Why Historical Linguists Need Children: Birch Bark Letters in Light of Written Language Acquisition

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Why Historical Linguists Need Children: Birch Bark Letters in Light of Written Language Acquisition

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ABSTRACT

Early vernacular writings reveal intriguing similarities to texts produced by modern children. This study shows that these similarities result from the fact that both text varieties are the products of incipient writing. Examining medieval vernacular Russian correspondence and letters written by contemporary Russian children, this study (a) identifies the specific similarities between the two language varieties, (b) formulates a theoretical framework for interpreting these similarities, (c) applies measures of children's writing competence to medieval vernacular writing, and (d) reevaluates the role of oral strategies in early vernacular writings. The study's findings provide an important tool for investigations of incipient writing.

Introduction

Years after the pioneering works of Lev Vygotsky (1933/2008, 1934/1987) and Alexander Luria (1929/1978), the topic of writing development captured scholarly interest once again in the 1960s, and since then it has become the focus of multidisciplinary attention. Numerous studies suggest that writing to a great extent is independent of age and general cognitive abilities (Cossu, 1997; Luria, 1971, inter alia). This implies that at least some processes of writing acquisition are universal for all literacy acquirers, including those who lived and learned to write centuries ago, when the written language was still in its formative stages.

To the best of my knowledge, the findings of recent research on modern incipient writing have never been applied to a cross-historical linguistic analysis. Yet early medieval vernacular writings are remarkably reminiscent of texts produced by modern novice writers (see Figures 1a and 1b for an example of each), the similarities ranging from the appearance of the text and typical mechanical mistakes to specific aspects of pragmatics and text organization. By comparing medieval Russian correspondence with letters written by contemporary Russian children, I aim to fill this gap in the research.

The hypothesis of this study is that the resemblance between these two text varieties stems from the fact that both are products of incipient writing: one being the example of writing system in its formative stages and the other showing the initial steps in acquiring an already fully fledged writing system. Methodologically, the paper draws on the Uniformitarian Principle (UP), which asserts that the processes of language change today and in the past are uniform (Labov, 1994). Thus, processes observable in the present provide a key to the past. This article extends the UP to written language acquisition in seeking to explore how written language acquisition by modern children illuminates our understanding of vernacular writings of the remote past.
The Old Russian documents known as birch bark letters date from the 11th to the 15th centuries and are the earliest attestation of the Old Russian vernacular.¹ Most of the documents are ordinary personal or business notes and letters. These texts, their description, and the grammar of the Old Novgorod dialect in which they are written are covered in Zaliznjak (2004); a complete digitalized database of photographs and outline drawings is located at http://www.gramoty.ru. As of today, the complete corpus of birch bark letters comprises about 1,000 letters, of which only 334 contain full or nearly full texts. The modern children’s texts are taken from various Internet resources (blogs, social networks, search engines, etc.) and private archives kindly provided by friends and family. My database comprises 250 letters and one 92-page journal by a 5-year-old (approximately 1,850 words). About one third of the children’s letters reflect the initial (preparation) level of writing acquisition, whereas the rest belong to the next (consolidation) level (see the Process-based Approaches section).

The article is divided into five major sections. Section 1 puts forward a theoretical justification for comparing the two text varieties. Section 2 surveys the research on writing acquisition. Section 3 examines examples from each text variety and establishes a list of shared features, both nonstructural and structural. Section 4 interprets the similarities between the two text varieties in light of the research on writing acquisition. Finally, Section 5 discusses further implications of the proposed approach.

Theoretical framework

Analogies between the evolution of writing as a notational system and writing development in modern children have been observed and studied before. Liliana Tolchinsky (2003) devoted a

¹The validity of the approximation of the language of these documents to the actual spoken language and the linguistic situation in the East Slavic area are discussed in Franklin (2002), Lunt (1988), and Živov and Timberlake (1997).
chapter of her book to how the history of writing can help us understand the processes of writing acquisition. I would like to look at this from the opposite direction and argue for reciprocity of benefits: Language historians can learn a great deal from observing how modern children acquire writing.

A comparison between modern children and medieval adults raises some difficult questions. Are we assuming that ontogeny (the development of the individual) recapitulates phylogeny (the evolution of the species)? To what extent can one compare mature individuals and children who are still undergoing physical, mental, and social development?

By suggesting a cross-historical affinity between the two text varieties I am far from advocating the theory of recapitulation of phylogeny through ontogeny. The controversy around the theory aside, writing is not an innate capacity, and thus it is unreasonable to discuss it in bioevolutionary terms. Rather, I am relying on the well-established UP, which assumes the uniformity of the observed processes of linguistic change today and those of the unobservable past. This principle serves as a working hypothesis in modern historical linguistics and is its major raison d’être (Christy, 1983; Janda & Joseph, 2003; Labov, 1994). It has also been suggested that the UP applies to language acquisition and creolization, that is, to language development in the individual and over generations, respectively (DeGraff, 2009).

Likewise, we can reasonably assume that the processes operating in writing acquisition today are the same as those that operated at any given period in history. Moreover, the UP enables us to reason that the same processes have been operating throughout the formation of writing not only as notational system, but also as a linguistic system distinct from oral speech.

The version of the UP that accepts the uniformity of laws and processes—but not that of effect, causes, or phenomena (Janda & Joseph, 2003)—accounts for the different outcomes resulting from the different configurations of contributing factors and for the “difficult questions” of cross-age and cross-historical comparisons. This view is consonant with Vygotsky’s: Having rejected an isomorphism of the recapitulation theory (both on the biogenetic and the sociogenetic planes), he recognized correspondences between bio/sociogenesis and ontogenesis and acknowledged their heuristic value (Vygotsky, 1931/1997, pp. 18–20). Specifically, Vygotsky stressed the methodological importance of studying rudimentary mental functions for understanding the development of higher mental functions, including writing acquisition (Vygotsky, 1931/1997, p. 50).

**Cross-age comparisons**

It is indeed difficult to separate writing development from personal development. One influential model of writing development measures writing progress along stylistic, affective, cognitive, and moral dimensions (Wilkinson, Barnsley, Hanna, & Swan, 1980). However, evidence shows that the processes underlying the construction of knowledge of writing are independent of general cognitive abilities and similar for both children and adults.

