

The Use of Brackets in German (And Beyond)

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Abstract. Brackets are established punctuation units in German. Nevertheless, little is known about the conditions under which writers employ this sign. This serves as the starting point for this study. Based on an analysis of over 1,000 Abitur examination essays (the final school-leaving exam in Germany), we demonstrate that usage-based prototypes can be distinctly characterized. These pertain, first, to the form of the sign, second, to its function, and third, to the linguistic structure(s) in which brackets are employed. In a subsequent step, we contrast the resulting profile of the brackets with the plus sign in live tickers—a unit that has thus far been rarely (if ever) described in the context of punctuation. Finally, these usage-based insights are contextualized within a grapho-linguistic framework.

1. Introduction: What Is This All About?

The novel *Berlin Alexanderplatz* by Alfred Döblin was published in 1929. Over the course of the plot, the reader accompanies Franz Biberkopf, a wage laborer who is released from prison and is now trying to build a new life for himself. In 2002, it was voted to be one of the 100 best books of all time.¹ The novel begins with the story of Franz Biberkopf taking the tram from the prison to the city of Berlin:

“Er stand vor dem Tor des Tegeler Gefängnisses und war frei. [...] Der Aufseher am Tor spazierte einige Male an ihm vorbei, zeigte ihm seine Bahn, er ging nicht. Der schreckliche Augenblick war gekommen (schrecklich, Franze, warum schrecklich?), die vier Jahre waren um. Die schwarzen

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1. Cf. <https://www.theguardian.com/world/2002/may/08/books.booksnews> (accessed: 19.11.2024).

eisernen Torflügel, die er seit einem Jahre mit wachsendem Widerwillen betrachtet hatte (Widerwillen, warum Widerwillen?), waren hinter ihm geschlossen." (Döblin 1947 [1929]: 12)

"He stood in front of the gate of Tegel Penitentiary and was a free man. [...] The guard at the gate walked past him a few times, showed him his way to the tram, he didn't go. The terrible moment had come (terrible, why terrible, Franz?), the four years in prison were over. The black iron gates, which he had been looking at for a year with growing disgust (disgust, why disgust?), were closed behind him."

The third-person narrator reports on the discomfort Franz Biberkopf feels as he stands in front of the prison and should actually be starting the next phase of his life on a positive way. Analyzing this inner conflict was the subject of German school leaving exams (*Abiturprüfung*) in 2008. The students were given the following task:

Interpret this text excerpt from "Berlin Alexanderplatz" by Alfred Döblin.

A number of linguistic peculiarities can be analyzed and interpreted in the given text. Some students focused on the two insertions in brackets that appear in the text (<(terrible, why terrible, Franz?)> and <(disgust, why disgust?)>), see for example (1).

- (1) Zusätzlich nutzt der Autor durch [sic!] Zugabe in Klammern [...], um seine Auffassung deutlich zu machen. (German exam 2008, grade C)
In addition, the author uses additions in brackets [...] to insert comments in order to make his view clear.

This statement by a female student has two sides: On the one hand, it discusses a formal aspect: the brackets are *inserted into* the surrounding sentence and not placed at its edge. On the other hand, the author interprets them functionally: the author of the text *reveals himself* in his role and makes a subjective comment—similar to a comment from the off (*to make his view clear*).

This assessment is not so far away from what linguists have said about brackets. Geoffrey Nunberg, for example, states:

Most often, however, the features of the context of production that are relevant to interpretation will involve the author's intentions in inscribing the text, and will be construed as providing a kind of metalinguistic comment on the form or content of the associated antecedent. (Nunberg 1990: 115–116)

In (1), the author has also identified this metalinguistic comment. It is not free, but refers to the context. Behrens (1989: 104) assigns bracketed units a loose "contextual reference"² to the surrounding construction. This is also the case in the given extract from *Berlin Alexanderplatz*: the

2. All German quotes in this paper were translated by the authors.

comments are inserted into the surrounding syntactic structure. However, they are irrelevant for the overall understanding. If the texts inserted between the brackets were omitted, the sentence would be complete both syntactically and semantically. Gallmann (1985: 167) therefore analyses texts in brackets as “parts of the text with the characteristics ‘incidental’, ‘dispensable for the overall understanding’, and therefore ‘can be omitted’”. Zimmermann (1968: 25) similarly states that the usage of brackets is a matter of “marking information as incidental”.

What all these commentaries on brackets have in common is that they focus on the *systematic* function of the sign. They discuss when brackets can *possibly* be used more than when they are *actually*.

What, therefore, only plays a subordinate role is the question of when exactly brackets are written—and, related to this, which functional (and formal) potentials of the brackets are used to what extent. If the usage is explicitly addressed at all in the mentioned studies, they often only work with small, apparently intuitively compiled collections of evidence. An analysis of the status quo of the usage of the brackets is, as well as for punctuation in general, a research desideratum (cf. Fürstenberg 2023: 4; Langlotz 2017: 151).

This is the starting point of the present study. A large text corpus of school leaving exams will be used to determine *when* writers actually use brackets, *how* they do so, and *why*.

In detail, the text is structured as follows. First, the brackets are described as a punctuation unit³ and classified in the punctuation system of German. Here, a distinction is made between the reader’s and the writer’s perspective (Section 2). Building on these findings, the actual use of the brackets in school leaving exams is described. We will give reasons why we believe that these texts are actually a rather poor data basis for this endeavor—but nevertheless the best option available (Section 3). We will also trace developments over time that relate to the form of the brackets, their function, and the variation that can be observed (Section 4). We will show that the brackets have gradually developed their synchronous functional specificity in the school leaving exams.

Building on these findings, the view is broadened in Section 5 and the formal-functional profile of brackets in German is compared to the plus sign <+>. We will show that it has a mirror-image function in certain, well-defined communicative situations. The article concludes with an outlook (Section 6). Overall, it is a plea for usage-based grapholinguistics and comparative analyses of writing systems, which have so far been the exception in the field of punctuation.

3. We use the term punctuation unit rather than punctuation sign or punctuation mark in order to adopt a neutral term that equally denotes both the form and the function of the respective unit (cf. Meletis & Romstadt, accepted).

2. Brackets as Part of the (German) Punctuation System

Punctuation is a written phenomenon realized through segmental means. Building on the analysis by Bredel (2008; 2020), it can be further delineated as follows: Punctuation units differ from other segmental elements of a writing system in that, on the one hand, they are identifiable even without a graphic context, yet, on the other hand, they are not associated with conventionalized vocal gestures during reading (i.e., they are not recodable).

The first aspect distinguishes them from the space, which, therefore, is not considered a punctuation sign (contrary to, e.g., Jones 1995). The latter aspect differentiates punctuation units from other segmental means of a writing system.

This holds true regardless of the specific writing system under consideration. Specific to German, the criterion of recodability differentiates punctuation units from letters, numerals, and special characters. The latter are commonly associated with vocal gestures, such as <%> being realized as [pʁo'ʦɛnt] (“percent”) (issues of delineation are discussed in Chapter 5, as well as in Bredel 2008).

Based on this definition, the following 12 units can be identified as punctuation units in German: <., : ; „“ () ! ? — ‘ ’ ... >.⁴

Two of these hold a special status: quotation marks and brackets. They are paired signs, which constitute a necessary condition: They *always* consist of two elements. This differs from cases where, for instance, commas or dashes are used in pairs. Using only one bracket or only one quotation mark constitutes an orthographic error (see Section 4.2 for exceptions). Their pairing is obligatory, and they always consist of an initial and a final element that together constitute a single punctuation unit.

Structurally, this can be explained by the organization of written language. Bredel (2008: 92) defines this in terms of “prototypical written-grammatical constituent structures of punctuation phrases.” These are descriptions of written word phrases (WWP) in their interaction with other graphically realized segmental means of writing. For brackets, this results in Figure 1.

Brackets thus encompass a written word sequence within their scope. This is also true in the above-cited excerpt from *Berlin Alexanderplatz*. It should be noted that, theoretically, even a single graphematic word can

4. Note that these punctuation units are abstracted from their actual form. They are more or less functional labels for concrete forms. Some of these punctuation units may appear in different forms, such as the brackets (<()> vs. <[]> vs. << >> vs. <>, see section 4.1). This form of variation is excluded here while creating the inventory, as all of these (allographic) forms can be assigned to the same punctuation unit in the given inventory.

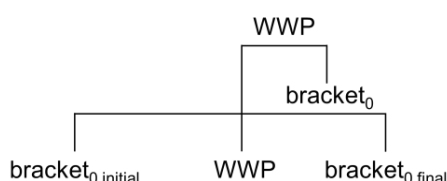


FIG. 1. Constituent structure of written word phrases (WWP) with brackets (cf. Breidel 2008: 92)

be enclosed in brackets (2). Similarly, it is possible to place only parts of a graphematic word (3) or other punctuation units (4) in them.

