

Existential modals and negation in Karachay-Balkar: evidence for universal functional hierarchy

1. Introduction

Karachay-Balkar is a Turkic language mostly spoken in Kabardino-Balkaria and Karachay-Cherkessia in Russia and in Afyonkarahisar Province in Turkey. Karachay-Balkar belongs to the Kipchak sub-branch of the Turkic language family and is divided into two dialects: Karachay and Balkar.

Being a Turkic language, Karachay-Balkar is characterized by row and roundedness vowel harmony, agglutinative (suffixal) morphology, SOV word order and nominative-accusative case marking.

2. Modality and negation in Balkar: overview

In his Karachay-Balkar grammar Baskakov (1976) describes the following grammaticalized verbal modal markers:

- possibility form *-al*;
- future tense *-(V)r*;
- analytical modal markers derived from the (auxiliary) verb *bol-* ‘to be’.

Negative markers reported by Baskakov (1976) are:

- standard negation *-mA*;
- nominal (predicative) negation *tijül*;
- existential negation *zok*;
- constituent negation *uƙaj*.

In this talk¹ we will discuss those modal and negative markers, which can be recognized as being verbal derivational/inflectional or, in generative terms, belonging to functional hierarchy (aka clausal spine). That is, existential and constituent negation as well as modal predicatives and verb serializations are not discussed by us.

3. Data

3.1. Suffix *-al*

*Modal base*². Non-harmonizing suffix *-al* is typically used to express dynamic (in terms of Palmer (1986), von Stechow (2006)) or participant-internal modality (van der Auwera & Plungian (2001)), i.e. ability to do the action described by the lexical verb:

- (1) *ajiu it-ni zet-gen-di*
bear dog-ACC overtake-PFCT-3SG
‘A/the bear has overtaken a/the dog.’

¹ Our study is based on the data from the variant of Balkar dialect spoken in the village of Upper Balkaria. The data was gathered during the field trip in August of 2019. The research was supported with the grant 19-012-00627a provided by RFBR

² We will use standard terminology from formal semantics of modals (Kratzer (1991)) in this talk

- (2) *ajiu it-ni zet-al-a-di*
bear dog-ACC overtake-POS-IPFV-3SG
'A/the bear can overtake a/the dog.'

Negation. The suffix of standard negation *-mA* is attached after *-al* with the semantic scope corresponding to the morpheme order:

- (3) *ajiu it-ni zet-al-ma-j-di*
bear dog-ACC overtake-POS-NEG-IPFV-3SG
'The bear cannot overtake the dog.'

In particular contexts *-al* can also have deontic modal base, although we have not controlled these interpretations in any way except for giving suggestive context. *-al* cannot have epistemic modal base. We tried to obtain epistemic interpretations using non-agentive verbs (e.g. *to drown*, *to be (at home)*, *to collapse*) and the resulting sentences were considered either ungrammatical or semantically odd:

- (4) *muxtar bat-al-a-di*
Muxtar drown-POT-IPFV-3SG
#‘Muxtar can drown’. {If for some reason he wishes to do it, he can drown.}
- (5) *muxtar bat-al-ma-j-di*
Muxtar drown-POT-NEG-IPFV-3SG
#‘Muxtar cannot drown.’ {He wants and/or tries to drown, but for some reason he cannot.}

We, thus, conclude that *-al* expresses “root” (that is, dynamic and deontic) aka event modality (Palmer 1986).

3.2. Future tense *-(V)r*

There are two synthetic markers of future tense in Balkar: *-(V)r* and *-Iik/-rIk*. The latter diachronically consists of both future tense suffixes stacked: *-(V)r-Iik*. Baskakov (1976) reports the following differences between them:

- *-(V)r* is “uncertain future” which can have (contextually induced) modal interpretations of necessity, order, strong advice. *-Iik/-rIk* is described as “strict future tense”;
- in contrast to *-Iik/-rIk*, *-(V)r* is incompatible with analytical modals (both derived from *bol-* ‘to be’ and predicatives);
- unlike most other verb forms, *-(V)r* has no obligatory 3rd person agreement, cf. (6a) and (6b).

These observations are born out in our data. *-Iik/-rIk* expresses future tense exclusively, while *-(V)r* has three meanings: future tense, epistemic and bouletic modality.³

³Van der Auwera & Plungian (1998) rule out volition from the domain of modality due to the lack of clear possibility/necessity distinction; we follow von Stechow (2006) and Puskás (2018) in recognizing bouletic as one of flavors of modality.

