

Association for Written Language and Literacy
Carl von Ossietzky Universität Oldenburg



Drawings: Architect Hans-Joachim Ewert

A large, stylized architectural drawing of a building structure, rendered in a light gray and red color scheme. The drawing shows a complex, multi-level structure with various rooms and corridors, viewed from an isometric perspective. The drawing is positioned in the upper right and lower left corners of the page, framing the central text.

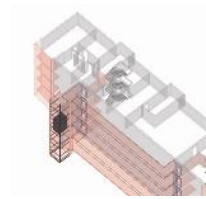
The Architecture of Writing Systems

8th International Workshop on
Writing Systems and Literacy

October 4th-5th, Oldenburg, Germany

>> Programme

>> Information



All information can also be found on awll8.uni-oldenburg.de.

> Location

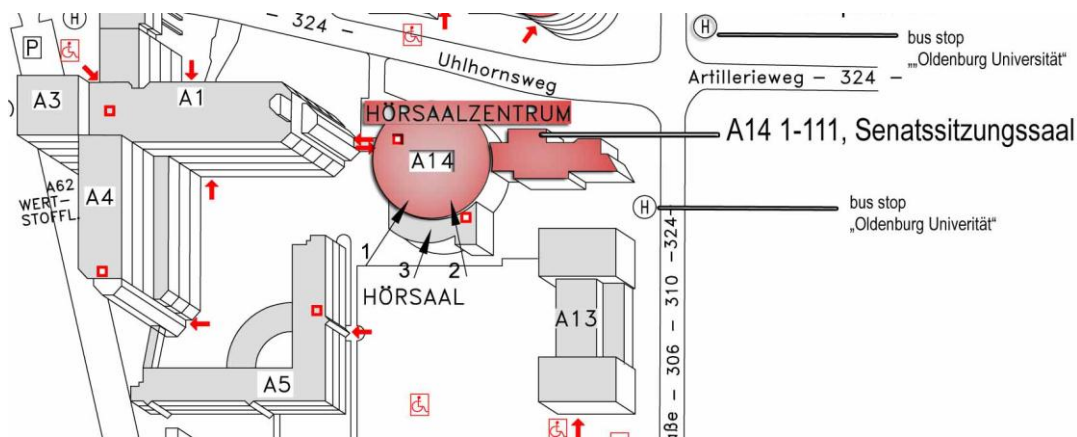
Full address:

A14 - Hörsaalzentrum

Uhlhornsweg 86

26129 Oldenburg

Room: A14 1-111 (Senatssitzungssaal): oral presentations
A14-1-115: poster session
A14-1-114: coffee breaks



> Travel

Oldenburg is easily accessible by rail and by road.

Train

Campus Haarentor (station "Heerstraße/Uhlhornsweg") is serviced by bus numbers 306 "Universität", 310 "Wehnen/Famila-Center" and 324 "Infanterieweg" from main station. The bus station is at the back of the main station. Buses leave from platform A, and the journey takes approx. 10 min. (lines 306 & 310) or 15 minutes (line 324).

You can also use the online timetable for connections to or from Oldenburg University (<http://www.uni-oldenburg.de/en/contact/public-transport/online-timetable/>).

Car

Coming from the Autobahn junction Oldenburg-Ost you take the A28 to Emden/Leer. Leave the Autobahn on Exit Haarentor and take a right turn into Ammerländer Heerstraße at the first traffic lights. Follow the street for 800 meters and turn left into Uhlhornsweg at the second intersection. Turn left again right after the pedestrian bridge to get to the parking area.

> Registration

Registration fees are

40€ (payment before september 15th)

or

50€ (local payment).

Students pay 15€ (before September 15th) or 20€ (on site).

Conference dinner is not included.

Payment by bank transfer

Bank's name: Landessparkasse zu Oldenburg (LzO)

BLZ: 28050100

Konto: 1988112

Reason for payment: 5320321960 (Important)

BIC: BRLADE21LZO

IBAN: DE46280501000001988112

> Organization committee

Nanna Fuhrhop (German Department, University of Oldenburg)

Terry Joyce (School of Global Studies Tama University)

Anneke Neijt (Dutch Department, University of Nijmegen)

Beatrice Primus (German Department, University of Cologne)

> Restaurants

Warming up

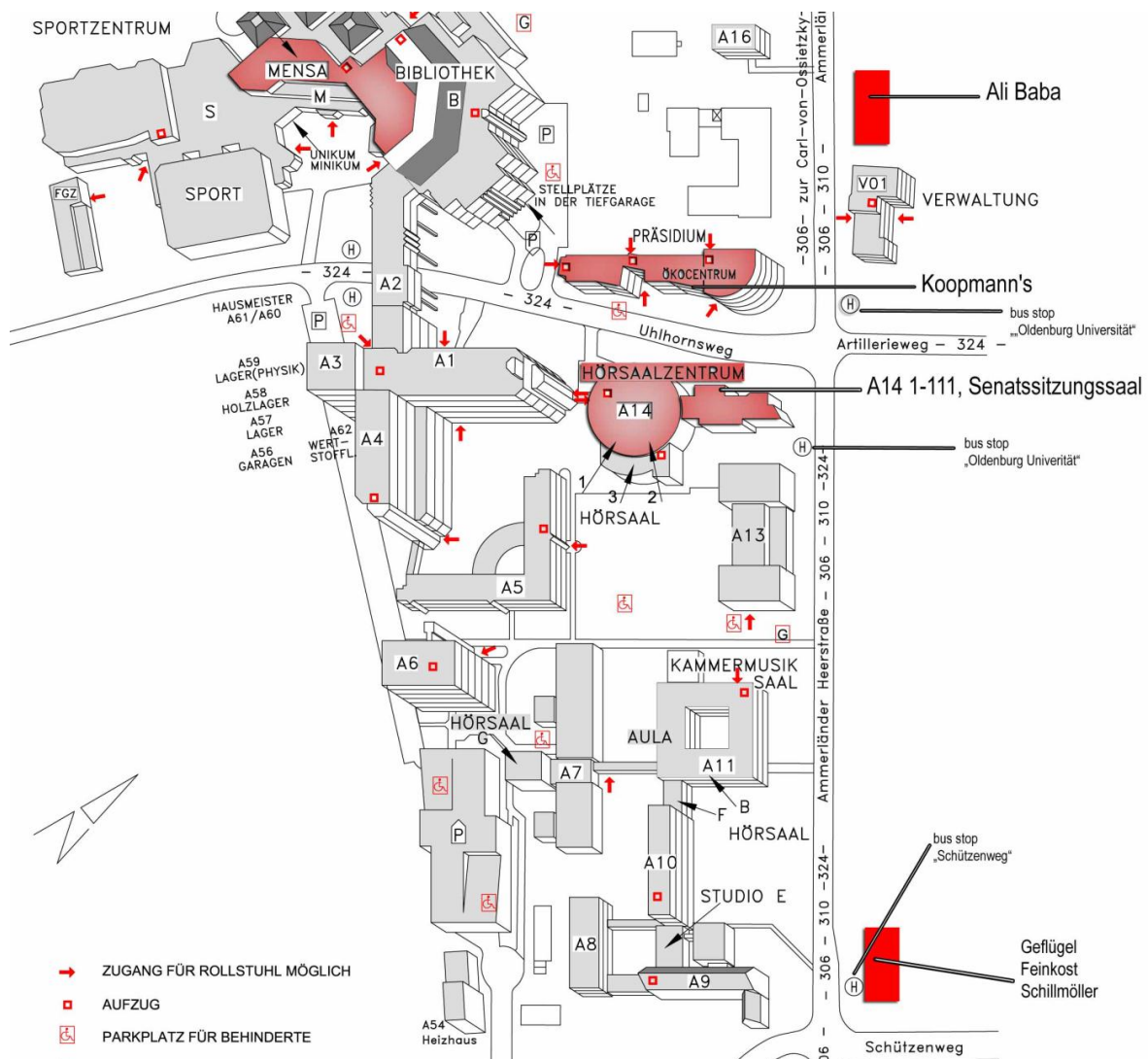
Florian Grand Café
Markt 2-3
26122 Oldenburg
www.florian-ol.de