- (2) Sie hatten feste Zielvorstellungen (Demokratie) ... (German exam 1978, grade C)
They had clear objectives (democracy) ...
- (3) ... diese gescheiterte(n) Beziehung(en) ... (German exam 2018, grade A)
... these failed relationship(s) ...
- (4) ... da ein Mensch mit seiner geistigen Entwicklung nie (!) fertig werden kann (German exam 1958, grade C)
... since a person can never (!) fully complete their intellectual development

Brackets demonstrate considerable flexibility in this regard, functioning as a kind of “all-inclusive-signs.”

In Figure 1, however, a second aspect is also relevant: the function of brackets emerges only in light of the interplay between punctuation units and their surrounding co-text. This observation itself has two dimensions: on the one hand, it concerns the linguistic structure within the brackets; on the other, it pertains to the carrier structure outside them.

In the structure described in Figure 1, brackets have long been part of the German writing system. Masalon (2014) identifies early instances in texts written between 1470 and 1510 (19 bracket pairs in 9 texts; cf. Masalon 2014: 247–250). Parkes (1993: 48) traces brackets even further back to the late 14th century. In early examples, brackets are predominantly associated with a circular form: they are “presumably (at least conceptually) remnants of a circle, which was used to enclose specific words and thus set them apart from the surrounding text” (Klein 1998: 183). This explains why brackets are still used in pairs today and why they continue to visually evoke a circle, at least in their rounded form, which is also the oldest.

The introduction of brackets into the German writing system led to their early high frequency (cf. Höchli 1981: 19). They benefited, on the one hand, from the overall increasing syntactic complexity in German at that time, which was enabled by the growing pervasiveness of written language in society. On the other hand, they were also a product of these

developments, as they facilitated the introduction of more complex syntax (cf. Klein 1998: 183). Brackets, thus, are a symptom as well as a driver of these processes.

This dual role was recognized and discussed metalinguistically at an early stage. In the first metalinguistic analyses of German punctuation, brackets were often discussed in detail—frequently more so than any other punctuation mark (a status that today would likely belong to the comma) (cf. Höchli 1981: 290). These spacious discussions were often accompanied by stylistic and linguistic criticisms warning against excessive use of brackets. For example, Gottsched (1766: 38) remarked: “Since it is not aesthetically pleasing to make too many insertions, one should prefer to use simple dashes for shorter phrases.”⁵

This is no longer the case today. In the current official rules of the German Orthographic Council (*Rat für deutsche Rechtschreibung*) (2024), brackets are addressed only superficially in a single paragraph: “Brackets indicate the presence of supplementary information” (§ 76).

Two aspects are noteworthy here: First, this statement is formulated from the perspective of readers. It does not address what writers do when (or why) they use brackets but rather discusses the effect this sign has on readers (cf. Bredel/Wöllstein 2024). Second, only a single primary function of brackets is identified. There is no acknowledgment of poly-functionality, which has been proposed by Zifonun et al. (1997: 296).

The explanatory notes to § 76 of the official orthographic rulebook further state: “Brackets contain clarifications, additions, or explanations. The bracketed addition is always omissible. The remaining structure is grammatically and semantically complete.”

This elaborates on what was previously described as the interplay between the text within the brackets and the surrounding structure (see Figure 1). By assigning the property of ‘omissibility’ to the bracketed unit, brackets are framed as a tool of linguistic economy. At the same time, this explains why brackets primarily assume a structural function in texts (and words): “Only those units that do not contribute to the textual representation of a factual proposition can be bracketed” (Bredel 2008: 142).

These units may either be integrable into the surrounding syntactic structure (5) or not (6).

- (5) An Kleidung ist (fast) gar nicht zu denken. (German exam 1949, grade D)
Clothing is (almost) out of question.
- (6) Er (der Leser) muß nämlich einen verschachtelten Satz solange im Gedächtnis behalten, bis der Verstand zum Schluß das ganze „Rätsel“ auflöst. (German exam 1963, grade D)

5. The specific form of brackets is of secondary importance to Gottsched. He notes that round brackets are the most common but adds: “Others make them like this [=]. Both are the same” (Gottsched 1766: 38).

He (the reader) must keep a convoluted sentence in memory until the mind finally resolves the entire "riddle" at the end.

In the case of (5), Bredel (2020: 61) refers to an integrable *construction bracket*. She terms (6) a *commenting bracket*. If the brackets in the latter are omitted, this would result in an orthographic error:

- (5') An Kleidung ist fast gar nicht zu denken.
Clothing is almost out of question.
- (6') *Er der Leser muß nämlich einen verschachtelten Satz solange im Gedächtnis behalten, bis der Verstand zum Schluß das ganze „Rätsel“ auflöst.
**He the reader must keep a convoluted sentence in memory until the mind finally resolves the entire "riddle" at the end.*

Both (5) and (6) share the characteristic that the truth-value of the surrounding structure is not influenced by the elements in brackets. It remains unchanged even if the parts inside the brackets and the punctuation unit itself are omitted.

This also explains why brackets confer a special status upon the text within them: "Brackets elevate the information inside [...] to a special information status *with respect to the information of the carrier structure*" (Baumgarten, Meyer & Özçetin 2008: 187, our emphasis).

The final restriction is crucial: Central to the analysis is the relationship between the elements inside and outside the brackets. This is why brackets can be used to establish a sub-discourse within a text, allowing authors to express themselves in their role. The writer shifts from being a "covert" to an "overt" writer (cf. Bredel 2008: 149), revealing themselves—within the brackets:

[This is] a method of stressing the presence of a writer in the text who is involved in information organization, as brackets signal that different pieces of information in the sentence are given different information statuses. (Baumgarten, Meyer & Özçetin 2008: 188)

This may also explain why brackets are frequently used in academic texts (cf. Biber & Gray 2016: 120). They graphically license the introduction of a potentially subjective sub-discourse.

Up to this point, the focus has been on characterizing the systematic functions of brackets (in German).

A related but distinct issue concerns actual usage: when and where are brackets employed, and to what extent do competent writers utilize their functional nuances? Initial insights into this can be found in two corpus studies that primarily focused on translation practices.

Baumgarten, Meyer & Özçetin (2008) examine German popular science texts and their English translations. In the German original texts, they identify 284 pairs of brackets, which they classify into 13 categories. Brackets are most commonly used for "reader-oriented exophoric and intertextual reference" (107 tokens, 37.7%), followed by 36 instances

each of “specialized terminology” and “geographical information” (12.7% each) (cf. Baumgarten, Meyer & Özçetin 2008: 192). This highlights what was previously noted about brackets: they create a sub-discourse to explicate supplementary information. At the same time, and closely related, brackets in (popular) science texts provide a way for authors to directly address readers, more or less explicitly, in their role as writers.

More recent data can be found in the larger corpus study by Levin & Ström Herold (2021), who analyzed 5,923 pairs of brackets in German, Swedish, and English texts and their respective translations. Of particular interest for the present study are the 539 pairs of brackets in the eight German original texts.⁶

Levin & Ström Herold functionally distinguish between *content-oriented* and *interpersonal* brackets:

As the terms imply, content-oriented brackets focus on adding to the content of the text, while interpersonal ones are more reader- or author-oriented and as such may be considered a prototypical case of using brackets as communicative marks. (Levin & Ström Herold 2021: 127)

Each class is further subdivided. Among content-oriented brackets, there are those used to indicate *synonyms* for a “co-referential [...] item outside the brackets” (Levin & Ström Herold 2021: 127), as well as the broader category of *specification*, which provides omissible additional information about the carrier structure.

By contrast, interpersonal brackets focus more explicitly on the relationship between author and reader. This is most evident in the category of *subjective author comment*, where writers subjectively evaluate or assess parts of the carrier structure (or the structure as a whole). The interpersonal character of brackets is also clear in the subcategory of *reader address*, which involves “instances where the reader is addressed ‘outside the text’, [...] and metatextual comments guiding the readers” (Levin & Ström Herold 2021: 128). Finally, there is the interpersonal subcategory of *hedge*, described by Levin & Ström Herold (2021: 128) as “in some ways categorically ambiguous.” This ambiguity primarily concerns its distinction from the content-oriented category of *specification*. However, when it involves subjective qualifications where the author is directly recognizable as the qualifying agent, an interpersonal classification seems justified.

