

LING 580c—Metrical Phonology
Where Turkic stress falls:
Challenging final-stress analyses in Kazakh and Kyrgyz

Jonathan North Washington

6th March 2006

Abstract

Turkic languages are typically described in the literature as having word-final stress. This is complicated by several factors, as will be shown through examples from Kazakh and Kyrgyz. These languages have a handful of extrametrical word-final morphemes which receive no stress; in some cases, these morphemes are reduced and word-final stress is restored, in spite of a universal preference against word-final stress. Additionally, words borrowed from Russian may retain their original stress, giving some words in Kazakh and Kyrgyz intrinsic non-final stress. These phenomena are further complicated by evidence that stress isn't word-final, but phrase-final; that there's secondary word-initial stress, which isn't realised by pitch like the word-final stress; and that the exact position of primary stress in a word may affect the interpretation of a sentence—all of which are challenges for providing a theoretically unified analysis of Turkic stress.

1 Introduction

Kazakh and Kyrgyz, two closely related Turkic languages spoken in Central Asia, remain poorly documented in many regards, despite their status as national languages with millions of speakers each. The majority of descriptive work available on these languages makes little effort to provide a detailed account of the stress systems; most existing accounts are relegated to a few sentences within chapters on phonology. Perhaps the most thorough of these accounts are Kirchner (1998) and)—both found in the same reference volume on Turkic languages—but they are still quite brief.

This paper explores two phenomena which are often overlooked by the descriptive literature: the reduction of extrametrical morphemes which results in the restoration of word-final stress, and the preservation of non-final stress in foreign words. These two issues open the door into many more questions regarding the position of stress in Turkic languages, and moreover, what constitutes a prosodic word; I'll attempt to account for these issues independently of other questions, but since more questions are raised than answered, this paper should be seen as the hatching grounds for further research.

I will be ignoring data from other Turkic languages in this paper,¹ though issues equivalent to the ones explored here have been investigated by Kabak and Vogel (2001), where a thorough analysis of both foreign-word stress and unstressable morphemes in Turkish is presented—the conclusions are best left out of this paper, but it's worth noting that the phenomena described are very similar to the ones I describe here for Kazakh and Kyrgyz.

¹Data for this paper was gathered informally from several native speakers of Kazakh and one native speaker of Kyrgyz; I'm am grateful to them for their time, and to everyone who has made suggestions and contributed to the evolution of this research.

2 The Problem

Kazakh and Kyrgyz are typically characterised in the literature as having primary stress word-finally (a rising tone on the last syllable (Kirchner, 1998, 320)). Some of the literature recognises various factors—such as extrametrical morphemes—which add a small complication to the word-final analysis. A fact that the primary literature overlooks is that some of the extrametrical morphemes in Kazakh and Kyrgyz (namely the 1st person singular and 3rd person verb endings) may reduce by deleting their syllabic content. This restores the status of the stressed syllable to word-final position, suggesting that the universal constraint against stressing final syllables is ranked rather low in Kazakh and Kyrgyz.

Futhermore, it would seem that recent foreign borrowings often retain their foreign stress. All of this is further complicated when it's considered that stress does not appear to be word-final, but in fact phrase-final (Vajda, 1994, 645);² that there is a secondary, word-initial “stress accent”³; and that the location of primary stress may change to provide semantic focus. I will be looking at how data to determine how these various phenomena interact and what sorts of analyses can be used to account for them. This will lead to my conclusion, which is more of a starting point for more research—a suggestion that Kazakh and Kyrgyz stress (and likely that of other Turkic languages) is word-initial, and the observed word-final stress is in fact phrasal stress.

²Abuov (1994, 42) appears not to agree with this analysis, but doesn't look at it in depth.

³Kirchner (1998, 320) distinguishes the word-final “pitch accent”, which he describes as a rising tone, from a “stress accent” which “normally” falls on the first syllable; (Axmatov et al., 1975, 25-26) mentions a weaker secondary stress “на один из первых слогов [on one of the first syllables]”. It is possible that there is variation in terms of which syllable this secondary stress lands on, and since no data is ever presented, and I have none of my own, this is a topic which should be investigated at some point.

