Types of imperfectivity in Kazakh nonfinite clauses
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For the HPSG 2021 conference

1   Introduction

The Kazakh (Kipchak, Turkic) tense-aspect-mood (henceforth: TAM) system features a richness of morphology, including synthetic expressions (i.e. affixes) and periphrases (e.g. auxiliary verb constructions, henceforth: AVCs). A Kazakh AVC minimally consists of a lexical verb that takes one of two converb forms (labelled A or B), and an auxiliary verb that inflects as any main verb does. The AVCs can be marked by tense suffixes that result in a finite clause, or they can stand in a range of nonfinite forms, such as co- and subordinators. This paper focuses on constructions with three auxiliary verbs, all of which denote the imperfective aspect (Comrie 1976), and explores the regularities we find when these are in five nonfinite clauses. This paper proposes an HPSG analysis that accounts for this previously undescribed data.

2   Data

Recent fieldwork has revealed previously undescribed constructions in Kazakh, including some peculiarities of nonfinite clauses. Firstly, following Nikolaeva (2013), the definition of a finite Kazakh verbal clause is as follows. i) strict OV ordering, ii) the verb agrees with the subject in person and number, iii) the verb is marked for tense, iv) the verb is marked for mood, v) the verb can be marked for the evidential. Any other type of clause is considered nonfinite.

The first and second types of nonfinite clauses temporally bind the predicate and thus add a perfect reading, while the predicate internally remains imperfective. The perfect aspect is understood as an eventuality that must be temporally followed by a relevant topic time (Cover, 2015 following Reichenbach, 1947). The suffix in question is *-GAn* (labelled GAN), which can function as an *attributive* (labelled ATTR) (1), where the verb phrase it affixes to is distributed as an adjective. *-GAn* can also function as a *nominalizer* (labelled NMLZ) (2), where its clause is distributed as a noun phrase. When it is a nominalizer, it must be possessed and can be marked for cases. Nominalizations and attributivizations in Kazakh are functional equivalents of complementizers in many European languages.

(1) burïnnan   Almatï-da   oqï-p   žür-gen
     earlier   Almaty-LOC   *study-CVB.B* *AUX(IPFV 'walk')-GAN.ATTR*
     bala-lar   qol-ï-n   köter-sin
     child-PL   hand-3-ACC   raise-IMP.3
     'Those children *who were studying* in Almaty before should raise their hands!'

(2) Men   bügin   tüsten   keyin   üyge   kel-gende,   Berik   segiz   saɣat   boyï
     1SG   today   afternoon   home-DAT   come-WHEN   Berik   eight   hour   for
     žattïɣ-ïp   otïr-ɣan-ï   üšin
     exercise-CVB.B   *AUX(IPFV 'sit')-GAN.NMLZ-3*   because
     öte   šaršaɣan   bol-a-dï.
     very   tired   COP-NPST-3
     'When I get home today in the afternoon, Berik will be very tired, as he *will have been exercising* for eight hours.'

The third and fourth types of nonfinite clauses are similar to the ones marked by *-GAn*, shown above, in that the suffix alternates between the attributive and the nominalizer uses. This suffix is *-(y)AtIn*, and it denotes the prospective aspect. The prospective aspect is the opposite of the perfect aspect, in that the prospective must be preceded by a relevant topic time. The attributive (3) and nominalizer (4) uses are shown below.

(3)   Keše   sen   concert-ke   kel-gen   waqïtta   oyna-p
       yesterday   2SG   concert-DAT   come-GAN.ATTR   time   *play-CVB.B*
       tur-atïn   kisi   Berik bol-ar   e-d-i,
       AUX(IPFV 'stand')-ATIN.ATTR   person Berik COP-FUT   COP-PST-3
       biraq   awïr-ïp   qal-ɣan   e-d-i.
       but   get.sick-CVB.B   AUX(PFV 'stay')-GAN   COP-PST-3
       'The person *who was supposed to be playing* when you arrive at the concert was going to be Berik, but he had gotten sick.'

(4)   Berik-tiŋ   keše   saɣat   eki-de   žattïɣ-ïp
       Berik-GEN   yesterday   hour   two-LOC   *exercise-CVB.B*
       otïr-atïn-ï-n   bil-mey   aldïn ala
       AUX(IPFV 'sit')-PROSP.NMLZ-3-ACC know-CVB.NEG   in.advance
       bekerge   kino-ɣa   bilet   al-ɣan   e-di-m
       in vain   cinema-DAT   ticket buy-GAN.PTCP   COP-PST-1SG
       'As I did not know that Berik *would be exercising* yesterday at 2 p.m., I had bought a cinema ticket in advance, in vain.'