Conference dinner

Klinkerburg
Bahnhofsplatz 12 (central station)
26122 Oldenburg
www.klinkerburg.de

Restaurants near the conference location

There are several places to eat in walking distance. We suggest the following:



Mensa: building M in the Campus

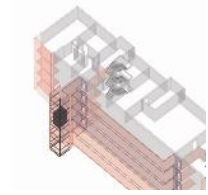
Feinkost Schillmöller: Ammerländer Heerstr. 70
choose from several components (about 5€)

Koopmann's: Ökocentrum at the campus
soup (about 5€)

Restaurant Ali Baba: Ammerländer Heerstr. 120
turkish (during lunch time about 8€)

Restaurant Prosecco: at the corner of Uhlhornsweg and Ammerländer Heerstr.
mediterranean (buffet during lunch time about 6€)

>> Schedule



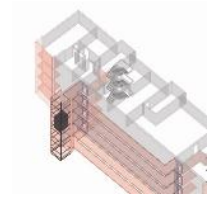
> Thursday, October 4th:

| | |
|-------|---|
| 09:00 | Registration |
| 09:30 | Introduction |
| 09:45 | Jonathan Grainger A generic architecture for reading words. |
| 10.30 | Frank Slotta & Beatrice Primus Punctuation between prosody and syntax. |
| 11.00 | Coffee break |
| 11.15 | Anneke Neijt, Mijntje Peters & Johan Zuidema Why spelling is more difficult than reading. |
| 11.45 | Dennis Pauly & Guido Nottbusch The effect of capitalization on reading in German: An Eye-tracking pilot study. |
| 12.15 | Oral poster presentation |
| 12.30 | Lunch |
| 14.00 | Martin Neef A modular theory of phonographic writing systems. |
| 14.30 | Keisuke Honda Semantically opaque graphs in Japanese kanji writing: Implications for the morphographic principle. |
| 15.00 | Coffee break |
| 15.15 | Poster presentation |
| 17.00 | AWLL meeting |
| 19.30 | Dinner |

> Friday, October 5th:

| | |
|-------|---|
| 09:15 | Peter Eisenberg Notational iconicity and alphabetic writing. The case of German |
| 10.15 | Terry Joyce, Hisashi Masuda & Taeko Ogawa: Jōyō kanji Recent revision, characteristics, and role as core component of the Japanese writing system. |
| 10.45 | Coffee break |
| 11.00 | Heather McDowell & Marjorie Lorch Crosslinguistic and orthographic influences in syllable awareness. |
| 11.30 | Jeong Young Kim Semantics between spelling and sound in the Korean writing system. |
| 12.00 | Lynne Cahill: PolyOrth Orthography from phonology and morphology. |
| 12.30 | Lunch |
| 14.00 | Dorit Ravid, Rachel Schiff, Tehila Bienenstock & Ronit Levie Spelling function letters in Hebrew: Cues mitigating opacity. |
| 14.30 | Des Ryan A fundamental unit of spelling? Evidence from various kinds of English-derived abbreviations. |
| 15.00 | Conclusion |

>> Oral presentations: Abstracts



> Punctuation between prosody and syntax

Frank Slotta & Beatrice Primus
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The research on punctuation systems is usually reduced to a dualism of two opposing principles, on the one hand the rhetorical-intonational and on the other hand the grammatical-syntactical principle of punctuation. This dualism is meant to explain both typological and historical variation in punctuation systems. Synchronically, rhetorical-intonational punctuation is claimed to characterize, among others, the Romance languages, English, and Dutch; the grammatical type is assumed, for instance, for German, Hungarian, Finnish, Russian, and Polish. As for historical variation, early punctuation practice is understood as a purely rhetorical system which turned into a grammatical system in some languages including Modern German (see Besch 1981 and Höchli 1981 for German; Bartsch 1998 across languages). Two properties are traditionally claimed to characterize rhetorical punctuation: its close connection to intonation and its stylistically free use. By contrast, a grammatical system is claimed to be guided by grammatical principles that regulate punctuation in a strict way. The strict dualism hypothesis is called into doubt by numerous studies on intonation in recent years that show a close connection between syntax and intonation (e.g. Cruttenden 1997, Fodor 2002, Gussenhoven 2004, Truckenbrodt 2005).

