

Orthography and the Jer Shift in the Birchbark Letters

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0. Introduction

- Re-examination of the "orthographic" merger of the jers and /o/, /e/ in the Novgorod BBLs.
- Argument: "orthographic" merger of the jers may reflect **real** phonology, affected by a Finnic substrate.
- Future perspectives: XML markup and analysis of the BBL lexicon.

1. Orthography and Phonology: Background Information

- Živov's analysis of orthographic practices (the scanning principle) (Živov 2006: 48-55, Živov 1984/2006: 93-95):
 - CV sequences used for alphabet learning were the basis of orthographic practice.
 - C(jer) not distinguished in Church pronunciation from C(vowel), which leads to apparent jer / vowel merger in less careful orthographies.
 - this is one potential explanation for the BBL data.
- Difficulties with Živov analysis:
 - for strong jers, C(jer) and C(vowel) eventually merge anyway.
 - no Slavic examples of strictly CV writing.
 - absence of evidence ≠ evidence of absence, but BBLs are a compelling source.
 - Nurluotta 2007: questions how the Church pronunciation explanation explains the BBL orthography (Nurluotta 2007: 179-180).
- The paradox:
 - if orthography was learned through CV sequences that were then applied to writing...
 - ...and there was massive variation in orthographic practices...
 - ...especially in the BBLs, as compared to other genres...
 - ...then why are the writers so good at accurately reflecting the obvious parts of their phonology (like tolerating consonant + sonorant clusters)...
 - ...and so bad at the most interesting parts of their phonology?
- A subsidiary question:
 - Zaliznjak 2004 traces the evolution of "orthographic practices" over time; different practices have different trajectories.
 - the jer / (o, e) merger and the confusion of jat' and e mirror each other almost precisely
 - only other orthographic trait with similar trajectory is the use of θ for /f/.
 - approximate table of evolution of orthographic practices (Zaliznjak 2004 25-33).

	1100 - 1125	1125 - 1150	1150 - 1175	1175 - 1200	1200 - 1225	1225- 1250	1250- 1275	1275 - 1300	1300- 1325	1325- 1350	1350- 1375	1375 - 1400	post- 1400
1	31	45	48	68	85	88	92	89	78	73	65	40	14
2	39	39	48	68	82	88	87	74	44	33	29	22	14
3			50	83	83	93	93	80	80	53	22	22	6
4	0	0	1	1	3	7	19	19	19	29	41	41	41
5	5	9	9	14	27	31	38	45	61	77	81	95	95
6	0	0	0	0	4	4	20	20	20	38	38	41	58
7	5	9	9	17	17	27	34	34	30	34	13	5	5
8	4	4	9	9	9	26	26	26	52	69	69	85	91
9	2	2	2	2	6	6	6	6	11	11	26	26	41
10	0	0	0	4	4	29	40	67	67	88	88	98	98
11	89	77	77	61	61	45	31	28	28	17	9	0	0
12	77	77	57	57	57	47	47	47	44	44	44	44	32

- key: 1 = jer merger, 2 = jat' / e merger. 3 = \emptyset for /f/, 4 = jat' / i merger, 5 = /u/ after a consonant written {y} (even if {oy} is also found), 6 = /u/ word-initially written {y} (even if {oy} is also found), 7 = use of ou-ligature, 8 = /je/ represented as je , 9 = /ja/ represented with ja , 10 = use of letters ω , o , o , 11 = /u/ represented only with {oy} after a consonant, 12 = /u/ represented only with {oy} word-initially.

2. Proof by Contradiction: Two Attempts

- A strategy from math: assume the *opposite* of what you want to prove and derive a contradiction. Contradictions may not always be feasible for historical dialectology, but we can at least compare scenarios for parsimony and plausibility.
- Our question: do {jers / o, e} written for weak jers in the BBLs correspond to the phonology?
- Possibility 1: NO.
 - This is the traditional account: "Однако в подавляющем большинстве случаев это смешение носит чисто орфографический характер. Это видно из того, что оно затрагивает также слабые редуцированные (например *поклоно*, *коне* вместо *поклонъ*, *конь*) и этимологические *o*, *e* (например, *четъ*, *сьло* вместо *что*, *село*); кроме того, такое смешение известно и в грамотах XIV-XV вв., когда процесс прояснения редуцированных уже давно закончился." (Zaliznjak 2004: 23-24).
 - Origins of this orthographic practice remain to be explained.
 - See above re: Živov.
 - Crucial question: if the jer shift had happened, how did the writers accurately identify where the weak jers were? We don't generally get examples of strict CV orthography.
 - If not a contradiction per se, this at least leaves a significant puzzle.
- Possibility 2: YES.
 - Requires adjusting the chronology.