In the data analysis in Section 4, a conservative annotation is applied: The category hedge is only assigned where an interpersonal character is

6. The relevant findings of Levin & Ström Herold (2021) on the translation practices of brackets are not further elaborated here. Overall, they state: “Most brackets are retained in translations, and there are systematic target-language-specific preferences for the retention rates” (Levin & Ström Herold 2021: 134).

explicitly expressed linguistically. The overall distribution in Levin & Ström Herold's (2021) corpus is as follows:

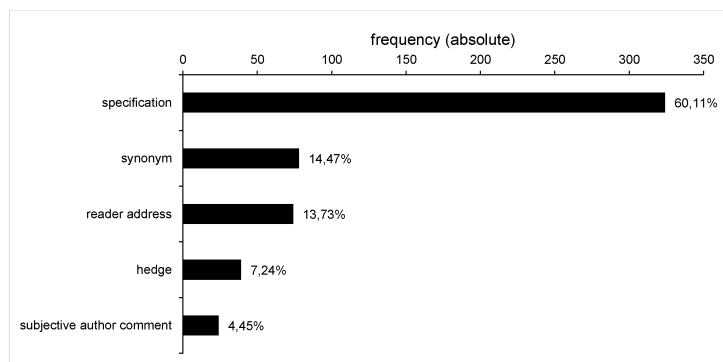


FIG. 2. Bracket functions in German texts (cf. Levin & Ström Herold 2021: 129)

Brackets are primarily used to add specifying supplementary information to the surrounding carrier structure, in a content-oriented manner. By contrast, interpersonal brackets make up only a smaller portion. The function reader address, which most closely corresponds to the most prominent subcategory identified by Baumgarten, Meyer & Özçetin (2008), is still the most frequent subcategory here. This is an initial indication of a genre-specific use of brackets.

3. Examining Punctuation Use

The basic mode of writing itself is variation. This is, grapholinguistically, a “largely understudied topic” (Meletis 2020a: 105), what is undoubtedly (and even more so) the case for punctuation usage (cf. Rössler, Besl & Saller 2022).

When specific punctuation usage has been linguistically described, it has often been done in large newspaper corpora. Studies of this kind can provide relevant insights due to the data volume, but press texts potentially undergo an editorial process, and the influence of AI text generation is not transparent. Thus, such corpus studies essentially reflect the “combined” usage of writers and editors.

Unedited texts are included in large web corpora, which refer to, for example, blogs or digitally mediated communication (cf. Busch 2021). These corpora, however, due to technical development, have only a little or no temporal span. It is simply impossible to draw conclusions about bracket usage in the early 20th century using web corpora.

Learner corpora seem to be better suited, but only show milestones in the acquisition process of writers.

The best compromise among all of these limitations seems to be school leaving exams. They have been written in Germany under comparable conditions for over 100 years. Authors have a set amount of time to handwrite a text without any additional tools (other than a dictionary). In the “world of written texts,” they emerge in fully-regulated orthographic spaces (cf. Sebba 2007: 43). This is directly related to the high social obligation perceived in German orthography. Writers of school leaving exams are anxious to produce orthographically correct texts because spelling mistakes are officially sanctioned. They therefore best demonstrate what can be understood as the authentic writing skills of more or less ‘competent’ writers at the end of their school years (meaning that most of them will no longer attend institutionalized spelling classes) (cf., e.g., Ransmayr 2022, Eiben-Zach 2023).

3.1. The GraphVar-Corpus

The use of brackets is to be examined in the GraphVar corpus for these reasons. This corpus contains over 1,800 school leaving exams written at a secondary school in Lower Saxony (cf. Romstadt, Strombach & Berg 2024).

Here, a portion of this corpus is described, specifically, only those exams that were written in the subject of German. This is the only subject that is present in all corpus years, and historically, the German essay holds a special position (cf. Reh, Kämper-van den Boogaart & Scholz 2017). These are 1,027 exams with 1,363,029 tokens. All units of the school leaving exams that are quoted and thus attributed to other authors by the writers are excluded (cf. Berg, Romstadt & Neitzert, 2021). The exams are not evenly distributed across the individual years, see Figure 3.

3.2. Methodological Remarks

In addition to the imbalance in terms of the number of texts described in Figure 3, there are other factors that limit the comparability of the texts. For instance, the exams have generally become longer over time. An average exam in the year 1917 was 713 tokens long, whereas 101 years later, in 2018, the average length was 2,087 tokens. To compensate for this, relative values are mainly provided below. These results are less sensitive to fluctuations in text length.

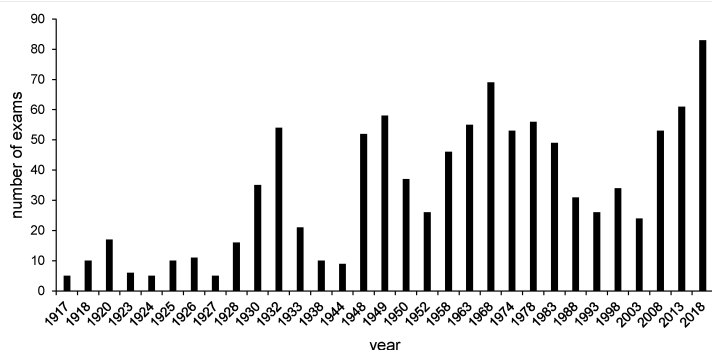


FIG. 3. Number of exams in the corpus, aggregated by year of origin

The historical comparability is also limited by two factors. These are (a) changes in the task environment and (b) sociodemographic developments.

Ad (a): In the early years, the explicit goal of final exams was not to assess subject-specific competencies, but to measure general academic ability (earlier, the term “Reifeprüfung” ‘maturity examination’ rather than “Abiturklausur” ‘graduation exam’ was used). This also means that in the early years, students were often expected to address subjective value issues. A comparative example of two task formulations makes this immediately clear (see Table 1). In 1948, a so-called reflection essay (*Besinnungsaufsatz*) was expected (cf. Ludwig & Merchert 1987), which was thought to reveal the eloquence and argumentation skills of the writers. Today, a more or less scientific treatise on a subject-related topic is required.

Ad (b): In the past, taking the school leaving exam was the privilege of a small portion of the (male) population. Today, more than 50% of the German population takes the corresponding exam. Sociologically, this has been described as “educational expansion” (cf. Bölling 2010).

Both aspects need to be considered in the further analysis of the data presented here, and we will return to them in the analysis section.

Our quantitative study is methodologically relatively simple. In the GraphVar corpus, we query all instances of brackets that do not appear in quotes. In total, this amounts to 17,572 brackets (initial and final brackets are counted separately here, cf. Section 4). These tokens will be further analyzed and linguistically described.

TABLE 1. Exemplary task formulations

1948	2008
Welche Wünsche und Gedanken kommen mir beim Anblick eines Großflugzeuges? <i>What wishes and thoughts come to my mind when I see a large airplane?</i>	1. Interpretieren Sie den vorliegenden Textauszug aus „Berlin Alexanderplatz“ von Alfred Döblin. 2. Setzen Sie sich mit der Frage auseinander, inwiefern die Figurenkonzeptionen von Franz Biberkopf und Lenz unter dem Aspekt von Ich- und Wirklichkeitszerfall miteinander vergleichbar sind. <i>1. Interpret the following excerpt from “Berlin Alexanderplatz” by Alfred Döblin. 2. Discuss to what extent the character concepts of Franz Biberkopf and Lenz can be compared under the aspect of decomposition of reality and ego.</i>

4. The use of brackets in German

First of all, the frequency of the tokens <(> and <)> is evaluated in the GraphVar corpus. They are counted separately, although, as mentioned above, they form a single punctuation unit. The absolute value is normalized to the total corpus size, so the frequencies are determined per 1,000 tokens here.

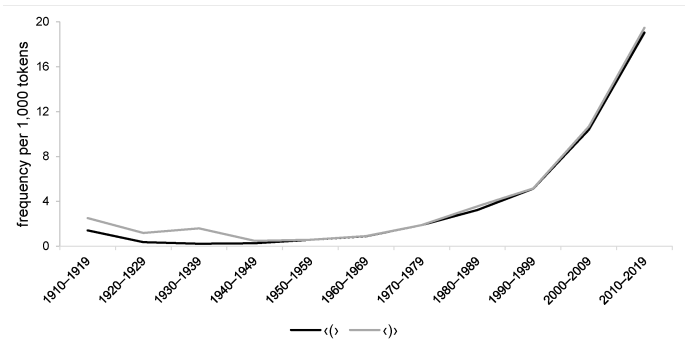


FIG. 4. Frequency of round brackets per 1,000 Tokens over time

It is particularly striking that the frequency of the brackets increases significantly on a temporal axis (its frequency quadruples from under 5 occurrences per 1,000 tokens to nearly 20). This is especially noteworthy

because the frequency of most other punctuation units in the GraphVar corpus tends to decrease. In recent years, many final exams, for example, are written without semicolons, dashes, apostrophes, colons, question marks, and exclamation marks (cf. Berg & Romstadt 2021: 2017, Romstadt in preparation). While other punctuation units are becoming more and more marginal in usage, this is not the case for brackets. Assuming that punctuation units are only used when they are functional, this suggests from a broader perspective that the function of the brackets seems particularly and increasingly relevant in the communicative context outlined.

Additionally, it is striking that the final bracket <)> is always (!) slightly more frequent than the initial one. This seemingly contradicts the assumption that the closing bracket is more likely to be forgotten than the opening one (especially in longer constructions within the brackets). The reason for the higher frequency of the closing symbol is brackets like (7).