A number of studies show that literacy learning is independent of metalinguistic cognitive abilities, often regarded as prerequisites for literacy acquisition. In fact it is argued that those cognitive abilities are a consequence of literacy acquisition. In one study of illiterate adults, the
subjects were able to perform typical word segmentation tasks after—but not before—a few months of reading instruction (Bertelson, Gary, & Alegría, as cited in Tolchinsky, 2003, p. 189).

Another study shows that the ability to judge the grammaticality of an utterance is independent of age and improves dramatically with the mastery of reading (Karanth & Suchitra, as cited in Tolchinsky, 2003, p. 195). Luria (1950) described a girl with severe writing disability who demonstrated high performance in other school subjects. Cossu and Marshall (1990) wrote about a boy with linguistic and mental retardation who was unexpectedly successful in reading and writing, but this had no effect on his IQ score. The authors concluded that general cognitive abilities must be independent of those needed for decoding and encoding linguistic units. The superiority of literates in performing some cognitive tasks as reported in the literature (Luria, 1971; Ong, 1982) is explained by testing techniques biased toward school-taught skills, rather than skills that derive from the social practices of people’s everyday activities (Cole, 2005; Luria, 1933, 1971; Scribner & Cole, 1981; Street, 1984).

Other studies maintain that working memory and executive attention are crucial to the literacy acquisition process (see Kellogg, 2008, for a literature review), thus implying that general cognitive abilities are, after all, related to the abilities needed for literacy acquisition. Nevertheless, the similarities in children’s and adults’ performance of cognitive literacy-related tasks and in their written output suggest that writing processes are skill-level specific, rather than age specific. General cognitive abilities may facilitate faster learning, but all literacy acquirers must go through the same stages.

**Cross-historical comparisons**

Another difficulty comes from the radical differences in the literary environment of today’s learners of literacy and of medieval vernacular writers. Today, advanced literacy acquisition involves the mastery of a ready-made, full-fledged, and diversified literary language—a process that lasts well beyond formal schooling. By contrast, early vernacular authors were writing in a language with a relatively short literary tradition or none at all (cf. Vygotsky’s notions of the initial and the ideal language forms; Vygotsky, 1935/1994). Writing practices were limited to record keeping, correspondence, and some legal records.

It is true that medieval vernacular authors were familiar with—and in some cases fluent in—the literary language of the time. The case of Russian was unique in that its literary language, Old Church Slavonic (OCS), was genetically related and, in the early stages, very close to the vernacular language. The few differences (mainly phonetic) were leveled down by adapting the imported language to local pronunciation giving rise to the so-called East Slavic redaction of OCS. By the time the two languages have more significantly diverged (13–15 c. and on), OCS was perceived by speakers as their own language, only “better.” However, being literate in OCS did not infer automatic literacy in vernacular.

First, as its name suggests, OCS was basically the language of the church, with very limited genre diversification. The linguistic situation in Old Rus of the 13th–16th centuries is often described as diglossic, the two related languages being functionally differentiated: OCS in its Russian redaction was the liturgical language whose even more russified version was also used in chronicles and administrative documents, whereas the vernacular was used in everyday life.

Second, OCS literacy was primarily receptive, rather than productive: Few professionals were able or expected to produce original texts in it. Typically, people were taught to read (recite), memorize, and copy a ready-made product in OCS and then applied their knowledge to practical writing by adopting the OCS alphabet to their needs, leaving out a few OCS symbols. Thus, vernacular writing can be seen as a peculiar by-product of OCS literacy and the first authors of birch bark letters as

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4Old Church Slavonic belonged to a southern branch of the Slavic languages, whereas Russian is an eastern branch, of which Old Novgorodian was a northern dialect.
creating a written language in their dialect almost from scratch. The formation of literate devices, however, is a long process that takes centuries to develop and years for a child to learn. It is often taken for granted that in the beginning stages, oral strategies penetrate the written language of novice writers, making it resemble oral speech. However, as the next section shows, this is not the case in writing acquisition.

We know little about early schooling systems (but see Gippius, 2012; Zaliznjak, 2002). We do know that the social range of the authors was extremely wide: Women and men, nobles and commoners, high officials and servants, clergy and craftsmen were among the authors of birch bark letters. However, the education of even the most advanced writers could not have been as extensive as the modern all-pervasive one. Likewise, the literacy environment of modern times is incomparable with that of medieval period. However, notwithstanding the immense exposure to literacy before writing instruction, today’s children (and adults) encounter great difficulties when beginning to write. This holds true even for children who are fluent readers by the time they begin to write, as is the case for many of the children whose letters were analyzed here.

As writing acquirers, early authors were meeting the same challenges as modern ones, but they were also constrained by the limited literary tradition. In cross-historical comparisons it is important to separate those features that were induced by the state of the written language at the time from those derived from the skill level of an individual author. One method could be to examine all the texts that form one synchronic slice and place them on a “scale of skillfulness,” with shared features determining the “ceiling” of the written language and individual features determining the progress of the author. The difficulty of such a method is in establishing criteria for assessing skillfulness—and here is where the data from written language acquisition come into play.

**Written language acquisition**

Research on writing development in children has undergone a dynamic growth over the last five decades. Extensive surveys of this research can be found in MacArthur, Graham, and Fitzgerald (2006) and Berninger and Chanquoy (2012). Here I highlight the major research approaches—the product based, the process based, and the sociocultural—focusing only on those findings that may prove useful for interpreting historically early writings.

**Product-based studies**

Product-based studies examine children’s texts in search of the changes that occur as the writer’s expertise grows. Many features listed as characteristic of incipient writing reflect the failure to employ written strategies that result from the specific physical properties of the written mode.

