The Written Utterance as a Core Concept in Grapholinguistics

Martin Neef

Abstract. In the analysis of written language, the distribution of the punctuation marks dot, exclamation mark, and question mark is usually explained with reference to the concept of sentence. For this reason, these characters are referred to in German linguistics as 'Satzschlusszeichen' ('sentence closing marks'). However, if the term *sentence* is understood as in syntax, e.g., as a phrase with a finite verb as its head, it turns out that (e.g., in English) in some cases the marks in question actually follow what can be considered a sentence (*Where are you now?*), but in many other cases they do not. In particular, the marks may follow less than a sentence (*Here!*) or more than a sentence (*I am here and you are there.*) or they may be interspersed in a sentence (*Stop! Being! Stupid!*). In order to arrive at a proper analysis of such data, it is necessary to distinguish between two different structural concepts, the sentence as a strictly syntactic notion on the one hand and another concept belonging to the field of grapholinguistics on the other hand. There are numerous suggestions how to conceive this other concept. In the approach to be presented, it is termed *written utterance* and is considered to be what a writer understands as a coherent thought. It is important that the concepts of sentence and written utterance are completely independent of each other, since they belong to different areas of linguistics. A grapholinguistic analysis has to explain the well-formedness conditions of written utterances. In the grapholinguistic model, which serves as the background for the following analysis, the language system is considered as part of the writing system, so that in the analysis of written forms all concepts established for the analysis of the language system can be used. This model provides a specific answer to the pertinent question of the relationship between written language and spoken language.

1. On the Term Grapholinguistics

Grapholinguistics is a branch of linguistics that has developed into an independent field of research over the last 50 years.[1] The term *grapholin-*

Martin Neef   0000-0001-6786-3562

TU Braunschweig, Institut für Germanistik, Bienroder Weg 80, 38106 Braunschweig, Germany

E-mail: Martin.Neef@tu-braunschweig.de

1. The reasons why grapholinguistics has long been neglected as a relevant part of linguistics are explained in Ludwig (1980, p. 324) and Günther and Günther (1983, pp. ix–x); cf. also Neef (2012, p. 215).

guistics, as I use it, originates from the tradition of the German-speaking research in this field. Dieter Nerius, the most important founder of grapholinguistics in Eastern Germany, outlines the general development of grapholinguistics in Germany as follows:

> die Orthographietheorie […] hat […] seit den 70er Jahren einen erheblichen Wissenszuwachs erfahren. Für das Deutsche begann die grundlegend neue Phase der linguistischen Erforschung der Orthographie Mitte der 70er Jahre in der Forschungsgruppe Orthographie des Zentralinstituts für Sprachwissenschaft an der ehemaligen Akademie der Wissenschaften der DDR in Berlin und Rostock sowie in der Kommission für Rechtschreibfragen am Institut für deutsche Sprache in Mannheim. Die hier entstehenden Arbeiten beschäftigten sich zunächst vorwiegend mit den theoretischen Grundlagen einer Reform der deutschen Orthographie, weiteten sich aber bald auf allgemeine Probleme der Orthographietheorie und Schriftlinguistik aus, die auch die internationale linguistische Diskussion von Fragen der Schriftlichkeit wesentlich beeinflußten". (Nerius, 1994, S. 1–2)[2]

When it became clear that the analysis of written language is more than the study of orthography, a unifying term was needed to replace the then prevailing term of 'Orthographieforschung' ('orthography research'). An important two-volume handbook on this topic, edited by Hartmut Günther and Otto Ludwig, was published in 1994 and 1996 under the rather unclear title 'Schrift und Schriftlichkeit', translated into English in a hardly appropriate way as 'Writing and its use'. While other publications in this series of handbooks bear such catchy names as *Morphology* or *Psycholinguistics*, scientific research into written language at that time still lacked a uniform and at the same time unifying term. It was not until 1988[3] that Dieter Nerius first proposed the term 'Schriftlinguistik' for this purpose in a published text, namely in an introduction of an edited volume:

> Diese Publikation reiht sich ein in die Vielzahl von Arbeiten, die in jüngster Zeit zu Problemen der geschriebenen Sprache und der Orthographie in

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2. "the theory of orthography […] has […] experienced a considerable increase in knowledge since the 1970s. For German, the fundamentally new phase of linguistic research into orthography began in the mid-1970s in the Orthography Research Group of the Central Institute of Linguistics at the former Academy of Sciences of the GDR in Berlin and Rostock, and in the Commission for Orthographic Issues at the Institute for the German Language in Mannheim. The work that emerged here initially dealt primarily with the theoretical foundations of a reform of German orthography, but soon expanded to general problems of orthography theory and grapholinguistics, which also had a significant influence on the international linguistic discussion of questions of writing.

3. According to Dieter Nerius (1994), his research group began to use this term around the year 1980. Independently of this tradition, Helmut Glück (p.c.) coinded the same term in his 1984 habilitation thesis, published as Glück (1987, pp. 13, 59)) (cf. Neef, 2020).

mehreren Ländern erschienen sind. Solche Arbeiten dokumentieren das aktuelle Interesse der internationalen Linguistik an diesem Forschungsgegenstand und zeigen, daß sich hier eine eigenständige linguistische Teildisziplin, die Schriftlinguistik oder Grapholinguistik entwickelt hat." (Nerius, 1988, S. 1)[4]

