s is the only affix capable of nominalizing a conjugated verb form. Basically any past or present indicative verb can be nominalized in this way (though imperatives cannot). The -s suffix cannot appear if the verb form is used as an attributive modifier to another noun: *dɔldaqs* 'one who lived, he who lived' (< *dɔldaq* 'he lived'), but *dɔldaq ke't* 'the man who lived'.

3 Templatic derivation

Yeniseian finite verb forms are based on a rigid position class model in which the semantic head (the verb root) originally occupied a position near the verb's rightmost edge, so that most of the additional morphological material appeared as prefixes. The model in (3) is arranged so that the slot shown at the top (the only suffixal position in Modern Ket-Yugh, and also inherited from Proto-Yeniseian into Kott) represents the rightmost morpheme in the verb form.

(3) Modern Ket finite verb structure

P-1	Animate-plural subject suffix ⁶
P0	Base (verb root functioning as the semantic head of simple verbs, but reduced to a semantically bleached form serving as aspect or voice marker in verbs with a salient P7 incorporate, which now account for all productive ways of forming Ket verbs)
P1	Original speech-act-participant subject agreement position (now filled only in certain stative or anticausative verbs, and used instead for object marking in many other stems)
P2	Lexical aspect marker in most past-tense indicative or imperative forms (generally <i>l</i> – imperfective, <i>n</i> – perfective)
P3/4	Conjugation prefix (<i>si-</i> , <i>i-</i> , <i>a-</i> , <i>ɔ-</i> , rarely <i>qɔ-</i>) used to express tense and mood in combination with the P2 aspect markers <i>l</i> and <i>n</i> . 3 rd person agreement marking (originally subject markers, now object markers in some stems) originally occupied the preceding position P4. However, inanimate-class <i>b-</i> has metathesized

⁶ Found in all verbs that use P8 for subject person agreement, except those with multi-site subject agreement marking in position P1 as well as P8.

	<p>rightward ahead of the conjugation marker in Ket-Yugh, complicating the original linear order of P3 conjugation marker preceded by P4 agreement marker (an arrangement retained unaltered in Kott).</p>
P5	<p>The so-called “determiners” – obligatory stem elements consisting of a single consonant; lexical morphemes that express shape or trajectory, but more often are semantically opaque. Determiners sometimes concatenate in a single verb form.</p>
P6	<p>The original object agreement position, now used in many stems for marking subject agreement instead.</p>
P7	<p>The incorporate position, which may contain an incorporated noun, adjective, directional adverb, or infinitive. In verbs with P7 infinitives, the P0 base is reduced to an auxiliary function (inception, voice marking, iterativity, etc.).</p>
P8	<p>The new subject person agreement clitic in Modern Ket (and Yugh). Filled in most action verbs or resultative verbs to express</p>

	<p>agreement with animate-class subjects (also, more rarely, with highly active inanimate-class subjects). This slot never developed in Kott, which instead innovated a new suffixal subject agreement position (P-2).</p>
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A Ket verb stem can be represented as a formula composed of the lexical morphemes from P7, P5, P0, plus the lexical choice of which tense-mood-aspect affixes from P4 and P2 the stem will use, and finally the lexically idiosyncratic choice of which slots will be used to express subject and object agreement. Ket has six productive tense-mood classes, five productive intransitive configurations, and three productive transitive configurations, along with a residue of unproductive ones. The examples in (4) show several verb stem formulas. Lexical morphemes are transcribed phonologically, the abbreviations SBJ and OBJ indicate agreement marker locations⁷, and the material in parentheses identify the tense-mood-aspect class by showing the markers that

⁷ The animate-plural subject suffix slot P-1 is not shown, as its presence in the stem formula can normally be predicted from the presence of the subject person agreement slot in P8 (and P1).

the given stem requires in order to build present indicative, past indicative, and imperative forms (the language's only three grammatical tense-mood categories):