The different punctuation systems are mainly distinguished by the comma, which, therefore, will be the main topic of this talk. It will focus on the question to what extent there is a direct correspondence between comma placement, syntactic phrasing and intonational phrasing. Results from psycho- and neurolinguistic studies on the processing of commas in relation to prosodic phrases will also be considered (e.g. Steinhauer / Friederici 2001). The results of this discussion will be used to test the traditional hypothesis that German punctuation developed from a rhetorical-intonational system into a grammatical one.

References

Bartsch, Elmar. 1998. Interpunktion. In: Ueding, Gert (Hg.) *Historisches Wörterbuch der Rhetorik*, Vol. IV. Tübingen: Niemeyer, 515-526.

- Besch, Werner. 1981. Zur Entwicklung der deutschen Interpunktion seit dem späten Mittelalter. In: Smits, Kathryn / Besch, Werner / Lange, Viktor (Hrsg.) Interpretation und Edition deutscher Texte des Mittelalters. Festschrift für John Asher. Berlin: Erich Schmidt, 187-206.
- Cruttenden, Alan. 1997. Intonation. 2nd edition. Cambridge: University Press.
- Fodor, Janet D. 2002. Prosodic disambiguation in silent reading. In: Hirotsu, Masako (ed.) Proceedings of NELS 32. GLSA, Amherst, 113-132.
- Gussenhoven, Carlos. 2004. The Phonology of Tone and Intonation. Cambridge: University Press.
- Höchli, Stefan. 1981. Zur Geschichte der Interpunktion im Deutschen. Berlin: de Gruyter.
- Steinhauer, Karsten / Friederici, Angela. 2001. Prosodic Boundaries, Comma Rules, and Brain Responses: The Closure Positive Shift in ERPs as a Universal Marker for Prosodic Phrasing in Listeners and Readers. *Journal of Psycholinguistic Research* 30/3, 267-295.
- Truckenbrodt, Hubert. 2005. A short report on intonation phrase boundaries in German. *Linguistische Berichte* 203, 273-296.

> Why spelling is more difficult than reading

Anneke Neijt, Mijntje Peters and Johan Zuidema
Radboud University Nijmegen

Bosman & Van Orden (1997) assume that the architecture of reading and writing is best represented by a triangle model in which orthography (letter nodes), phonology (phoneme nodes) and semantics (semantic nodes) are bidirectionally interrelated. The tightest connection is that between letters and phonemes. Phonemes and semantic nodes are more closely connected than letters and semantic nodes, since the acquisition of spoken language precedes the acquisition of written forms. The proposed architecture, a connectionist model, would explain why spelling is more difficult than reading: "phoneme-letter inconsistencies must be resolved by the relatively weak semantic-letter dynamic, whereas in reading, letter-phoneme inconsistencies are resolved by the stronger semantic-phoneme dynamic" (1997: 179).

There is reason to doubt this line of reasoning. Full knowledge about semantics is available to the speller but not to the reader. The fact that knowledge about two of the three representations of the triangle model is available to the speller, but only one representation is available to the reader, leads to the incorrect prediction that spelling is easier than reading.

We assume that semantics has no bearing on the issue and present a model for the structural, non-semantic aspects of Dutch orthography, the 12321 model. Unlike current psycholinguistic models of the architecture of writing and reading, this model is based on acquisition stages. The 12321 model illustrates why spelling is so difficult to learn: Writers of Dutch need to integrate the output of different routes from speech to spelling, whereas orthographic output is not vague or variable. Presumably this aspect of orthography explains why spelling is more difficult than reading even for those who know all there is to know about Dutch orthography.

References

Bosman A.M.T., & Van Orden, G.C. (1997). Why spelling is more difficult than reading. In C.A. Perfetti, L. Rieben, & M. Fayol (eds.). *Learning to spell. Research, theory, and practice across languages*. Mahwah, New Jersey & London: Lawrence Erlbaum Associates, p. 173-194.

Neijt, A., M. Peters & J. Zuidema (submitted). The 12321 model of Dutch orthography.

> The effect of capitalization on reading in German: An Eye-tracking pilot study

*Dennis Pauly & Guido Nottbusch
University of Potsdam*

At regular intervals there is a discussion of the necessity of capitalization (systematic marking) of nouns in the German orthography. The main argument for capitalization is the additional benefit this syntactic information gives to the reader. This has been demonstrated for reading in a number of studies by Bock and colleagues (e.g. 1985, 1989), comparing the function of majuscules and minuscules. The main design of these studies was straightforward, but the results leave several open questions. These can be addressed with eye-tracking methods. To our knowledge Gfroerer et al. (1989; a replication of Bock, 1987) is still the only eye-tracking study in the field of capitalization. In this study 15 Dutch second language learners of German read 10 narrative texts (five in German, five in Dutch). When the text was presented following German capitalization rules the fixation duration was generally shorter, the regressions fewer and the saccade length longer. All studies came to the conclusion that the capitalization in German has a facilitating effect for the reader.

In preparation for a larger eye-tracking study we conducted a pilot with eight participants. Their task was to read four different short stories (350 words each) – two texts in regular German spelling (with capitalization), two texts in lower case spelling (like in English orthography). We measured, amongst other things, the duration of the first fixation on non-capitalized and capitalized words (and their neighbor-words), the first pass dwell time, regressions to these words, the sum of all fixations (dwell time), and the width and duration of saccades around these words. Initial results show minimal effects of capitalization on the duration of first fixations but a significant reduction in the number of times capitalized words were regressed to. Further analyses and conclusions concerning a follow-up-experiment will be discussed during the presentation.