- (7) 1.) (German exam 2018, grade D+)
1.)

Brackets like (7) have the main function to organize and structure the text; they primarily serve a text-structural role. Baudusch (1989: 171) calls them “half brackets.” Referring to their main function—textual organization—they are referred to here as *organization brackets*.

Figure 4 shows the global frequency of bracket forms from a macro perspective. It is possible that a few exams contain an unusually large number of brackets, which could distort the data in favor of brackets. Another measure for bracket usage is therefore prevalence. This is a metric commonly used in epidemiology and medical statistics to quantify the distribution of diseases. In this case, it counts how many exams contain at least one bracket. An exam with one bracket is treated the same as one containing 100 brackets in the analysis.

In Figure 5, it is evident that in the early years, a large number of exams contain at least one bracket. When combining this observation with the very low global frequency shown in Figure 4 for these periods, it becomes clear that there appear to be relatively many exams with only a few brackets. After this period, the global frequency of brackets remains relatively stable at a low level, while prevalence decreases. This means that there are fewer exams containing brackets, but those that do use them more frequently (the total number of brackets is distributed over fewer exams). Both developments (constant frequency and decreasing prevalence) are somewhat opposed to each other. From the 1960s onward, the observed increase in frequency becomes apparent in the prevalence as well. More and more brackets are being used in final exams—and in more and more exams. In the last decade, almost every final exam has contained at least one bracket.

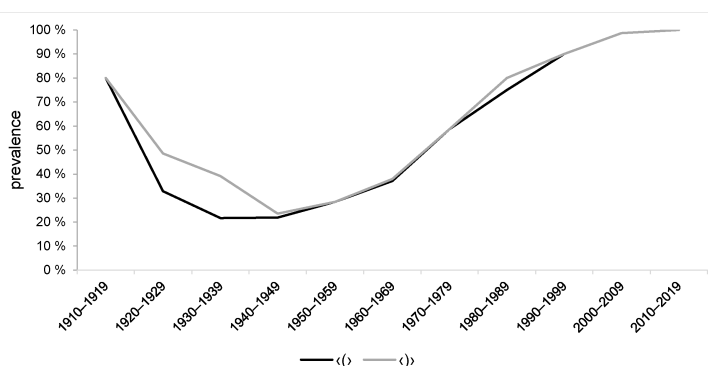


FIG. 5. Prevalence of round brackets over time

4.1. Form(s)

Up to this point, we have only spoken generally of “brackets,” whereas in the GraphVar corpus, only the following forms were actually analyzed: $\langle \rangle$ and $\langle \rangle$. However, brackets also appear in other forms in German. Four form variants are commonly distinguished: round, square, angle, and curly brackets. They can be described as allographic variants (cf. Meletis 2020b). Gallmann (1985: 171) proposes the following hierarchy of markedness.

less marked		more strongly marked	
$()$		$\langle \rangle$	$\{ \}$
$[]$			

FIG. 6. Hierarchy of markedness of allographic bracket variants (cf. Gallmann 1985: 171)

This exactly corresponds to the frequency of the individual bracket forms in the GraphVar corpus (see Table 2). At the same time, Table 2 also clearly shows that the round variant dominates.

The evaluations in Figures 4 and 5 have thus indeed depicted the formal prototype, which is more than 230 times more frequent than all other forms combined. This may also be due to the fact that the GraphVar corpus contains handwritten texts.

The frequencies of the other allographic bracket forms in the GraphVar corpus are too low to allow for reliable quantitative statements based on this data. For contextualization, one can consult the German Ref-

TABLE 2. Frequency of allographic bracket variants

Form	Frequency (absolute)	Frequency per 1,000 tokens
()	17,496	12.8
[]	73	0.0536
< >	2	0.00147
{ }	1	0.000734

TABLE 3. Frequency of allographic bracket variants in the corpus DERECHAR-v-uni-204-a-c-2018-02-28-1.0

7				
Form	Name	Unicode	Frequency (absolute)	Frequency (per 1,000 tokens)
(	left parenthesis	U+0028	180,360,930	1.00
)	right parenthesis	U+0029	179,601,830	0.999
]	right square bracket	U+005D	4,022,239	0.0224
[	left square bracket	U+005B	4,010,322	0.00223
{	left curly bracket	U+007B	413,060	0.000229
}	right curly bracket	U+007D	409,724	0.000228
>	single right-pointing angle quotation mark	U+203A	3,490	0.00000194
<	single left-pointing angle quotation mark	U+2039	3,008	0.00000167

erence Corpus (*Deutsches Referenzkorpus*, DEREKO). This is a large corpus with over 175 billion tokens, primarily containing press texts. In the DERECHAR corpus version, the frequency of Unicode characters is counted within that corpus (cf. Institut für Deutsche Sprache 2018). The result is shown in Table 3.

Since the individual Unicode characters are distinguished, a more precise differentiation between types of brackets can be made. It is important to note that the “angle brackets” in Gallmann’s system are described as quotation marks in DERECHAR. This does not change their overall very low frequency, which is also significantly lower than that of curly brackets, which were more frequent in the GraphVar corpus than the angle brackets.

Two other observations stand out: First, the initial (round) bracket is more frequent than the final one, what is the opposite in the GraphVar corpus across all years. This is ultimately a reflection of the texts included in the corpus. In longer, argumentative compositions, the need for textual structuring (including organizational brackets) is likely more

7. Cf. <https://www.ids-mannheim.de/fileadmin/kl/derewo/DeReChar-v-uni-204-a-c-2018-02-28-1.0.html> (accessed: 03.01.2025).

prominent than in prototypical press texts. It can be assumed that the final bracket is more often forgotten than the initial one. These two developments run in opposite directions. In newspaper texts, the initial bracket predominates, whereas in Abitur exams, the final bracket (as an organizational bracket) is more common.

Second, both corpora are homogeneous in that the round bracket form, which historically was a forerunner, remains the clearly dominant one. It is formally the prototype.

4.2. Function(s)

For the following functional analysis, the focus on brackets is methodologically narrowed. While in Section 4.1 both parts of the same punctuation unit “bracket” were counted separately, here instances with both initial and final brackets are counted together as a single token (8). Also included are all instances of “half brackets,” in which a bracket is essentially missing. These are, on the one hand, organization brackets (i.e., the true half brackets) like (9), and on the other hand, cases where a bracket was forgotten during writing, as in (10).⁸

- (8) Durch den hundertjährigen Krieg (1339-1453) war Frankreich in die größte Notlage geraten. (German exam 1920, grade C+)
The Hundred Years' War (1339-1453) had plunged France into its greatest crisis.
- (9) 1.) Abenteuerlust und Wandertrieb. (German exam 1944, grade D+)
1.) Thirst for adventure and wanderlust.
- (10) Sie fühlen sich von der Stadt abhängig (Monika verdient dort ihr Geld, dort gibt es Dinge zu kaufen, die es auf dem Lande nicht gibt. (German exam 1974, grade D)
They feel dependent on the city (Monika earns her money there, and there are things available to buy that cannot be found in the countryside.

(8)-(10) each corresponds exactly to one example in the following functional analysis. In total, 9,239 tokens are included in the analysis.

These examples are first described based on whether they are construction brackets or commenting brackets. These are the categories

8. It should be noted that this is, of course, only an interpretation of these examples. From a product perspective, it is not reconstructable why exactly one bracket was realized and why another was not. However, it can be assumed that final exams are generally produced with a focus on orthographic correctness. As stated in the educational standards: “Serious and repeated violations of linguistic accuracy [...] lead to a deduction of up to two points” (Kultusministerkonferenz 2012: 23). Therefore, it can be assumed that the most plausible interpretation is that in examples like (10), a bracket was actually forgotten. To empirically substantiate this, data on the writing process are needed, and exploring this has remained a research desideratum with few exceptions (e.g., Schüler 2023).

proposed by Bredel (2008), which are primarily based on a syntactic description of the relationship between the written units inside and outside the brackets. Construction brackets can be omitted without creating an ungrammatical structure. This is not the case with commenting brackets. A special case occurs when entire graphematic sentences are enclosed in brackets, e.g., (10).

- (10) (Wo liegen diese Gefahren und wie kann man ihnen begegnen?) (German exam 1950, grade B)
(Where do these dangers lie, and how can they be addressed?)

Since they form their own—complete—syntactic structure, they are primarily *textually* linked to the surrounding written material. Therefore, they are not simply classified as construction or commenting brackets but are counted as their own category. They are extremely rare in all years, so this is more of a side note (they occur a total of 184 times). Also counted separately are enclosed punctuation units, such as in (4), which are very rare as well (8 occurrences). Lastly, another category is added: organization brackets. These are primarily examples like (9), where the (half) brackets clearly serve a text-structuring function. They cannot easily be classified into the categories of construction and commenting brackets, which are mainly described based on the reference unit of the (syntactic) sentence.