The term 'Schriftlinguistik' then became widespread in German linguistics. Milestones for this were a Festschrift for Dieter Nerius with this term in the title (Ewald and Sommerfeldt, 1995) and an introductory book to the respective field of research written by Christa Dürscheid entitled 'Einführung in die Schriftlinguistik', which was first published in 2002 and is currently available in its fifth edition of 2016.[5] In 2004, Rüdiger Weingarten and I began editing a terminological dictionary on the topic in question as part of a series of dictionaries. The editors of the series suggested the title 'Schrift und Schriftlichkeit' for this book, while Weingarten and I chose 'Schriftlinguistik', with reference to Dürscheid (2002). The publication of the dictionary began in 2012 in digital form (Neef, 2012). In 2013, an English translation of the title became necessary. The publisher recommended the title 'graphemics', the series editors suggested 'writing', while Weingarten and I, after discussing the options 'grammatology', 'grammatography', and 'graphonomy', chose 'grapholinguistics' as the English equivalent to 'Schriftlinguistik', arguing that Nerius, in the above quote from 1988, had suggested as German terms both 'Schriftlinguistik' and 'Grapholinguistik', the latter term being easily translated into English as 'grapholinguistics'.[6]

I first used the term *grapholinguistics* in published form in Neef (2015). Dimitrios Meletis took up this suggestion in his talk *Naturalness of scripts and writing systems: Prolegomena to a Natural Grapholinguistics*, held at the *10th International Workshop of Writing Systems* in May 2016 in Nijmegen (The Netherlands). A written version of this text was published in the proceedings of this conference under the title *What is natural in writing? Prolegomena to a natural grapholinguistics* (Meletis 2018), where he traces the history of this term (see also Dürscheid and Meletis 2019: 170). According to him, the

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4. This publication is one of the many works on problems of written language and orthography that have appeared recently in several countries. Such studies document the current interest of international linguistics in this field of research and show that an independent linguistic sub-discipline, 'Schriftlinguistik' or 'Grapholinguistik', has developed.

5. An English version of this book that Christa Dürscheid co-authors with Dimitrios Meletis is in preparation. To my knowledge, the title of this book is still under discussion.

6. The term 'Grapho-Linguistics' was already used earlier in English linguistics to designate a completely different field of research, cf. Platt (1974; 1977).

term *grapholinguistics* refers to 'the linguistic sub[-]discipline dealing with the scientific study of all aspects of written language' (Neef 2015: 711). It is the equivalent of German *Schriftlinguistik*, which was first proposed by Nerius & Augst (1988) and adopted by Dürscheid (2016) for the title of her seminal textbook. I follow Neef, Sahel & Weingarten (2012ff.) as well as Neef (2015) in using this term instead of one of numerous alternatives, such as *grammatology* […], *graphonomy* […], or *writing systems research* (the title of a prominent journal in the field). The term grapholinguistics not only can be aligned with designations used for other linguistic subdisciplines, such as psycholinguistics and sociolinguistics, but also originated in the long German tradition of acknowledging and investigating writing in its own right. (Meletis, 2018, p. 61)

I am pleased that the term grapholinguistics has now even become part of the name of a book series, the one in which the present text is published.

2.   Grapholinguistics for German: How to Deal With Official Rules

The background for the fact that linguists working on German have been unusually busy with orthography lies in the codification history of German orthography. Since 1901, there exists a state-regulated, uniform, explicitly codified orthography for the German language, that is binding for all German-speaking countries. Throughout the entire 20th century, there were efforts to reform this supranational orthographic regulation. For essential areas of spelling had not yet been explicitly addressed in 1901, including punctuation. The first reform took place in 1996 (effective since 1998), followed by a further reform in 2005 (cf., e.g., Johnson, 2005). In the run-up to these reforms, German linguistics finally recognized the relevance of research on written language.

Unlike many other languages, written German thus has a codified standard. However, this codification has its problems, and this is exactly what grapholinguists are concerned with. Typically, the standard is criticized in two different ways: On the one hand, certain codified spellings are considered unsystematic from a certain theoretical perspective and are therefore made the subject of a proposal for amendment. A suitable example is the change in spelling of words with the letter <ß> to <ss> when following a letter for a 'short' vowel, which was the most visible change of the 1996 reform. On the other hand, the official rules can be considered incomplete, vague, or contradictory. An example is word division at the end of lines, for which there are three different levels of codification in the official rules, a 'rule of thumb', a set of explicit rules, and an individual provision in the dictionary entries of each single word. These three levels are incompatible with each other.

In Neef (2008), I analyzed this issue in the context of a specific theory and made suggestions on how to reconcile the set of explicit rules with the individual cases, without giving an impetus to change the latter.

Punctuation can be studied in the same way. In the following, I will concentrate on the question how the distribution of the so-called 'sentence closing marks' can be explained. I will look at attempts to solve this problem for the English and the German writing systems. After outlining a specific grapholinguistic theory, I will then analyze the current topic within this theory by introducing the unit of written utterance.

3.   What Is It That Ends With a Full Stop?

The set of sentence closing marks is generally considered to consist of at least the full stop, the exclamation mark, and the question mark. The full stop can be regarded as prototypical for these elements. An answer to the linguistic task of analyzing the distribution of this mark could be that the full stop is used to close a specific unit. Once this unit is defined, the question is solved. So, the research question is: What is it that ends with a full stop? The answer to this question could be language-specific or it could apply to many different writing systems, especially those that have the three elements in question.

Starting with the English writing system, a definition of the respective unit might be found in monographs on this writing system. Cook (2004) is a relevant example. He gives the obvious answer by stating that it is the sentence that ends with a full stop. Interestingly, he uses two different concepts of 'sentence', one for 'spoken language' and one for 'written language'. According to Cook (ibid., p. 42), a sentence as a unit of spoken language is "grammatically complete and can stand by itself," while a sentence as a unit of written language "is anything that starts with a capital letter and ends with a full stop". The following examples in (1) are sentences that Cook uses to illustrate his concept, while the examples in (2) are cases that are obviously not sentences in the sense of the given definition:

(1)   *Sentences according to Cook (ibid., p. 42)*
        a.   Come in.
        b.   Green.
        c.   In the morning.