References

- Bock, M., Augst G. & Wegner, I. (1985). Groß oder klein? Zur Funktion des Wortanfangs für den gegenwärtigen Leser. *Zeitschrift für Entwicklungspsychologie und Pädagogische Psychologie*, 17, 191-209.
- Bock, M., Hagenschneider, K. & Schweer, A. (1989). Zur Funktion der Groß- und Kleinschreibung beim Lesen deutscher, englischer und niederländischer Texte. In: Eisenberg, P. & Günther, H. (1989). *Schriftsystem und Orthographie*, 23-55. Tübingen: Niemeyer.
- Gfroerer, Stefan; Günther, Hartmut & Bock, Michael (1989): Augenbewegung und Substantivgroßschreibung - Eine Pilotstudie. In: Eisenberg, Peter & Günther, Hartmut (Hrsg.): *Schriftsystem und Orthographie*, 111–135. Tübingen: Niemeyer

> A modular theory of phonographic writing systems

Martin Neef
Braunschweig

In this talk, I want to sketch a specific theoretical framework for the analysis of phonographic writing systems that distinguishes between two constituting modules of a writing system, one that pertains to the relation from written representations to phonological (surface) representations ('graphematics') and one that pertains to the relation of words to spellings ('systematic orthography'). In writing system research, several scholars assume the existence of a component called 'graphematics' (or a similar expression). Depending on the theoretical background, the concepts named in this way differ to a quite large extent, although in all cases graphematics is seen as related to and at the same time different from orthography. In the modular approach, graphematics is conceived as a rule system relating written representations to phonological representations by means of a set of correspondence rules for letters and specific sequences of letters ('fixed letter combinations'), supplemented by some graphematic constraints that constrain the scope of the correspondence rules. Under this conception, graphematics is relevant for a quite broad part of the vocabulary of a language (including, in particular, proper names and interjections). Moreover, graphematics has theoretical priority over systematic orthography and forms its base. Systematic orthography is conceived as a constraint system that restricts the spelling possibilities of words sensitive to the level of vocabulary the word belongs to. The model so far is elaborated on data of German in the first place but could well be transferred to the study of other phonographic writing systems as well. The model is framed in the branch of linguistics that investigates properties of language as a system, as opposed to the branch that delves into the study of the use of such a system.

> Semantically opaque graphs in Japanese kanji writing: Implications for the morphographic principle

Keisuke Honda

In Japanese kanji writing, individual graphs usually represent sound-meaning units corresponding to words or word elements of the native and Sino-Japanese vocabularies. One common view is that these units are free or bound morphemes, and that kanji writing is therefore morphographic (e.g., Joyce 2011). An alternative view holds that the graphs represent sounds which may or may not correspond to morphemes, leading to the characterisation of kanji writing as morphophonetic (e.g., Matsunaga 1996). This paper argues that even though the first approach has advantages over the second one, it faces the challenge of dealing with what may be termed semantically opaque graphs.

After briefly discussing the merits of treating *kanji* writing as morphographic, this paper examines several types of semantically opaque graphs. Some graphs are inherently meaningless, designed to represent syllables in Sino-Japanese disyllabic morphemes (e.g., 徘徊 *haikai* 'wandering') or those in non-Chinese loanwords (e.g., 葡萄 *budō* 'grape'). Some others have no meanings that are synchronically discernible, representing fossilised morphemes (e.g., 挨拶 *aisatsu* 'greeting') or elements of historically complex words (e.g., 勉強 *benkyō* 'studying'). Sometimes meaningful graphs may also be used for rebus-like *ateji* writing, representing meaningless syllables (e.g., 野暮 *yabo* 'boorish') or syllable strings (e.g., 鱈腹 *tarafuku* 'repletely').

None of these, at least synchronically, can be considered to represent morphemes, the smallest meaningful linguistic units. At the same time, one cannot assume that they represent sounds irrespective of meanings, since the choice of graphs is lexically determined. This paper offers some suggestions for dealing with these issues.

References

- Joyce, Terry. 2011. The significance of the morphographic principle for the classification of writing systems. *Written Language and Literacy* 14(1). 58-81.
- Matsunaga, Sachiko. 1996. The linguistic nature of kanji reexamined: Do kanji represent only meanings? *Journal of the Association of Teachers of Japanese* 30(2). 1-22.

> Jōyō kanji: Recent revision, characteristics, and role as core component of the Japanese writing system

Terry Joyce (Tama University, Japan),

Hisashi Masuda (Hiroshima Shudo University, Japan)

Taeko Ogawa (Tokai Gakuin University, Japan)

Although the Japanese writing system is often described as being the most complex modern writing system, as Joyce (2011) argues, writing systems research can benefit greatly from a deeper appreciation and understanding of the morphographic nature of Japanese kanji. This paper focuses on the official 常用漢字表 /jōyō kanjihyō/ 'list of characters for general use'. When introduced in 1981, the list consisted of 1,945 characters, but a 2010 revision excluded 5 and added 196 kanji to create the present list of 2,136 kanji.

More specifically, the paper consists of three parts. Part 1 outlines the construction of a new database of the lexical properties of jōyō kanji, covering various kinds of orthographic (i.e., stroke counts, structures), phonological (i.e., Sino-Japanese, Native-Japanese pronunciations) and semantic (i.e., morphological, lexical distinctions) information. Relatedly, Part 2 focuses on the internal orthographic structure of kanji. Although Jōyō kanji vary considerably in terms of visual complexity (i.e., 1 stroke for 一 /ichi/ 'one' to 29 strokes in 鬱 /utsu/ 'depression'; average = 10.5), most (93%) conform to a few basic configurations involving two main components; 1,172 (55%) left-right, 597 (28%) top-bottom, and 223 (10%) enclosure arrangements. Kanji dictionaries are usually organized according to 214 traditional radicals (semantic markers), but our analysis currently distinguishes 1,105 components. Drawing on corpus-based word lists (Joyce, Hodošček, & Nishina, 2010; in press), Part 3 examines the orthographic structures of polymorphemic words. For example, the top seven most frequent orthographic patterns among polymorphemic words consist solely of kanji, where 4-kanji compounds are most frequent by type and 2-kanji compounds most frequent by tokens. Together the strands of the paper highlight the core architectural principles of the Japanese writing system; possessing internal structure themselves, jōyō kanji are the core unit of construction frequently employed in the orthographic representation of polymorphemic words.

> Crosslinguistic and orthographic influences in syllable awareness

*Heather McDowell & Marjorie Lorch
Birkbeck, University of London*

Although writing systems differ as to whether syllables are explicitly represented, metalinguistic awareness of syllables is generally understood to develop as a product of normal maturation independent of literacy acquisition, although the exact developmental sequence is under debate (e.g. Duncan, Cole, Seymour, & Magnan, 2006). However, literates' syllable awareness may vary in quality crosslinguistically, shaped by features of phonology, literacy and literacy teaching practices. This paper will discuss two questions: Can L1 morphosyllabic Chinese individuals carry out syllabic judgments in multisyllabic alphabetic L2 English? Do orthographic influences on phonological awareness (e.g. Castles, Holmes, Neath, & Kinoshita, 2003) extend to the syllabic level?