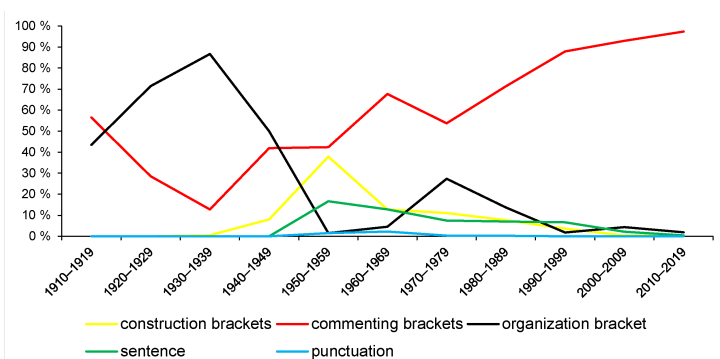


FIG. 7. Proportions of different structural bracket types in the GraphVar corpus

Three aspects are particularly noteworthy in Figure 7.

First, it is apparent that two categories of bracket usage are especially relevant: commenting brackets and organization brackets. Other configurations, in contrast, occur only to a negligible extent.

Second, a prototype emerges along a temporal axis. Brackets in German (in school leaving exams) today are almost always comment brackets. These are the instances that fit particularly well with the function

of the symbol, which is to establish a—also syntactic—subordinate discourse. In contrast, the organization bracket dominated much more strongly in the early decades. This can also be explained by structural requirements for the final exams. Until the 1970s, it was mandatory for students to include a writing plan for their exams. Planning processes were thus much more (literally) visible than they are today—and this is directly connected to a greater need for textual organization.

Third, the unusually high proportion of construction brackets in the 1950s is striking. During this time, there are particularly many adjective attributes and adverbials that are enclosed in brackets (and syntactically integrable), such as (11).

- (11) Arbeiten, die für den Menschen mühsam und zeitraubend waren, führt (heute) nun die Maschine aus, überwältigt sie in einem viel schnelleren Maße. (German exam 1952, grade C)

Tasks that were arduous and time-consuming for humans are (now) carried out by machines, which accomplish them at a much faster pace.

It is possible that the increased use of construction brackets here is a reflection of the topics being addressed. This could only be clarified through studies based on broader empirical data. However, it remains constant that such bracket usages never make up the quantitatively most significant part. These are always organization and commenting brackets.

Regarding the latter category, there are also brackets that stand out, which are used in the context of citations. This concerns, for example, the indication of sources directly after quoted units.

- (12) Diese Geliebte „erquickt“ (V. 18) das lyrische Ich mit „ew[i]ger Treue“ (V. 17). (German exam 2018, grade B)

This beloved “revives” (v. 18) the lyrical subject with “eternal loyalty” (v. 17).

When evaluating the proportion of such *citation brackets* among all commenting brackets, it becomes clear that the development in Figure 7 is primarily due to these instances.

For contextualization, reference can be made to the study by Sieber (1998), who also examined German school leaving exams over a temporal scale. His corpus includes 112 texts, which were written at a single school between 1881 and 1991. He notes: “It does not seem like much has changed in a significant way” (Sieber 1998: 112). However, on a global level, he observes a “convergence of written and spoken language, with the trend clearly moving towards spoken language” (Sieber 1998: 51).

He describes this with the term “Parlando.” The main thesis of the text is that school leaving exams are increasingly becoming such *Parlando* texts. They are characterized by, among other aspects, not adhering uniformly to linguistic norms, which is, e.g., reflected in an “extraordinarily careless handling [...] of the spelling of individual words [...] and

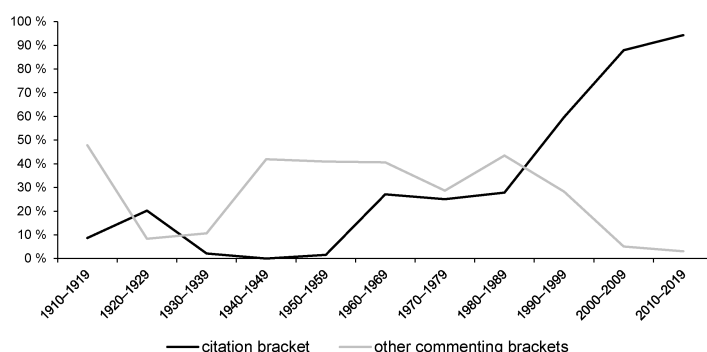


FIG. 8. Proportion of citation brackets and other commenting brackets among all bracket instances in the GraphVar corpus

the placing of punctuation units [...].” Interesting remarks are made regarding citations: “While the early years contain several texts with citations, they almost entirely disappear in recent years” (Sieber 1998: 113). He thinks it’s “remarkable that despite the demands posed by the examination situation, in more recent times much more personalized and freer forms have become possible [...] whereas older texts almost completely lack such a perspective” (Sieber 1998: 131, 148).

This contradicts the observation made in the GraphVar corpus: Here, it is precisely the *increasing* relevance of citations that has led to the overall rise in the frequency of the brackets. Moreover, this is not a development that has only occurred in the last two decades, i.e., after Sieber’s study, but has been visible since at least the 1960s.

Furthermore, it can be contextualized with the changing demands on school leaving exams, which are anticipated by the writers. While, particularly after World War II, “personalized” forms in reflection essays were much more common, this is no longer the case today.⁹ More or less scientific discussions on a professional level are expected nowadays.

The educational standards in the subject of German, therefore, consistently refer to “text-related” or “material-supported” writing tasks (cf. Kultusministerkonferenz 2012: 24). In both cases, the reference to external texts is already clear terminologically. It is either about *text*-based analyses/discussions or the processing of other sources/*material* in one’s own texts. What both task types have in common is the positioning of the writing individual in relation to other written statements, which can

9. As stated in the educational standards: “Creative writing’ [...] should primarily be reserved for classroom work and is excluded as the sole task in the written Abitur exam. [...] The text prompt must [...] not serve merely as a trigger for subjective or imitative writing” (Kultusministerkonferenz 2012: 24).

understandably be realized primarily through citations. “Text reference” as a quality feature of such exams is then merely a “disguised” demand to substantiate arguments with citations. This becomes evident in Figure 4, even though the bracket as a punctuation unit is neither formally nor functionally tied to citations.

Up to this point, the so-called functional analyses were mainly based on structural aspects (cf. the terms construction and commenting brackets). It was primarily about the relationship (and syntactic integrability) of the units within the brackets in relation to the surrounding co-text.

Only the evaluation of citation brackets was already functionally motivated in the narrower sense.¹⁰

To place this perspective more centrally in the following, the categories proposed by Levin & Ström Herold (2021) will also be applied to the data discussed here (cf. Section 2). Only the organization brackets, which cannot easily be assigned to another subclass, are described as their own category. First, the relationship between content-oriented and interpersonal brackets is analyzed.

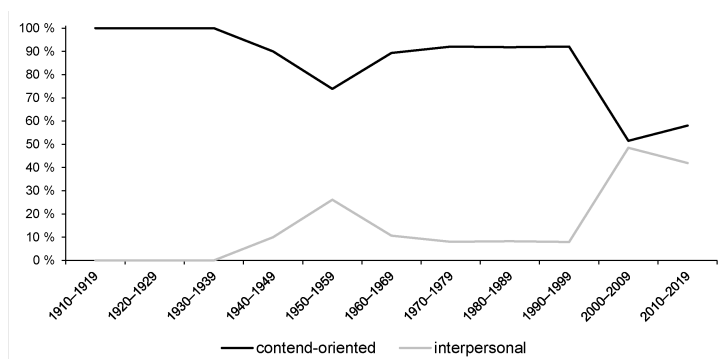


FIG. 9. Percentage of content-oriented and interpersonal brackets in the Graph-Var corpus

From a macro perspective, it becomes clear that brackets in Abitur exams are primarily content-oriented. It is only in the most recent years that the relevance of interpersonal brackets has increased. This is most comparable to Sieber’s (1998) observations about Parlando texts. Generally, it is nonetheless not surprising that school leaving exams are more content-oriented. Ideally, they are subject-specific statements that (among other things) are intended to demonstrate the competence of

10. Compare Rödel & Rothstein (2015: 235): “The function of a linguistic sign results from its meaning and its use.”

the writer in answering a (complex) question in a way that earns them the school graduation.

At the same time, one could also interpret the data from an opposing perspective: brackets offer an (accepted) way of expressing oneself subjectively or more generally in an interpersonal manner. For example, if a writer wants to express a subjective author comment in a school leaving exam, it is better to do so within brackets than without this punctuation unit. However, this clearly has not been done to a quantitatively significant extent—at least not until the 2000s.

The data from Figure 9 can be further differentiated when the subtypes of interpersonal and content-oriented brackets are considered. This is done in Figure 10. The organization brackets, which were discussed in more detail above, are included as a separate category.

