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Introduction to special issue on ‘Units of Language – Units of Writing’

A key relationship for writing systems research

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1. Introduction

The papers in this collection were originally presented at the *International Workshop on Writing Systems* held at the Sorbonne in Paris, 30th September – 1st October 2010. It was the 7th workshop in the biennial series organized by the *Association of Written Language and Literacy (AWLL)* in collaboration, on this occasion, with the research laboratory *Langues-Musiques-Sociétés (FRE 3324-CNRS)*. We would like to express our thanks to Amandine Bergère for her tireless efforts organizing the workshop.

The workshop offered a forum for discussion between researchers from a range of different countries and linguistic backgrounds, working in a variety of fields of writing research such as theoretical linguistics, psycholinguistics, computational linguistics and language education.

The theme of the workshop was ‘Units of Language – Units of Writing’. There were three invited keynote speakers: Michel Fayol (Université Blaise Pascal, Clermont Ferrand 2 and the Laboratoire Psychologie Sociale et Cognitive, LAPSCO-CNRS, UMR 6024), Vivian Cook (Professor of Applied Linguistics, Newcastle) and David Olson (Professor Emeritus of the Ontario Institute for Studies in Education at the University of Toronto).

The workshop program consisted of 19 other oral presentations and 3 posters focusing on scripts as diverse as Japanese, Korean, Chinese, Thai, Hebrew, and Roman. The latter was exemplified with analyses of the Danish, Dutch, English, French, German, and Portuguese orthographies and its adaptation in two African languages, Mandinka and Kabiye. The six contributions to this special issue have developed out of papers delivered during the workshop.

2. Summary of papers

At first sight, the workshop theme may appear rather elusive, but the diverse range of inspiring papers shared at the AWLL 2010 workshop undoubtedly attests to the value of reexamining this fundamental, albeit complex, relationship. Against the growing interest in writing systems research over the last two decades, renewed explorations of this theme are likely to reward further attention.

While naturally representing just a small sample of the approaches that might be beneficially pursued, the six papers in this collection explore the special issue theme from widely different perspectives reflecting their respective target languages and methodologies. That said, it also seems reasonable to regard them as tackling different aspects of the small set of overlapping questions that defined the AWLL 2010 workshop, and which may be grouped together in three broad strands.

The first broad strand concerns rethinking the fundamental relationships between language, speech, and writing, in ways that move beyond the narrow 'language is speech' perspective that has dominated the traditions derived from Saussure (1916) and Bloomfield (1933). This is captured in the question *How are units of language and units of writing related?*, which is addressed at some level by all the special issue papers.

The second broad strand relates to the impact of literacy on cognition (Good & Watt 1968; Havelock 1962; Olson 1994). It is what Olson (this volume) refers to as the 'literacy hypothesis'. The first three papers of this special issue address different aspects of this strand. The papers by Olson and by Velduis and Kurvers shed light on the question *How does the acquisition of writing impact on language awareness?*, while the paper by Banga, Hanssen, Schreuder, and Neijt explores the question *Does knowledge of the relationship between speech and writing in one language influence one's understanding of the same connection in another?*

The third broad strand maps out the connections between representational levels. Given the serious challenge to simplistic notions about grapheme-to-phoneme correspondences presented by the orthographic depth hypothesis (Katz & Frost 1992), more research is needed to investigate the recoding processes and the relevant contributions of morphology and grammatical information. The spirit of this strand is aptly captured in the question *Which levels are involved and which kinds of relationships are maintained?* which is explored in the last three papers. Neef highlights the involvement of morphological information in German, Roberts and Walter contrast phonological and grammatical mappings for Kabiye, an African tone language, while Joyce, Hodošček, and Nishina offer some insights from the multi-script Japanese writing system.

To further illustrate how these individual papers contribute to the special issue theme, each paper is summarized in more detail below.

In the first paper by David Olson, *Literacy, rationality and logic: The historical and developmental origins of logical discourse*, the perspective is firmly on the consequences of literacy and its capacity to direct attention from expressed content towards the linguistic structures that express the content. Starting from the claim that writing transforms certain properties of spoken language into visible objects that facilitate reflection and analysis, Olson presents a careful examination of how the meanings and uses of a set of relational terms – *and*, *or* and *not* – within ordinary conversational contexts shift when these words are employed as logical terms within the contexts of discourse and rationality. More specifically, he shows that everyday reasoning and children's use of such terms is not irrational but geared towards situational relevance. In contrast, formal logic relies on a process of specializing or narrowing of linguistic meaning, making such language more suitable for logical reasoning, and these relational terms are a case in point. While acknowledging that some degree of formalization in the meanings of words is important for literate forms of rationality, Olson also astutely cautions against underestimating the rationality of ordinary oral discourse.