We investigated the syllabic awareness of 90 adolescents studying at UK secondary schools. 60 were L1 Chinese (30 from Mainland China, 30 from Hong Kong) and 30 were L1 English. An English syllable counting task was administered, with differentiated stimulus sets varying in typicality of matching orthographic strings to syllable groups. 16 Mainland Chinese and 16 English participants also carried out a written syllable segmentation task using the same stimuli.

Mainland Chinese syllable counting scores were significantly lower than participants from England and Hong Kong. There were significantly more errors with low typicality stimuli across all three groups, with errors in both oral and written versions reflecting orthographic properties of stimuli. The Mainland Chinese group also made a number of additional errors suggestive of generalised weak syllabic awareness. It therefore appears that fully elaborated syllabic awareness cannot be assumed in adolescent literates, and that (depending on educational and literacy background) individuals with a morphosyllabic L1 may not develop sufficient syllabic awareness to allow for explicit analysis of an alphabetic L2. Further, orthographic factors, which have previously been demonstrated at phoneme and rime levels, also appear to affect syllabic judgments.

References

- Castles, A., Holmes, V., Neath, J., & Kinoshita, S. (2003). How does orthographic knowledge influence performance on phonological awareness tasks? *The Quarterly Journal of Experimental Psychology*, 56A(3), 445-467.
- Duncan, L. G., Cole, P., Seymour, P. H. K., & Magnan, A. (2006). Differing sequences of metaphonological development in French and English. *Journal of Child Language*, 33(2), 369-399.

> Semantics between Spelling and Sound in the Korean Writing System

Jeong Young Kim
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 University of Helsinki

The Korean language of which approximately 60% of words are originated from Chinese is efficiently conveyed in Hangul, the Korean phonetic alphabet alone. The Korean writing system is unique not simply because it is invented in the 15C but more because a Korean syllabic character assembled with phonetic letters of consonants and vowels can also convey the meaning of the Chinese character. Yet, the identical syllabic character changes its sound according to the phonological environment.

For instance, the Sino Korean morpheme, ‘학’ [hak] meaning ‘to study’ or ‘to learn’ never stands alone to be an independent word in Korean but functions as a morpheme appearing with another morphemic character. However, its sound varies depending on the phonological environment although the written form remains the same all the time. The examples are provided in the table below.

Examples:

| Korean writing | Chinese characters | Pronunciation | Meaning |
|----------------|--------------------|------------------------|------------------------------------|
| 1. 학생 | 學生 | [hak-s'ɛŋ] | student |
| 2. 학교 | 學敎 | [ha-k'jo] | school |
| 3. 학년 | 學年 | [haŋ-njʌn] | school year |
| 4. 학문 | 學問 | [haŋ-mun] | study |
| 5. 학연 | 學椽 | [ha-gjʌn] | the ties one has with other alumni |
| 6. 전학 | 轉學 | ['tsə:-nak] | transferring school |
| 7. 방학 | 放學 | [paŋ-(h)ak] | school holiday |
| 8. 독학 | 獨學 | [to-k ^h ak] | studying by oneself |
| 9. 법학 | 法學 | [pʌ-p ^h ak] | the study of law |
| 10. 봄학기 | 봄學期 | [po- ma-k'i] | spring semester |

The writing system cannot solely represent the sound of utterance because the meaning changes when the spelling changes. If Example 4 in the table were written in ‘항문’ by replacing ‘ㄱ’ [k] with ‘ㅇ’ [ŋ] in ‘학’ [hak] in order to imitate the sound, the meaning changes to ‘anus’. The meaning of ‘to study’ or ‘to learn’ can be preserved only when it stays in the syllable form of ‘학’. Hence, the semantic component plays a significant role in the writing system of Korean. In this study, it will be investigated how to explore this aspect to teach reading and writing of Korean as a foreign language in particular.

> PolyOrth: orthography from phonology and morphology

Lynne Cahill

In writing systems which are broadly phonemic, the relationship between phonological and orthographic forms may be simple and transparent (shallow orthographies, e.g. Spanish) or complex and, to some degree, opaque (deep orthographies, e.g. English). In the case of deep orthographies, there may be a number of different reasons for the depth of the orthography, including historical changes that have not been reflected in the orthography and morphological variation.

The PolyOrth project developed an architecture for the lexical representation of orthography which derived spellings from existing phonological and morphological information in the lexicon. The PolyOrth approach (reported at the 2006 Workshop in Nijmegen at an early stage of the project) involved a two-stage derivation with default phoneme-to-grapheme rules followed by spelling rules. Both sets of rules can be influenced by morphological structure. The hierarchical lexicon structure underlying PolyOrth also allows for sharing across (related) languages, and this approach was developed with lexicons of Dutch, English and German.

In this paper we follow up on the earlier report of the work for Dutch, English and German and report on a further development of the architecture to apply it to Arabic. Arabic is written with a script which has many very different features from the Germanic languages. Most obviously, it is written right-to-left, but more interestingly it does not treat all phonemes in the same way. Specifically, short vowels may be omitted completely or included as diacritics on the character for the preceding consonant. We demonstrate that the PolyOrth architecture can be applied to Arabic with only very minor adjustments. Crucially, we also demonstrate that using the PolyOrth architecture for Arabic allows us to provide a range of different outputs including vowelised script, unvowelised script, Roman transliteration or phonemic forms.

> Spelling function letters in Hebrew: Cues mitigating opacity

Dorit Ravid, Rachel Schiff, Tehila Bienenstock and Ronit Levie
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Accumulating evidence testifies that linguistic learning is shaped by detecting statistical patterns in the input. In the spelling arena, this means that spellers implicitly learn and use contextually conditioned spelling patterns that are probabilistic tendencies rather than absolute rules (Kessler, 2009; Gillis & Ravid, 2006). The current study demonstrates reliance on implicit orthographic patterns among Hebrew-speaking spellers.

Hebrew has undergone major phonological neutralizations during its long history (Bolozky, 1997; Ravid, 1995). The loss and change of phonological distinctions have resulted in widespread homophony, the main source of Hebrew spelling errors. For example, *t* can be spelled as either *ת* or *ט* (Ravid, 2005). However, knowledge of morpho-orthographic patterns can mitigate homophony, since affix functions are signaled by only one of the possible letter options. For example, all non-root affixal roles marked by *t* can only be spelled as *ת*. It is thus critical for spellers to clearly demarcate the root core of the word from its function envelope in spelling homophonous letters (Ravid, 2012).

