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# The Vowel System of Jewish Bukharan Tajik: With Special Reference to the Tajik Vowel Chain Shift

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## Abstract

The present article describes the vowel chain shift that occurred in the variety of Tajik spoken by Jewish residents in Bukhara. It identifies the chain shift as constituting of an intermediate stage of the Northern Tajik chain shift and accordingly tentatively concludes that in the Northern Tajik chain shift Early New Persian *ā* shifted before *ō* did, shedding light on the process whereby the present-day Tajik vowel system was established. The article is divided into three parts. The first provides an explanation of the variety of Tajik spoken by Jewish inhabitants of Bukhara. The second section explains the relationship between this particular variety and other varieties that have been used by Jews in Central Asia. The third section deals specifically with the vowel system of the variety and the changes that it has undergone since the late 19th century.

## Keywords

Tajik – New Persian – vowel system – Judeo-Iranian – Bukharan Tajik – Bukharan Jews

## Introduction

This article is concerned with the vowel system of the variety of Tajik spoken by the Jewish residents in Bukhara. It compares the vowel system of this particular variety with that of the same variety reconstructed based on a century-old text. The comparison shows that the variety likely underwent a vowel chain

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shift in which /o/ and /ɔ/ became /ø/ and /o/, respectively. The present article identifies this chain shift as constituting part of the Northern Tajik vowel shift. Following the introduction, this article is organized in three sections. The first section provides an explanation of the variety of Tajik spoken by the Jewish inhabitants of Bukhara. The second explains the relationship between this variety and other varieties that have been used by Jews in Central Asia. The third section traces the changes that have taken place in the vowel system of the variety in question.

### The Language of Jews in Bukhara

The language variety whose vowel system is described in this article is Bukharan Tajik as spoken by the Jewish inhabitants of Bukhara.<sup>1</sup> This article refers to this variety as Jews' Bukharan Tajik (hereafter abbreviated as JBT), offering no stance on its linguistic distinctiveness from Bukharan Tajik or its uniformity with other (Tajik) varieties spoken by Jews in Central Asian towns other than Bukhara (such as Samarkand, Kokand, Dushanbe, and Tashkent). Accordingly, in this article, the term 'Bukharan Tajik,' when used in contrast with JBT, is to be understood as referring to 'Bukharan Tajik as spoken by non-Jewish inhabitants of Bukhara,' or 'Bukharan Tajik in general.' Also, no assumption is made in the present article that JBT is sufficiently autonomous to be regarded a separate language from Bukharan Tajik.<sup>2</sup> Not only are JBT and Bukharan Tajik mutually fully intelligible, but residents of Bukhara do not appear to regard JBT as distinct from Bukharan Tajik; nor do Jewish residents of Bukhara appear to be perceived by their fellow townsmen, namely Bukharan Tajik speakers, as having a discernible accent, let alone a distinct dialect or language.<sup>3</sup> Apparently the perception that JBT does not differ from Bukharan Tajik is shared by my Jewish consultants, all of whom declared the main language they use with their parents to be /todziki/ 'Tajik,' which, in the context of

1 For a concise description of Bukharan Tajik and a note on its mutual (un)intelligibility with the standard Tajik of Tajikistan and Iranian Persian, see Ido 2012:13–14; 2014.

2 In fact, whether JBT has ever been sufficiently unique to be regarded a separate language from Bukharan Tajik is open to debate. This situation is comparable to that of Crimean Karaim, whose autonomy from Crimean Tatar has been an issue of contention (see, e.g., Jankowski 2003:109–112).

3 See, for instance, the transcript of an interview with a Bukharan university lecturer (Ido 2007:86), where the interviewee dismisses the idea that Jew's Bukharan Tajik may be different from his Bukharan Tajik.

our interviews,<sup>4</sup> referred more or less specifically to Bukharan Tajik.<sup>5</sup> Clearly, at the time of fieldwork (August 2013), linguistic discrepancies, if any, between JBT and Bukharan Tajik were either negligible or indiscernible for the average Bukharan Tajik speaker, as they were for my Jewish consultants in Bukhara.<sup>6</sup>

To be sure, a distinction between JBT and Bukharan Tajik has historical relevance, at least in written language. Pre-Soviet texts written by Jews from Bukhara<sup>7</sup> exhibit some peculiarities, if primarily in the lexicon and/or script,

4 During fieldwork, the majority of the questions directed towards the consultants were asked (in Bukharan Tajik, in which /todziki/ primarily refers to Bukharan Tajik) by an assistant who is a non-Jewish native speaker of Bukharan Tajik. The present author would intervene in interviews speaking both Bukharan Tajik and Uzbek.

5 Indeed, one of the consultants, after stating that the language he uses at home was /todziki/, paraphrased it as /buḫoroja todzikec/ '(the) Tajik (language) of Bukhara.'

6 Invoking Benor's (2008:1068) theoretical construct of 'the distinctively Jewish linguistic repertoire,' the Jewish residents in Bukhara may be seen as not having a large distinctively Jewish linguistic repertoire at their disposal. There may exist linguistic features or combinations thereof which, while not manifest at the level of consciousness, distinguish the speech of Jews in Bukhara from that of the non-Jewish inhabitants. However, even if they do, it would prove difficult to demonstrate with any certainty that such linguistic features are unique to the speech or writings of Jews in Bukhara, because Bukharan Tajik is not a standardized variety and accordingly allows for a wide range of idiosyncrasy in pronunciation and grammar among its speakers. For instance, one of my consultants used /zubon/ for 'language,' for which, incidentally, Ḥakham (1902/3: unpaginated preface) uses לְשׂוֹן 'language,' while my non-Jewish Bukharan assistant used /zabon/. However, both /zabon/ and /zubon/ exist in Bukharan Tajik in general and, accordingly, /zubon/ cannot be associated exclusively with the speech of the Jews of Bukhara. Another consultant used /oilo/ for 'family,' for which most of the Bukharans I know use /oila/, but determining whether /oilo/ is uniquely JBT would be difficult for the same reason. Incidentally, a dictionary compiled by a Jew from Bukhara has *оила* 'oila' 'family' as an entry (Gulkarov 1998:240). According to the compiler (Gulkarov 1998:19), the phoneme transcribed with <ъ> is the voiced pharyngeal 'plosive' (*взрывной звук*), by which he probably means either the voiced pharyngeal fricative [ʕ] or the voiceless glottal plosive [ʔ]. The glottal plosive is present in the consultant's pronunciation of /oilo/, but here again no exclusive association between the sound and JBT can be established, because the glottal plosive preceding the word-initial vowel is a feature of Bukharan Tajik in general (see Ido 2014:90).