(2)   *Non-sentences according to the definition of Cook (ibid., p. 42)*
        a.   You are mad!
        b.   Who are you?
        c.   Come in

The sentences in (1) are special in that they constitute 'verbless sentences' or 'non-clausal units'. Nevertheless, they count as sentences for Cook. The first two examples in (2) may actually be unproblematic for Cook in so far as the definition given should be extended to exclamation marks and question marks, thus to the set of sentence closing marks in general. At least this is how I would like to interpret Cook's explanations. More problematic is example (2c) which cannot count as a sentence for Cook, because it does not end with a sentence closing mark.

The central problem with Cook's definition is that it answers the current question circularly: What is it that ends with a full stop? It is the sentence, and a sentence is defined as a unit that ends with a full stop. In other words, this approach does not allow to give rules when to use a sentence closing mark. At the same time, this approach does not provide a basis for the concept of an error in the use of sentence closing marks. If such a mark is used (and the initial letter of the unit is a capital one), we have a sentence. Thus, the written form <I. Want. To. Go. Home.> would count as a sequence of five sentences. In general, the relation between the two concepts of sentence remains unclear. It only seems to be that *sentence* is the designation of two terms in English, which are in a relationship of homonymy.

A more refined approach is presented in Nunberg (1990) who distinguishes between the concepts 'lexical sentence' and 'text sentence'. According to him, lexical sentences are traditionally defined in

> any of three ways: either syntactically (as a group of words 'that contains a subject and a predicate'); or prosodically (as a group of words 'that can be uttered by itself' or 'that can be followed by a pause'); or semantically (as a group of words 'that expresses a proposition' or 'that conveys a statement, question, command, or explanation' or 'that expresses a complete thought'). [...] But none of them deals with what we will call a 'text-sentence'. (ibid., pp. 21–22)

From this quote, it is clear that the definitions given for the lexical sentence do not apply to the text sentence. What a text sentence actually is, however, remains rather vague. Nunberg does not give a real definition, but only a structural characterization: "A text sentence consists of a single text-clause, or of two or more text-clauses" (ibid., pp. 25–26). The concept of text-sentence, thus, depends on the concept of text-clause. For the latter term, however, Nunberg (ibid., p. 26) states: "It is at the level of text-clause structure that complications begin to set in". I do not want to discuss such complications here. In any case, it is helpful to distinguish the concepts of lexical sentence and text sentence. However, in order to have categories that enable the analysis of linguistic data, clear and straightforward definitions of both these units would be necessary. Moreover, if both terms have the word *sentence* as a part, they should also

have something in common. At best, there is a clear structural relationship between lexical sentences and text sentences.

The situation in German linguistics is comparable. The official guidelines ([Deutsche Rechtschreibung], 2018) distinguish between the syntactic term *Satz* ('sentence') and the grapholinguistic term *Ganzsatz* ('whole sentence').[7] The latter term, however, is only defined via examples. The following list of these examples is comprehensive; the English translations (in some cases literal ones (marked by *), to show the structure of the German example) indicate that the concept of *Ganzsatz* resembles both Cook's 'sentence' and Nunberg's 'text sentence':

(3) *Examples for the unit 'Ganzsatz' (ibid., p. 74)*

Gestern hat es geregnet.	Yesterday, it rained.
Du kommst bitte morgen!	Please come tomorrow!
Hat er das wirklich gesagt?	Did he really say that?
Im Hausflur war es still, ich drückte erwartungsvoll auf die Klingel.	It was quiet in the hallway, I pressed the bell expectantly.
Ich hoffe, dass wir uns bald wiedersehen.	I hope to see you again soon.
Meine Freundin hatte den Zug versäumt; deshalb kam sie eine halbe Stunde zu spät.	My friend had missed the train; that's why she was half an hour late.
Niemand kannte ihn.	Nobody knew him.
Auch der Gärtner nicht.	Not even the gardener.
Bitte die Türen schließen und Vorsicht bei der Abfahrt des Zuges!	*Please to close the doors and attention when the train leaves!
Ob er heute kommt?	*If he will come today?
Nein, morgen.	No, tomorrow.
Warum nicht?	Why not?
Gute Reise!	*Good trip!
Hilfe!	Help!

The *Ganzsatz* seems to be defined here basically as a grapholinguistic unit that begins with a capital letter and ends with a sentence closing mark. Such a definition is explicitly given (for the corresponding unit *graphematic sentence*), e.g., in Schmidt (2016, p. 237), similar to Cook's definition quoted above.

From this brief look at linguistic texts that deal with punctuation, I conclude that the unit that ends with a full stop in written language (at least in English and German, but probably in many other writing systems as well) is different from a syntactic unit, whether it is called sentence, lexical sentence, or clause. If there is a close correspondence be-

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7. The term *Ganzsatz* was coined by Admoni (1968, p. 150) and is regarded there a syntactic unit. Baudusch (1980, p. 217) adopts this term for the analysis of punctuation, but nevertheless treats it as a syntactic unit. The definitions given by Admoni and Baudusch, in contrast to the concept of [Deutsche Rechtschreibung] (2018), seem to capture only examples that at least contain a verb.

tween the two different concepts, they should have similar names; otherwise, they should be clearly distinguishable from each other in terms of expression.

Apart from questions of expression, explicit definitions for all relevant terms are necessary to allow for a sound linguistic analysis. Definitions of terms belong to theories and are therefore theory-specific. At the same time, definitions are language-universal. Once a concept X is defined, the task of the linguist is to formulate the conditions of well-formedness (via rules, constraints, or the like) of instances of X. Such conditions are in principle language-specific. In this way, grammatical instances of X are distinguished from ungrammatical ones. Grammatical instances of X obey all conditions of well-formedness that apply to X in a specific language, whereas an ungrammatical instance violates at least one such condition.