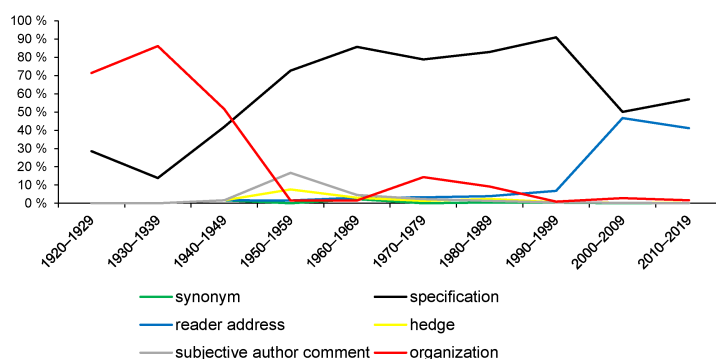


FIG. 10. Proportions of Functional Bracket Types According to Levin & Ström Herold (2021) in the GraphVar Corpus

It is initially noticeable that the corpus primarily contains specification brackets. The other content-oriented subcategory, the indication of synonyms, plays no role in German school leaving exams.¹¹ Thus, content specification brackets, which provide additional information to the surrounding co-text, are particularly relevant. On the level of interpersonal brackets, hedge and subjective author comments, conversely, make up a small proportion. In both cases, it concerns the subjective commentary on the context, which is generally not expected in exams. This is different for the category of reader address, which has notably increased

11. Here, the dependency of punctuation usage on the subject becomes clear. In the biology exams, which are also included in the GraphVar corpus but were excluded from this study, synonym brackets appear to a greater extent, mainly due to the higher density of foreign words and technical terms in those papers (cf. Romstadt in preparation).

in relevance, especially in the last two decades. When writers of school leaving exams reveal themselves interpersonally in brackets, it is primarily about the readers. This is also well-founded: the (anticipated) readers of those texts are the ones who evaluate them. Their judgment matters significantly (in sociology, this is referred to as “high-stakes tests”). Accordingly, it is not surprising that such instances are the entry point for interpersonal brackets in school leaving exams. Furthermore, it is often not just any reader address that appears in brackets, but it can be linked to what was noted above about citations.

- (13) (Dieses werde ich später erklären) (German exam 1974, grade C)

(I will explain this later)

- (14) Botho sagt deutlich, dass sie für ihn kein Glück bedeutet (vgl. Z. 40–41).
(German exam 2003, grade B-)

Botho clearly states that she does not bring him happiness (see lines 40–41).

Examples like (13) are the absolute exception. Here, the student indicates within the brackets that the explanation anticipated by the readers at this point will follow later in the text (meaning it is not forgotten, but only postponed). The prototype of reader address brackets in school leaving exams, on the other hand, is unquestionably (14). Nearly all examples refer to constructions with <vgl.> and <s.> or <siehe>. Both are reader address markers because they can be interpreted as imperative verb forms (“vgl. = Compare!” cf. Duden 2020: 1211; “s. = See!” cf. Duden 2020: 973—both with exclamation marks). If these forms are understood as abbreviated imperative forms, they are much more likely to be reader addresses than the possible specification instances for enriching the text with information about the location of the cited units.

Taking these functional observations together, it becomes clear how the GraphVar corpus differs from that of Levin & Ström Herold (2021). While the latter contains a greater variety of different bracket functions, school leaving exams primarily feature two key subtypes. One of these is content-oriented specification brackets, whose proportion is roughly the same as in Ström-Herold & Levin (2021), which is a notable insight as well. Both corpora do not differ significantly in this regard ($\chi^2 = 1.996, df = 1, p = 0.1577$). On the other hand, almost only reader address brackets appear, and they are significantly and statistically more frequent than in the corpus of Levin & Ström Herold (2021) ($\chi^2 = 111.15, df = 1, p < 2.2 \times 10^{-16}, \phi = 0.11$).

This results in a functional prototype in addition to a formal one in the GraphVar corpus.

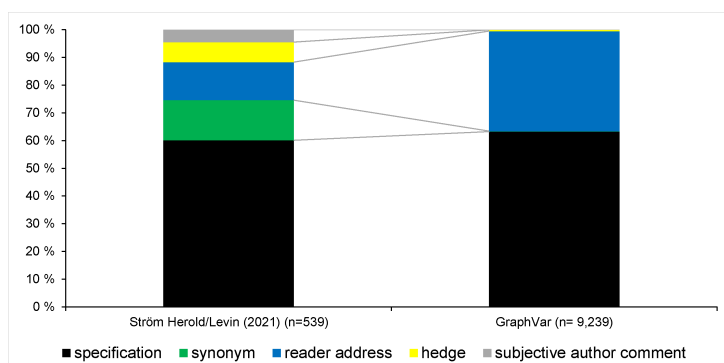


FIG. 11. Comparison of the proportions of different bracket functions in the GraphVar corpus and in Levin & Ström Herold (2021)

5. Beyond the Horizon: Brackets and the Plus Sign(s) as Kindred Spirits

In several studies on German punctuation, brackets are compared with the (paired) dash. Fuhrhop & Schreiber (2015: 48), for instance, categorize these two units, along with the comma, as tools for marking parentheses in written German. They regard brackets as stronger markers of parentheses compared to dashes, noting that while both units independently convey additional pragmatic information, brackets are inherently paired.

Ström Herold & Levin (2024) contrast their findings on brackets with those on dashes, motivated by functional overlaps between the two units—specifically their shared role in marking parentheses within a sentence (cf. Ström Herold & Levin 2024: 263–264).

However, Bredel (2008: 146) identifies a key distinction: content within brackets is seen as a deliberate authorial disclosure, while the use of dashes often stems from unsatisfactory planning during ongoing verbalization on the speaker’s part.

Ström Herold & Levin (2024: 264) observe that “dashes [are] having a more informal, dramatic flair than both brackets and commas.”

While these observations are valid, they pertain to different levels of the linguistic system (e.g., pragmatics, obligatory pairing as a formal property, and syntactic-structural features of the marked units).

In this chapter, we will instead focus on a punctuation mark that, in specific contexts, better fulfills the claim of complementarity to brackets—especially in terms of many of the aforementioned aspects: the plus sign <+>.

5.1. The Plus Sign and the German Punctuation System

Admittedly, the plus sign, unlike the paired dash,¹² does not appear in the literature on (German) punctuation. However, there are specific contexts in which a justified argument can be made for considering the plus sign as part of the German punctuation system. These contexts are particularly prevalent in German online journalism. To mark breaking news, live blogs, or to indicate a new development in an ongoing or past event, plus signs are a common tool employed by online editorial teams. Typically, at least two, and often three, plus signs are placed both before and after the message (see Figure 12). These signs frame the sequence of words deemed most interesting or important for the reader. By using these symbols, journalists aim to convey immediacy, relevance, or both simultaneously.

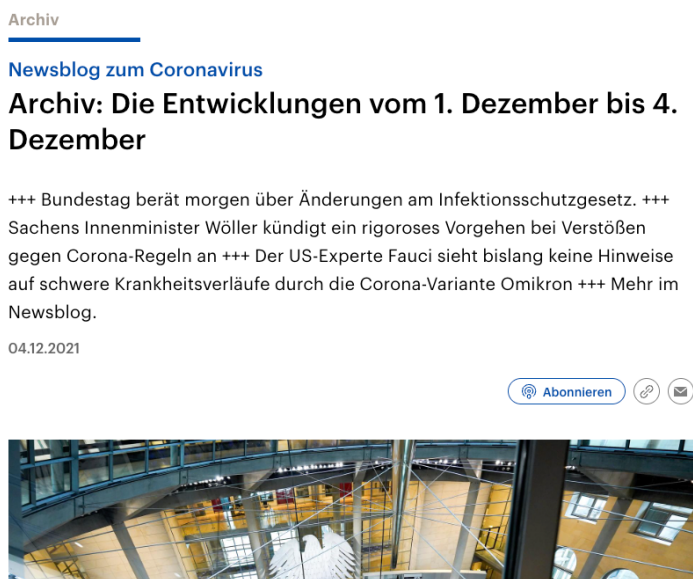


FIG. 12. Newsblog coronavirus, <https://www.deutschlandfunk.de/newsblog-zum-coronavirus-114.html> (accessed: 09.09.2024)¹³

12. See, for example, Bredel (2008: 23–24), Baudusch (1981: 207), and Mentrup (1983: 34–39).

13. Translation: “News blog on the coronavirus. Archive: Developments from December 1st to December 4th. +++ The Bundestag will discuss changes to the Infection Protection Act tomorrow. +++ Saxony’s Minister of the Interior Wöllner announces a

For recipients, these symbols serve an additional function in this context: they facilitate reading. By employing plus signs, a text can be segmented, signaling a thematic shift to the reader. As illustrated in Figure 12, such markers separate individual reports from one another. Through this structuring function, the symbols meet a key criterion for classification as punctuation units: “The purpose of punctuation units is to structure a written or printed text clearly and thereby ensure its comprehensibility and readability” (Baudusch 1981: 207). The implementation of the segmenting function is particularly evident in examples where, for improved clarity, different pieces of information on the same topic or “individual news items are demarcated with +++” (Meier-Vieracker 2021).