7 They include *Dāniyal-nāma* written in 1606 by Khwāja Bukhārāī, a 17th-century Jewish author who was apparently from Bukhara (Shapira 2010a:25; 2010b:161), works of Yūsuf Yahūdī (Bacher 1899), who was also apparently from Bukhara (see Moreen 2000:147, 269), and works of Simon Ḥakham (see the third section). Khwāja Bukhārāī is variously referred to as Khwājah Bukhārāī (Margoliouth 1894:119), Khwaje of Bukhara (Shterenhis 2002:84), Khāja Bukhārāī (Lazard et al. 2007:555). There also exist other pre-Soviet texts written by Bukharan Jews, such as *Khudāidād* (Salemann 1897; Bacher 1898; Moreen 2000:238–242;

that set them apart from other texts originating from Bukhara. For example, a literary prose work written by Simon Ḥakham, a Jew from Bukhara, is sprinkled with Hebrew words, e.g., לשון הקודש 'holy tongue' (Ḥakham 1902/3: unpaginated preface), and in this respect contrasts with texts written by Ḥakham's non-Jewish contemporaries. JBT may also have served as a basis for the semi-standardized 'language of local Jews' (see the explanation of ZJM in the following section), which was apparently devised so as to be distinct from the Tajik of non-Jewish Tajik speakers.<sup>8</sup> Hence, in the view of those who were involved in the standardization, JBT could be identified as distinct from the Bukharan Tajik of non-Jews.<sup>9</sup> Clearly, however, these facts do not entail the linguistic autonomy of JBT as a spoken variety from Bukharan Tajik. In addition, even if we assume the existence of linguistic features or particular combinations thereof which, while not manifest at the level of consciousness, distinguish the speech of Jews in Bukhara from that of non-Jewish inhabitants, JBT can still be unproblematically identified as belonging to Northern Tajik dialects, of which Bukharan Tajik is one.

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Birnbaum 2011a), the authors of which, however, are not demonstrably from the town of Bukhara or its vicinity.

- 8 "Wherever the phonemic structure of the Bukharan Jewish alphabet project differed from the common Tajik one, it reflected features that actually existed in other—though not all—Tajik dialects too. Nevertheless, Bukharan Jews regarded these features as genuine characteristics of their dialect..." (Rzehak 2008:46).
- 9 There are also a number of people intent on identifying 'the Jewish dialect of Tajik' (see the following section) as a distinct language variety, most conspicuously among Jews who emigrated from Central Asia. If, as Romaine (2000:23) writes, "the very existence of languages critically depends on the availability of a social group who claims a variety as their own and maintains its distinctiveness from the varieties spoken by its neighbours" and the "[d]istinctiveness can be either wholly or partly imagined," the existence of such people may be enough to establish JBT as a distinct linguistic variety (albeit indirectly, because JBT would comprise only part of 'the Jewish dialect of Tajik'; see the following section). Whether the Tajik language as it is spoken by Jews in Central Asia in general qualifies as a distinct variety is a matter of debate. For example, Borjian (2015:264) remarks that "should their [i.e. Bukharan Jews'] language be deprived of its Hebrew script, its distinction from the Tajik language would be lost as well." Rzehak (2008:49) also states that "Bukharan Jews cannot be distinguished from other speakers of Persian or Tajik in Central Asia by phonetic or morpho-syntactical criteria..." These statements indicate that Central Asian Jewish speech does not meet the usual criteria for a language/dialect in the ordinary sense. Indeed, in as early as 1929, the language of the Jews of Bukhara (بۇخارا يەھודيلاري, *bukhara yāhudilāri* 'Jews of Bukhara / Bukharan Jews') was described as being identical to that of Tajiks (Kāntir 1929:34), which arguably bespeaks the lack of conspicuous linguistic discrepancies between Tajik and Central Asian Jewish Tajik.

Northern Tajik dialects constitute one of the four major dialect groups into which Tajik dialects are typically classified.<sup>10</sup> Northern Tajik dialects are characterized primarily by their vowel phonology, on which standard Tajik vowel phonology is essentially based.<sup>11</sup> They comprise not only JBT and Bukharan Tajik, but also the dialects of such major cities as Samarkand and Xujand.

### 'Bukharan Jews,' 'Jews in Bukhara,' and 'the Jewish Dialect of Tajik'

Before we proceed to a discussion on the vowel system of JBT, an explanation of the potentially confusing term 'Bukharan Jews' is in order. The Jewish residents of the town of Bukhara, with whose language we are concerned in this article, constitute not all, but only a subgroup of 'Bukharan Jews.' Despite the presence of the adjective 'Bukharan' in the term, 'Bukharan Jews' is "the common appellation for the Jews of Central Asia whose native language is the Jewish dialect of Tajik" (Zand 1990).<sup>12</sup> On the other hand, the Jewish inhabitants of the town of Bukhara, with whose language this article is concerned, are very few in number. The companion book to a documentary film about the Silk Road numbers Jews in Bukhara at 'about one hundred and fifty in 2006' (Yabe 2007:186).<sup>13</sup> As for their present state, an inference can be made, based on remarks made by one of my consultants, that Jewish households in the town of Bukhara numbered a few dozen at the time of my fieldwork (i.e., the summer of 2012).

The term 'the Jewish dialect of Tajik'<sup>14</sup> in the encyclopedia entry cited above also calls for an explanation, because, perhaps contrary to what the term may lead one to think, the referent of 'the Jewish dialect of Tajik' is not always clear or monolithic. In some contexts, the term may refer to *zaboni jahudihoi mahali*

10 The other groups of Tajik dialects are Central, Southern, and Southeastern. The reader is referred to Ešniëzov 1977, particularly pp. 62–64, for different classifications of Tajik dialects.