Regarding the auxiliary verbs, this paper is concerned with three of the c. 20 auxiliary verbs in this language. The three auxiliary verbs, *otïr* 'sit', *žür* 'walk' and *tur* 'stand' are used both as finite lexical verbs on their own, and as auxiliaries in AVCs, where their lexical content is bleached and they all denote the imperfective aspect. There are further selectional criteria that determine which one of them is selected in a particular context, but in the present paper this problem is simplified due to space limitations.

In this paper we will assume that *otïr* and *žür* are optionally exchangeable, while *tur* is different, because while the formers are only associated with the imperfective aspect, such as the progressive or the habitual, *tur* expresses a subtype of the imperfective, when it combines with a lexical verb that takes converb A. This aspect category will be referred to as *short temporal interval*, since it expresses that the eventuality lasted for a relatively short time. This is shown in example (5). When the lexical verb stands in the converb B form in an AVC with *tur*, it expresses the imperfective aspect just like the other two auxiliaries.

(5)   qalam-nï   Berik-ke   ber-e   tur-dï-m
       pen-ACC   Berik-DAT   give-CVB.A   AUX(IPFV 'stand')-PST-1SG
       'I gave Berik the pen for a short time.'

The last factor this paper takes into account is the semantic denotation of the converb that marks the lexical verb in AVCs where the auxiliary verb is affixed with converb B. The fifth type of nonfinite clause we examine is when the auxiliary stands in the converb B form.

As the examples below demonstrate, when the lexical verb is marked for converb A, the entire AVC is understood as a simultaneous, imperfective eventuality relative to the main clause that follows. In contrast, if the lexical verb is marked for converb B, the AVC retains its internal imperfective interpretation but as a whole, it is bounded and read sequentially.

Notice that one may expect the inflection of the auxiliary to determine such a semantic contrast that obviously scopes over the entire AVC, but it is the inflection of the lexical verb. This is odd because in other AVCs converb selection is rigidly associated with a given semantic category that never allows for such alternations. This raises doubts whether the auxiliary or the lexical verb should be assumed to be the head, but considering that in all the other AVC the auxiliary exhibits all possible grammatical functions, I assume that the auxiliary is the head.

The aspect value is tested by utilizing the simultaneous AVC's ability to be interpreted as an adverbial modifier, while the sequential must be interpreted as a temporally bounded and separate event. Recall that all these AVCs denote an imperfective event, even in (7), where the subordinate clause is temporally bounded and it precedes the event of the main clause.

(6)　　äke-m　　　köp　kitap　oqï-y　　　　otïr-ïp
　　　　father-1SG　many　book　*read-CVB.A*　*AUX(IPFV 'sit')-CVB.B*
　　　　öte　　aqïldï　adam　bol-ïp　　　　ket-ti
　　　　very　smart　man　cop-CVB.B　　AUX(PFV 'leave')-PST.3
　　　　'My father became a smart person *by reading* lots of books.'

(7)　　fabrika-da　　eki　　žïl　　žumïs　iste-p　　　　otïr-ïp
　　　　factory-LOC　two　　year　*work　do-CVB.B*　　*AUX(IPFV 'sit')-CVB.B*
　　　　bir　　kün　　bul　　žumïs-tan　　šïq-tï-m
　　　　one　　day　　this　work-ABL　　quit-PST-1SG
　　　　'*After working* two years at the factory, one day I quit.'

3　Modelling

There are three notable phenomena to account for: i) the nonfinite inflection of the auxiliary verb, namely, converb B, or either *-GAn* or *-(y)AtIn*, each of which can function as an attributive or a nominalizer. ii) The inflection of the lexical verb determines the aspectual denotation of the entire AVC, provided that the AVC is subordinated by converb B. iii) The auxiliary *tur* is special, since while it participates in every alternation described above, it has a different aspectual denotation when its lexical verb is in the converb A form. In this case, it expresses the event modification aspect (explained below) value *short temporal interval*.

The analysis proposed here assumes a monotonic inheritance in combination with Online-type construction (Ackerman & Bonami, 2017; Bonami & Crysmann, 2016; Koenig, 1999; Koenig & Jurafsky, 1994). The alternations regarding the attributive and nominalization, and the possible auxiliary selection are modelled in this fashion. In the type hierarchy in (8) below, dashed lines represent alternating specifications, while solid lines represent normal, monotonic inheritance. I propose three dimensions:

Dimension 1 models the inflection of the AVC and most of the morphology. Dimension 2 accounts for the attributive/nominalization alternation. Dimension 2 is to be considered a completely separate set of syntactic rules that describes the nominal and attributive distributions of the same two suffixes. The attributive is constrained to select an NP, while the nominalization is specified to agree with its syntactic possessor, the semantic actor. Note that there are two *layers* of alternations, surrounding Dimension 2. Dimension 3 accounts for auxiliary selection.