(4) Sample Ket finite verb stems⁸

a. SBJ⁸-OBJ^{4/3/1}-(i/il)-bεd⁰ 'SBJ makes OBJ'

di⁸-b³-bεd⁰ 'I make it'

di⁸-b³-il²-bεd⁰ 'I made it'

b. SBJ⁶-k⁵-(a/ɔn)-dεn⁰ 'SBJ leaves'

bɔ⁶-γ⁵-a⁴-tn⁰ 'I go, I leave'

bo⁶-γ⁵-ɔ⁴-n²-dεn⁰ 'I went, I left'

c. SBJ⁸-aga⁷-k⁵-(s/il)-aq⁰ 'SBJ goes to the forest'

d⁸-aγa⁷-k⁵-s⁴-aq⁰ 'I go to the forest'

d⁸-aγa⁷-k⁵-l²-aq⁰ 'I went to the forest'

⁸ The object marker labeled by triple superscript ^{4/3/1} in (4a) and other examples signifies object marking in P4 for 3rd person animate-class agreement, P3 for inanimate-class agreement, and P1 for agreement with speech-act-participants. This arrangement is typical of all transitives that do not mark their objects in P6.

d. SBJ⁸-aga⁷-OBJ⁶-k⁵-(s/il)-aq⁰ ‘SBJ takes OBJ to the forest’

d⁸-aγa⁷-i⁶-k⁵-s⁴-aq⁰ ‘I take her to the forest’

d⁸-aγa⁷-i⁶-k⁵-l²-aq⁰ ‘I took her to the forest’

e. SBJ⁸-igda⁷-OBJ⁶-k⁵-(s/il)-aq⁰ ‘SBJ takes OBJ to the river’

da⁸-igda⁷-ba⁶-k⁵-s⁴-aq⁰ ‘she takes me to the river’

da⁸-igda⁷-ba⁶-k⁵-l²-aq⁰ ‘she took me to the river’

The positionally distinct morpheme shapes that build Ket verb forms often resist individual glossing. The P5 determiner consonants, for example, are often semantically opaque. The meaning of the P0 base itself may no longer be divisible from the rest of the stem structure.

The oldest and semantically most basic core of the Ket verbal lexicon requires a verb root in the P0 base position, as in the first two stem formulas above: *dī⁸-b³-il²-bed⁰* ‘I made it’, *bo⁶-γ⁵-ɔ⁴-n²-den⁰* ‘I left’. However, all productive derivational formulas in Ket now place the semantically and phonologically most salient lexical morpheme in the incorporate position P7, near the verb’s leftmost

edge. Stems of this sort were shown in (4c–e), where the original P0 root **qod* ‘walk’ has eroded to *aq* and is now found in verbs meaning ‘take’ as well as ‘go’.

The phonologically and semantically most salient portions of these verb forms are the incorporated directionals *aga* ‘from the river up into the forest’ and *igda* ‘from the forest to the river’. Over the past few millennia, the Yeniseian verb seems to have undergone gradual realignment to a *de facto* suffixing structure in which the most salient lexical material occupies the verb’s initial syllable, probably in typological accommodation to the surrounding suffixing languages as influenced through multilingualism and exchange of marriage partners (Vajda 2009). In complex verbs with salient incorporates, the affixes in positions P6–P1 have come more to resemble suffixes.

Another incorporate-dominant verb is shown in (5) below, where the P7 infinitive *bagdeŋ* ‘to drag’ serves as the verb’s semantic head. The P5 determiner is the semantically opaque consonant *k*, which labializes the preceding object marker; other *k*-determiners, presumably of different origins, do not labialize the preceding vowel. The base position P0 contains *bɛd*, a form that possibly originated through bleaching of the verb root *bɛd* ‘make’ that appeared in

examples (4a,b) examined earlier. In (5), however, the P0 morpheme *bed* simply helps convey repetitive action and could almost be regarded as a derivational affix though it occupies the original verb root position:

(5) SBJ⁸-bagdeŋ-Obj⁶-k⁵-(a/ɔl)-bed⁰ ‘SBJ drags OBJ repeatedly’

da⁶-bagdeŋ⁷-bo⁶-γ⁵-a⁴-bed⁰ ‘she drags me repeatedly’

da⁶-bagdeŋ⁷-bo⁶-γ⁵-ɔ⁴-l²-bed⁰ ‘she dragged me repeatedly’

Example (5) illustrates a highly productive stem creation pattern. Virtually any infinitive can be inserted into this formula to produce an iterative verb with the same lexical meaning as the infinitive itself.