The current study examined this issue in a spelling task containing homophonous affix letters classified by degree of morpho-orthographic regularity, which was administered to 163 typically developing and 113 dyslexic Hebrew-speaking children, adolescents and adult students. Participants were also tested on phonological and morphological knowledge. Findings indicate that affix letters transparently coded in the function envelope were correctly spelled early on despite homophony, while the blurring of affixal and root roles resulted in spelling errors of affix letters even in adult students. Phonological knowledge explained variance in the regular category while morphological knowledge explained variance in the opaque categories. Finally, dyslexic participants lagged behind their typically developing peers, closing the gap on spelling regular, but not irregular, homophonous affix letters at older ages. Results are discussed in the framework of statistical learning (McClelland et al, 2010).

References

- Bolozky, S. 1997. Israeli Hebrew phonology. In A.S. Kaye & P.T. Daniels (Eds.), *Phonologies of Asia and Africa*. Winona Lake, Indiana: Eisenbrauns, 287-311.
- Gillis & Ravid, 2006
- Kessler, B. 2009. Statistical learning of conditional orthographic correspondences. *Writing Systems Research*, 1, 19–34.

- McClelland, J.L., M. M. Botvinick, D.C. Noelle, D.C. Plaut, T.T. Rogers, M.S. Seidenberg & L.B. Smith. 2010. Letting structure emerge: connectionist and dynamical systems approaches to cognition. *Trends in Cognitive Sciences*, 14, 348–356.
- Ravid, D. 1995. *Language change in child and adult Hebrew: A psycholinguistic perspective*. New York: Oxford University Press.
- Ravid, D. Hebrew orthography and literacy. In R.M. Joshi & P.G. Aaron (Eds.), *Handbook of orthography and literacy*. Mahwah, NJ: Erlbaum, 339-363.
- Ravid, D. 2012. *Spelling morphology: the psycholinguistics of Hebrew spelling*. New York: Springer.

> A fundamental unit of spelling? – Evidence from various kinds of English-derived abbreviations.

*Des Ryan
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I will discuss two major issues involved in my effort to produce a formal theory of all English spelling, including standard and non-standard formations, names, blends, puns, clippings, abbreviations, labels, and internet- and text-messaging patterns. Central to the thesis is that spellings are formed as a compromise between the need to represent different kinds of linguistic information, be it phonological, morphological, etymological or semantic, often contained within relevant graphotactic constraints

I will firstly show how different spelling groups have different restrictions.

Standard English spelling generally maintains morphemic and etymological information at the expense of phonemic consistency, albeit in accordance with different orthographic subsystems (Carney 1994).

Ryan (2011) argues that 'constructed homophones' such as the band names OutKast, U2 and INXS systematically prioritise phonological information and (necessarily) obliterate morphological and etymological information, although representations are far from phonemic.

Silva (2011) argues that there is systematicity in the spelling of Portuguese internet-messages. Users deploy various spelling strategies to abbreviate words while maintaining an adequate visual connection to the 'full' form.

This visual connection suggests that there may exist a fundamental orthographic unit (Ψ), one which provides a compromise between phonetic and semantic information. Extremely restricted spelling formats such as three-letter filename extensions must compress and sacrifice a lot of information. Thus (.doc), (.txt) and (.xls) refer to document, text and Excel spreadsheet. Blends like Robocop and infotainment similarly provide abbreviated phonetic and semantic clues to their meaning, while the homophonous components of Psy-Trance and Sci-fi show that Ψ is orthographically motivated, albeit sometimes phonologically constrained. Indeed it seems that morphemic spellings are just a special case of Ψ , also sacrificing a lot of linguistic information (e.g. stress). I will explain how understanding this unit might show that all writing is pictorial in nature, just with varying degrees of phonetic encoding.

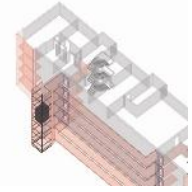
References

Carney, Edward. 1994. A survey of English spelling. London: Routledge.

Ryan, Des. 2011 'Grammaphonology: A new theory of English spelling.' SKASE Journal of Theoretical Linguistics 8, 2, 2-30.

Silva, Claudia. 2011. Writing in Portugues chats :): A new wrtng systm?. Written Language & Literacy 14, 1, 143-156.

>>Posters: Abstracts



> Graphematic alternations in English: A reflex of morphological structure

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Morphologically related forms in English sometimes exhibit variants of phoneme-grapheme correspondences (cf. Venezky 1999: 201ff.). Two examples of this kind are shown in (1), consonant doubling (1a) and <y>/<i(e)> alternation (1b):

- (1) a. bet - betting
b. baby - babies

These two phenomena – mundane as they may seem at first glance – serve to give profound insights into the interplay between phonology, morphology, and graphematics. Consonant doubling, if viewed statistically, seems to happen foremost at morpheme boundaries (as in 1a). However, words like *summer*, *happen*, and *tennis* do not fit: they are monomorphemic but nevertheless display double consonants. Yet a good amount of these words shares the same word endings (in this case, *-er*, *-en*, *-is*), and these can be shown to have many morpheme-like qualities. These qualities can also serve to tackle the question of vowel correspondences (cf. *limit* with lax first vowel vs. *bonus* with a tense correspondence).

While double consonants can be used to show that seemingly monomorphemic words possess a varying degree of morphological simplicity, the <i>/<y> alternation can do the same for derived words. Replacement of <y> is obligatory for inflected words (cf. 1b above) and prohibited for compounds (cf. *bodybag*). Derivation falls between these two terminal points in that <y> is replaced with some suffixes (e.g. *happiness*) while it remains with others (e.g. *ladylike*).

On this basis, a continuum of morphological complexity can be established, ranging from simple, monosyllabic words like *bet* over varying degrees of simplicity (*limit*, *bonus*) to inflectional products (*betting*); from there, the different degrees of derivation are covered (*happiness*, *ladylike*), until the (morphological) terminal end (compound: *bodybag*) is reached.

> Orthographic & grammatical competence in German high school and university students

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In the production of German texts, capitalization errors usually top the list of spelling errors (e.g. Menzel 1985). Research dealing with this feature of the German orthography however mostly focuses on methods to teach school children how to identify the words which have to be capitalized (e.g. Röber-Siekmeyer 1999) rather than on investigations into the underlying representations and processes that might be responsible for incorrect capitalizations.

