

Graphical Grammar

A historical survey until 1955

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0.0.1 Karl Philipp Moritz: *Deutsche Sprachlehre* (1782)

- [0.1] Karl Philipp Moritz (1756-1793) was a prolific author with wide ranging interests. Towards the end of his life he became professor for the arts at the *Königliche Akademie der Künste* in Berlin. Among his many writings there are various instructional books and articles about grammar, see Schmidt (1993) for a concise summary of his linguistic oeuvre. Of particular interest here is the *Deutsche Sprachlehre für die Damen in Briefen* (Moritz 1782). The context and linguistic content of this work is discussed in more detail by Buhofer (1994). This book was quite successful, being reprinted in 1791, 1794 and 1806. All later editions dropped the somewhat curious addition *für die Damen* from the title.
- [0.2] The *Deutsche Sprachlehre* contains to my knowledge the first graphical display of a grammatical analysis. In the *Zehnter Brief: Von dem Bau der Rede*, starting on page 267, Moritz discusses various simple examples, culminating in two large fold-out page-inserts between pages 308 and 309, reproduced here in Figure 1 and Figure 2. Later, in the first volume of his 1793 *Grammatisches Wörterbuch der deutschen Sprache* there is a short summary of this grammatical analysis under the heading of *Construcktion* (Moritz 1793: 283-295). After Moritz' early demise that same year (at only 37 years of age) this *Grammatisches Wörterbuch* was completed by other authors without any further mentioning of this new kind of sentence analysis. The most extensive exposition of Moritz' envisioned analysis thus remains the discussion in the 1782 *Deutsche Sprachlehre*.
- [0.3] Moritz' linguistic analysis is particularly noteworthy because it is an early version of what later will be called a *Satzgliedanalyse* ('phrasal analysis'). Although Moritz consistently talks about the "words" of the sentence, he clearly intends these "words" to be something closer to what today would be called "phrases". These phrases are classified into various functions, using German labels for didactic purposes (e.g. *Grund*=subject, *Ziel*=accusative object, *Zweck*=dative indirect object). Forsgren (Forsgren 1985: 76), discussing the origin of such phrasal analyses at the end of the 18th Century, argues that Moritz' approach is one of the earliest examples of a phrasal analysis and his ideas appears to be developed independently from other contemporaries.
- [0.4] Examining the details of this visual display, each clause can be identified by a large bracket. Within each clausal bracket there is a table-like structure with function-names on top and the actual words of the clause below. Each clause consists of *Grund* ("subject") and *Rede* ("predicate"), with possibly additional syntactic functions like *Ziel* ("accusative object"), *Zweck* ("dative object") or *Bindung* ("conjunction"). Optional elements like *Hinanfügung* ("adverbial phrase") and *Einschiebung* ("interjection") are placed loosely below the main syntactic functions, implicitly hinting at an argument/adjunct distinction.
- [0.5] Various details are not completely thought through and the examples are sometimes slightly inconsistent. For example, the phrase *von der Schulter* in clause 11 is analysed as an adverbial *Hinanfügung*, while the completely parallel *auf die Schulter* in clause 18 is analysed as an object-like *zweites Ziel*.
- [0.6] More interesting is the treatment of subordinate clauses. Subordinate clauses are given a function in the matrix clause and then are further analysed within a new bracket as a separate clause below. This can be seen in Figure 2 with the analysis of direct speech in clause 13, which is the *Ziel* of the matrix clause 12. Likewise, the adverbial *um zu+Infinitiv* subordinate clause 21 is the *Zweck* of the matrix clause 20.
- [0.7] This display of subordinate clauses is no coincidence. In the text there is an explicit discussion of this analysis of subordinate clauses (Moritz 1782: 299-300) based on the example sentence in (0.1). This sentence is analysed by Moritz into four separate clauses. The four clauses and their functions in the superordinate clause are listed in (0.1a-d), as shown in

Figure 3. Each of these subordinate clauses is subsequently analysed using the same clausal analysis structure as the superordinate clause, as can be seen in Figure 4.