Other productive patterns are shown in (6), where any infinitive can be inserted into formulas containing the P5 determiner *q*, probably originally meaning ‘movement inside’, but here signaling the beginning of action. The resultant stem means: ‘SBJ begins action once’ (6a). The iterative inceptive in (6b) is built by substituting conjugation class *a/ol* and P0 base *-da*:

(6) a. SBJ⁸-bagdeŋ⁷-q⁵-OBJ^{4/3/1}-(i/in)-t⁰ ‘SBJ starts dragging OBJ once’

da⁶-bagdeŋ⁷-q⁵-i⁴-di¹-t⁰ ‘she starts dragging me once’

da⁶-bagdeŋ⁷-q⁵-i⁴-n²-di¹-t⁰ ‘she started dragging me once’

b. SBJ⁸-bagdeŋ⁷-q⁵-OBJ^{4/3/1}-(a/ɔl)-da⁰ ‘SBJ starts dragging OBJ (iter.)’

da⁶-bagdeŋ⁷-q⁵-a⁴-d¹-da⁰ ‘she starts dragging me repeatedly’

da⁶-bagdeŋ⁷-q⁵-ɔ⁴-l²-di¹-da⁰ ‘she started dragging me repeatedly’

Active intransitive inceptives are productively made according to the formula exemplified by (7), which contains the incorporated infinitive *iʔ* ‘to sing, singing, song’. Once again, any infinitive can be substituted to produce an intransitive verb expressing inception of an activity:

(7) il⁷-SBJ⁶-k⁵-(a/ɔ)-qan⁰ ‘SBJ starts singing’

il⁷-ba⁶-ɣ⁵-a⁴-ʁan⁰ ‘I start singing’

il⁷-ba⁶-ɣ⁵-ɔ⁴-ʁɔn⁰ ‘I started singing’

Notice that the stem in (7) contains non-labializing *k*-determiner. Productive patterns involving adjective or noun incorporation require a *t*-determiner (also semantically opaque):

(8) a. NOUN⁷-SBJ⁶-t⁵-(a/ɔn)-aq⁰ ‘SBJ becomes NOUN’

kɛt⁷-ba⁶-t⁵-ɔ⁴-n²-aq⁰ ‘I became a man’ < kɛ’t ‘person’, aq ‘become’

dɛŋ⁷-dɔŋ⁶-t⁵-ɔ⁴-n²-aq⁰ ‘we became men’ < dɛ’ŋ ‘people’, aq ‘become’

b. SBJ⁸-ADJ⁷-t⁵-OBJ^{4/3/1}-(a/ɔl)-sin⁰ ‘SBJ turns OBJ into ADJ’

da⁸-qa⁷-t⁵-a⁴-b³-sin⁰ ‘she makes it big’ < qà ‘big’, sin ‘cause to be’

k⁸-ugde⁷-t⁵-ɔ⁴-l²-sin⁰ ‘you lengthened him (masc.-class rabbit coat)’

< ugde ‘long’, sin ‘cause to be’

c. SBJ⁸-NOUN⁷-OBJ⁶-h⁵-(a/ol)-ted⁰ ‘SBJ hits OBJ with NOUN’

da⁸-ulgit⁷-ba⁶-ɣ⁵-a⁴-ted⁰ ‘she elbows me’ < ulgit ‘elbow’, ted ‘hit’

da⁸-ulgit⁷-ba⁶-ɣ⁵-ɔ⁴-l²-ted⁰ ‘she elbowed me’

d⁸-dɔn⁷-a⁶-ɣ⁵-a⁴-ted⁰ ‘I stab him’ < dɔ’n ‘knife’, ted ‘hit’

$d^8-d\check{c}n^7-a^6-y^5-\check{c}^4-l^2-t\check{e}d^0$ ‘I stabbed him’

d. $SBJ^8-NOUN^7-(s/il)-b\check{e}d^0$ ‘SBJ makes NOUN’

$da^8-qus^7-si^4-b\check{e}d^0$ ‘she makes a tent’ < *qu*’s ‘tent’, *b\check{e}d* ‘make’

$da^8-qus^7-li^2-b\check{e}d^0$ ‘she made a tent’

$d^8-qu\check{c}n^7-si^4-b\check{e}d^0-n^{-1}$ ‘they make tents’ < *qu’\eta* ‘tent’, *b\check{e}d* ‘make’

$d^8-qu\check{c}n^7-li^2-b\check{e}d^0-n^{-1}$ ‘they made tents’

Examples (5–8) show several of the most important patterns from among the few dozen productive templatic derivational formulas of Modern Ket, where lexical morpheme shapes, conjugation classes, and agreement configurations interact to create new finite verb stems. Similar processes operated in Yugh and Kott.