If a theory aims at explaining under which conditions a 'sentence closing mark' can be used, the definitions of the terms used in this explanation must not contain the feature 'sentence closing mark'. In particular, a sentence must not be defined as a unit ending with a sentence closing mark. Otherwise, the explanation would be circular. In the next paragraph, I sketch a theory that allows to formulate an analysis which meets these requirements, based on the conviction that explanations are only possible within specific theories.

4.   A Theory for Writing Systems Research

Linguistic theories differ in the way they understand language as their object of investigation. According to Katz (1981), three different concepts of language can be identified in linguistic theories: The first is the use of language, i.e., the use that individuals make of certain languages. Use of language is an empirical object, to be investigated with empirical methods. When grapholinguists discuss the relationship between spoken and written language, the discussion is usually at the level of language use. Secondly, if individuals are able to use language, they must have as a prerequisite knowledge of language. Knowledge of language, i.e., the knowledge that individuals have about certain languages, is a mental object that can be explored using mental methods such as those used in psycholinguistics. When grapholinguists emphasize the degree of learnability of theoretical proposals as the main criterion for evaluating the quality of a theory, they argue at the level of knowledge of language. The decisive argument for Katz is that, thirdly, knowledge of language presupposes that the known object has its own theoretical status. The concept of knowledge of language thus presupposes that language has an existence outside of this knowledge. In this sense, lan-

guage is an abstract object. Theoretical linguistics reconstructs these objects as systems and thus explains them.

Approaches that understand languages as abstract objects form the paradigm of Linguistic Realism (cf., e.g., Neef, 2018). Based on the genuinely linguistic task of modeling languages as systems, the investigation of knowledge of language and language use becomes possible in an interdisciplinary way. However, a number of linguists consider knowledge of language to be the central object of linguistics (they equate language with knowledge of language). Such approaches form the paradigm of Conceptualism (Generative Linguistics belongs to this field). Still other linguists regard the use of language as the central concept of linguistics (they equate language with use of language). Such approaches form the paradigm of Nominalism. I think that it is essential for linguistic theories to make explicit the respective concept of language. My own work falls, naturally, under the paradigm of Linguistic Realism.

One of the shared assumptions of all linguistic paradigms is that languages have both regular and irregular data, a characteristic that makes linguistics a peculiar science. This assumption demands a model of the language system for these two types of data. Following Bloomfield (1933), it is a common conception to distinguish within the model a grammar as the module for treating regular data from a lexicon as the module for treating irregular data. Within grammar, regularities are typically divided among the sub-modules phonology, morphology, syntax, and semantics (cf., e.g., Neef, 2018, p. 188).

A central question for grapholinguistic theories that focus on aspects of the system is 'What is the relationship of the language system to the writing system?' (as a specification of the more pre-theoretical question of the relationship of spoken language and written language). To my knowledge, at least four different answers to this question have been given (in different linguistic paradigms, though):

(4)   *What is the relationship between the language system and the writing system?*
   a.   The writing system is part of grammar (e.g., Eisenberg, 1983; 2013)
   b.   The writing system is part of the language system (e.g., Bierwisch, 1972, Wiese, 1987)[8]
   c.   Language system and writing system stand side by side on the same level (e.g., Neef, 2005, p. 5)
   d.   The language system is part of the writing system (e.g., Neef, 2012, p. 217)

The basic idea of assumption (4d) is: Typically, a writing system is a system for a specific language system. While a language system can exist without a writing system, a writing system is regularly linked to a given language system. Consequently, a writing system depends on a given language system. For the writing system, the language system counts as given information to which it has access. The constituting part of a writing system is a set of units (characters) which correspond to units of the language system. The module of the writing system model that deals with this aspect is what I call 'graphematics'. In addition, natural writing systems typically (but not necessarily) contain another module, 'systematic orthography', which deals with the correct spelling of grapholinguistic units. This also includes the field of punctuation. The following diagram depicts the general conception of the *Modular Theory of Writing Systems* (cf. Neef, 2015, p. 718).

(5)   *Model of the writing system*
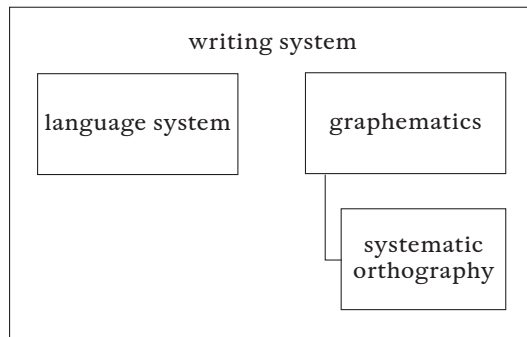
5.   Distinguishing the Written Utterance From the Sentence

In a theory of the writing system that takes information of the language system as given information, it is the theory of the language system that provides definitions of terms that are relevant for the analysis of language systems. These terms are readily available for the analysis of writing systems. Syntax theory could provide a definition of the sentence like the following:

(6)   *Definition of the syntactic unit sentence*
       A sentence is a phrase with a finite verb as its head.

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8. This is my interpretation of these approaches, which belong to the framework of Generative Linguistics. The authors themselves would possibly choose other interpretations.