As opposed to oral speech, which is a product of multichannel communication situated in a setting shared by both participants, writing is typically produced for the reader who is temporally and spatially distanced. None of the paralinguistic means (such as gestures and facial expressions) or phonetic cues are available in writing, and thus all the contextual details must have an explicit linguistic expression resulting in an autonomous text (Chafe, 1985; Olson, 1993).⁵

The manual mode of writing production and absence of immediate interlocutor implies a controlled pace, which promotes denser information packing and lexical diversity by allowing the author to plan ahead, avoid false starts and redundancies, handle more complex structures, and make conscious lexical choices (Chafe, 1982). Another distinctive feature of writing, its permanency in contrast to ephemerality of speech, results in processing differences: A written product can be scanned back and revised which results in clearly defined structures.

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⁵Not all languages value explicitness (Lakoff, 1984). Some cultures (e.g., Oriental) associate explicitness with being unsophisticated, primitive, and even rude. On the linguistic plane this is reflected in nonexplicit relations between the segments of the texts, semantic vagueness, and so on. Russian, like many “Western” languages, is among the “explicit” languages.
Of particular interest for the purposes of this article is the line of research that aims at providing quantitative criteria for writing assessment. One such criterion is based on the emergent writers’ tendency to string together chunks of information with the all-purpose coordinating conjunction “and.” As a result, their texts look like an endless coordinative sentence and are difficult to segment into analyzable units like sentences. To account for these difficulties, Kellogg W. Hunt posited minimal terminable units (T-units), defined as “one main clause plus any subordinate clause or non-clausal structure that is attached to or embedded in it” (Hunt, 1970, p. 4). Of interest, similar syntactic units, “primary sentences,” were proposed by Andrej Zaliznjak for dealing with the syntax of birch bark letters (Zaliznjak, 2004, p. 155).

Hunt has shown that the number of words per T-unit steadily increases by grade level: The average T-unit of fourth-graders was 8.6 words long, of eighth graders 11.5 words, and of 12th graders 14.4 words, whereas that of superior adults was 20.3 words long (Hunt, 1965). Needless to say, Hunt’s figures are not to be taken as an unconditional measure of syntactic maturity, as there is no value in length per se: “brevity is the soul of wit” (Shakespeare) and “the sister of talent” (Chekhov). Moreover, short, simple sentences can serve specific stylistic purposes. However, for beginning writers, including L2 ones (Larsen-Freeman, 1978), the average length of T-units is a reliable and commonly used measure (in close correlation with intuitive holistic evaluation) of the author’s command of writing (Beers & Nagy, 2011; Loban, 1976; Scott & Windsor, 2000).

Although mature writers reportedly produce longer sentences, it has been observed that writing development manifests itself not so much on the syntactic as on the discourse level (Applebee, 2000; Myhill, 2012; Perera, 1984; Scinto, 1986). The growing maturity of writing shows in thematic development, referential choice, the avoidance of referential ambiguity, and the use of sentence connectives (Crowhurst, 1987; Rentel & King, 1983).

The product-based approach has drawn criticism for viewing writing development as “the acquisition of static multilayered structures” (Dyson, 1991, p. 157). The skill or device hierarchies proposed are rarely linear, indiscrete, or monotone. Thus, a longitudinal study of T-unit length demonstrated that, despite a general tendency to increase, there were periods of suspended or even regressive development (Loban, 1976). Moreover, two correlated mechanisms can develop at different rates. Rentel and King (1983, p. 31) reported that—contrary to their expectations—the relationships of identity and similarity that both constitute cohesive harmony take a different developmental course: identity relationships are acquired up to 4 years earlier than similarity.

However, keeping in mind that writing development is a dynamic multidimensional process, the findings of product-based research are valuable for the topic of this article because they do provide some concrete criteria for measuring writing skill.

**Process-based approaches**

Another mass of research focuses on the cognitive processes underlying writing, rather than on its product. Writing development within this approach is viewed as differences in the handling of processes like planning, translating thoughts to text, organizing long-term memory, and revising (Flower & Hayes, 1981). Five stages of writing development are described in literature.

1. The stage of *emergent writing* (Clay, 1966), or *prehistory of writing* (Vygotsky, 1931/1997), begins with infant’s first contacts with literacy and lasts until the advent of formal instruction in writing. This stage is marked by writing-like activities such as drawing, imitative scribbling (first undifferentiated, then with elements of iconicity or pictography), random letter writing, and writing one’s name. The notion of writing as representing meaning does exist in the mental world of the child, but the child has not yet acquired principles for relating written symbols and specific elements of the spoken language.

2. During the *preparation* stage (Kroll, 1981), the child reaches phonemic awareness and is able to map sounds onto letters. While mastering the mechanics and spelling, children write in
“invented spelling” that has its own logic, but is not strictly regular (Read, 1986). Writing is used instrumentally and communicatively, but the quality of written language falls significantly behind oral production. Vygotsky (1933/2008, p. 476) describes a 9-year-old boy whose writing resembled the speech of a 2-year-old, noting that the child gives the impression of becoming more primitive when switching from oral speech to writing. Vygotsky explains this by writing’s lack of sonic form, interlocutor, and purpose, on one hand, and, on the other, by writing’s being based on inner speech whose “syntax is the polar opposite of that of written speech” (Vygotsky, 1934/1987, p. 204). Translating sounds into written symbols or, according to Vygotsky, maximally egocentric, elliptic inner speech into maximally explicit writing, takes up the whole of the child’s energy, leaving no resources for planning or revising. At this stage, to revise means to rewrite, the main “technique” being erasing and rewriting. The skill of crossing out marks a milestone not soon to be reached in writing development (Graves, as cited in Perera, 1984). When beginning writers reread their work, they read what they had intended to write, rather than what they actually wrote: any omissions, repetitions, and other mechanical mistakes are ignored. For some unskilled writers, this practice can last as late as the college years (Perl, as cited in Perera, 1984).