3 Extrametricality Effects

3.1 Extrametricality in Kazakh

Kirchner (1998, 320) notes various exceptions to stress in Kazakh: “expressive words,” onomatopœias, reduplication, imperatives, and interrogative pronouns, and a handful of extrametrical morphemes. These extrametrical morphemes include copulas (**-MIIn**,⁴ **-sIŋ(dAr)**, **-dI**,⁵ **-MIz**, **-sIz(dAr)**), negation **-MA**, adverbial **-sA**, equative **-DAy**, interrogative **-MA**, instrumental **-Men(en)**, affirmative **Koy**, restrictive **Kana**, and emphatic **-sI**. This leads to contrasts like Kazakh *оқушымыз* [wɒχəwʃəmɔz] (1a) vs *оқушымыз* [wɒχəwʃəmɔz] (1b):⁶

- | | | | | | | | | | | |
|-----|----|-------------------|-----------|------------|-------------|----|---------------|-----------|------------|-------------|
| (1) | a. | <i>оқи</i> | <i>-w</i> | <i>-сі</i> | <i>-міз</i> | b. | <i>оқи</i> | <i>-w</i> | <i>-сі</i> | <i>-міз</i> |
| | | study | INF | DOER | COP.1ST.PL | | study | INF | DOER | POSS.1ST.PL |
| | | ‘we are students’ | | | | | ‘our student’ | | | |

3.2 Reduction of extrametrical morphemes

To explore the phenomenon of extrametrical reduction in Kazakh and Kyrgyz, it might be relevant to mention other research which indicates that non-extrametrical unstressed low vowels in Kazakh are reduced in length by over 50%, and high vowels nearly to elision (Vajda, 1994, 645). There is also some data suggesting that the quality of vowels might be affected directly by stress (Aralbaev, 1970), but Vajda (1994, 645) claims that this isn’t the case.

⁴The copular morpheme **-MIIn** is different from the verb ending **-mIn**; this will be discussed in more depth later.

⁵The morpheme **-dI** isn’t actually a copular ending; this will be discussed further later.

⁶This example is from Kirchner (1998, 320), but similar examples are given in Vajda (1994, 646)

Despite the shortening and near elision of unstressed vowels, only segments in a few extrametrical syllables may be completely deleted. The first person singular verbal agreement suffix (**-mIn**), the third person verbal agreement suffix (**-dI**), and the instrumental case morpheme (**-Menen**)—all unstressable—may be reduced by a syllable; in the case of the agreement suffixes, this restores word-final stress.

The segments in these morphemes are deleted so that a syllable’s worth of content is lost. The examples below depict this alternation for Kazakh *билém(иң)* / Kyrgyz *булém(ун)* (2)⁷ and Kazakh *билéd(i)* / Kyrgyz *булéd(3)*.

(2) *bil -e -m(in)*
 know -PRES -1st.SG
 “*I know.*”

(3) *bil -e -di/-t*
 know -PRES -3rd
 “*S/he/it/they know(s).*”

The contexts in which the reduction of each morpheme is acceptable vary.⁸ The following table summarises these differences:

	-mIn → -m	-dI → -t	Menen → -Men
Kazakh	very colloquial	very colloquial	all but literary
Kyrgyz	all but literary	mandatory	rare
(Tatar)	all but literary	—	—

3.3 An OT analysis

A constraint-based analysis is capable of explaining the reduced forms and the unreduced forms separately. It would likely be possible to account for the alternation by employing a

⁷Compare Kazan Tatar *белэм* (from **bilä-män*).

⁸It may be interesting to note that these three morphemes were already considerably reduced historically, and underwent changes not expected of a full prosodic word: **-mIn** ← **man* ‘I’; **-dI** ← **tur* ‘stand’; **menen** ← **birlän* ‘joined to’.

framework such as stochastic OT, partial ordering, or any other constraint-based framework meant to account for varying output. For this paper, two separate analyses will be presented, and it will be assumed that they can be reconciled within one of those frameworks.