4. Infinitives

Examining the Yeniseian infinitive (a type of action nominal) can serve as a sort of conclusion, as this class of words displays a unique combination of

morphological traits linking it with both nouns and finite verbs, as well as with modifiers. Infinitives are historically derived from the finite verb stem template according to an ancient pattern that shows unmistakable homologies with Na-Dene (Vajda 2011:60-63). Basically, in Yeniseian the lexical morphemes in P7, P5 and P0 combine to form the corresponding infinitive, with omission of any morphological material that would normally occupy the intervening positions in the corresponding finite verb. In the case of finite verb stems containing no lexical morphemes other than the root, infinitive derivation originally required an epenthetic element called a peg prefix, probably in keeping with the fact that finite-verb forms were (originally) never root-initial. The peg prefix appears regularly in Kott infinitives made from simple verb stems: *ši-ten* ‘to lie down’, *ši-puk* ‘to pull, drag’, *ši-kit* ‘to rub’, *ši-ti* ‘to beat’, *ši-pei* ‘to hunt’, etc. Infinitives that inherit an incorporate or determiner morpheme from the corresponding finite verb lack this peg prefix: Kott *ax-kit* ‘to plane wood’, *t^ha-pei* ‘to pursue’. Ket infinitives have almost completely lost the prefix (*kīr* ‘to rub’, *tār* ‘to beat’), but often contain an infinitive suffix that varies inexplicably between the allomorphs *-ej*, *-eŋ*, and reduction to falling tone in the preceding vowel: *bēr-eŋ* ~ *bèr* ‘to

make’, *si-bagd-εη* ~ *bagd-εη* ‘to pull, drag’. The infinitive suffix survives in Kott-Assan only sporadically (e.g., Assan *taη-n* ‘to see’, but Kott *t^hαη* ‘to see’). Proto-Yeniseian infinitive derivation thus seems to have followed the general pattern of: 1) finite verb incorporate–determiner–root + infinitive suffix **-εη*; or in the case of simple stems: 2) peg prefix **si-* + finite verb root + infinitive suffix **-εη*.

Though based on the finite verb template, Yeniseian infinitives are a type of modifier in the sense that, like adjectives, they can be preposed to nouns: *bagδεη κε’t* ‘dragging person, ‘a person who drags or is dragged’. Also like adjectives, they take predicate concord suffixes such as 1SG *-di*, in which case they express ability to perform an action: *αt il-di* ‘I can sing’ (Krejnovich 1968:26). Infinitives resemble nouns, however, in being able to take possessive prefixes: *b-dλ’q* ‘my living, my life’, *da-dλ’q* ‘her living, her life’, *k-i’l* ‘your singing, your song’, *d-i’l* ‘his singing, his song’, etc. Possessed infinitives associated with events that logically involve both actor and undergoer such as *d-bagδεη* ‘his dragging’ are ambiguous between the meanings ‘his being dragged’ and ‘his dragging (of something or someone else)’. Unlike true nouns, infinitives are regularly nominalized with *-s* to create deverbal nouns. Nominalized

infinitives such as *bagdeŋs*, like their possessed counterparts, are ambiguous between meanings such as ‘someone who drags’ and ‘someone or something that gets dragged’. The Kott forms *ši-čer-še* ‘scraper’ (< *ši-čer* ‘to scrape’) and *ši-čal-še* ‘file’ (< *ši-čal* ‘to sharpen’) show that the nominalization of infinitives, like infinitive derivation itself, follows an ancient, inherited pattern.

Abbreviations used

ABL – ablative case; AGR. – agreement; ANIM – animate class; FEM – feminine class; INAN – inanimate class; MASC – masculine class; OBJ – object; PL – plural; PRED – predicate; PRES – present indicative; POSS – possessive; SBJ – subject; SG - singular

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