(3) The consolidation (Kroll, 1981) or knowledge-telling (Scardamalia & Bereiter, 1987) stage begins when children have mastered the mechanics of writing and are able to write whatever they can say. Their writing reaches the level of their speech and is naturally replete with oral features, including personal involvement, loose syntax, repetitions, exophoric (out-of-text) reference (e.g., using a pronoun without prior mention of the referent), and so forth. Planning is still nonexistent and revising is minimal. The knowledge-telling processes of text generation include identifying the topic, retrieving knowledge about the topic, and putting it in writing (Scardamalia & Bereiter, 1987). Genre appropriateness is an automatic outcome of the activity (persuasion, exposition, etc.), rather than of conscious linguistic choices. Audience awareness is unstable, and the writing is author dominated (Kellogg, 2008). It takes about 10 years to move to the next level, and many school graduates remain at this level—“suspended awkwardly between speech and writing” (Kantor & Rubin, 1981, p. 62).

(4) When composing has become automatic and writing starts to diverge from speech, the writer enters the differentiation stage (Kroll, 1981). Now she is ready to cope with the distinctive functions of writing, its syntactic structures and patterns of organization, although the result is often awkward. Audience awareness is growing, but the author is still unable to imagine how the text will be perceived by another’s eyes. Rhetorical and substantive concerns begin to interact with language generation, fostering knowledge transformation and developing new understanding of the topic the writer is writing about (Scardamalia & Bereiter, 1987, p. 171). Revisions, however, are still at the local syntactic and vocabulary levels. The “10-year rule” (Kellogg, 2008) continues to operate: it takes another 10 years to move to the next stage.

(5) It is only in the fifth stage of integration (Kroll, 1981) that students become fully competent writers who are able to make appropriate linguistic choices and to maintain a consistent stylistic voice. At this stage (also known as knowledge transforming, Scardamalia & Bereiter, 1987; or crafting, Kellogg, 2008) the author is not only able to plan extensively, replan, and globally revise, but is also skilled enough to anticipate and model the imagined reader’s interpretation of the text (Kellogg, 2008, p. 7). This stage is reached mainly by professional writers.

Combined with a product-based approach, the stadial process model enables us to place writers and their texts along a scale of writing competence, and thus to set up expectations of texts at various levels.
Sociocultural and sociopolitical approaches

Socially oriented models challenge the vague definitions of development in the product- and process-based studies and emphasize the social component in literacy acquisition. In these models, writing is viewed as an interactive social act shaped and constantly negotiated by the community’s literacy practices (Gee, 2008; Luria, 1929/1978; Street, 1984; Vygotsky, 1934/1987).

Development in this model is commensurate with participation in the literacy practices of the community. By introducing the notion of “multiple literacies” (Street, 1984), this model accounts for the differences in expectations, practices, and resources across cultures, communities, and domains of life. This notion is crucially important for our purposes because it allows for an objective account of any literacy situation by drawing on the expectations prevalent in the culture or period under study, rather than imposing our own ideas about literacy.

Now that we have set the theoretical background and surveyed the research on writing acquisition, we are ready to analyze the data and examine the similarities between children’s and birch bark letters.

Analysis

Citation principles and list of notations

Language examples are cited in the original scripts: Slavonic for Old Russian and Civil Cyrillic for Modern Russian. The examples were divided into words; otherwise the original spelling has been preserved. In-line transliteration, word-for-word glosses, and English translation follow the original. In shorter examples that are cited in the running text, transliteration may be omitted for readability considerations. When the focus is on the physical appearance of the document, only outline drawings (of birch bark letters) and photographs (of children’s letters) are provided. Birch bark letters are referred to with their numbers if they were found in Novgorod. The number is preceded by the name of the city, if the letter was found in other cities. The following notations and abbreviations are used:

| Smol. | Smolensk (city) |
| St. R. | Staraya Rusa (city) |
| WS | wrong spelling |
| ( ) | letters omitted by the authors |
| ( ) | words omitted by the authors |
| { } | mirror reversed letters |
| | line boundary |
| || | page boundary |
| < > | words that are not in the original but are needed in translation |

The non-structural similarities

General appearance: block capital letters (majuscule script) and continuous writing (scriptio continua)

The most palpable similarity between the two types of texts is their general appearance: the use of block letters and the lack of spaces between words (Figures 1a and 1b).

Punctuation

In both birch bark and children’s letters, punctuation marks are sometimes used for syllabic or word delimitation (Figure 2). Figure 3a illustrates the interesting case of a child using question marks for word separation.
Mechanical mistakes

Several types of mechanical mistakes are common to both birch bark and children’s letters.

Omissions. Letters, syllables, words, or whole phrases are frequently omitted in birch bark and children’s letters. Marina’s letter serves as a particularly good example of this feature: not a single line goes by without an omitted segment (1). Fifty years earlier, Marina’s grandmother Irena at age 6 had dropped a whole (unrecoverable) phrase (2).

(1) from fig. 2, line 1

от Мар(и)ны бабушке и (де)душке

from Marina-GEN.SG grandmother-DAT.SG and grandfather-DAT.SG

‘From Mar(i)na to grandmother and (gr)andfather’

(2) про зуп каторый ((((...)) (ц)ълую

pro zup / katoryj ((((...)) (c)yuju //

about tooth-ACC.SG.M-WS which-NOM.SG.M-WS kiss-PRES.1SG-WS
‘About the tooth that ((. . .)), Kissing’ (‘<I am> kissing <you>’ being the standard closing phrase).

Similarly, segment omissions are frequent in birch bark letters. Some omissions were corrected by the authors on the spot, but others went undetected, for example, лъя варъ варъ варъ варъ варъ варъ варъ instead of лъя варъ варъ варъ варъ варъ варъ варъ (St. R. 11).

**Repetitions.** Along with omissions, children’s letters are full of undetected repetitions of letters, syllables, words (3), and entire phrases. For example: хорашо хорашо (x2), a misspelled хорошо хорошо ‘well’; пиререда ви превет пиререда ви превет for передайте привет передайте привет ‘send hi’ (Irena, 7).

```
(3) Дорогие Чумаковы в{ы} должен{ы} писать{ы} |
    Dorogie Чумаковы в{ы} должен{ы} писать{ы} |
    dear-NOM.PL Чумаков-NOM.PL you must-PL wear-IMPF.INF-WS

насить{ь} сам{ы}ю красивую ад{ы}гу
nasить{ь} сам{ы}ю красивую ад{ы}гу
wear-IMPF.INF-WS most-ACC.SG.F-WS pretty-ACC.SG.F cloth-ACC.SG.F-WS

котор{ы} {я} у вас ест{ь}т{ь}
kотор{ы} {я} у вас ест{ь}т{ь}
which-NOM.SG.F-WS at-you-GEN.SG-WS is-WS
```

‘Dear Chumakovs (surname), you must wear wear the prettiest outfits that you have’ (Tisha, 7).