We present two studies exploring the development of and interplay between orthographic and grammatical competence in high school students and university students, using as stimuli noun-adjective compounds such as *glasklar* (CRYSTAL CLEAR) and *wasserdicht* (WATERTIGHT).

Noun-adjective compounds belong to the word class of adjectives. Their heads (*klar*, *dicht*) are adjectives; therefore they are normally written with lowercase letters. However, as their modifiers (*Glas*, *Wasser*) are nouns, the compounds are good candidates for incorrect capitalization, as nouns are usually written with uppercase letters.

The first set of experiments, in which approximately 300 first-year university students of German language and literature (all L1 speakers of German) participated, revealed that noun-adjective compounds were more often (initially) written with uppercase letters than a control group of adjective-adjective compounds such as *altklug* (PRECOCIOUS). Nevertheless, the university students could correctly identify the word class the compounds belonged to.

Using the same set of stimuli, we are currently conducting a second set of experiments with high school students grade 5 to 11. We are investigating how the orthographic and grammatical competences develop and interact in these age groups and which capitalization rules they use.

We discuss the implications of our findings with regard to underlying representations and processes that seem to account for the error pattern observed.

References:

Menzel, Wolfgang (1985). Rechtschreibfehler - Rechtschreibübungen. In: Praxis Deutsch 69, 9–12.

Röber-Siekmeyer, Christa (1999). Ein anderer Weg zur Groß- und Kleinschreibung. Leipzig: Klett

> Compound spelling and syntagma spelling in German and English

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In German we assume that one morphological and syntactic word is written as one graphematic word; e.g. the determinative compound <Teebeutel> (*tea bag*) is written as one graphematic word. I will call this compound spelling, even though the written unit need not be a morphological compound. On the other hand two adjacent units representing two syntactic words and two different syntactic functions are written separately as two graphematic words. I will call this syntagma spelling. These cases show the borderline between morphological and syntactic spelling principles. In the core area the decision whether or not to write two adjacent units together in one word or separated in two words is quite simple. The grammatical analysis of these units is clear. Additionally in German we have the possibility to use a hyphen within a compound spelling. Hyphenation is morphologically and graphematically determined.

In contrast in English a morphological compound can be written separately as two graphematic words, e.g. <tea bag>. Obviously writing a morphological compound together in one graphematic word does not seem to be the normal case – the default appears to be syntagma spelling. This leads to the assumption that another spelling principle prohibits the compound spelling. In the talk I want to focus on this question. For which cases compound spelling is discussed in English, for which not? For which cases is hyphenation discussed in English? How is the relation between these possibilities? Can we explore a spelling principle which regulates the English system which obviously is different from the German one?

References

- Bauer, Laurie (1998): When is a sequence of two nouns a compound in English? In: *English Language and Linguistics* 2(1), S. 65-86.
- Fuhrhop, Nanna (2007): *Zwischen Wort und Syntagma. Zur grammatischen Fundierung der Getrennt- und Zusammenschreibung*. Tübingen: Niemeyer.
- Placke, Lars (2001): *Das Lesen von Komposita. Blickbewegungsstudien zum Einfluss visueller, orthographischer und lexikalischer Faktoren auf die Verarbeitung komplexer deutscher und englischer Wörter*. Shaker: Aachen.

> What's in a kiss? Changing patterns of instant messenger language use

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The language used by young people in Instant Messenger (IM) conversations has received a very bad press. We are led to believe that the use of non-standard and abbreviated forms is going to result in the disintegration of our language. The study we present sheds light on a small area of IM language use in the UK by using a combined quantitative and qualitative analysis of conversations involving two age groups: 15-16 year-olds and 21-23 year-olds. The older group were among the first to habitually use IM as teenagers, so comparing the usage of these two groups may give a sense of the direction of change in IM language. The findings suggest that we should not be worried about the future of the English language. The younger group are far less likely to use non-standard features in general and show a strong aversion to many stereotypical IM features. In addition we find a genuinely innovative use of kisses, which we term "medial kisses" and which is so far restricted to the younger group.

To our knowledge, there is no linguistic research into the use of kisses <x>. This is surprising, as there seem to be fairly strict rules about where kisses occur: typically at the end of an utterance at the close of a written communication interaction. However, in this study, medial kisses occur at various points in the teenagers' conversations; there are cases of a single <x> to mark particular utterances, or they can occur continually after utterances. We find that the use of kisses appears to be widening in use to function as a paralinguistic cue or even to replace emoticons. Our study concludes that the innovative use of medial kisses by the teenagers shows linguistic creativity in an environment where it is possible to be freely inventive.

> Morphological Writing Principles in English and German

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The writing systems of English and German obviously show different kinds of morphological spellings: German developed a clear principle of stem constancy (*Äpfel* “apple-PL” instead of **Epfel*, *schwimmt* “swim-3S.PRS” instead of **schwimt*). English, on the other hand, does not follow this principle (*swimming* – *swim*/ **swimm*). It does however provide for the identification of grammatical components. A striking example for this is the preterite suffix of weak verbs, which is always spelled -ed, independent of the phonological realization which can be voiced or voiceless, syllabic or not syllabic. There is nothing comparable in German; <e> insertion after the stem, for example, only takes place if there exists a phonological equivalent (*arbeit-et(est)* “work-2S.PRT” vs. *legt(est)* “lay-2S.PRT”). In English, this is not just a case of “affix identity” – it goes further than that: For strong verbs, there is a tendency to form grammatical patterns. Several other cases serve to illustrate the clear differences between both systems: With their respective morphological spellings, German shows lexical information, while English shows grammatical information.

> Orthography profiles for describing and comparing writing systems

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In this paper, we define the notion of an orthography profile, i.e. a language-specific description of the units and rules that are needed to adequately model a writing system. An orthography profile describes the Unicode code points, characters, graphemes and orthographic rules in a writing system. For example, note the different levels of technological and linguistic elements that interact in 1-3:

1. code points (10): t s ^h ǒ ˘ s h i
2. characters (6): t s^h ǒ s h i
3. graphemes (4): ts^h ǒ sh i

In 1, the string < ts^hǒshi > has been tokenized into ten Unicode code points. Tokenization is required in parsing graphemes because sequences of code points can differ in their visual and logical orders.¹ For example, < ǒ > is ambiguous to whether it is the sequence of <o> + < ˘ > + < ~ > or <o> + < ~ > + < ˘ >. Although visually homoglyphs, Unicode normalization must be applied to strings to reorder code points into a specified canonical order, so that all data are treated equivalently in search and comparison.