- (6) a. *kerim kel-lik-²(di)*
 Kerim come-FUT2-3SG
 ‘Kerim will come.’
- b. *kerim kel-ir*
 Kerim come-FUT1
 1. ‘Kerim will come.’
 2. ‘Kerim may / is likely to come.’
 3. ‘May Kerim come.’

It is not clear from the interpretations in (6b) whether *-(V)r* has universal or existential quantificational force on modal readings. We will account for this in Section 3.4.

-(V)r (in the form *-z*) is adjoined to the stem after the negative suffix *-mA* and is interpreted above negation:

- (7) *kerim kel-me-z*
 Kerim come-NEG-FUT1
 1. ‘Kerim is likely not to come.’
 2. ‘Kerim will not come.’

-al and *-(V)r* can appear within one word, with their scope trivially corresponding to morphological order:

- (8) *kerim kel-al-ir*
 Kerim come-POT-FUT1
 ‘Kerim may / is likely to be able to come.’
- (9) *kerim kel-al-ma-z*
 Kerim come-POT-NEG-FUT1
 ‘Kerim will not be able not come.’
 ‘Kerim is likely to be unable to come.’

Notably, interpretation of *-(V)r* is dependent on the person of the subject. Bouletic interpretation is preferred in 2nd (with obligatory agreement) and 3rd person (when optional agreement is present). 1st person has only future tense interpretation. Bouletic interpretation in 3rd person without agreement is not prominent.

- (10) a. **men kel-ir*
 1SG come-FUT1
- b. *men kel-ir-me*
 1SG come-FUT1-1SG
 ‘I will come.’
- (11) a. *[%]sen kel-ir*
 2SG come-FUT1
 ‘Will you come?’
- b. *sen kel-ir-se*
 2SG come-FUT-2SG
 1. ‘Please, come.’ {I ask you to come.}
 2. ‘You will come.’
 3. ‘Will you come?’

- (12) a. *kerim kel-ir*⁴
 Kerim come-FUT1
 1. ‘Kerim will come.’
 2. ‘Kerim may / is likely to come.’
 3. ‘May Kerim come.’
 b. [?]*kerim kel-ir-di*
 Kerim come-FUT1-3SG
 1. ‘Kerim will come.’
 2. ‘May Kerim come.’

The interaction of agreement with the meaning of the verb is summarized in Table 1.

Person	Agreement	Future tense	Epistemic modality	Bouletic modality	Question
1	+	✓	#	#	#
	-	*	*	*	*
2	+	✓	#	✓	?
	-	*	*	*	?/*
3	+	✓	?	✓	#
	-	✓	✓	?	#

Table 1. Dependence of grammaticality and meaning of the form *-(V)r* on agreement
 (✓ prominent meaning, ? non-prominent meaning, # unavailable meaning, * ungrammatical)

3.3. Analytical forms

Baskakov (1976) describes analytical modal marker *bolur* be-FUT1 with the semantics of epistemic possibility. In our data the form *bolluq* be-FUT2 with the same meaning is widely attested.

- (13) *kerim kel-ir-ge bol-ur / bol-luq-du*
 Kerim come-FUT1-INF be-FUT1 / be-FUT2-3SG
 ‘Kerim may come.’

Both analytical markers express epistemic modality exclusively and outscope standard negation:

- (14) *üj ojul-ma-z-ka bol-ur / bol-luq-du*
 house collapse-NEG-FUT1-INF be-FUT1 / be-FUT2-3SG
 ‘It is possible, that the house will not collapse.’

Although we don’t have the paradigm for all verb forms, *bolur* and *bolluq* seem to be the only two forms of *bol-* to be compatible with the infinitive:

⁴ We do not have examples with plural subjects in our data. Baskakov (1976) reports that unlike person agreement number agreement is obligatory for *-(V)r*: *san-ar* ‘(s)he will count’, *san-ar-la* ‘they will count’

- (15) **kerim kel-ir-ge bol-a-di / bol-kan-di / bol-du*
 Kerim come-FUT1-INF be-IPFV-3SG / be-PFCT-3SG / be-PST
 Int.: ‘Kerim may come.’

However, there are structural differences between *bolur* and *bolluq*. Firstly, while the former is marginally grammatical with agreement, the latter requires it (this behavior is same to the respective synthetic forms). Secondly, different verb forms (infinitive (13), participles (16), converbs (17)) can be a complement of *bolur*, while *bolluq* is compatible only with the infinitive:

- (16) *kerim kel-lik bol-ur / *bol-luq-du*
 Kerim come-FUT2 be-FUT1 / be-FUT2-3SG
 ‘Kerim is likely to come.’
- (17) *kerim kel-e bol-ur / *bol-luq-du*
 Kerim come-IPFV be-FUT1 / be-FUT2-3SG
 ‘Kerim is likely to be coming.’