The constraints I will be using are summarised colloquially as follows:

- (4) *[…PWA…]PW — Certain morphemes must not be part of the prosodic word⁹
- (5) PARSE-SYL — Possible syllabic content is metrified
- (6) MAX-IO — Input correspondents have output correspondents (don't delete)
- (7) *VOICED-CODA — Don't voice codas
- (8) IDENT-IO(voice) — Preserve voicing between input and output
- (9) NONFINALITY — No word-final stress

In order to obtain affix shortening, I propose the following ordering of the constraints:

- (10) *[…PWA…]PW, PARSE-SYL » MAX-IO » *VOICED-CODA » IDENT-IO(voice) »
NONFINALITY

Note that IDENT-IO(voice) and NONFINALITY are ranked fairly low; these are included in the ranking to depict the lack of their necessity in Kazakh, and will only be included in any tableaux as such. The proposed constraint ranking can be supported by being applied to examples (2) and (3), in the tableaux in (11) and (12) respectively.

⁹This is used by Kabak and Vogel (2001, 355) in an OT account of Turkish stress; the class of morphemes in question is called Phonological Word Assigners, which close a phonological word to their right. For this constraint to be universal, it would need rely on a language-specific definition of what constitutes a PWA. Since the constraint works well for the analysis here, I'll assume that it is unproblematic.

(11) bile-mIn \rightarrow bilém

/bile-mIn/	*[...PWA...] _{PW}	PARSE-SYL	MAX-IO
a. ☞ [bilé] _{PWm}			**
b. [bilém] _{PW}	*!		**
c. [bilé] _{PWmi}		*!	*
d. [bilémi] _{PW}	*!		*
e. [bilé] _{PWmin}		*!	
f. [bilémin] _{PW}	*!		

(12) bile-dI \rightarrow bilét


/bile-dI/	*[...PWA...] _{PW}	PARSE-SYL	MAX-IO	*VC-CODA	IDENT-IO(vc)
a. ☞ [bilé] _{PWt}			*		*
b. [bilét] _{PW}	*!		*		*
c. [bilé] _{PWd}			*	*!	
d. [biléd] _{PW}	*!		*	*	
e. [bilé] _{PWdi}		*!			
f. [bilédi] _{PW}	*!				

The following reordering of constraints can be used to explain the preservation the segments of the extrametrical morpheme:



(13) MAX-IO \gg *[...PWA...]_{PW}, PARSE-SYL

In reality, this would yield two viable candidates, but they are segmentally equivalent and differ only in where the edge of the phonological word falls, so the desired candidate is tentatively selected. This is depicted for examples (2) and (3) in (14) and (15) respectively.

(14) bile-mIn → bilémin

/bile-mIn/	MAX-IO	*[...PWA...] _{PW}	PARSE-SYL
a. [bilém] _{PW}	*!*	*	
b. [bilémi] _{PW}	*!	*	
c.  [bilé] _{PW} min			*
d.  [bilémin] _{PW}		*	

(15) bile-dI → bilédi

/bile-dI/	MAX-IO	*[...PWA...] _{PW}	PARSE-SYL
a. [bilét] _{PW}	*!*	*	
b. [biléd] _{PW}	*!	*	
c.  [bilé] _{PW} di			*
d.  [bilédi] _{PW}		*	

Interestingly, other verb agreement morphemes, including **-sInj** and **-mIz**, never reduce, despite their phonological similarities with **-mIn**. This is similar to the quartet of present tense auxiliaries where the older forms ***tur+<ir>**, ***otir+<ir>**, ***jür+<ir>**, ***jat+<ir>** simplified to **tur**, **otir**, **jür**, and **jat<ir>** respectively. As is evident from which forms lost the extrametrical morpheme, the pattern is due to similar sounds on opposite sides of a nearly epenthesised vowel. The same can probably be said to explain why **-mIn** and **-Menen** reduce, but why e.g., **-sInj** and **-mIz** do not. Given the failure of the presented analysis to deal with **-Menen**, this alternate analysis (the reduction of near-reduplicated syllables) is probably worth investigating at a later time.