In 2, the code points have been logically normalized and visually organized into characters in the Unicode Standard. Combining characters and space modifying letters have been joined with their host characters, resulting in five characters.

In 3, an orthography profile is needed to parse sequences of characters into graphemes in the target language. For example, this orthography profile would specify that the sequence of characters <t> and <s^h> form a single grapheme <ts^h>, and that <s> and <h> form <sh>. It would also specify orthographic rules, e.g. when parsing graphemes, in say English, the <sh> in the forms <mis.hap> and <mish.mash> should be treated as different sequences depending on their contexts.

In our work we focus on the writing systems used in lesser-described and endangered languages. Our orthography profiles are used to describe writing systems and to transpose them into phonetic transcription. Of course the International Phonetic Alphabet and other transcription systems are essentially just orthographies that are an approximation of sound. Nevertheless, sound-based normalization of graphemes is practical in automatically identifying cognates and sound changes with quantitative methods. We leverage orthography profiles to enable comparative analysis of languages with different writing systems.

¹ By logical order, we mean how the bytes are stored in memory on the computer.

> The graphematic representation of morpho-phonology in German: A theoretical approach within a framework of non-linear graphematics

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It is widely acknowledged that the German writing system is not only phonographically structured but also represents morphological information (besides other grammatical information). The principle of morpheme identity, i.e. the graphic resemblance between morphologically related words, is a prominent example for this.

The presentation deals with the question of how the graphematic coding of phonological and morphological information interacts systematically, and how this interaction can be modeled in an adequate way.

The starting point is the observation that in bisyllabic words like <lesen> 'to read' there are two possible positions for the graphematic syllable boundary. The syllabification <le.sen> corresponds to the phonological syllabification [le.zə.n] whereas the syllabification <les.en> represents the morphological boundary between the stem {les} and the inflectional suffix {en}. I will show that on purely graphematic grounds both segmentations are well justified, and that therefore the writing system systematically codes the phonological syllable boundary as well as the morphological boundary.

The theoretical framework for this investigation is a non-linear graphematic approach as proposed by Primus (2010, 2011). In analogy to non-linear phonology this framework operates with a graphematic hierarchy. Within the framework well known and also only recently established graphematic concepts – e.g. the letter components, the graphematic syllable or the graphematic word – can be modeled as parts of a hierarchically structured system. This hierarchy shows the dependencies between the different graphematic units, and how the writing system codes grammatical information in a suprasegmental way.

Finally, the presentation investigates the morpho-phonological interaction between paradigmatically related bisyllabic and monosyllabic words, and how it is coded graphematically. I will show that the non-linear graphematic approach presented here is also suited to model the systematic relationship between the principle of morpheme identity and the representation of phonological information.

References:

- Primus, Beatrice (2010): Strukturelle Grundlagen des deutschen Schriftsystems. In: Bredel, Ursula/Müller, Astrid/Hinney, Gabriele (Hgg.): Schriftsystem und Schriffterwerb: linguistisch – didaktisch – empirisch. Tübingen: Niemeyer, 9–45.
- Primus, Beatrice (2011): The Graphematic Foot in English and German. Ms. Köln.

> Cognitive representation of spelling principles in adult writer of German

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The German spelling system is based primarily on the phonographic, syllabic, and morphological principle for word spelling (Eisenberg, 2011) as well as on morphological and syntactic principles for capitalization (Günther & Gaebert, 2011) and for separate or compound spelling of words (Fuhrhop, 2007). The question arises whether and how these principles are represented in adult writer's spelling knowledge and how they interact in difficult spelling cases in word or text production. A better understanding of the cognitive representation of spelling principles could help to improve spelling instruction and teaching material.

Until now, research concerned with cognitive structures of orthographic representations, has focused on the development of language awareness and spelling, phoneme awareness respectively in the context of writing acquisition (Nickel, 2006). In contrast, this contribution focuses on adult writers of German. It is based on a qualitative study of spelling choices by 44 adult writers of German from Switzerland between 30 and 50 yrs. Participants were asked to choose between two spelling variants for which both forms are allowed according to official German spelling rules (Regelwerk, 2006), e.g. single words (selbständig/selbstständig, phantastisch/fantastisch), but also syntagmas (infrage/in Frage, recht haben/Recht). Subsequently, participants were asked to give reasons for their choice. This open setting did not pressure participants to adhere to certain rules or norms, but allowed them to discuss spelling preference according to their individual mental representations of spelling principles.

Results confirmed that the phonological and morphological principles are important factors in guiding spelling choices. However, there are more principles at work such as a visual, semantic, analogical principles and others which refer to individual experiences in instructional settings or workplaces. It will also be shown that preferences for a certain forms is strongest when phonological and morphological principles are not conflicting.

References

Eisenberg, P. (2011). Grundlagen der deutschen Wortschreibung. In U. Bredel & T. Reißig

(Eds.), Weiterführender Orthographieerwerb (pp. 83-95). Baltmannsweiler: Schneider Verlag Hohengehren.

Fuhrhop, N. (2007). Zwischen Wort und Syntagma. Zu grammatischen Fundierung der Getrennt- und Zusammenschreibung. Tübingen: Niemeyer.

Günther, H., & Gaebert, D.-K. (2011). Das System der Gross- und Kleinschreibung. In U. Bredel & T. Reißig (Eds.), Weiterführender Orthographieerwerb (Vol. 5, pp. 96-106). Baltmannsweiler: Schneider Verlag Hohengehren.

Nickel, S. (2006). Orthographieerwerb und die Entwicklung von Sprachbewusstheit. Zur Genese und Funktion von orthographischen Bewusstseinsprozessen beim frühen Rechtschreiberwerb in unterschiedlichen Lernkontexten. Norderstedt: Books on demand.

Regelwerk. Hrsg. vom Rat für deutsche Rechtschreibung. (2006). Deutsche Rechtschreibung. Regeln und Wörterverzeichnis. Amtliche Regelung. Tübingen: Narr.