+++ 18:12 Brasiliens Gesundheitsminister positiv auf Corona getestet +++

Brasiliens Gesundheitsminister Eduardo Pazuello hat sich mit dem Coronavirus angesteckt. Pazuello sei positiv auf das Virus getestet worden, teilt sein Ministerium mit. Er ist bereits der dritte Gesundheitsminister des südamerikanischen Landes seit Beginn der Coronavirus-Pandemie.

+++ 17:37 In der Lombardei startet nächtliches Ausgangsverbot +++

Die italienische Region Lombardei hat wegen der stark steigenden Corona-Zahlen nächtliche Ausgangsverbote für die rund zehn Millionen Bürger erlassen. Die verschärften Regeln in der norditalienischen Region, zu der auch Mailand und Bergamo gehören, gelten nach dem Erlass ab Donnerstagabend. Die Menschen dürfen dann zwischen 23 Uhr und 5 Uhr ihr Haus nur noch aus wichtigem Grund wie Arbeit oder Krankheit verlassen. Nach Angaben der Zeitung “Corriere della Sera” können die Behörden bei Verstößen Strafen zwischen 400 und 3000 Euro verhängen.

+++ 17:10 Gesundheitsminister Spahn positiv auf Corona getestet +++



Kabinett nicht in Quarantäne
Jens Spahn positiv auf Corona getestet

+++ 16:58 EU will Kanada von Liste sicherer Staaten streichen +++

Die EU will Kanada, Georgien und Tunesien von ihrer Liste jener Länder streichen, aus denen Einreisen ohne Auflagen erlaubt sind. Bei einem EU-Botschaftertreffen wird als Grund ein starker Anstieg der Infektionen genannt. Sollte kein EU-Land Einwände erheben, wird die Liste bis Ende der Woche entsprechend aktualisiert, wie zwei EU-Diplomaten sagen. Weil sich die Lage in Singapur entspannt

FIG. 13. Liveticker Coronavirus, <https://www.n-tv.de/panorama/23-55-Mehr-als-220-000-Tote-in-den-USA-article22116061.html> (accessed: 14.08.2024)¹⁴

strict approach to violations of Corona rules. +++ US expert Fauci sees no evidence of severe disease courses caused by the Corona variant Omicron so far. +++”.

14. Translation of the headings including plus signs: “+++ 18:12 Brazil’s Health Minister tests positive for Corona +++ [...] +++ 17:37 Nighttime curfew begins in Lombardy

In Section 2, we already addressed the characteristics of punctuation units as defined by Bredel (2008; 2020). To compare the plus sign with brackets, it must first be examined whether it can be classified as a punctuation unit, defined as “representable, non-recodable, non-combinable, single-element segments of writing” (Bredel 2020: 9). Since the plus sign, like letters, numerals, and special characters, belongs to the smallest units of writing its inclusion among segmental tools requires no further debate.

The criterion of single-element nature is also quickly addressed. Unlike letters, which can be realized in uppercase and lowercase forms, the plus sign exists in only one form. It also cannot be combined with other graphic elements, such as diacritics (cf. Günther 1988: 64–65), and is thus, like punctuation units, non-additive. Additionally, the feature of standalone identifiability is evident through the sign’s realization: <+>.

In addition to that, combining multiple plus signs does not result in a larger unit. Even when repeated, each plus sign remains an individual graphic element, unlike digits, which, when placed together, form a larger numerical entity (cf. Günther 1988: 67–68).

Thus, the plus sign satisfies almost all criteria for punctuation units unequivocally. The property of non-recodability, however, remains debatable. In certain contexts, the plus sign can represent *and* or *plus*, making it recordable—which would mean it’s more of a special character than a punctuation unit. Consider the following sentence to be read aloud:

- (15) Nur so ist auch das Skandalon des monatelangen Zögerns der damaligen Bundesregierung zu erklären, in den 2+4-Verhandlungen die Oder-Neiße-Grenze anzuerkennen – obwohl die Deutschen gegenüber Polen, dem viermal geteilten, brutal überfallenen und versklavten Nachbarn im Osten, eine mit nur wenig sonst zu vergleichende historische Schuld tragen. (Fischer 2000: 5)

This is the only way to explain the scandal of the months-long hesitation by the then German government during the 2+4 negotiations to recognize the Oder-Neisse border—despite the fact that the Germans bear a historical guilt toward Poland, their eastern neighbor, which was partitioned four times, brutally attacked, and enslaved, that is hardly comparable to any other.

The verbalizability of the plus sign (as [plɔs] in German) is undeniable. According to Bredel’s perspective, this would mean the sign could no longer be included in the inventory of the German punctuation system. Bredel (2020: 9) explicitly tightens the criterion for recodability, stating: “To qualify as recodable, it is sufficient to identify a context where this characteristic applies.” This criterion leads her to exclude symbols such as the asterisk from the category of punctuation units, as it can stand for

+++ [...] +++ 17:10 Health Minister Spahn tests positive for Corona +++ [...] +++ 16:58 EU to remove Canada from the list of safe countries +++”.

born in (cf. Bredel 2008: 24). She would likely argue similarly regarding the plus sign.

However, Bredel's inventory also includes units such as the hyphen and the colon (by Bredel as well as by many other linguists¹⁵). Yet, there are also contexts in these units that seem to be recodable:

- (16) Seit Freitag wird auf der Bahnstrecke Berlin-Hamburg groß gebaut.
(Haase-Wendt 2024)
Since Friday, major construction work has been underway on the Berlin-Hamburg railway line.

That the hyphen here stands for *to* or *through* and would therefore be pronounced is plausible. This becomes even more evident in the following example sentence:

- (17) Die Baskets unterlagen dem italienischen Topteam Pallacanestro Reggiana mit 91:94 und zeigten über 40 Minuten zwei unterschiedliche Gesichter.
(Halbfas 2025)
The Baskets were defeated by the Italian top team Pallacanestro Reggiana with a score of 91:94, displaying two completely different sides over the course of 40 minutes.

The recodability of the colon in (17) is obvious. These examples illustrate the problems that arise with a strict criterion of recodability. If even units whose inclusion in the inventory is widely agreed upon do not meet all the listed criteria in every context, then the discussion of the plus sign as part of the German punctuation system is justified. While there are indeed contexts in which the plus sign is likely to be verbalized, this does not automatically exclude the sign itself from the inventory debate. There are examples where the plus sign is (probably) not verbalized and otherwise fulfills Bredel's criteria.

When the graphical element appears as a structuring device, as analyzed above, and cannot be verbalized, this phenomenon will hereafter be referred to as the "liveticker plus sign."

5.2. Comparison Between Brackets and Plus Sign

Bredel (2008: 146–147) conducts a comparison between brackets and paired dashes, despite the latter not being classified as a distinct punctuation unit in her framework. While the final element in brackets is obligatory, the realization of a second dash is considered a "specific usage variant" (Bredel 2008: 23–24).

15. Schreiber (2020: 7) provides an overview of the inventories from various studies on German punctuation. Symbols such as the period, the hyphen and colon are included in all of them.

The situation differs for the live-ticker plus sign, which never appears alone but always as an initial and final block. No evidence suggests that this symbol is used only before or only after the text. Therefore, we can conclude that the final element is mandatory, justifying the inclusion of the live-ticker plus sign in the inventory of paired units. However, Bredel emphasizes that brackets and quotation marks are the “only truly paired symbols” (Bredel 2008: 82), distinguished by differing appearances of their initial and final elements (cf. Bredel 2020: 10). Since the plus signs on either side of a text are visually identical, one might argue against their classification as “truly paired,” challenging their inclusion in the German punctuation system.

Despite this, there are sufficient contexts where the plus sign contrasts effectively with brackets. Unlike the dash, the live-ticker plus sign requires the realization of the final element. This formal necessity aligns more closely with brackets than with dashes. Examples (18) and (19), repeated from Figures 12 and 13, illustrate this distinction. In (19), the plus signs are obligatorily paired, while in Figure 12, the “initial” and the “final” plus signs may appear intermixed within a paragraph.