Similar examples are abundant in birch bark letters, where we find cases of letter repetitions:

`хъсъ хъсъ’ instead of `хъсъ хъсъ’ (want-3SG.PRES) ‘he wants’ (731); syllable repetition: таъра таъра instead of таъра таъра ‘so’ (531); and word repetition:

```
(4) Гызъ коунъ и гривна
    Гызъ коунъ и гривна
    eight kun-GEN.PL and гривна-NOM.SG
```

`what EMPH.PART on I-1SG.INSTR. make-2SG.PRES for I-1SG.INSTR.

осъмъ коунъ’ i griv’na
eight kun-GEN.PL and гривна-NOM.SG
```
‘Why are you, then, charging me eight kunas and a grivna me?’ (In the preceding sentence the author had claimed that his debt was of a smaller amount) (238).

**Metathesis.** Transposed letters are another frequent lapse in both types of letters. Figure 1b, line 3, contains one such lapse: дедушиак dedušak instead of дедушка NOM.SG ‘grandfather’. Numerous examples can also be found in birch bark letters, for example, s’me rgivné instead of семь grivně-GEN.SG ‘seven grivnas’ (Smol. 9/8); много nmogo instead of много mnogo ‘many’ (391).

**Mirror reversal of letters.** Another feature of children’s texts is the mirror reversal of letters, as can be seen in Marina’s letter (Figure 1b, lines 4–5) where the letter з/zy/ is rendered consistently as по po/zy/павлиайu ‘<I> congratulate’; рa/za/укрa(zy)/иваСu ‘<I> color’. Numerous instances of this phenomenon are found in birch bark letters as well. Birch bark letter 624 (Figure 1b) shows an example of a reversed Π. Other letters that can occur in a reversed version in birch bark letters include y/ły/, tɔ/ty/, a/ał/, and n/ɔ/л. Children’s favorites, in addition to these, are з/zy/, ы/ły/, п/ty/, ч/czy/, к/ky/, е element, ы/ły/– a high back vowel, е/ły/ and ь – /ь/ a “soft sign,” which indicates palatalization of the preceding consonant.

**Structural similarities**

**Syntax level**

It has been suggested that for the beginning writer the mean length of T-units serves as a reliable index of syntactic maturity. My own analysis of 30 children’s letters that were written in the first 2–3 years of writing acquisition supports the hypothesis: The articulateness of the child strongly correlates with longer t-units. Moreover, all of the letters by the same child at different ages show increase in t-length. In addition, I analyzed 32 birch bark letters from different periods (the results will be reported in a separate paper). Although by no means the Old Russian material is homogeneous, the method appears to be very promising.

In this section I demonstrate the T-unit length analysis on two sets of letters. The texts in the first set, (4) and (5), present a “travelogue” by Gosha, at the age of 6 and 7, respectively. The second set comprises two birch bark letters: one (6) has a lower T-score than the other (7). The texts were parsed for clause and T-unit boundaries (marked with/and //, respectively) according to the working principle of “one non-zero (simple or compound) subject and all related predicates” per clause. For the indeterminate personal constructions, which take a zero subject in Russian, (of the type ‘one does/they do’) it was “one predicate and all its circumstantials,” cf. T-unit no. 3 of (5). This particular method of syntactic delimitation is tentative and open to improvement. However, since we are interested in relative differences, rather than absolute numbers, the details of the method are not as important as consistency in applying it.

(4) Gosha, age 6. T-score of 3.75

1. ДЕДУШКА ПОЙМАЛ В ПОЛЕ [З]АЕЧА //
   ДЕДУШКА ПОЖМАЛ В ПОЛЕ [З]АЕЧА //
   grandfather-NOM.SG catch-PAST.PFV.M.SG in field-LOC.SG hare-ACC.SG WS
   ‘Grandfather caught a hare in the field.’

2. ОН ПРОЖЫЛ ((У НАС)) НЕСКОЛЬКО ДНЕЙ //
   ON ПРОЖЫЛ ((У НАС)) НЕСКОЛЬКО ДНЕЙ //
   he-NOM.SG live-PAST.PFV.M.SG at us a few-WS day-GEN.PL
   ‘It lived a few days ((with us))’
3. Мы снимали фотографии //
    MYHO FOTOGRAFIVALI //
    we-NOM hine throw-PAST.IMPFV.PL-WS

'We took pictures of him.'

4. Бабушка вышла из //
    I (de)DUŠKA VYPUS(s)TIL //
    and grandfather let-go-PAST.PPFV.M.SG

'And grandfather let ((it)) go'

(5) Gosha, age 7. T-score of 6.2

1. Нина Илининна Катала Менья Папу И маму на 11
    NINA ILINISHNA KATALA MENJAJA PAPU I MAMU NA
    Nina-Name.NOM.SG.ILininishna-Patronynm.NOM.SG.WS drive-PAST.IMPFV.F.SG me-WS papa-ACC.SG and mama-ACC.SG on
    MIKRA AVTOBUSE PO VYŠYNTONU, //
    Van-LOC.SG.WS around Washington-DAT.SG.WS

'Nina Iljinisha drove me, Dad, and Mom in the Van around Washington'

2. В Америке ОЧЕНЬ КРАСИВО //
    V AMEREKE OČEN'. KRASIVO //
    in America-LOC.SG.WS very beautiful

'It is very beautiful in America'

3. По новым годам НОРЕЗАЮТ ДОМА ФАНАРИКОМ И НИ 11
    PO.PO NOVYM GODOM NOREŻAJUT DOMA FANARIKOM I NI
    in.in new-INSR.SG. year-INSR.SG decorate-PRES.IMPFV.3PL.-WS house-ACC.PL light-INSR.PL.-WS and. not-WS
    TOŁKO DOMA I DEREVJA //
    TOŁKO DOMA I DEREVJA. //

only house-ACC.PL also tree-ACC.PL.WS

'In in --false start-- For the New Year <they> decorate houses <with> lights, and not only houses, ((but)) also
trees'

4. Мы были в доме //
    MY BYLI V DOMI //
    we-NOM be-PAST.PL in house-LOC.SG.WS

'We were in a house.

5. Там мы видели ЖЕЛЕЗНУЮ Дорогу. //
    TAM MY VIDILI ŽELEZNUJU DOROGU. //
    there we-NOM see-PAST.IMPFV.PL.WS iron(train)-ACC.SG.F road-ACC.SG

'There we saw a railroad.'
6. На железной дороге были робочие //

на железной дороге были робочие

On the railroad <there> were workmen

7. там были очинь большии горы. //

там были очинь большии горы

There were very big mountains.

8. там был койкита искусствий снег. //

там был койкита искусствий снег

There was some artificial snow.

9. и вище было (что то) вроди трамвая. //

и вище было (что то) вроди трамвая

And also <there> was something like a tram.

10. стрекоза была зелена их блестящих камней.

стрекоза была зелена их блестящих камней

A dragonfly was made of sparkling stones

(6) Birch bark letter no.69 (ca. 1280-90s), T-score of 4.7

6. терентьева къ мирдао //
от терентьева къ мирдао

from Terentij-nameGEN.SG. to Mikhail-nameDAT.SG

from Terenty to Mikhail

1. пришлиць лошакъ съ аковецомъ //