The influence of literacy is also a central theme of the second contribution, *Offline segmentation and online language processing units: The influence of literacy*, by Dorina Veldhuis and Jeanne Kurvers. They report on a developmental study that they conducted with Dutch pre-literate and literate children in order to investigate the effects of literacy on their segmentation of linguistic materials along word boundaries. First, the authors reject a simple dichotomous contrast between 'offline' (metalinguistic awareness of words as units of language) and 'online' (unconscious language processing) in favor of a gradual continuum between these diverging tendencies. They then propose a set of criteria for assessing various tasks along the offline-online dimension. This lays the groundwork for their study which employed three relatively more offline tasks (tapping, part repetition, and dictation) and two relatively more online tasks (click task and self-paced listening). The results from the more offline tasks indicate a clear influence of literacy where the literate children make significantly more segmentations at word boundaries than the pre-literate children. However, the results are less conclusive for the more online tasks, where an influence is only observed for the newly developed click task.

In the third paper, *How subtle differences in orthography influence conceptual interpretation*, Arina Banga, Esther Hanssen, Robert Schreuder, and Anneke Neijt explore the relationship between units of language and units of writing within the domain of linguistic relativity. More specifically, they seek to examine the linking elements within compounds and the plural suffixes across the related languages of Dutch, Frisian, and Afrikaans. In Dutch, the linking element and the plural

suffix are homographs, both represented by *en*. The same is true of Afrikaans, where both elements are represented by *e*. However, in Frisian the relationship is not homographic, and the linking element is represented by *e*; the plural suffix is represented by *en*. Against this background, Banga et al. report on a quantitative experiment carried out among Dutch native speakers, Frisian-Dutch bilinguals, and native Afrikaans speakers who are second language learners of Dutch. The experiment investigates whether the orthographic conventions of a participant's native language influence plurality judgments of the modifier constituent within Dutch noun-noun compounds. The different patterns of plurality ratings among the three experimental groups suggest that linguistic relativity effects can also be observed within the domain of orthography.

Boundaries in written representations: The potential beginning of words in German is the title of the fourth paper by Martin Neef. First, the author outlines his Recoding Model of Graphematics (Neef 2005) that formulates a set of correspondence rules for individual alphabetic letters and a set of constraints to account for patterns that exceed individual letters. Then he argues that any theory of phonographic writing systems must acknowledge that morphological structure may also influence the correspondences between written forms and phonological representations. He illustrates this with a detailed analysis of German data. In general, any vowel letter can be recoded as either tense or lax. A sharpening constraint accounts for the fact that before certain letter sequences the recoding of vowel letters as tense is disallowed. However, this constraint does not always apply because the sequence may occur across a morpheme boundary. Seeking to capture precisely which morphological structures block the application of this constraint, Neef considers and ultimately rejects inflectional as well as derivational suffixes as possible candidates. Instead he proposes the notion of a boundary of the potential beginning of a word (the PW-boundary) that is related to both prefix and root morphemes and to the domain of the graphematic word. Then he identifies the application domain for both letter rules and constraints as the PW-domain.

In the fifth paper, entitled *Writing grammar rather than tone: An orthography experiment in Togo*, David Roberts and Stephen Walter examine the relationship between units of speech and units of writing by means of a classroom experiment testing the orthography of Kabiye, an African tone language. To our knowledge, this is the first published experiment on tone orthography since Bernard et al. (2002) appeared ten years ago. The experiment reported here tested the claim that languages with grammatical tone would do well to highlight certain grammatical constructions in the orthography. They find that writers of an experimental grammar orthography perform faster and more accurately than writers of an experimental tone orthography. This suggests that participants have an awareness of the morphological structure of their language that may exceed their awareness of its

phonology. Moreover, frequency of exposure to a particular grammatical construction in natural contexts proves to be a strong predictor of performance for those writing the experimental grammar orthography, but it confers no advantage for those writing the experimental tone orthography. Roberts and Walter hope that such evidence will release tone orthography developers to promote more creative solutions than have been possible under the tight constraints of the phonemic principle.

The final contribution to this special issue collection, entitled *Orthographic representation and variation within the Japanese writing system: Some corpus-based observations*, is by Terry Joyce, Bor Hodošček, and Kikuko Nishina. They investigate the Japanese writing system which consists of multiple scripts that are functionally combined as complementary elements of an overall system. Drawing on the creation of word lists from the recently released *Balanced Corpus of Contemporary Written Japanese* (NINJAL 2011), Joyce et al. address three issues of profound relevance for this special issue theme in particular and for writing systems research in general. The first two issues – concerning the treatment of related lemmas and the conceptualizations of short and long unit words respectively – both have serious implications for the processes of identifying and distinguishing the functional units of the Japanese language. The third issue of attempting to quantify the extent of orthographic variation within the Japanese writing system goes directly to the heart of the complex relationship between units of language and units of writing. Presented ratios of orthographic variation indicate that the relationship is commonly one-to-many in nature. Clearly, orthographic variation is a major characteristic of the Japanese writing system, at least, for the most common Japanese words.

During our time as guest editors, we have traced the evolution of these contributions from their oral presentations at the workshop through several revision stages to publication. We would like to express our thanks to the authors and the external reviewers for their commitment and hard work throughout this process and to Martin Neef, general editor of *Written Language and Literacy*, for his guidance and support. It is our hope that the papers in this special issue will contribute to our understanding of the relationship between units of language and units of writing.

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