Such a formal definition is used by various theories of syntax in one way or another. The definition in its current form is not entirely precise, since the terms phrase, finite verb, and head need their own definitions. For the term finite verb, this is less problematic, but for the other two terms it is a problem. What a more precise definition would need to clarify is where the boundaries of a sentence lie: A sentence consists of at least a finite verb, but what other elements could be within the same phrase? For present purposes, I consider the definition sufficient. An analysis of syntax must also give conditions to determine the well-formedness of sentences in specific languages. With respect to English, the following examples represent two grammatical sentences:

(7)   *Two grammatical sentences of English*
        a.   YOU SAY YOU WANT A REVOLUTION
        b.   WE ALL WANT TO CHANGE THE WORLD

Since sentences are abstract objects, tokens are needed to represent sentences and to enable communication about them. The continuous capital spelling in (7) shall indicate that here not the written form, but the abstract unit sentence is represented. Both sentences are complex in that they contain either a further sentence as in (7a) (YOU WANT A REVOLUTION) or an infinitive construction as in (7b) (TO CHANGE THE WORLD). By definition (6), an infinitive construction is not a sentence but a unit of a different kind.

    An analysis of written language then shows that syntactic units occur in written forms. The following examples are again tokens of abstract objects, this time of written objects. I render them in standard orthography.

(8)   *Syntactic units in written English*
        a.   You want a revolution.
        b.   You say you want a revolution.
        c.   All the leaves are brown.
        d.   All the leaves are brown and the sky is grey.

Assuming that all the units in (8) are well-formed with respect to the English writing system, it can be seen that a sentence in written form sometimes starts with an uppercase letter like the sentence YOU WANT A REVOLUTION in (8a) and sometimes it starts with a lowercase letter like the same sentence in (8b). In addition, sometimes a sentence ends with a sentence closing mark like the sentence ALL THE LEAVES ARE BROWN in (8c) and sometimes it does not like the same sentence in (8d). A grapholinguistic task is to determine the distribution of uppercase and lowercase letters as well as the distribution of sentence clos-

ing marks. From the discussed data it is clear that the syntactic unit sentence is not decisive for this purpose. In order to explain the distribution of uppercase letters and sentence closing marks based on a specific unit or domain, the definition of this unit has to be independent of the features requiring explanation.

What is needed is a strictly grapholinguistic unit, which is in principle independent of the syntactic unit sentence. Next, I consider the ontological status of this unit, which is to be captured in a definition. Given that in earlier approaches, the designation *sentence* was often used to denote a concept that belongs in the first place to written language (and given that the lay concept of sentence is closely connected to written forms), it seems promising to consider such definitions as a starting point. Nunberg (1990, pp. 21–22) in the above quote offers three types of definitions of the sentence, namely syntactic, prosodic, and semantic ones. Among the 'semantic' definitions, the definition as 'a group of words that conveys a statement, question, command, or explanation' is interesting because there is a clear correlation between the sentence closing marks exclamation mark and question mark and the concepts of command and question, respectively. Usually, such concepts are considered pragmatic ones and they are connected to the concept of speech acts in the sense of Austin (1962) and Searle (1969). A core unit of pragmatics is the utterance. It seems natural to relate the grapholinguistic unit under consideration to this pragmatic concept of utterance. Engel (1991, p. 33), e.g., states that texts consist of utterances. Therefore, I term this grapholinguistic unit 'written utterance' (German 'Schreibäußerung').[9]

Another definition Nunberg (1990, p. 22) lists is that a sentence as a group of words 'expresses a complete thought'. This is akin to Baudusch's definition of 'Ganzsatz' in Baudusch (1981, p. 210): "Als größte syntaktische Einheit des Sprachsystems stellt der Ganzsatz eine Bedeutungseinheit innerhalb eines größeren Gedankenzusammenhangs dar".[10] I think this is an appropriate base to give a definition of the written utterance as a genuine grapholinguistic unit related to the pragmatic unit of utterance:

(9)   *Definition of grapholinguistic unit written utterance*
        A written utterance is a grapholinguistic unit that is constituted by comprising what can be regarded as a coherent thought.

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9. Related terms are 'written act' ('Schreibakt'; Stetter, 1989) and the classical term 'period' (cf. Rinas, 2017).

10. "As the largest syntactic unit of the language system, the Ganzsatz represents a unit of meaning within a larger context of thought".

The writer has a certain flexibility what to conceive as a coherent thought, although he is not completely free. Some writers prefer simple thoughts, other prefer complex ones. Examples to illustrate this idea follow in the next paragraph, where there are also examples showing that a coherent thought does not necessarily have to be a complete thought.

6.   Well-Formedness Conditions of the Written Utterance in Selected Languages

Based on the definition of the written utterance, the task of grapholinguistics is to capture the well-formedness conditions of this unit in specific writing systems. In principle, linguistic theories can be applied to all languages. A sound theory is characterized by the use of a set of terms with explicit definitions. This set of terms allows the analysis of data from different languages. The differences between languages are thus not rooted in the terms used for an analysis but in the analyses themselves. The unit written utterance, for example, is defined in the present context of the Modular Theory of Writing Systems in the way given in (9). In this section, I will begin with two well-formedness conditions of written utterances which hold in the writing system of English and certainly also in a large number of other writing systems. English—in contrast to German—does not have a codified norm of orthography and consequently no codified norm for punctuation. Nevertheless, there is a standard of punctuation holding for the English orthography, although "the use of punctuation is not nearly so standardized as spelling" (Rogers, 2005, p. 15).

6.1.   Condition on Letters As Initial Elements

(10)   *Condition 1*   If the first element of a written utterance (not including opening brackets and opening quotation marks) is a letter, it must be an uppercase letter.