3.4. Quantificational force

The translations of some examples as either ‘may’ or ‘to be likely to’ casts doubt on whether the modals under consideration have existential (i.e. express possibility) or universal (necessity) quantificational force. We have tried out two contexts in order to draw a distinction.

The first one is conjunction. It is expected, that if a modal expresses necessity, conjoining it with its negation will lead to a contradiction:

- (18) #*kerim kel-ir da, kel-me-z da*
 Kerim come-FUT1 and come-NEG-FUT1 and
 ‘Kerim will come and will not come.’

If a modal has existential quantificational force, no contradiction is expected:

- (19) *kerim kel-ir-ge da bol-ur, kel-me-z-ge da bol-ur*
 Kerim come-FUT1-INF and be-FUT1 come-NEG-FUT1-INF and be-FUT1
 ‘Kerim may both come and not to come.’

In the second test, the sentence starts with the clause meaning ‘I don’t know for sure...’. It is expected that necessity will cause contradiction (as attested with the “strict future tense” (21)), while in case of possibility no contradiction will be observed:

- (20) *tüzün bil-me-j-me, kerim kel-ir*
 for.sure know-NEG-IPFV-1SG Kerim come-FUT1
1. ‘I don’t know for sure, Kerim is likely to come.’
 2. #‘I don’t know for sure, Kerim will come.’

- (21) #*tüzün bil-me-j-me, kerim kel-lik-di*
 for.sure know-NEG-IPFV-1SG Kerim come-FUT2-3SG
 ‘I don’t know for sure, Kerim will come.’

Table 2 summarizes the results of these tests for 5 forms/constructions:

Context	-(V)r	-llk/-rIk	INF + <i>boluq</i>	INF + <i>bolur</i>	IPFV + <i>bolur</i> (17)
Conjunction	#	#	✓	✓	✓
Ignorance	#/✓	#	✓	✓	✓

Table 2. Existential vs universal quantificational force tests

4. Analysis

Approaches to account for the scopal interaction of modality and negation:

- Cinque (1999), Ramchand & Svenonius (2014): different modals are generated at different positions in the tree (some above negation, others below).
- Horn (1989, 2007), de Haan (1997): the scopal behavior that modals exhibit with respect to negation is motivated by the functional needs of a language to express both MOD > NEG and NEG > MOD scopes. A given language may have a different modal item for each scope relation.
- Iatridou & Zeijlstra (2013), Homer (2015): modals are generated below negation, but can move out of its scope by quantifier raising (QR) if negation provides anti-licensing environment for them.

We are going to argue for cartographic approach, proposed by Cinque (1999). The hierarchy in (22) in slightly different versions was shown to be aligned with the facts of such diverse languages as Turkish (Cinque 2001), Hungarian (Puskás 2018), Norwegian (Ramchand & Svenonius 2014), Russian (Rosyaykin forthcoming), etc. Similar hierarchy is adopted in Role & Reference Grammar (RRG) (Van Valin 2005). Position of negation is the subject to cross-linguistic variation. The one adopted by us in (22) was proposed for Turkish (Cinque 2001).

$$(22) \text{Mod}_{\text{bouletic}} > \text{Mod}_{\text{epistemic}} > T_{\text{future}} > \text{Mod}_{\text{alethic}} > \text{Neg} > \text{Mod}_{\text{ability}} > \text{Mod}_{\text{permission}}$$

We will also show that no independent evidence is available in our data for QR-analysis. Moreover, some claims made by Iatridou & Zeijlstra (2013) are not borne out.

4.1. Hierarchy

We claim that:

- Different modals are generated in different positions in the clausal spine and don’t move.
- Semantic scope of heads corresponds to their position in the syntactic structure. Linear order of morphemes reflects their positions in the syntactic structure, i.e. mirror principle (Baker 1985) holds.

Firstly, we identify suffix *-al* with the $\text{Mod}_{\text{ability}}$ head. Next we assume that *-(V)r* and *-llk/-rIk* occupy $\text{Mod}_{\text{alethic}}$ and T_{future} heads respectively. Diachronically suffix *-llk* was stacked over *-(V)r*

(Baskakov 1976). This particular order is still visible in the negative form of *-lik/-rIk* where assimilation did not happen:

- (23) *üj ojul-ma-z-liq-di*
 house collapse-NEG-FUT1-FUT2-3SG
 1. ‘The house, which will not be brought done.’
 2. ‘The house, which should not be brought done.’