пришлиць лошакъ съ аковецом

Send a horse with Jakovec

2. посдути друзьяна савина вода //

посдути друзьяна савина вода

The troops, Savva’s people, will come
3. А НА АРОСЛАВИ
ДОБРЪ
ЗДОРОВЪ
И С

Я НА ЯРОСЛАВЛИ
ДОБР" ЗДОРОВ" И С

I in Jaroslavl-toponym.LOC.SG good-M.NOM.SG. healthy-M.NOM.SG. and with

ГРИГОРЕМ

GRIGOREM

Grigorij-NameINST.SG

'I am in Jaroslavl, well and healthy and with Grigory'

4. ОУГЛИЧАНЕ ЗАМЕРЪЗАЛИ НА АРОСЛАВИ

УГЛИЧАНЕ ЗАМЕР'З'ЛИ НА ЯРОСЛАВЛИ

Uglich-people-NOM.PL freeze-PAST.PL in Jaroslavl-LOC.SG

'(<The ships?> of Uglich people got frozen in Jaroslavl'

5. И ТЫ ДО УГЛЕЦА

И ТЫ ДО УГЛЕЦА

I TY DO UGLECA

and you-2SG to Uglich

'And you <also send> to Uglich'

6. И ТЫ ПАКЪ ДРУЖИНА

И ТЫ ПАКЪ ДРУЖИНА

I TY PAK" DRUZINA

and here especially-PARTICLE troop-NOM.SG

'And especially <that> the troop is <coming> here'

T-score: 28:6=4.7

(7) Birch bark letter no.622 (ca. 1360-1400s). T-score of 7.4

ПРИКАЗО МАТФЯ
КО МАРКУ И КО САВВЕ

ПРИКАЗО OT МАТФЯ
КО МАРКУ И КО САВВЕ

order-NOM.SG from Matfej-NameGEN.SG to Mark-NameDAT.SG and to Savva-NameDAT.SG

'An order from Matfej to Mark and Savva'

1. ПРО НЕПРИЯТОЕ
СЕРБЕРО
ДОНАЕСИМА

ПРО НЕПРИЯТОЕ
СЕРЕБРО
ДОНАБЕРИМА

about unwoven-PART.PASS.N.ACC.SG silver-ACC.SG ... care-IMP.2SG

'See about the money for the unwoven <linen>,'

2. АА СА ДИВЛЯ
ЦЕМЕ КМЕ ВЕСТИ
ТВЪ САКО НЕТЪ

ДА Я СЯ ДИВЛЯ
ЦЕМУ МНЕ ВЕСТИ OT VASO НЕТУ

and I REFL wonder-PRES.1SG why me-DAT message-GEN.SG from you-GEN.PL no

'And I wonder, why there is no message from you'
3. TAKO ----- MOIJO  žIVOTOMO  ZOBALTECA
TAKO ----- MOIJO  žIVOTOMO  ZOBALTESA //
so my-INSTR.SG property-INSTR.SG care-PRES.2PL

‘Is that how you care for my property?’

4. ----- Ž-O-----T- NE  ŽOČTE  PRIKALATI
----- OT-E----T- NE  XOCETE  PRIB(S)LATI //
... ... not want-PRES.2PL send-INF.PFV.

‘... you don’t want to send.’

5. LIJO LI VAMO DOBRO LI I O MOIJO  žIVOTE  O
LIJO LI VAMO DOBRO LI I O MOIJO  žIVOTE  O
bad-ADV. or you-DAT.PL well-ADV or and/but about my-LOC.SG property-LOC.SG about
AKOMA  EDAJO  NABOLITISCA  MOIJO  PRIKAZOMO
JAKOLI  EDAJO  NABOLITISJA  MOIJO  PRIKAZOMO
Jakov’s-POSS.LOC.SG you-DAT.SG care-INF.IMPVF.REFL my-INSTR.SG order-INSTR.SG

6. BOLSIMO//
great-INSTR.SG

‘Whether you are unwell or well, but by my great order you are to care for
my ((and)) Yakov’s property’

6. ĈUŽIMO LI NABOLITISJA OŽE VY TAKO DEJTE //
others-DAT.PL INTERROG.PARTICLE care-INF.IMPVF that you-Nom.SG so do-PRES.2PL

‘Do outsiders <have> to take care (of that) if you are behaving this way?’

7. BOGA SJA BOJTE ----- BLJUDITE //
God-ACC.SG REFL fear-IMP.2PL ---- keep-IMP.2PL

‘Fear God, keep <your> [word?]’

8. URI O SMENOBE  TODEPE ----- ŠLATE
NI O SMENOBE  TOVARE) ----- ŠLATE
not about Semen’s-NamePOSS.LOC.SG merchandise-LOC.SG ----- send-PRES.2PL

‘Nor about Semen’s merchandise do you send …’
The difference in T-scores in the set of contemporary examples hypothetically measures the development of Gosha’s writing skills (from 3.75 to 6.2) over 1 year. It is too early to make any strong claims with regard to the significance of these results. Likewise, it is impossible to compare the figures for contemporary Russian to those of the Old Russian material, and there is no way to track the writing development of an individual medieval writer. However, we can cautiously assume that letters with a T-score of 4.7 were written by less skillful writers than those with a score of 7.4. Moreover, a statistical analysis may reveal some interesting patterns in the development of written language.

**Pragmatics**

Birch bark and children’s letters reveal some interesting parallels in the incipits, the opening address formulas. The most frequent incipit in birch bark letters is the formula ‘from X to Y’ (oT X-a Ko Y-y). In different periods, this formula could be extended, for example ‘a letter (рамота) from X to Y’, ‘a bow (покахон покаланы) from X to Y’, and so on. Most of the children’s letters I have examined start with the stereotypical address ‘Dear+Name/kinship term’, for example, дорогой Тиша ‘Dear Tisha’ or ДОРОГАЯ МАМОЧКА ‘Dear Mommy’. Some start with ‘Hello (+dear)+Name/kinship term’. здравствуй (дорогой) папа ‘Hello (dear) Dad’. However, along with these obviously learned formulas, we find some more spontaneous, naïve ones in which the authors identify themselves from the start, just as in birch bark letters: ДОРОГОЙ ПАПА, Я ВАДИК ‘Dear papa, i.am.vadik; бабушка Марина. Я ДАНА ‘Grandma Marina. I am Danya’; Привет Кира, это я Андрей ‘Hi (WS), this is me, Andrei’; привет всем от Павлик ‘regards to all from Pavlik’ (cf. the birch bark letters formula ‘A bow from X to Y’); and, finally, most strikingly: от Маринь: бабушке и дедушке ‘from Marina: to Grandma and Grandpa’.

To be sure, the incipits in the birch bark letters were highly conventional and doubtlessly learned (Worth, 1984). Moreover, they were susceptible to trends, their chronological distribution serving as a supplemental aid in dating the letters. Yet evidence from many ancient epistolary traditions suggests that identifying the sender at the beginning of a distant communicative act is prototypical.

**Interpretation**

The present analysis shows that birch bark letters, by and large, fall into the second and third stages of writing development: preparation and consolidation. Several features attest to the fact that the writers of birch bark letters had not completely mastered the mechanics of physical writing.

Numerous omissions, repetitions, and metatheses are features of the preparation stage of writing acquisition, when learners are still preoccupied with the mechanics of writing. According to Luria (1950), one of the fundamental operations involved in writing generation is kinesthetic analysis of sound sequencing. In the beginning stages, it is implemented by saying aloud what is being written. When children are instructed to write silently (e.g., with an open mouth), the number of mistakes in phonemic sequencing increases significantly. Luria describes patients with brain injuries in the zones responsible for kinesthetic activities (including articulation) whose writing was also replete with omissions, repetitions, and metatheses.