This is a condition of well-formedness and not a rule to transform a given input into a different output. This formal characteristic is consistent with the declarative conception of Systematic Orthography as part of the Modular Theory of Writing Systems. With respect to Condition 1, it is irrelevant whether the first word of a written utterance regularly begins with an uppercase letter (as is the case for proper names, for example) or not. A violation of this condition leads to an orthographic error. In this sense, the conditions formulated in the present theory (unlike in Optimality Theory) are conceived as being inviolable. This allows a clear distinction between correct (well-formed) data and false (ill-formed) data. The unit addressed by Condition 1 is the letter and

not the grapheme, because a spelling of a written utterance in English as <THe book is green.> with the supposed complex grapheme <th> written in uppercase would be wrong. The formulation of Condition 1 assumes that the regular appearance of a letter is in the form of its lowercase variant. Well-formedness conditions have to capture when the uppercase variant (as the marked form of a letter) is to be used instead.

An alternative way to formulate Condition 1 would be to state that exactly the first letter of a written utterance has to be an uppercase one. However, this alternative would be empirically inadequate because written utterances may well begin with a series of uppercase letters under certain circumstances, e.g., if the first word is an abbreviation (<USA and Canada are comparable in price.>) or if uppercase letters are used throughout.

In contrast to the works cited in paragraph 3, the need for a specific type of initial letter is not part of the definition of the unit written utterance, but part of its well-formedness conditions. It is therefore to be expected that there are writing systems to which this condition does not apply, although the unit written utterance does play a role. In fact, it is likely that writing systems which are not based on a dual alphabet (like the Roman script) have different kinds of well-formedness conditions in this respect. The Arabic script, for example, has up to four different letter forms (isolated, final, medial, initial; cf. Rogers, 2005, p. 136). Since there is no concept of uppercase letter in this script, Condition 1 cannot hold for written utterances in writing systems based on the Arabic script (but a modified version could). The Chinese script, on the other hand, does not have different letter forms in the present sense, so that there can be no analogue of Condition 1 for writing systems based on the Chinese script. Whether the written utterance is a useful category of analysis for such writing systems is a question to be dealt with independently.

Furthermore, Condition 1 gives a statement for the first letter of a written utterance but it does not determine that the first element of a written utterance has to be a letter. In front of the first letter, there could be a word punctuation sign like an apostrophe or a quotation mark (cf., e.g., Schmidt, 2016, p. 240).

(11)   *Written utterances with initial elements other than letters*
         a.   [T]hat pale-face is my friend.
                'Hope' is a positive word.
         b.   … und gab keine Antwort.   '… and did not answer.'
                's ist schade um sie.   't's a pity for them.'
                52 volle Wochen hat das Jahr.   '52 full weeks is the year.'

The examples in (11a) show that written utterances beginning with the opening part of a punctuation mark that constitutes a symmetrical pair

behave as if this element was not present (cf. ibid., p. 240). The examples
in (11b) from [Deutsche Rechtschreibung] (2018, p. 56) show that some-
times the first element of a written utterance is neither a letter nor the
opening part of a symmetric punctuation mark; in such cases, the first
letter of the written utterance is not subject to Condition 1 (as specified
in the formulation of this condition). These examples prove that Cook's
definition of the crucial unit as "anything that starts with a capital let-
ter" (Cook, 2004, p. 42) is inadequate. The second part of this definition,
which concerns the final element of a 'sentence', is also inadequate, as
the following section will show.

6.2.   Condition on the Final Element

The property in question can be easily translated into a condition of
well-formedness for written utterances in the following way:

(12)   *Condition 2*   The final element of a written utterance has to be an
                        end punctuation mark.

So far, I have used the traditional term 'sentence closing mark' to denote
the set of elements full stop, exclamation mark, and question mark. Now
this term turns out to be inappropriate, because it is not the unit sen-
tence that is closed by these elements. Therefore, I use the alternative
term 'end punctuation mark'.[11] For the purpose of Condition 2, the term
'end punctuation mark' has to be defined. As the set of elements which
fall under this term is finite and, moreover, relatively small, an enumer-
ating definition is possible. I have used this kind of definition already
above. Regarding the full stop, however, some refinements are to be
made. This term connects an element of a certain form with a certain
function. The form is called dot (or point), the function is that of end-
ing a 'sentence', thus a written utterance. The dot, however, also occurs
in other functions. Of particular interest is the dot as an abbreviation
marker and as a decimal point, respectively. If such a sign is the final
one in a written utterance, its presence is sufficient to fulfil Condition 2
above.

(13)   *Written utterances with a final dot with a specific function*
        a.   She knows the rules for periods, commas, semicolons, etc.
        b.   He knows Queen Elizabeth II.

Therefore, it is better to include the dot in the set of end punctuation
marks, with the full stop being only one of the possible functions of this
element. Furthermore, a written utterance can have three dots indicat-

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11. In German, the respective term is *Schlusszeichen*, replacing *Satzschlusszeichen*.

ing an ellipsis after its last letter. In some standards of English punctuation, these three dots are sufficient to end a written utterance with, while others require the addition of a fourth dot. From the formulation of Condition 2, three dots would be sufficient, since the final element is then a dot, as required. This explicitly holds true for the German orthography (cf. [Deutsche Rechtschreibung], 2018, p. 101). The following determination of the set of end punctuation marks is valid for English and German, but also for many other orthographic systems:

(14)   *Set of end punctuation marks (for English and German)*
        dot
        exclamation mark
        question mark

All these punctuation marks can also occur within written utterances. This is theoretically unproblematic as long as the written utterance is not defined by the presence of specific punctuation marks, as in the approach presented here. For a complete analysis of a punctuation system, the valid conditions must be formulated for each individual punctuation mark.

Orthographic systems have conditions regarding the number of end punctuation marks allowed in a row. In German, for example, in standard orthography only one exclamation or question mark in a row is allowed. In non-standard varieties like in comics or in internet communication, this condition is not valid. In any case, the condition on the number of punctuation marks in a row is independent of the unit written utterance.