11 Indeed, Bukharan Tajik served as a primary basis for standard Tajik phonological norms.

12 A Jew from Samarkand, for instance, can be identified (and/or identify himself) as a Bukharan Jew. Disagreement seems to exist among Bukharan Jews as to the appropriateness of the term as their self-designation. See Cooper 2012:127–129, 242–243.

13 Yabe (2007) cites no source for this information.

14 The term 'the Jewish dialect of Tajik' is often used interchangeably with such terms as Judeo-Tadzhik, Judeo-Tajik, Bukhori, Bukhari, Bukharic, Bukharan, Bukharian, and Bukharit (Cooper 2012:284) in the literature.

‘(the) language of local Jews’ (hereafter ZJM),<sup>15</sup> a semi-standardized language in which textbooks and newspapers were published in the 1910s, 1920s, and 1930s, inspired by the notion of a single standardized language for Bukharan Jews in Uzbekistan and Tajikistan. In some other contexts the term may be used in reference to the entirety of the different varieties spoken by Jewish residents in various Central Asian towns such as Samarkand, Bukhara, Kokand, Tashkent, and Dushanbe.<sup>16</sup> Used in this sense, what the term refers to is not a monolithic entity, but a set of varieties.<sup>17</sup> In yet other contexts, it may refer not only to the varieties spoken by Jews in Central Asia, but also to those that are spoken by Jews of Central Asian origin (i.e., Bukharan Jewish émigrés). Thus, the term ‘the Jewish dialect of Tajik’ can refer to different language varieties or certain combinations thereof.

Incidentally, the semi-standardized language mentioned above, namely ZJM, is said to have been based on ‘the dialects of Bukhara and Samarkand’ (Rzehak 2008:49–50). One may therefore be tempted to consider the Jewish varieties of Tajik in the Bukhara-Samarkand area to be largely uniform, and regard remarks made on, say, that in Samarkand to be applicable also to JBT. After all, the Tajik varieties spoken in Bukhara and Samarkand are often jointly referred to as *ševahoi tojikoni Samarqandu Buxoro* ‘the dialects of the Tajiks of Samarkand and Bukhara’ (Ešniëzov 1977:65) or as ‘the northern dialects of Samarkand and Bukhara’ (Comrie 1981:164) in the literature. Taking the Tajik variety of Samarkand Jews as identical with JBT may therefore seem unproblematic. This, however, is an oversimplification. While the Tajik dialect of Samarkand is indeed closely related to and mostly mutually intelligible with Bukharan Tajik, as any Tajik-speaking residents of Bukhara and Samarkand would testify, lexical and morphological differences exist between Bukharan Tajik and Samarkandi Tajik. A review of Tajik dialectology (e.g., Ešniëzov 1977; Rastorgueva 1964) also reveals a number of features that separate the two varieties. It is therefore unrealistic to assume that Jewish residents of Bukhara

15 Such terms as *zasoni jahudihoi mahali (buxori)* ‘(the) language of (Bukharan) local Jews’ and *zuvoni jahudihoji buxori* ‘(the) language of Bukharan Jews’ were also used in reference to ZJM, which was rendered into Uzbek as *مەھاللى يەھודى تىلى* *mähälli yähudi tili* ‘local Jewish/Jew language’ (Kántir 1929:35). In a textbook (Badalov et al. 1926), it is referred to simply as *מאָדערן ייִדיש* ‘mother tongue.’

16 The varieties that the term ‘the Jewish dialect of Tajik’ refers to may sometimes include even those spoken by Bukharan Jews from Afghanistan.

17 Cooper (2012:243–246) describes occasions where the differences between the varieties used by Bukharan Jews cause communication difficulties. No authoritative standardization exists among the varieties spoken by Bukharan Jews at present.

and Samarkand have always shared a single dialect, but that their non-Jewish counterparts have not.

In fact, not only was ZJM different from JBT, it apparently underwent a process of ‘Samarkandization’ starting in the late 1920s.<sup>18</sup> ZJM spelling conventions evinced features of the Tajik of Samarkand Jews, particularly from the late 1920s onwards, resulting in ZJM taking on more ‘Samarkand-Jewish’ (and hence less JBT) characteristics in the 1920s and 1930s. There is one easily noticeable feature of ZJM that testifies to the increased ‘Samarkandiness’ of ZJM in this period, which coincided with the introduction of a Latin-based writing system. Among the features newly introduced into ZJM then was a spelling convention involving the post-vocalic /b/. The post-vocalic /b/ previously written with <ב> (as in *בִּיתָאָב/בִּיתָאָב* ‘book’), was now written <v> in a number of words such as *kitov* ‘book’ (Rzehak 2008:48). This use of <v> probably reflected the fricativization of the post-vocalic /b/, which is a feature of Samarkandi Tajik and the Tajik of Samarkand Jews (see Zarubin 1928; Rastorgueva 1964:47). On the other hand, JBT, in which the post-vocalic /b/ in such words as /kitob/ ‘book’ and /kabud/ ‘blue’ is the voiced bilabial plosive today as it probably was a century ago, lacks the fricativization of the post-vocalic /b/, and in this respect contrasts with the Tajik of Samarkand Jews. For example, in the JBT of Ḥakham (1902/3), the word for ‘book’ appears as *בִּיתָאָב* (Ḥakham 1902/3: unpaginated preface), and not as *בִּיתָאוּו*. The word for ‘sleep, dream’ appears as *כָּאוּו* (Ḥakham 1902/3, e.g., on the 8th facing pages), and not as *כָּאוּו*. In contrast, in the vocabulary of the early 20th century Tajik of Samarkand Jews (Birnbaum 2011b:460), one finds such words as *xov* ‘sleep, dream,’ the last letter of which arguably represents a fricative consonant and which contrasts with JBT /χob/ ‘sleep.’ Also, JBT /kabud/ ‘blue’ contrasts with *kavud* ‘blue’ that appears in a book published in 1934 in ZJM (reproduced in Gulkarov 1998:15). Thus, the use of <v> in the place of the post-vocalic JBT /b/ in a number of words written in

18 This may have been due to an increase in the number of Jewish residents in the Samarkand province, which grew from 2,000 to 12,380 between 1873 and 1914 (Levin 2015:11). By 1926 Samarkand had become “the area with the largest concentration of Bukharan Jews” in the USSR (Zand 1991:404, 1992) and “[w]hile claiming that the written language should be close to the spoken language of the Bukharan Jews, most intellectuals only had in mind the vernacular of Samarkand that they knew best” (Rzehak 2008:47–48). (See also Rzehak 2008:49–50, according to which the issue of which dialect should constitute the basis of ZJM was never on the agenda in the process of its standardization.) In contrast, in 1902 a traveller (Inoue 1903:163) observed that Jews in Turkestan lived mainly in the town of Bukhara, which “apparently became a center of Jewish life in Central Asia in the 16th century” (Zand 2007:258).