It is true that everyone occasionally commits such mechanical mistakes. However, competent writers are usually able to correct such flaws when revising their works. In contrast, inexperienced writers never reread their writings. Even if asked to reread, they fail to detect their mistakes. Revision is a learned skill, and it is only learned at the third stage of writing development: consolidation.

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Ancient writing practices prove this point as well. For example, despite the high level of written language in Classical Rome, the technical activity of writing was not considered prestigious. Authors dictated their texts to scribes, usually slaves, then revised and edited the text a number of times, after which the scribe would produce a fair copy. Thus, the final version was the product of a “division of labor” (Günther, 1997, p. 137). When writing shorter or personal notes, the writer dictated the text to himself. This sort of writing was notable for numerous mechanical mistakes, resulting from insufficient practice in physical writing. A remarkable passage in Suetonius, for instance, comments on Augustus’s writing: “He often inverts or misses out letters or even syllables. These are errors everyone commits [emphasis added] . . .” (Günther, 1997, p. 137).

### Mirror reversals of letters

The orientation of letters is admittedly one of the hardest things for young writers to grasp. In everyday life, we are used to identifying an object regardless of its orientation: A chair turned upside-down will still be recognized as a chair (Temple, Nathan, & Burris, 1982, p. 36). In writing, the rules change: the direction of a letter changes its identity.

The complementary distribution of the “correct” and the reversed variants in birch bark letters led Dean Worth (1984) to suggest that these reversals reflected different orthographic (or, rather, graphic) traditions. This may or may not be the case. It is true that handwriting systems of all times are more permissive of variation than print, but it is quite probable that the writers of birch bark letters were still having problems with the orientation of the letters, just as modern children do. Thus, Gosha, age 6, invariably writes the letters ’elle/ and ’elle/ correctly in one of his notes, whereas in another note, written 6 months later, the same letters are consistently reversed, attesting to the boy’s incomplete mastering of writing mechanics. Likewise, the coexistence of variants within the medieval writing system could attest to the authors’ level of progress in writing. Medieval orthographic norms were based on usage, rather than on rigid standardization, and allowed for a great deal of variation (Živov, 2006). Within the expectations of that system, the birch bark letters may actually have contained few orthographic mistakes or none at all (Zaliznjak, 2004). However, the very fact of a system’s flexibility is indicative of an early stage in its formation. In the history of a written language, standardization is an important milestone, which had not yet been reached at the time of birch bark letters.

Although such features as omissions, repetitions, and mirror reversals tell us about the individual’s progress in the development of writing, others suggest that there are certain developmental sequences that characterize both the writing growth of individuals and the evolution of written language. Such are the continuous script and the use of punctuation, which were the literary norm in the time of birch bark letters, but are only a short episode in the development of children’s writing. Historically, word separation was first indicated by means of punctuation marks. Blank space as a word divider was a late innovation (Parkes, 1992). Commenting on the similar development in children’s writing, Temple et al. (1982, p. 41) draw on the concept of “negative space” (space left out) used meaningfully in art and architecture (as shown in Figure 3b). The authors propose that the antecedence of separating words with a filled space stems from the psychological saliency of positive space (space filled in) as opposed to negative space. Amazingly, the same practice of word separation with dots is also observed in adult incipient writers of late 19th-century Russia (Yokoyama, 2008, pp. 298–299). The examples of continuous writing and “negative” boundary marking do not imply that birch bark letters authors, today’s children and adult semiliterates, or their writings are equally “primitive.” Rather, they imply that these practices represent something “archetypal” or “uniform” in the development of writing. Uncovering such uniform phenomena contributes to our understanding of both the history and the acquisition of writing.

T-unit length measures the progress of the author in his development as writer, but a comprehensive diachronic analysis may reveal that its increase also characterizes the development of written language on the historical plane. A pilot T-score analysis of 32 birch bark letters, randomly selected across the
historical spectrum, reveals their inhomogeneity: letters with low and high T-scores could coexist in the same period, meaning that some writers were more skilled than others. The analysis should be applied to a larger corpus to see if there are any patterns in the mean length of T-units over time.

All these pieces of evidence indicate that writing in Novgorod was in the beginning stages of formation. It could not possibly have been at an advanced stage for two reasons. First, two important milestones in writing (and literacy at large) cannot be reached in a period of predominantly chirographic dissemination (Ong, 1982, namely, massive circulation of the written word and standardization of