It should also be noted that the copula **-MIn** is not reducible like the agreement mor-

pheme. This further differentiates copulas from agreement morphemes—two historically identical classes. The difference in their phonological behaviour suggests that they have begun to split grammatically as well.

4 Loan Words

It can be said that there are two types of foreign loan words in Kazakh—those fitting Kazakh phonology, and those not fitting Kazakh phonology ((Vajda, 1994, e.g. 623) divides these based on when they entered the language—the former pre-1917, and the latter post-1917).

For example, older borrowings from Russian include the following:

(16) *ящик* /jɛʃʲik/ ‘box’ → *жәшік* [ʒæʃik]

(17) *машіна* /mɐʃʲinə/ ‘car’ → *машине* [maʃmɛ] (Kyrgyz)

(18) *цёрковь* /tsɛrkəʃ/ ‘church’ → *шіркеу* [ʃɪrkɛw/]

More recent borrowings, such as the following words, retain original Russian pronunciation and stress:

(19) *тэхникум* ‘technical school’

(21) *компьютер* ‘computer’

(20) *сінтаксис* ‘syntax’

(22) *автóбус* ‘bus’.¹⁰

The data gathered for this paper was difficult to interpret as to whether the foreign stress becomes secondary or remains primary when suffixes are added to the word. Based on the

¹⁰I’ve avoided looking at words with final stress in Russian (such as *университет* ‘university’, *космонавт* ‘astronaut’—this includes words adapted to fit native phonology: *завыт* ← *завод* ‘factory’, *кереует* ← *кровать* ‘bed’), since it’s not obvious whether these borrowings are regularised or not in Kazakh; these could be examined in future investigations.

claims of Kabak and Vogel (2001) about Turkish, I'd guess it remains primary, but I'll leave that to further data gathering and more formal measuring techniques.

In Kazakh, a specific morpheme may be semantically focussed by receiving primary stress. The head noun of the NP of the subject in sentence (23)¹¹ may receive primary stress on the plural morpheme (24a), the possessive morpheme (24b), or the dative morpheme (24c), each with a slightly different nuance of meaning.

- (23) *Qonaq-tar-dıy at-tar-ı-na şöp sal*
 guest-PL-GEN horse-PL-POSS-DAT hay put
 “Give the guests’ horses hay.”
- (24) a. *Qonaqtardıy attárına şöp sal*
 “Give hay to all the guests’ horses, not just to one.”
 b. *Qonaqtardıy attarına şöp sal*
 “Give hay to the guests’ horses, not to anyone else’s.”
 c. *Qonaqtardıy attarıná şöp sal*
 “Give hay to the horses; don’t just put it anywhere.”

In loan words with preserved stress, the non-native stress is maintained as secondary stress when another element of the word receives primary stress due to semantic focus. The following examples illustrating this are modified from the ones above by substituting the Russian word *автмбмс*.

- (25) *Orıs-tar-dıy avtmbus-tar-ı-na şöp sal*
 russian-PL-GEN bus-PL-POSS-DAT hay put
 “Put hay on the Russians’ busses.”
- (26) a. *Orıstardıy avtmbustárına şöp sal*
 “Put hay on all the Russians’ busses, not just one.”
 b. *Orıstardıy avtmbustarına şöp sal*
 “Put hay on the Russians’ busses, not on anyone else’s.”

¹¹Modified from examples given by Vajda (1994, 646-647).

c. *Orıstardıı avtòbustarıná şöp sal*
“Put hay on the Russians’ busses, not just anywhere.”

Two facts mentioned earlier now come to bear: that there is secondary stress at the beginning of words in Kazakh (and Kyrgyz), and that stress is actually phrase-level. When considered in light of the discovery that the original stress of foreign words is preserved as secondary stress when an additional layer of phrasal stress is added, it might make sense to hypothesise that native words in fact have **word-initial** stress. It would then follow that since words can’t, in fact, exist outside of phrases, that phrasal stress is always layered on top of this, resulting in the word-final “pitch” accent described by Kirchner (1998, 320), while preserving the original, underlying real stress as secondary stress.