For standard orthography, a distinction between two modes to writing is relevant, text mode and list mode (Bredel 2008: 32-34). Condition 2 applies in text mode but not in list mode. The regular mode of writing is text mode, while list mode has special functions. List modal writing pertains to lists, headings, and tables, for example. The title of this paper is conceived by me as its writer as a written utterance. Therefore, it begins with an uppercase letter. But it does not end with an end punctuation mark because it belongs to list mode.

For quoted written utterances, a further note is required. The following examples show that there are differences between the use of the dot compared to that of the exclamation and the question mark. In addition, there are differences between English and German that do not only concern to the form of quotation marks.

(15)   *Quoted written utterances*
        English   German
   a.   He said: "The book is green."   Er sagte: „Das Buch ist grün.“
   b.   "The book is green," he said.   „Das Buch ist grün“, sagte er.
   c.   "The book is green!" he cried.   „Das Buch ist grün!“, schrie er.
   d.   "The book is green?" he asked.   „Das Buch ist grün?“, fragte er.

The examples in (15b) shows that under certain circumstances, a written utterance does not have to not end with an end punctuation mark. I do not want to go into further details here and merely note that there seem to be different standards for English regarding the use of quotation marks. To a certain extent, the data in (15) fall within the scope of the formulation of comma conditions.

6.3. Condition for Written Utterances Ending With an Exclamation Mark or Question Mark

Writing systems based on the Roman script can use special punctuation marks that are not widely used among such systems. One example is Spanish (cf. Meisenburg, 1996, p. 1440). Written utterances that do not end with a dot but with an exclamation mark or question mark must contain an inverted exclamation mark or inverted question mark as the first element.

(16)   *Written utterances with final exclamation or question marks in Spanish*
    a.   ¿El libro es verde?   'Is the book green?'
    b.   ¡El libro es verde!   'The book is green!'

A motivation for the introduction of these punctuation marks was that utterances of different function (declarative, exclamation, question) can have the same wording. This property, however, is not sufficient to require such punctuation marks because other languages with the same properties (e.g., German) do not use these punctuation marks. The following Condition X tries to capture the regularities for Spanish, although on closer examination it might turn out that the conditions are more complex.

(17)   *Condition X*   If the final element of a written utterance is an exclamation or question mark, the first element has to be an inverted exclamation or question mark, respectively.

Due to the formulation of the conditions, this condition does not conflict with Condition 1 in (10). While Conditions 1 and 2 cover a wide range of orthographic systems, Condition X seems to apply to only one orthographic system, namely Spanish.

6.4. Condition on Sentences in Written Utterances

Sequences of sentences can in principle be conceived either as a single written utterance or as different written utterances. This corresponds to the definition of a written utterance as what is generally thought to be a coherent thought. The following German examples from the [Deutsche

Rechtschreibung] (2018, p. 75) are intended to indicate that different punctuation marks are possible between sentences, leading to more or less minor differences in meaning (Nunberg, 1990, p. 13 discusses similar examples for English).

(18) *Different written constructions of sequences of sentences*
      a. Im Hausflur war es still. Ich drückte erwartungsvoll auf die Klingel.
          'The hallway was quiet. I pressed the bell expectantly.'
      b. Im Hausflur war es still, ich drückte erwartungsvoll auf die Klingel.
          'It was quiet in the hallway, I pressed the bell expectantly.'
      c. Im Hausflur war es still; ich drückte erwartungsvoll auf die Klingel.
          'It was quiet in the hallway; I pressed the bell expectantly.'

On the other hand, a single sentence may be divided among different written utterances. For such a constellation, I will propose a further condition of well-formedness for written utterances that applies to sequences of written utterances. This condition goes beyond the scope of traditional definitions of (written) sentences and refers to the formal relationship between the syntactic unit sentence and the grapholinguistic unit written utterance. Such a condition will hardly be considered in approaches that do not distinguish between these two types of units but rather combine them into a broad concept of 'sentence'. The formulation of the following condition is only tentative; detailed studies are necessary to obtain a clearer picture of the regularities. I formulate this condition with regard to the writing systems of English and German, but its scope is certainly broader.

(19) *Condition 3*   If a sentence is divided over more than one written utterance, the first of the written utterances concerned must contain a construction which has the status of a well-formed sentence.

In the regular case, a sentence is not divided among successive written utterances. Gallmann (1985, p. 44) for German and Nunberg (1990, p. 22) for English give examples that contradict this regularity in a way that is covered by Condition 3. Coincidentally, all the examples seem to come from car advertising.

(20) *Examples illustrating Condition 3*
      a. Er läuft. Und läuft. Und läuft.
          'It is running. And running. And running.'
          Er läuft. Weil er einen starken Motor hat.
          'It is running. Because it has a strong engine.'
   b. The L9000 delivers everything you wanted in a luxury sedan. With more power. At a price you can afford.

Nunberg (ibid., p. 22) takes example (20b) as evidence that a written utterance ('text-sentence' in his terms) "need not be a lexical [= syntactic] sentence in its own right, notwithstanding the fulminations of schoolroom grammarians". This observation applies to German as well. But according to Condition 3, writers are not free to divide a sentence among several written utterances at will. If the first of the written utterances in question does not contain a well-formed sentence, the written construction is questionable, as illustrated by the following construed examples:

(21)   *Sequences of written utterances violating Condition 3*
        a.   I watch. The children play.
        b.   The. Book. Is. Green.