ZJM serves as an example of non-JBT Samarkandi features found in ZJM. This, in turn, is an indication that not every feature of ZJM is shared by JBT.

Accordingly, it seems reasonable to assume that the remarks made about the Tajik of Samarkand Jews do not necessarily apply to JBT. In conclusion, variation among different varieties spoken by the Jewish inhabitants of Central Asia implies that whatever is said or written about ‘the Jewish dialect of Tajik’ or about ZJM is not necessarily applicable to JBT and vice versa.<sup>19</sup>

### The Vowel System of JBT

Rastorgueva (1964:31–41) shows that the vowel systems of Tajik dialects exhibit wide variety in the number of their phonemes (ranging from five to nine) and in their inventories (only /e/ and /o/ are shown to be shared by all of them).<sup>20</sup> Tajik dialects also vary in the ways they contrast or do not contrast vowel length (see, e.g., Ido 2014:98). The vowel system of JBT, which will be described in the immediately following section, is of a type commonly found among Northern Tajik dialects, which constitute a dialect group vis-à-vis Southern, Central, and Southeastern groups of dialects.

19 For example, in his dictionary of ‘Bukharian,’ Gulkarov (1998:19) devises a letter (⟨x⟩ with two descenders) which can be construed to represent the sound [ħ]. However, this does not necessarily point to the presence or absence of /ħ/ in JBT. He may have included it in the dictionary simply because one of the ‘Bukharian’ alphabets proposed in the early 20th century contained a letter for /ħ/, namely ⟨ħ⟩, or because Samarkand Jews had it as a phoneme (Samarkand Jewish Tajik, but not JBT, has been reported to have /ħ/; see Ešniëzov 1977:65). More recent attempts by Central Asian Jewish émigrés to devise a written language are not necessarily representative of JBT either. In particular, Tolmas’ (2010) ‘Judeo-Tajik’ contains expressions that are distinctly un-JBT. Other attempts include that of Gulkarov (1998), who devises a new set of Cyrillic letters for what he calls *zaboni yahudiëni buxori* ‘(the) language of Bukharan Jews’ (his alphabet appears to be based mostly on the Tajik Cyrillic alphabet), and Rybakov (2011), who devises a set of Latin letters for ‘Bukharian’ (the alphabet is different from the Latinized alphabet that was in use in Central Asia in the 1930s).

20 Buzurgzoda (1940:30–31) describes the various vowels used in Tajik dialects with as many as eighteen symbols, some of which he uses in combination with diacritics.



*The Vowel System of Present-day JBT*

The vowel inventory of present-day JBT consists of six phonemes, namely /i e a ə o u/.<sup>21</sup> Figs. 1–4 show the mean formant frequencies of these vowels which four Jewish residents of the old town of Bukhara produced in the test words of /sax/ ‘hard,’ /se/ ‘three,’ /si/ ‘thirty,’ /soxt/ ‘s/he made,’ /soxt/ ‘s/he burnt,’ and /suq/ ‘evil eye.’<sup>22</sup> The bullet in each scatterplot represents the centroid of the consultant’s vowel space. The consultants (two males and two females), whose years of birth range from 1960 to 1990, are all native JBT speakers who routinely code-switch to Russian. They also possess competence in Uzbek, but they were evidently much more comfortable communicating in JBT than in Uzbek.

What is immediately evident even from a quick glance at Figs. 1–4 is that the JBT vowel system is virtually identical with that of Bukharan Tajik (see scatterplots in Ido 2014:94). In other words, JBT and Bukharan Tajik share a single vowel system. This finding is in agreement with the perception of Bukharans that JBT does not differ from Bukharan Tajik (see the first section).

Not only are the vowel systems of JBT and Bukharan Tajik virtually identical, but so are the generational and gender differences within each variety. A comparison of Figs. 1 and 3 with Figs. 2 and 4 reveals a generational difference in the position of /ə/. The younger consultants produce a more fronted /ə/ than their older counterparts, suggesting an ongoing fronting of /ə/ in JBT. On the other hand, a comparison of Figs. 1 and 2 with Figs. 3 and 4 shows that the fronting is more prominent in the female consultants’ pronunciation than in the male consultants’ pronunciation.<sup>23</sup> These differences are shared by Bukharan Tajik,

21 I do not discuss diphthongs here because there does not seem to be good reason at the phonological level to argue for the existence of diphthongs in JBT (or in standard Tajik for that matter), though diphthongs are reported to exist in other dialects (see, e.g., Buzurgzoda 1940:35, 40, 41). Huseynov & Šukurova (1983:44) write that diphthongs are not inherent in Tajik, but occur phonetically.

22 Among these words, /se/ and /si/ were randomized along with thirteen other monosyllabic numerals to form four sets of word lists, while /sax/, /soxt/, /soxt/, and /suq/ were similarly randomized with twenty-three other Bukharan Tajik words to form another four sets of word lists. Consequently, a total of four repetitions were recorded for each of the test words. Formant frequencies were measured with Praat (Boersma & Weenink 2014). The calculation of mean formant values was made on the NORM website (Thomas & Kendall 2007). The recordings took place in the household of a Jewish family and in a school for Jewish children, both of which were in the old town of Bukhara, as of the time of fieldwork (August 2013). I would like to thank the consultants, and particularly the one I interviewed in the school for Jewish children, for participating in this investigation.