- (18) +++ Bundestag berät morgen über Änderungen am Infektionsschutzgesetz.
 +++ Sachsens Innenminister Wöllner kündigt ein rigoroses Vorgehen bei
 Verstößen gegen Corona-Regeln an +++ Der US-Experte Fauci sieht bis-
 lang keine Hinweise auf schwere Krankheitsverläufe durch die
 Corona-Variante Omikron +++
 +++ *The Bundestag will discuss changes to the Infection Protection Act tomorrow.*
 +++ *Saxony's Minister of the Interior Wöllner announces a strict approach to vio-*
lations of the Corona rules. +++ US expert Fauci sees no evidence of severe disease
courses caused by the Corona variant Omicron so far. +++
- (19) +++ 18:12 Brasiliens Gesundheitsminister positiv auf Corona getestet +++
 [...] +++ 17:37 In der Lombardei startet nächtliches Ausgangsverbot +++
 [...] +++ 17:10 Gesundheitsminister Spahn positiv auf Corona getestet +++
 +++ 18:12 *Brazil's Health Minister tests positive for Corona* +++
 [...] +++ 17:37 *Nighttime curfew begins in Lombardy* +++
 [...] +++ 17:10 *Health Minister Spahn tests positive for Corona* +++

The plus sign's pairing is evident in overlapping contexts, as initial and final elements of the whole sequence are consistently realized.

Thus, live-ticker plus signs exhibit a stronger pairing characteristic than dashes. Both symbols—brackets and plus signs—serve as framing devices for text sequences. Brackets typically indicate an aside (see Section 2), which is why they are often compared with dashes. However, the live-ticker plus sign serves a contrasting purpose, directing the reader's attention to the text's most important information.

Whereas brackets therefore function as the “strongest symbol for asides” (Fuhrhop & Schreiber 2015: 48), the live-ticker plus sign expresses emphasis or urgency, akin to a carnival barker shouting, “Don't

miss this! This is important!” (Niggemeier 2014). While brackets highlight *secondary* remarks, plus signs emphasize the author’s *most significant* statement.

Though Fuhrhop & Schreiber (2015: 49) note that dashes also emphasize certain elements, and Lauchman (2010: 114–115) considers dashes the most expressive punctuation, the live-ticker plus sign often surpasses the dash in expressiveness. For example, in public transport displays, plus signs highlight disruptions or urgent updates, signaling critical information to passengers. This attention-grabbing function is unique, even compared to exclamation points, which lack the plus sign’s pairing feature.

Thus, the plus sign is the punctuation unit most similar to brackets in formal terms, particularly because of its pairing. Although quotation marks are also “truly paired,” their function differs fundamentally, as they distance the author from the enclosed text (cf. Klockow 1978: 15). Brackets and plus signs, by contrast, reflect the author’s voice, either adding supplementary information (brackets) or emphasizing a core statement (plus signs). These similarities underscore a formal-functional relationship between the two units, making them suitable for contrasting purposes.

However, the live-ticker plus sign remains primarily associated with specific communicative settings. Its name alone implies its role in such contexts, which explains why it has not been extensively discussed in punctuation studies. Bredel (2008) notes that her analysis of German punctuation focuses on “text mode,” characterized by a lack of (syntactic) structuring by line construction (Bredel 2008: 32). Reißig (2015) refines this by emphasizing the continuity of text mode, where elements could theoretically appear in an uninterrupted sequence without altering meaning or grammar (Reißig 2015: 33). This description aligns perfectly with live-ticker text, which unfolds in seemingly endless sequences, either visually or through simulated formatting (see Figure 12).

In such cases, plus signs resemble headings, serving as an introduction to subsequent content (see Figure 13). They function as “graphical distinctions in a spatial relationship to the text” (Finkbeiner 2021: 265). While headings are not confined to text or list mode, their defining feature is graphical separation from the main text. Live-ticker plus signs are a practical graphical distinction, especially when other typographic methods are unavailable.

Future studies could investigate the quantitative relationships between different uses of the plus sign, distinguishing between verbalized and non-verbalized contexts. Such research would provide an empirical basis for enriching the “recodability” criterion with “verbalizedness” and refining distinctions between core punctuation units, peripheral symbols, and transitional cases.

In conclusion, plus signs and brackets share notable similarities, particularly in their pairing and their functions of conveying authorial intent. While brackets contextualize the base text, plus signs emphasize its main point. Both segment text effectively, with brackets interrupting (sentence) linearity and plus signs separating updates in live-ticker formats. Unsurprisingly, plus signs are popular in online journalism, where concise, impactful communication is paramount.

Yet, differences remain. Brackets can integrate into any text type, while plus signs seem to be limited to specific contexts like online journalism and announcements. Although the inclusion of the plus sign in the German punctuation system remains unsettled, its role as a peripheral element merits consideration. Its text-segmenting function and fulfillment of key criteria in specific contexts clearly support this.

6. What Follows? Implications for Punctuation Research and Grapholinguistics

The aim of this study was the corpus-driven linguistic description of bracket usage in German. We argued that school leaving exams (*Abiturarbeiten*), particularly due to their temporal scope, are a suitable data source for this purpose.

We demonstrated that, formally, the round bracket is by far the dominant form in these handwritten texts. It appears 203 times more frequently than all other allographic variants combined. Structurally, most brackets are commenting brackets found within graphematic sentences. Particularly in recent years, they predominantly relate to citation, explaining why this punctuation unit—unlike nearly all other components of the inventory—has become increasingly common. Nowadays, nearly every graduation exam contains at least one bracket.

This was not the case in the past, as the structural prototype of the commenting bracket has, over the last century, supplanted the organization bracket, which serves a text-structuring function (and is often represented as a “half-bracket” in Baudusch’s (1989) sense).

Functionally, the prototype is mainly the specification bracket, which is thus described as content-oriented. This is well justified within the communicative context of school leaving exams, although other linguistic studies have drawn differing conclusions (cf. Sieber 1998).

The increasing use of interpersonal brackets in recent decades is also due to the growing importance of citation, as these brackets often contain imperative forms like <vgl.> or <s.> (*compare!* or *see!*). These are interpersonal as the writers instruct readers to take a specific action. Interpersonal brackets are one-way communicative tools in this regard, as the subjective commentary function for the surrounding text is virtually non-existent. All of this aligns well with what has been expected from

school leaving exams, particularly in recent years, as outlined in educational standards.

Thus, usage-based data reveals a prototype for German school leaving exams of a round, structurally commentary, functionally specifying bracket.

Building on this, we examined the liveticker plus sign, a unit that has been rarely (if ever) discussed in the context of punctuation. It was compared with this prototype. In certain communicative settings, specifically live-ticker scenarios, they can be described as non-recodable (punctuation) units. In this usage, they function as mirror images of brackets. Graphotactically, they are analogous, as they also appear in pairs. Functionally, however, they do not situate the enclosed written units within a side discourse but instead highlight them as particularly relevant. This usage unquestionably belongs to the text mode.

Further quantitative studies are needed to determine the general relevance of this phenomenon and the functional contrast with brackets. Such data could simultaneously contribute to refining the criterion of recodability. This would also impact other borderline cases of unit classification, such as the slash or the asterisk (even in the context of gender-neutral writing in German). Taking this further, it could ultimately lead to rethinking the category of “punctuation unit” not as a fixed concept but as a continuum. Prototypical punctuation units like commas or periods would then, based on quantitative usage observations, be situated alongside classic special characters like the <%>-sign and units in transitional areas. The liveticker plus sign, for instance, could be described as more punctuation-like than the equals sign, for example, the slash as more punctuation-like than the liveticker plus sign, and the colon (since it is verbalized in only a few contexts) as more punctuation-like than the others.

Thus, this study advocates for increased attention to usage-based studies in punctuation and grapholinguistics overall. This was demonstrated on multiple levels here. The relevance of the contrast between brackets and plus signs was described using usage data. The formal and functional characterization of brackets in German was also based on authentic instances, consistent with concepts like usage-based graphematics (UxG). This perspective necessarily connects production data (as in this study) with reception-based insights. Thus, analyses like those conducted here are more of a starting point than the culmination of grapholinguistic work. They are closely tied to other areas of this sub-discipline, including:

- corpus-driven studies: Which variations appear where? Which variants are used in which contexts and why? What does it mean if the liveticker plus sign predominantly appears in press contexts, where it contrasts with brackets? How can developments in bracket usage in

high school exams be explained in consideration of other punctuation units in the inventory?

- the system of punctuation units: Which functions (and forms) of punctuation units represent the core and which belong in the peripheral area?
- typological research: How can differences across writing systems be categorized? Brackets are—like punctuation units in general—a success story in writing. Meletis & Romstadt (accepted) compare punctuation inventories across 30 writing systems worldwide. Brackets appeared in the same form and with the same function as in German in 24 systems (80%). In two writing systems, the function of brackets is taken over by a graphically similar symbol, namely <||> in Javanese and <『』> in vertically written Korean Hangul. Only Barnun, Bassa, Buginese, and Balinese do not have brackets.
- grapholinguistics as a whole: What role do punctuation units play in writing and reading? How do they relate to standard concepts such as the grapheme? What historical developments can be traced?

Usage studies are the first necessary step to address these (and similar) questions from a grapholinguistic perspective.

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