- (0.1) Wenn ich meine Pflicht thue, so fühle ich, daß mir dieses genug ist, um vergnügt und glücklich zu sein.
 - a. Grund und Rede: *so fühle ich*
 - b. Ziel: *daß mir dieses genug ist*
 - c. Zweck: *um vergnügt und glücklich zu sein*
 - d. Hinanfügung: *wenn ich meine Pflicht thue*

Nitpicking one might argue that this analysis of the complex sentence is not completely [0.8] correct. Clause 2 from Figure 4 is not a separate clause but the superordinate clause itself. Further, The subordinate part *um vernügt und glücklich zu sein* is analysed in Figure 3 as *Zweck* ('reason', confusingly a label otherwise also used for dative arguments by Moritz). However, this clause is not directly subordinate to the main clause *so fühle ich* but it is secondary subordinate to the *Ziel* complement clause *daß mir dieses genug ist*.

Notwithstanding these inaccuracies, Moritz' analysis shows a clear understanding of sub-[0.9] ordinate clauses simultaneously having an internal functional structure and, as a whole clause, having a function inside a superordinate structure. Anachronistically interpreting this as a constituency analysis, this sentence can be displayed as shown in Figure 5. Note that this is somewhat akin to an "underlying" structure as the ordering does not correspond to the original sentence. In contrast, Moritz forces the same functional structure on each clause (viz. *Grund-Rede-Ziel-Zweck-Hinanfügung*), hinting at the eventual ordering by using numbers.

Summarising, Moritz appears to have a clear understanding of, first, phrases as the basis [0.10] of syntactic analysis. Second, he assigns a syntactic function to each phrase. Third, his examples indicate a basic, through rather implicit, understanding of adjuncts as less crucial phrases (*Hinanfügung*) that are visually displayed below the main constituents. Fourth, subordinate clauses have their own clausal structure, while the subordinate as a whole is assigned a function in the superordinate clause, which is a clear precursor of constituency structure. Finally, in the text he explicitly mentions that the ordering of the elements in the actual sentence is slightly different from the ordering in his analyses, and he hints at rules that determine how the abstract "underlying" structure has to be reordered into the actual form.

All these theoretical concepts are quite charmingly summarised by his graphical display, [0.11] which can be interpreted as a kind of constituency structure. Apparently appearing completely out of the blue, the idea of using graphics to elucidate grammatical structure is off to a great start with these proposals from Moritz' *Deutsche Sprachlehre*. Unfortunately, his approach does not have had any following and it would take another 50 years for graphical methods to be used again for grammatical analysis.

0.0.2 Simon Heinrich Adolf Herling: *Periodenbau* (1823)

Simon Heinrich Adolf Herling (1780-1849) was a teacher in Frankfurt am Main and founding member, and later main organiser, of the *Frankfurter Gelehrtenverein für deutsche Sprache*. His analysis of multi-clause sentences is widely considered foundational for the grammatical analysis of German. A wide-ranging appraisal of Herling's work can be found in Elmentaler (1996).

[0.13] Herling is a close friend and colleague to Ferdinand Becker (see Section 0.0.5), who is also an active member of the *Frankfurter Gelehrtenverein*. A plan to write a joint grammar fell apart, indicating different opinions in their approach to grammatical analysis (Haselbach 1966: 69). Their relation remains amicable, as indicated by the fact that the first part of Herling's *Syntax der deutschen Sprache* (Herling 1830) is dedicated to Becker.

[0.14] Strictly speaking, the work of Herling does not include any graphical display of grammatical analysis. However, his work is still included here because he introduces some notation that will be expanded upon graphically by later authors, especially Lehmann and Götzinger. Herling's notational framework is first introduced in the *Grundregeln des deutschen Stils oder der Periodenbau der deutschen Sprache. Ein Lehrbuch für den stilistischen Unterricht* (Herling 1823), which later becomes the second part of *Die Syntax der deutschen Sprache* (second edition 1827, third edition 1832).

[0.15] In this book Herling analyses the different ways complex sentences are build from multiple clauses. He uses the term *Periode* for the complex sentence, a term that goes straight back to antiquity. Aristotle uses the term *περίοδος* 'periodos' to describe something akin to a complete sentence, consisting of multiple clauses (with *κῶλον* 'kolon' being used for something akin to a clause). Burkett explains that "the term *periodos* is one of Aristotle's visual metaphors, suggesting a circular motion or completeness of thought and rhythm." (Burkett 2011: 206).