Similar suffix/head order is observed in Turkish (Yava 1980, 77):

- (24) Mary John-un evlen-miş ol-abil-eceğ-in-i söyl-üyor
 M. J.-GEN get.married-PERF be-may/can-FUT-POSS-ACC say-PROG
 ‘Mary says that John may have gotten married (by now).’

Next, we have to account for the structural contrast observed with *bolur* and *bolluq* (16, 17). Sugar (2017) provides evidence for Uyghur auxiliaries being able to occupy two different positions in the syntactic structure, low (*v*) and high (Aux). The same is relevant for Balkar. Remember that only *bolur* and *bolluq* can have infinitive as its complement. Baskakov (1976) reports that infinitive can also be combined with copula *e* which is high in the left periphery. Given that infinitive is stacked over future tense suffix *-(V)r*, it corresponds to the functional structure at least up to T_{future} . Thus, we analyze *bolur* and *bolluq* as instances of $\text{Mod}_{\text{epistemic}}$ head. On the other hand, *bol-* in *bolur* can be an instance of *v* head. In this case, it is able to bear negation, possibility marker *-al* (25) and project its own subject different from that in the subordinate clause (26). Note that there are two events in the interpretations of both examples.

- (25) axmat xicin-ni et-me-j bol-al-a e-di
 Akhmat khychin-ACC do-NEG-IPFV be-POT-IPFV COP-PST
 1. ‘Akhmat could live peacefully without cooking khychins.’
 2. *‘Akhmat was allowed not to cook khychins.’
- (26) kerim kel-me-j da bol-ur
 Kerim come-NEG-IPFV and be-FUT1
 ‘We will be able to do something without Kerim’

4.2. QR analysis

Besides the lack of independent motivation for QR analysis, there are also counterexamples to it. Iatridou & Zeijlstra (2013) assume that modals which are interpreted above negation are PPIs. They are base-generated below negation but move out of its scope due to being anti-licensed. However, this analysis is impossible at least for *bolluq* which is grammatical under predicative negation:

- (27) *üj ojul-ur-ka bol-luq tüjül-dü*
 house collapse-FUT1-INF be-FUT2 NEG2-3SG
 ‘The house can/will not collapse.’

Secondly, Iatridou & Zeijlstra (2013) cite examples where movement is blocked due to Head Movement Constraint (Travis 1984), rendering sentences with PPI modals ungrammatical. *-(V)r* can be spelled out and interpreted above negation even if there are other heads present above it (e.g. (14) and (23)).

5. Problematic data

If we assume that *bolluq* and *bolur* occupy $\text{Mod}_{\text{epistemic}}$ when used with infinitive, they should not allow for attaching possibility suffix (*-al*) and negation (*-mA*) in these contexts. Double negation should also be prohibited within one clausal spine. However, such examples are considered grammatical (although not perfect) quite often.

- (28) a. [?]*muxtar kel-me-z-ge bol_{Mod}-ma-z*
Muxtar come-NEG-POS-INF be_{Mod}-NEG-FUT1
'Muxtar will not be able not to come.'
- b. *muxtar kel-me-j bol_v-ma-z*
Muxtar come-NEG-IPFV be_v-NEG-FUT1
'Muxtar will not be able not to come.'
- (29) [?]*kerim kel-ir-ge bol-al-liq-di*
Kerim come-FUT1-INF be-POS-FUT2-3SG
'It is possible that Kerim will manage to come.'

6. Conclusion

Karachay-Balkar language has dedicated modal markers for root and epistemic modality. Linear position and interpretation of these markers is determined by their positions in the syntactic structure, which correspond to the universal functional hierarchy. There is no evidence for modals (or negation) moving in the structure.

We assume that auxiliary verb *bol* is present in the lexicon in two instances – true auxiliary verb (*v* head) and modal verb ($\text{Mod}_{\text{epistemic}}$ head).

7. Abbreviations

1SG – first person singular, 2SG – second person singular, 3SG – third person singular, ACC – accusative, COP – copula, FUT1 – first future tense, FUT2 – second future tense, GEN – genitive, INF – infinitive, IPFV – imperfective, NEG – standard negation, NEG2 – predicative negation, POS – possibility, PERF – perfect (Turkish), PFCT – perfect, PROG – progressive, PST – past tense

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