23 Formant frequency data obtained from four consultants are admittedly insufficient to discern variations in the JBT vowel system, even considering the fact that the four individuals

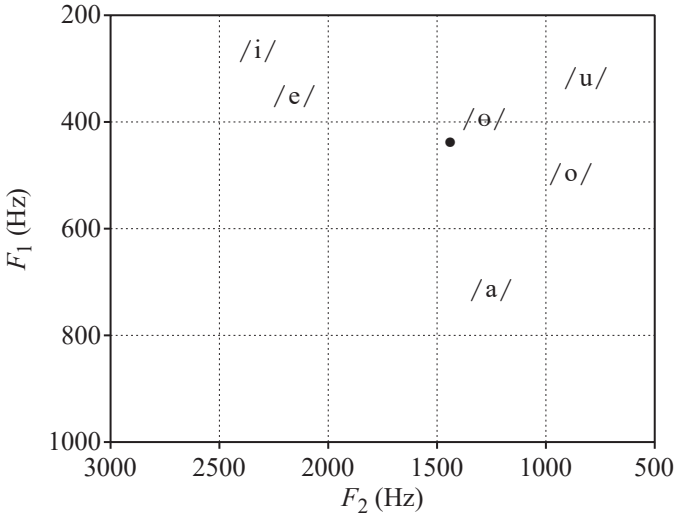


FIGURE 1 Mean F<sub>1</sub> and F<sub>2</sub> values of the JBT vowels in /saχ, se, si, soχt, seχt, suq/ produced by a male informant in his early twenties

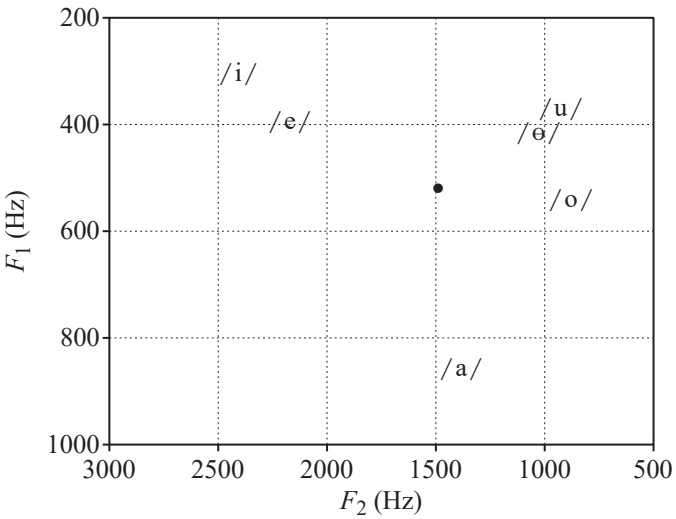


FIGURE 2 Mean F<sub>1</sub> and F<sub>2</sub> values of the JBT vowels in /saχ, se, si, soχt, seχt, suq/ produced by a male informant in his early fifties

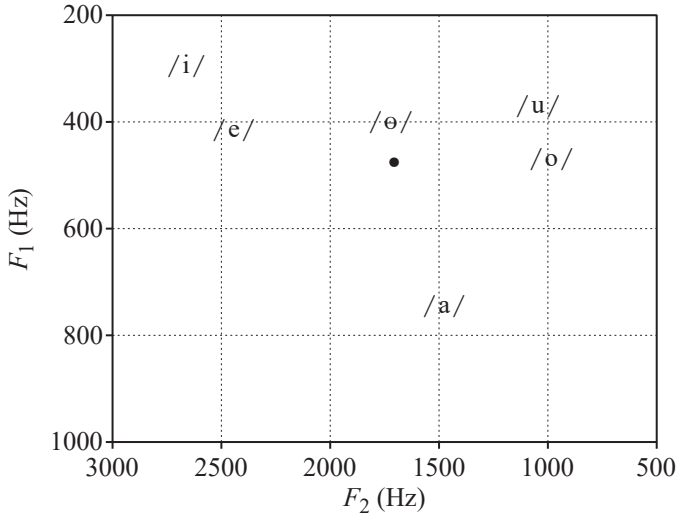


FIGURE 3 Mean  $F_1$  and  $F_2$  values of the JBT vowels in /saχ, se, si, soχt, soχt, suq/ produced by a female informant in her early forties

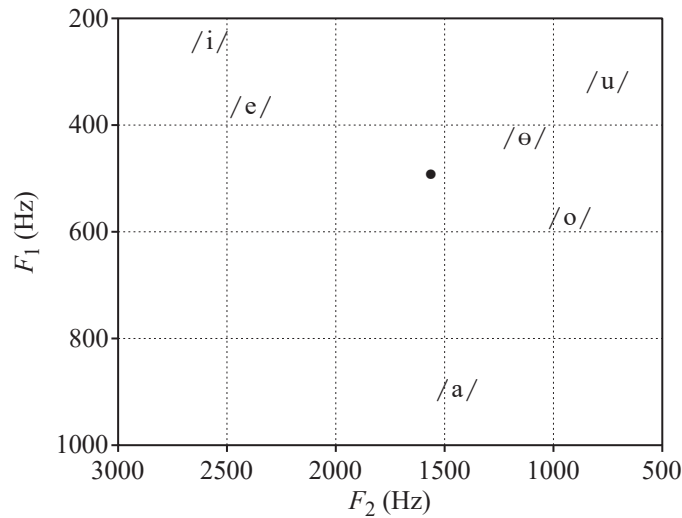


FIGURE 4 Mean  $F_1$  and  $F_2$  values of the JBT vowels in /saχ, se, si, soχt, soχt, suq/ produced by a female informant in her late forties

in which there is a general tendency for the position of /ø/ to be more front in the speech of younger females.<sup>24</sup>

The observed fronting of /ø/ and the fact that /ø/ is almost fully back in the pronunciation of the oldest of the consultants (Fig. 2) allow for the assumption that JBT /ø/ (and for that matter Bukharan Tajik /ø/, too) was a fully back vowel until a few generations ago. JBT data from the early 20th century, which are needed to test the assumption, are hard to come by, not least because ZJM cannot be equated with JBT (see the second section). However, fortunately, such data do exist in the form of monographs written by a Jew from Bukhara, to which we turn in the immediately following section.