- We know that the jer shift reached Novgorod late anyway; was still underway ~ late 12th - early 13th century (Zaliznjak 2004: 59-60). This already overlaps with the orthographic merger becoming ubiquitous.
- Would mean that jer shift did not operate evenly throughout East Slavic.
- Should not be a problem, especially given that the jer shift diffuses well after previous isoglosses separating the Novgorod-Pskov area from the rest of East Slavic.
- Neither point is a major impediment.
- A priori, NO seems to generate more complications than YES. Remaining question: is there any additional positive evidence for the YES option?

3. Positive Evidence

- Independent evidence exists that...
 - Novgorod and the surrounding area had a significant Finnic-speaking population in the early period of urban settlement.
 - Language shift from Finnic to Slavic was a major factor in the development of the Old Novgorod dialect (and of old north Russian more broadly) (Vermeer 2000, Čekmonas 2001)).
 - Resulting processes of interference led to the emergence of features particular to Old North Russian (e.g., nominative objects of infinitives) (Timberlake 1974).
- BBL #292: dated to the beginning of the 13th century and is written in an early form of Karelian (Haavio 1964).
 - Earliest written attestation of any Finnic language.
 - Suggests period of active bilingualism resulting in language shift from Finnic to Old Russian.
 - Dates precisely to period where the {o, ъ}, {e, ъ} merger begins to peak in productivity.
- The proposal: interference caused by language shift from Finnic caused a different outcome of the jer shift in Novgorod-Pskov.
- Finnic phonotactics much less tolerant of word-initial and esp. word-final clusters that arise from the jer shift (Laakso 2001: 186).
 - This is a special case of a more general phenomenon - i.e., that phonotactic restrictions could affect the outcome of the jer shift (Vlasto 1986: 61, Bethin 1998: 104-5).
 - Restatement of the jer shift: Jers > Ø except when preserved due to phonotactics or paradigmatic pressure; when preserved, jers > {o, e} in East Slavic.
 - This formulation works for all of East Slavic; the proposal here is that in the Novgorod region, the phonotactic constraints were different due to independently documentable processes of language shift.

4. Advantages

- Motivates the preservation of graphemes in positions corresponding to weak jers.
 - And the jat' ~ e merger too?
- Allows a principled explanation of the chronology:
 - First stage (11th c.): orthographic merger is infrequent, corresponding to the predictions that can be made from pre-existing knowledge about pre-jer shift orthographic practices (Živov 1984/2006: 93).

- Emergence (12th c.): jer shift takes place, prevalence of orthographic merger tracks the progress of the jer shift.
- Stability (13th c.): jer shift has taken place, but with much more frequent preservation of weak jers due to influence of substrate Finnic phonotactics.
- Decline (14th c. and onward): increasing connection to the rest of Russia, combined with a more monolingual situation, results in the jer reflexes being “normalized.”
- Provides a coherent account of the relationship between orthography and phonology in the BBLs in this regard.
- Requires minimal additional assumptions.
 - Especially compared to Nurluotto 2007, who proposes a phonological explanation of the {o, ъ} merger as sound change in progress but still assumes full and early jer loss.

5. Further Work: XML Markup

- Is the merger realized equally in all phonological / morphological positions?
 - A more nuanced look might help provide further resolution to this problem.
- Ongoing project: to mark up lexicon of Zaliznjak 2004 providing etymological information for all segments, allowing a quantitative examination of how BBL orthography corresponds to (recent) etymology.
- Once completed, this can be applied to other interesting BBL questions.
- Example (only containing vowel markup):

```

- <entry>
  <lexeme>береґто</lexeme>
  - <instance>
    - <tokn>
      б
      <vowel etym="e">e</vowel>
      ɸ
      <vowel etym="e">o</vowel>
      с т
      <vowel etym="o">o</vowel>
      <!-- Acc.Sg. -->
      <!-- o-stem -->
      <!-- noun -->
    </tokn>
    <doc>27</doc>
  </instance>
  - <instance>
    - <tokn>
      б
      <vowel etym="e">e</vowel>
      ɸ
      <vowel etym="e">o</vowel>
      с т
      <vowel etym="ѣ">o</vowel>
      М
      <vowel etym="ѣ">ѣ</vowel>
      <!-- Inst.Sg. -->
      <!-- o-stem -->
      <!-- noun -->
    </tokn>
    <doc>40</doc>
  </instance>
</entry>

```

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