Again, this would be supported by the finding that foreign loans maintain their original stress as primary stress when additional phrasal stress is used. This is further supported by the fact that in Kazakh the vowels /æ/ and /jɪ/ (‘e’) alternate with /ɑ/ in the first syllable (vowel harmony), but only /jɪ/ may alternate with /ɑ/ in later syllables. Additionally, the head for vowel harmony is almost exclusively found in the first syllable of words, which means that it is extremely rare for underlying round vowels to occur in later syllables.¹²

If it is assumed that default phrasal stress is phrase-final, the only implied difference between native words and foreign words would be that native words have word-initial stress, and foreign words maintain their original stress; in both cases, the underlying primary stress would become secondary when phrasal stress is applied.

¹²Rounding harmony isn’t as profound as in other Turkic languages (such as Turkish or Kyrgyz, where it’s even represented orthographically), but surface-form rounded vowels often do occur in syllables later in the word as a result.

An analysis of this would allow for the retention of the primary stress as a secondary stress—a form of faithfulness. Since this is just a hypothesis about what is going on underlyingly, more research (data gathering, largely) is desirable before I put forth any detailed account of what might be going on.

5 Conclusions

I have examined two stress-related phenomena in Kazakh and Kyrgyz, both of which have interesting implications for the insufficiently studied phonologies of the languages.

The possibility of reducing extrametrical suffixes in these languages can be said to be based on a decision between two constraint rankings— $*[...PWA...]_{PW}$, PARSE-SYL \gg MAX-IO versus MAX-IO \gg $*[...PWA...]_{PW}$, PARSE-SYL. This reduction, in the case of the two verb agreement morphemes **-m(In)** and **-dI/-t**, can restore word-final stress, suggesting that NONFINALITY is ranked particularly low. The failure of this analysis to explain why the instrumental case **-Men(en)** doesn't reduce further and why other verb agreement morphemes (such as **-sIŋ** and **-mIz**) don't reduce at all may potentially be explained by another analysis, where similarity in sonority of the coda and the kept consonants plays a role.

I have also challenged the traditional analysis of word-final stress in Kazakh and Kyrgyz, attributing the observed effect to phrasal stress which falls phrase-finally, except when semantic emphasis demands otherwise. Instead, I have proposed that the underlying stress of native words (when not parsed into phrases) is word-initial. This claim is explored by looking at the retention of non-initial stress in foreign words as secondary stress when semantic

stress is applied elsewhere. The fact that this process is mirrored by the commonly observed initial secondary stress in native words supports the claim that underlying native stress is word-initial; additional evidence comes from the retention of vowel features in initial syllables. The only machinery needed to account for this beyond accepting that foreign words may retain their original stress is proposing that native words get word-initial stress, and though phrasal stress overrides this, word-level stress is preserved as secondary stress.

References

- ABUOV, Z. September, 1994. The phonetics of Kazakh and the theory of synharmonism. In MADDIESON, I. and CROWTHER, C. (eds.), *UCLA Working Papers In Phonetics*, volume 88.
- ARALBAEV, Z. 1970. *Вокализм Казахского Языка*. Алма-Ата: Издательство «Наука» Казахской ССР.
- АХМАТОВ, Т. К., DAVLETОВ, S., ЗНАРАРОВ, S. Z., and ZAXAROVA, O. V. (eds.) 1975. *Киргизский Язык*. Фрунзе: Мектеп.
- КАБАК, B. and VOGEL, I. 2001. The phonological word and stress assignment in Turkish. *Phonology*, 18:315–360.
- KIRCHNER, M. 1992. *Phonologie des Kasachischen*. Harrassowitz: Wiesbaden.
- KIRCHNER, M. 1998. Kazakh and Karakalpak. In JOHANSON, L. and ÉVA Á. CSATÓ (eds.), *Turkic Languages*. London and New York: Routledge.
- VAJDA, E. J. 1994. Kazakh phonology. In KAPLAN, E. H. and WHISENHUNT, D. W. (eds.), *Studies on East Asia*, volume 19: “Opuscula Altaica: Essays Presented in Honor of Henry Schwarz”, pages 603–650. Western Washington University.