### *The Vowel System of JBT at the Turn of the 20th Century*

Simon Ḥakham (1843–1910), a Bukharan who migrated to Jerusalem in 1890 (Paper 1986:xi) devised a well-developed JBT orthography which he used in his writings such as *Shahin Torah*, *Sefer Tokhen Alilot*, and *Musā-nāma*. Ḥakham lived before any attempts at standardizing ‘the Jewish dialect of Tajik’ took place; we can therefore safely assume that he devised his orthography with the purpose of adequately representing the phonology of his own language, namely JBT, and hence also that JBT vowel distinctions are likely represented in his orthography.<sup>25</sup>

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make up at least two to three percent of Jews in Bukhara. However, given the congruity between the JBT and Bukharan Tajik vowel systems, judging the variations observed in the JBT data as an error seems less justifiable than identifying them as related to the corresponding variations observed in the Bukharan Tajik data.

- 24 This observation is based on formant frequency data obtained by this author from eleven native Bukharan Tajik speakers whose years of birth range from 1944 to 1997. A paper in which this pool of data is analysed is currently in preparation, but a cursory analysis of the formant frequency data seems to suggest that the tendency is more prominent among Bukharan Tajik speakers who were born between the 1960s and 1980s than it is among those who were born before or after that period, though admittedly this analysis needs further scrutiny and/or refinement.
- 25 It is worth noting that, while Ḥakham's orthography differs radically from the orthography of *Dāniyal-nāma* (described in Netzer 1972), it bears much similarity to the orthography employed in *Khudāidād* (reproduced in Salemann 1897). Since the copies of *Dāniyal-nāma* and *Khudāidād*, both of which were presumably written by Bukharan Jews, appear to predate Ḥakham's own works (see Saleman 1897:iii–iv; Margoliouth 1909:269; Netzer 1971:147; Yastrebova & Azad 2015:677,682), it is possible that Ḥakham was (selectively) influenced by the orthography used in the latter. It is also possible that Ḥakham himself was involved in formulating the orthography employed in *Khudāidād*, in which case the orthography may be a prototype of Ḥakham's JBT orthography later used in his own writings. In any case, Ḥakham's orthography departs from that employed in *Khudāidād* in

TABLE 1 Correspondence between present-day JBT vowel phonemes and JBT vowel letters/signs that appear in *Ḥakham* (1902/3)

Present-day JBT vowel phonemes	JBT vowel letters/signs in the beginning of the 20th century		
	Final	Medial	Initial
/i/	יִ	יִ	יִ
/e/	יֵ	יֵ	יֵ
/a/	הִ	הִ	הִ
/o/	אִ	אִ	אִ
/ə/	יְ	יְ	יְ
/u/	וִ	וִ	וִ

Table 1 shows how the vowel letters/signs in his orthography correspond with the six vowel phonemes of present-day JBT.<sup>26</sup>

There are a couple of peculiarities in the correspondences shown in Table 1. First, Ḥakham's orthography assigns <יֵ>/<יְ> to his vowel that corresponds to present-day JBT /ə/. This is rather odd because <יֵ>/<יְ> is typically used for phonemes whose phonetic values approximate (or are thought to have approximated) [o] in texts with Tiberian vocalization—for instance, in the accepted (Sephardi) pronunciation of Hebrew, to which Ḥakham must have been exposed after he migrated to Jerusalem, <יֵ>/<יְ> represented /o/, whose value

a number of important ways. Ḥakham's orthography, but not the orthography used in *Khudāidād*, distinguishes between /k/ and /x/ (represented with <כּ> and <כַּ>, respectively, in Ḥakham's orthography) and between the voiceless and voiced affricates in the alveolar-palatal region (represented with <ךּ> and <ךַ>, respectively, in Ḥakham's orthography; /g/ on the other hand is represented with <גּ>). Ḥakham is also remarkably consistent in applying his spelling conventions to his own writings. For example, the present stem of the verb for 'to become,' which is almost always spelled וּשׁ in Ḥakham's orthography, is spelled variously as וּשׁ, וּשׂ, and וּשׁ in *Khudāidād* (Salemann 1897:15–16, 22). Ḥakham's orthography departs from the orthography of *Khudāidād* in a number of other ways as well, e.g., <יֵ> and <יְ> for /e/ in *Khudāidād* and Ḥakham's major writings, respectively.

26 Table 1 is compiled from the second volume of a three-volume publication titled *Shahin Torah*. The volume comprises part of *Shahin Torah* into which another of Ḥakham's works *Sefer Tokhen Alilot* is interleaved (see Paper 1986:xxiii–xxiv). Judging from yet another of Ḥakham's works, namely *Musā-nāma* (Paper 1986), Ḥakham used basically the same orthography for a number of his works (see also Sundermann 1966:277–278).

likely approximated [o] (see Morag 2007:557).<sup>27</sup> This implies that present-day JBT /ø/ was more back and had a sound value qualitatively approximating [o] at the beginning of the 20th century.<sup>28</sup> This is in conformity with the assumption stated in the preceding section, namely that JBT /ø/ was a fully back vowel until a few generations ago.