In itself, the written form <The children play.> in (21a) is a perfect written utterance. It becomes an error if it is meant to be part of a sentence, the rest of that sentence being realized in a preceding written utterance that contains another part of the same sentence which in itself is not a well-formed sentence. The same is true for the four written utterances in (21b), although it may be more difficult to imagine contexts in which they might occur; cases at issue could be answers to appropriate questions. Looking at Cook's (2004, p. 42) definition of sentence, (21) could only be said to be sequences of two or four 'sentences', since all forms at issue begin with an uppercase letter and end with a 'full stop'. I do not see any possibility to describe the flawedness of these written examples within Cook's approach.

However, examples like the ones in (21) can still be found in language use. A particularly nice example is a quote from Suvarna Baheti, posted on November 26, 2017 on `www.yourquote.in`.

Grammatically, the quote consists of only one sentence. Grapholinguistically, it is conceived as a sequence of four written utterances, each beginning with an uppercase letter and ends with a dot (two of them also have three ellipsis dots at the end before the final dot). The first of the written utterances does not contain a grammatical sentence. Thus, the written utterances obey Conditions 1 and 2, but the sequence of written utterances violates Condition 3.
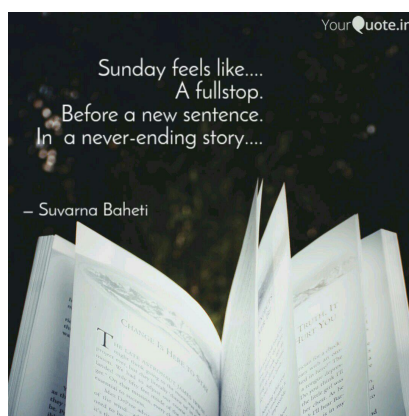
However, instead of discarding Condition 3 in the face of examples such as Baheti's poem, I will consider the scope of orthographic conditions in general. In the German-speaking countries, the official rules are only binding in certain areas:

> Das folgende amtliche Regelwerk, mit einem Regelteil und einem Wörterverzeichnis, regelt die Rechtschreibung innerhalb derjenigen Institutionen (Schule, Verwaltung), für die der Staat Regelungskompetenz hinsichtlich der Rechtschreibung hat. Darüber hinaus hat es zur Sicherung einer einheitlichen Rechtschreibung Vorbildcharakter für alle, die sich an einer allgemein gültigen Rechtschreibung orientieren möchten (das heißt Firmen, speziell Druckereien, Verlage, Redaktionen − aber auch Privatpersonen). ([Deutsche Rechtschreibung], 2018, S. 7)[12]

This means that there are areas of language use for which the official rules of the German orthography are not binding. In particular, a writer may do anything he likes in private correspondence with regard to orthography. A limiting factor may be that he wants to be understood by a potential reader. Other relevant areas are advertising and works of art, areas where playing with language and playing with rules of orthography has its own value. With regard to languages that do not have an explicitly codified norm of spelling, the implicit norm is consequently more reliably derived from administrative text than, for example, from poems.

Therefore, I maintain that Condition 3 applies to writing systems such as English and German, but the standard writing system does not have authority in a number of areas of written language use. Autonomous sub-systems may develop among certain communities as in chat communication. Such non-standard systems deserve linguistic analysis, but they should not be equated with standard orthography.

7.   Conclusion

When the question is asked: "What is it that ends with a full stop?" the scientific answer from grapholinguistics is not: "A sentence." The term *sentence* should be reserved for a structural unit in syntax, while the unit in question is an original grapholinguistic one. It is essential to distinguish between these two units, as has occasionally been done in grapholinguistic research before in one way or another. Since this unit

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12. "The following official set of rules, with a rule section and a dictionary, regulates spelling within those institutions (school, administration) for which the state has regulatory competence with regard to spelling. Furthermore, in order to ensure a uniform spelling, it serves as a model for all those who wish to orient themselves towards a generally valid spelling (i.e., companies, especially printers, publishers, editorial offices—but also private individuals)."

is more closely related to the utterance as a pragmatic unit than to the sentence as a syntactic unit, it should not bear the designation *sentence* in its name but the designation *utterance*. In the present paper, I propose the designation *written utterance*. A written utterance is a grapholinguistic unit which is constituted by comprising what can be conceived as a coherent thought. The writer has a certain freedom in what he considers a coherent thought, but there are limitations. If a sequence of two sentences is conceived as one coherent thought, this sequence can sometimes be interpreted differently than if it were conceived as two different coherent thoughts.

If the written utterance is defined in this way, different writing systems can be analyzed in terms of the well-formedness conditions that apply to them. For the writing systems of English and German, the respective conditions require that the first element (disregarding brackets and quotation marks), if it is a letter, has to be an uppercase letter and the final element an end punctuation mark. Thus, in the present conception these properties are treated as well-formedness conditions, while other approaches typically consider them as defining features (of concepts termed, e.g., *text sentence* or *Ganzsatz*). These different conceptions have significant consequences for 'errors'. If a written utterance, as defined here, immediately begins with a lowercase letter, it is characterized by a spelling error. If, on the other hand, one takes the feature of the initial uppercase letter as a defining criterion, everything that does not begin with an uppercase letter does not fall under the term in question. With such an approach, it would be inadequate to mark a supposed 'text sentence' beginning with a lowercase letter as misspelled, because the unit in question would not even meet the defining criteria of a text sentence.

Different writing system can have different well-formedness conditions for written utterances. Spanish is a case in question because it has a special condition for such written utterances that end with an exclamation mark or question mark. In addition, English and German have slight differences with respect to quoted written utterances. Based on definitions such as that of the written utterance in (9), a contrastive analysis of writing systems is feasible. Defined terms form the core of a theory, which must be kept constant for the analyses. Differences among writing systems can then be revealed in terms of the well-formedness conditions. Furthermore, the concept of the written utterance provides a frame for the analysis of conditions for other punctuation marks. In Neef (2020), I analyze the comma in the German writing system by using the concept of written utterance.[13]

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