writing. Second, full literacy development requires institutionalized schooling on a mass scale. Our knowledge about education in medieval Novgorod is scant. We do not know how many years the training lasted or what part of the population was involved in it. We do know, however, that even a modern Western-style, all-pervasive school system offering 10 years of instruction or more does not always succeed in moving people beyond the first three stages of writing development. The kind of training available to medieval Russians could not have been sufficiently extensive (either in terms of individual training or in terms of dissemination) to allow for a fully interiorized literacy.

Živov and Timberlake (1997) argued that the birch bark letters could not be exact written transcriptions of oral speech because they are characterized by “a rhetorical completeness and rigid textual organization” that must have been of literary origin (p. 8). But looking at the oral–written relationship from a developmental perspective, it would appear that authors of many birch bark letters were still at the preparation stage, where writing lags behind oral speech: hence, their writing could not yet reflect it.

Conclusion

The main idea of this article is that writing acquisition as it is observed today provides valuable tools for dealing with historically early writings. It is based on the hypothesis that the processes underlying writing acquisition today are the same as they were in the past: Hence the observable present can serve as a key to the unobservable past. I provided a rationale for the idea that birch bark letters represented writing in its beginning stages and pointed out the similarities between two groups of novice writers: today’s Russian children and the medieval authors of birch bark letters. The next questions to ask are these: What is it exactly that this key can help us open, that is, what kinds of claims about medieval writing can we make based on the data from writing acquisition by today’s children? What are the prospects for future research? Here in the conclusion I propose some possible answers to these questions.
(1) The Uniformitarian Principle can apply to more than birch bark letters. First, the hypothesis advanced here and its implications for birch bark and children’s letters can be extended to any writing in its beginning stages, both in the present and in the past. Literacy studies have shown that literacy interiorization in a culture is a long process that can take centuries on the historical and decades on the individual planes. Literacy dissemination being a function of text reproduction technology, the analysis of any preprint writing can benefit from acknowledging the analogy with writing acquisition. This is especially true of writing in the very beginning stages. It is commonly believed that the evolution of literary language is marked by its increasing divergence from context-situated oral strategies as it moves toward “autonomous” written ones. This idea should be revised in view of the fact that written performance lags significantly behind the oral in the beginning stages. Identifying the stage of evolution of written language in which a given text is written will determine our expectations of the text.

(2) Diagnostic tools for determining the level of writing development. One of the ways to determine the syntactic maturity of a text is to profile it for a sentence-like unit length. In this article I have chosen the T-unit as such a unit, but defining clear criteria for syntactic delimitation is a task to pursue in future research. The next step would be parsing the available corpus of texts for syntactic boundaries and tracing the dynamics of syntactic units’ mean length. Corpus technologies should prove a valuable tool in this task opening new vistas in the analysis of historical texts.

Future research should also aim to establish a repertory of other diagnostic tools. Because the maturity of writing is most noticeable at the discourse level, the next step would be a comparative exploration of cohesive devices in novice writing, specifically referential choice (including the elusive issue of zero-subjects), thematic development, discourse connectives, and the like.

(3) Finally, we need to explore further “the missing link” of the theory, namely, the writings of modern adult novice writers. The claim that writing is to a great extent independent of cognitive abilities can be specifically tested in studies about adult novices. The use of punctuation as word boundary demarcation in letters of 19th-century peasants (Yokoyama, 2008) serves as strong evidence in favor of my hypothesis.

Three paths of research are possible in this direction. One is to examine the writings of adults who have had very limited or no writing instruction in their childhood. In the modern postindustrial world, these will usually be the speakers of a substandard language variety. Another path would be to do fieldwork in postcolonial countries in which literacy has only recently been introduced. A third path would be to study the writings of heritage speakers, who frequently learn how to write their native language only in their college years. This path seems to be especially promising, because heritage speakers who have made it to college constitute a unique category of intelligent, mature adults at the very beginning stages of writing development in their home language.

This article suggests an analogy based on preliminary evidence and raises more questions than it answers. Further refinement will of course be necessary, but I would like to conclude with a quote:

We historical linguists have everything to gain from building up an inventory of well-studied present times which, as they cumulate into a store of well-studied pasts will slowly but inevitably provide a more solid database for formulating and testing increasingly sophisticated hypotheses regarding language change. Yes, some of these hypotheses will turn out to be ridiculously wrong. But, we maintain, a scientific (sub)discipline cannot make significant progress by refusing to propose any generalizations until it has “gotten everything right.” (Janda & Joseph, 2003, p. 177)
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