Thus, one peculiarity of Table 1 can be ascribed to the fronting of /o/ (present-day /ø/). There however remains another peculiarity of Table 1, namely Ḥakham's assignment of <סֹ/סְ> to his vowel corresponding to present-day JBT /o/. It does not seem far-fetched to assume that, if the JBT vowel that Ḥakham represented with <סֹ/סְ> was qualitatively similar to present-day JBT /o/, he would have assigned <סֹ/סְ> rather than <סֹ/סְ> to the vowel. The fact that he did not assign <סֹ/סְ> to the vowel, then, suggests that his vowel corresponding to present-day JBT /o/ qualitatively differed from present-day JBT /o/.<sup>29</sup> What vowel, then, could it be? His employment of <סֹ/סְ> for the vowel in question implies that the vowel it represented had a value that qualitatively approxi-

27 Studies such as Morag (1959:250) and Parfitt (1984:261) suggest that the accepted pronunciation of Modern Hebrew in the late 19th century was the Sephardi pronunciation, "on which Modern Spoken Hebrew [...] is fundamentally based." Morag (1993:213) states more specifically that the late 19th-century Modern Hebrew phonological system comprised Sephardi vowels and stress patterns blended with Ashkenazi consonants. Incidentally, the F<sub>1</sub> and F<sub>2</sub> values of Modern Israeli Hebrew /o/ for adult male speakers are 478 and 944, respectively (Most et al. 2000). See also Aronson et al. (1995:287) for the mean F<sub>1</sub> and F<sub>2</sub> values of /o/ produced by six male Israeli Hebrew speakers (the reader is referred to Kreitman 2013:83–85 for a concise review of previous scholarship on Modern Hebrew vowels). These formant values are in general agreement with those of present-day JBT /o/, whose mean F<sub>1</sub> and F<sub>2</sub> values in the male consultants' JBT are 518 and 880, but not with those of present-day JBT /ø/, whose mean F<sub>1</sub> and F<sub>2</sub> values in the male consultants' JBT are 403 and 1153. For reference, the mean F<sub>1</sub> and F<sub>2</sub> values of present-day JBT vowels are as follows: /i/ (284, 2363.6), /e/ (371.8, 2161), /a/ (784.6, 1315.5), /o/ (517.5, 880.1), /ø/ (402.9, 1153.2), /u/ (342.5, 868.7) for the male consultants and /i/ (253.2, 2449.5), /e/ (357.4, 2271), /a/ (803.9, 1344.6), /o/ (533.4, 902.8), /ø/ (406.9, 1205.9), /u/ (316.5, 784.7) for the female consultants.

28 This is provided that Ḥakham did not accord his JBT orthography with the Yemenite pronunciation, in which, according to Morag (2007:559), *holem* is realized as *ö*, a sound which he describes to be similar to *eu* in French *peur* /pœʁ/. See also Shachmon 2013:403, wherein it is noted regarding the Hebrew reading traditions of Yemenite Jews that "Hebrew *holem* is a central rounded vowel, roughly an open *ö*, in Šan'ā and the north."

29 It allows the speculation that the vowel had no close equivalent in Modern Israeli Hebrew, which has only /i, e, a, o, u/ (Laufer 1999:97).

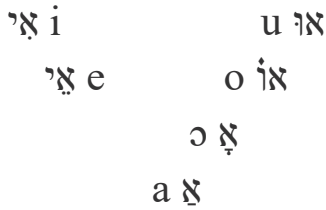


FIGURE 5

*Reconstructed late 19th- to early 20th-century JBT vowel system based on Hakham's orthography*

mates [ɔ],<sup>30</sup> which <math>\aleph \grave{o}</math> is thought to have originally represented (Johnson & Goerwitz 1995; Goerwitz 1996:491; Khan 1997:91; 2013b:773; Rendsburg 1997:78).<sup>31</sup> Interestingly, Morag (2007:559) and Khan (2013a:346) note, respectively, that “[s]ome Persian-speaking communities realize the *qameṣ* as a rounded lower-mid back vowel, [â]” and that in “Biblical reading traditions of communities who speak Iranian languages [...] long *qameṣ* is pronounced with a back quality [ɑ:] or [ɔ:],” which may support the assumption that <math>\aleph \grave{o}</math>/<math>\aleph \grave{a}</math> in Hakham's orthography represents a vowel phoneme whose value approximated [ɔ]. Accordingly, JBT in the beginning of the 20th century can be tentatively estimated to have had the six vowels presented in Fig. 5.

As is clear from Table 1 and Figs. 1–5, Hakham's JBT vowel system (Fig. 5) differs from the present-day JBT vowel system, with Hakham's /o/ and /ɔ/ corresponding to present-day JBT /ø/ and /o/, respectively. This difference probably indicates a vowel chain shift, which will be discussed in the immediately following section.

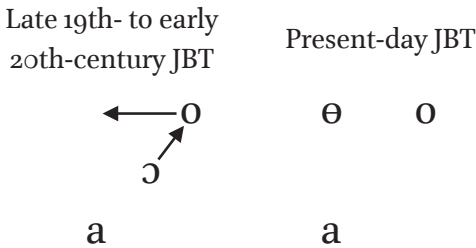
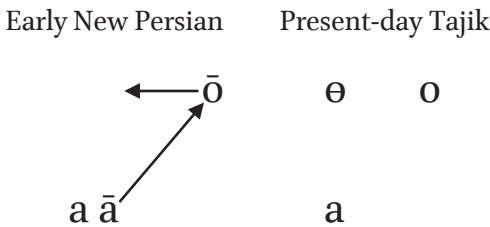
### *Vowel Chain Shift*

The vowel system shown in Fig. 5 and that of the oldest of our consultants (Fig. 2) share the fully or very back realization of the vowel phoneme that is /o/ in Fig. 5 and /ø/ in Fig. 2.<sup>32</sup> This suggests that the generational difference in the

30 To be more precise, <math>\aleph \grave{o}</math> is thought to have originally represented Tiberian Hebrew /ɔ/, whose value is estimated to be (qualitatively) [ɔ].

31 <math>\aleph \grave{a}</math> is used for [ɔ] also in the YIVO orthography (Aronson 1996; Kleine 2003:263–264). Why Hakham used <math>\aleph \grave{o}</math> followed by <math>\aleph \grave{a}</math>, i.e., <math>\aleph \grave{o}\aleph \grave{a}</math>, a combination that is seldom used in the orthographies of historical and contemporary Jewish languages (see, however, Gesenius 1910:45; Fernández 1997:12; Muraoka 2011:28–29; and Reymond 2013:§3.3) for representing the vowel is beyond the scope of this article, but certainly merits a separate analysis, as does his use of <math>\aleph \grave{a}</math> and <math>\aleph \grave{o}</math>, respectively, as the word-final and word-medial forms for /a/, which possibly reflects the spelling convention of Persian (see Forbes 1869:7–8) and/or that of Hebrew.