In addition, I assume two types of aspect, following Laca (2006) and van Geenhoven (2004). In these analyses, there is a syntactically higher aspect locus called Time Relation Aspect (AspTR), and a lower aspect that affects the *inner* temporal specifications of an eventuality, called Event Modification Aspect (AspEM). AspEM is assumed to be determined by the auxiliary, while AspTR is determined by the rest of the morphology in the constructions. This

assumption is key in order to account for the alternation and combinations of these aspectual specifications.

Lastly, I assume that the *short temporal interval* aspect value is a subtype of imperfectivity (AspEM). This assumption is motivated on a semantic basis, that is, the AVC describes the internal temporal structure of the event as opposed to treating it as a point like event. Assuming this hierarchy allows converb B to mark the *short temporal interval* use of the auxiliary *tur*, which is demanded by empirical observations.

4   Conclusions

This paper examines a set of previously undescribed constructions – certain auxiliary verb constructions in nonfinite clauses in Kazakh. After identifying two systematic alternations and a case of exception that cannot be described compositionally, an analysis is proposed that adopts Koenig's Online-type construction and assumes monotonic inheritance. In addition, Laca's view of two types of aspects is also adopted. It is hoped that this data and the analysis is useful for those who are interested in AVCs, aspect periphrases and complex predicates in general.

5   References

Ackerman, F., & Bonami, O. (2017). Systemic polyfunctionality and morphology-syntax interdependencies. In A. Hippisley & N. Gisborne (Eds.), *Defaults in Morphological Theory* (pp. 233–268). Oxford University Press.

Bonami, O., & Crysmann, B. (2016). Morphology in Constraint-based Lexical Approaches to Grammar. In A. Hippisley & G. Stump (Eds.), *The Cambridge Handbook of Morphology* (pp. 609–656). Cambridge University Press.

Comrie, B. (1976). *Aspect*. Cambridge: Cambridge University Press.

Cover, R. T. (2015). Semantic Fieldwork on TAM. In R. Bochnak & L. Matthewson (Eds.), *Methodologies in Semantic Fieldwork* (pp. 233–268). Oxford University Press.

Koenig, J.-P. (1999). *Lexical relations*. Stanford: CSLI Publications.

Koenig, J.-P., & Jurafsky, D. (1994). Type underspecification and online type construction in the lexicon. In *West Coast Conference on Formal Linguistics* (Vol. 13, pp. 270–285). Stanford: CSLI Publications/SLA.

Laca, B. (2006). Indfinites, quantifiers and pluractionals: What scope effects tell us about event pluralities. In L. Tasmowski & S. Vogeleer (Eds.), *Non-definiteness and plurality* (pp. 191–217). Amsterdam: John Benjamins.

Nikolaeva, I. (2013). Unpacking Finiteness. In D. Brown, M. Chumakina, & G. G. Corbett (Eds.), *Canonical Morphology and Syntax* (pp. 99–122). Oxford: Oxford University Press.

Reichenbach, H. (1947). *Elements of Symbolic Logic*. New York: Dover Publications, Inc.

van Geenhoven, V. (2004). For-adverbials, frequentative aspect, and pluractionality. *Natural Language Semantics*, *12*, 135–190.

(8) Analysis

Dimension 1: *nonfinite markers*

$\begin{bmatrix} \text{HD|VFORM} & GAn \\ \text{SEM|AspTR} & perf \end{bmatrix}$

$\begin{bmatrix} \text{HD|VFORM} & (y)AtIn \\ \text{SEM|AspTR} & prosp \end{bmatrix}$

$[\text{HD|VFORM} \quad cvb.b]$

$\begin{bmatrix} attr \\ \text{COMPS} \quad \langle np \rangle \end{bmatrix}$ $\begin{bmatrix} nlmz \\ \text{INFL} \quad agr \end{bmatrix}$

Dimension 2: *nmlz/attr*

$\begin{bmatrix} \text{COMPS} & \langle \begin{bmatrix} verb \\ \text{VFORM} & cvb.b \end{bmatrix} \rangle \\ \text{SEM|AspTR} & sequential \end{bmatrix}$

$\begin{bmatrix} \text{COMPS} & \langle \begin{bmatrix} verb \\ \text{VFORM} & cvb.a \end{bmatrix} \rangle \\ \text{SEM|AspTR} & simultaneous \end{bmatrix}$

$\begin{bmatrix} \text{HD|LID} & tur \\ \text{COMPS} & \langle [\text{VFORM} \quad cvb.a] \rangle \\ \text{SEM|AspEM} & short\ temp.int. \end{bmatrix}$

$\begin{bmatrix} \text{HD|LID} & ot\ddot{\imath}r \lor \check{z}\ddot{u}r \lor tur \\ \text{SEM|AspEM} & ipfv \end{bmatrix}$

Dimension 3: *auxiliary lexeme*