32 It actually more closely resembles the vowel system of present-day Tashkent Uzbek (see Ido 2014:96) and also shows some resemblance to the Timurid Persian vowel system, in

FIGURE 6 *JBT chain shift*FIGURE 7 *Northern Tajik chain shift*

position of /ə/ in present-day JBT represents a shift of JBT /o/ in the late 19th and early 20th century to the position of present-day JBT /ə/. It is also clear from the comparison of Figs. 1–4 with Fig. 5 that the fronting accompanied a shift (i.e., raising) of JBT /ɔ/ of the late 19th and early 20th century to the position of present-day JBT /o/, and hence that the fronting and raising constitute a chain shift which can be represented schematically as in Fig. 6.

Incidentally, this chain shift can be identified as constituting part of the Northern Tajik chain shift (Ido 2009) that took place in Northern Tajik dialects in general (Fig. 7). This is hardly surprising in itself, as JBT belongs to Northern Tajik dialects (see the first section).

The identification of the JBT chain shift as an intermediate stage in the Northern Tajik chain shift has an interesting consequence—it enables us to combine Fig. 6 with Fig. 7, thereby effectively reconstructing the process by which the Northern Tajik chain shift unfolded. This is of particular impor-

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which the vowels corresponding to present-day Tajik /u/, /ə/, and /o/ can all be estimated to be fully back vowels (Ido 2015:128). Interestingly, it also resembles the vowel system which Buzurgzoda (1940:42) refers to as that of the *adaṣī* 'literary' (i.e., standard) language. The vowels corresponding to present-day JBT /ə/ and /o/ are presented, respectively, as ɔ/ɔ and ɔ in Buzurgzoda (1940:40–41), according to which ɔ/ɔ and ɔ are present in the dialect group to which the dialects of Xujand, Samarkand, etc., belong.



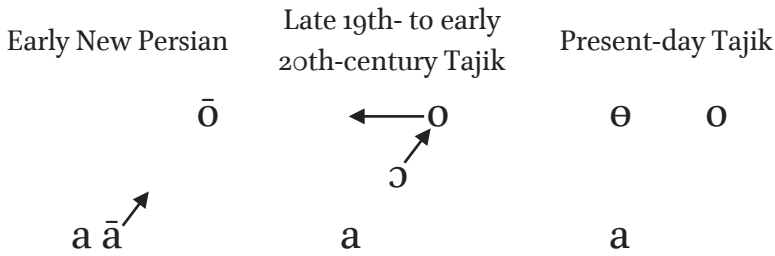


FIGURE 8 Northern Tajik chain shift (revised)

tance for the study of the vowel systems employed in different varieties of New Persian, such as Iranian Persian and Afghan Dari, because the Northern Tajik chain shift (and the fronting of the close-mid rounded back vowel in particular) is a very distinctive, if not unique,<sup>33</sup> feature of Tajik (see Windfuhr 2009:457–458; Windfuhr & Perry 2009:425; Miller 2012:165–167). Combining Fig. 6 with Fig. 7 yields Fig. 8. Following Windfuhr (2009:447), Early New Persian is dated to the 10th and 11th centuries in this article.<sup>34</sup>

The reconstructed Northern Tajik chain shift shown in Fig. 8 indicates that, in Bukhara at any rate, the raising of Early New Persian *ā* preceded the fronting of Early New Persian *ō*, and hence that the Northern Tajik chain shift was likely a push-chain shift.<sup>35</sup>

In summary, an analysis of JBT formant data reveals a fronting of the close-mid rounded back vowel in progress in JBT, which constitutes part of the JBT chain shift in which /o/ and /ɔ/ became /ø/ and /o/, respectively. The JBT chain shift in turn can be identified as constituting part of the Northern Tajik chain shift, which moved Early New Persian *ā* and *ō* to the positions of /o/ and /ø/, respectively. This effectively elucidates the process by which the Tajik vowel system was established.

33 Éfimov (1965:10–13) reports a similar shift in the Yakawlang dialect of Hazaragi.

34 The dating of the term ‘Early New Persian’ is diverse in the literature (Miller 2012:156). For example, Paul (2013a) identifies Early New Persian as spanning “the stages of New Persian from its beginning, the 8th century, to approximately the early 13th century,” while Windfuhr & Perry (2009:533) assigns it to 1100–1300 AD. In Paul (2013b:9), Early New Persian is described as “the form of Persian [...] that originated in northeast Iran during the 9th/10th centuries CE.”

35 Livshits et al. (1974:282) note that the transition of *ā* to *o* apparently took place in the 16th and 17th centuries, but Fig. 8 suggests that, at least in Bukhara, the transition was not complete until the late 19th century.

## Conclusions

In this article, I described the vowel system of present-day JBT and contrasted it with the JBT vowel system of the late 19th and early 20th centuries which was reconstructed from the JBT orthography devised by Simon Ḥakham (1843–1910). The description revealed that the vowel system of present-day JBT is identical to that of Bukharan Tajik. It also revealed a generational difference in the position of the vowel phoneme /ə/, which pointed to the possibility that JBT /ə/ may have been a fully back vowel until a few generations ago. A comparison between the present-day JBT vowel system and that reconstructed for the late 19th to early 20th century showed that present-day JBT /ə/ had a value approximating [o] at the turn of the 20th century, suggesting that JBT /ə/ was indeed a fully back vowel about a century ago. In addition, the comparison showed that the JBT vowel system likely underwent a chain shift in which JBT /o/ and /ɔ/ of the late 19th and early 20th century moved to the positions of present-day JBT /ə/ and /o/, respectively. This chain shift was identified as constituting part of the vowel shift that Northern Tajik dialects, of which JBT is one, underwent. This led to the tentative conclusion that, in the Northern Tajik chain shift Early New Persian *ā* shifted before *ō* did, shedding light on the process whereby the present-day Tajik vowel system was established. This finding has implications for the understanding of the establishment of Tajik as a language (more or less) distinct from other southwestern Iranian languages, because the Northern Tajik chain shift is one of the features that most saliently characterize Tajik as distinct from Iranian Persian and Afghan Dari.

## Abbreviations

JBT: Jews' Bukharan Tajik

ZJM: *zaboni jahudihoi mahali* '(the) language of local Jews'

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