λέγω δὲ περίοδον λέξιν ἔχουσαν ὀρχήν καὶ τελευτὴν αὐτὴν καθ' αὐτὴν καὶ μέγεθος εύσύνοπτον ("I call a period an expression having a beginning and an end in itself and a magnitude easily taken in at a glance", Aristoteles, Rhetorica III 9.3, translation by Burkett (2011: 206))¹

[0.16] In a short note, Herling proposes a special notation "um die Umformungen kürzer zu bezeichnen, und so leichter überschauen zu können" ('to succinctly mark the transformations and thus be able to survey them more easily' Herling 1823: 177). The usage of the term *Umformung* deserves its own discussion, but will not be pursued here. The special notation is summarised slightly clearer in the second and third edition (e.g. Herling 1832: 232), shown here in Figure 6, which can be translated as follows:

For the succinct marking of the sentences and their syntactic relationships may the following symbols be of use: *h* indicates grammatical main sentence; *b* adjective clause, *β*, when it is shortened; *a* adverbial clause, *α*, the same shortened; *s* nominal clause, *σ* the same shortened. The exponents, e.g. *a*² indicate the grammatical grade, to *h* e.g. *h*² the grade of the logical gradation; *h/2*, *h/3*, indicates that the main clause, or *a/2*, *a/3* that the adverbial clause is separated into two or three parts. The coefficients e.g. *2h* indicate the number of equivalent main clauses; with *a*, *b*, *s* their relationship to the main clauses, often their coordination. (Herling 1832: 232, translation MC)

[0.17] Herling does not use his notations consistently throughout his book. There are only a few incidental examples and there are almost no sentences completely marked according to this system. The example in (0.2) is one of the more interesting and complex cases (Herling 1832: 233). Yet, in contrast to intended purpos, the abstract analysis with letters and numbers does

¹Original online at the Perseus Digital Library <<http://data.perseus.org/citations/urn:cts:greekLit:tlg0086.tlg038.perseus-grc1:3.9.3>>.

not really ease the quick appraisal of the sentence structure, in my opinion.

- (0.2) Um (α) dem Soldatenstande zu entgehen, gegen den (b^2) er, ungeachtet (α^3) seinen unternehmenden Geistes und kräftigen Körpers, entschiedene Abneigung fühlte, verdingte er sich, (1h) im sechszehnten Jahre, bei einem Gastwirthe an der Gränze als Fuhrknecht, und (2h) kehrte erst nach sieben Jahren, da (2a) eben in seinem Geburtsorte ein nicht ganz unbedeutendes Grundstück feil geboten ward, in die Heimath zurück. (Herling 1832: 233)

Interpreting Herling's analysis in modern terms, his symbols can be seen as a constituency structure. All clauses in the complex sentence are given a label and are related to each other in a hierarchical fashion, distinguishing coordination (viz. number in front) from subordination (viz. special letters for different kinds of embedding and superscript numbers to indicate deeper levels of embedding). Crucially, the clauses are linked to each other without using specific words as anchor points, like they would be in a dependency structure (cf. Becker's sentence analysis of a complex sentence, see Section 0.0.5). Figure 7 shows an interpretation of Herling's analysis from (0.2) in the form of a constituency tree. [0.18]

0.0.3 Johann August Lehmann: *Allgemeiner Mechanismus* (1833)

Johann August Lehmann (1802-1883) was a teacher in Danzig (Gdańsk) and school principal in Marienwerder (Kwidzyn). He prepared various texts for [0.19]

Allgemeiner Mechanismus des Periodenbaues, nebst einem Versuche, an ihn eine Kritik der deutschen Periode anzuknüpfen (Lehmann 1833) [0.20]

Lehmann's approach is based on the work of Herling, who is explicitly cited as inspiration by Lehmann (1833: xv-xvi). [0.21]

"innere Anschauung der Periode soll als auf äußere Anschauung begründet dargestellt werden. Die äußere Anschauung aber findet ihr Objekt in Bildern, welche das Skelet der Perioden wiedergeben. Ich nenne die Periodenskelet ANSCHAUUNGSBILD DER PERIODE oder PERIODENBILD schlechtweg." (Lehmann 1833: xiv) [0.22]

Book is full of actual analyses of complex sentences into clauses. No clause-internal structural analysis. [0.23]

No analysis of the different kinds of subordination, only order and relativ relationship! [0.24]

Main clauses with capital, subordinate with small letter, komma for coordination [0.25]

Lehmann distinguishes three different subordination structures with different notations, shown in Figure 8 (Lehmann 1833: 58). [0.26]

repetition of same letter is used for continuation of clause with internal subordination [0.27]

greek letters are also used, but differently from Herling. Lehmann: doubly embedded get Greek letters, fourth embedding Fraktur capital letters, fifth embedding Fraktur lower-case letter. There is even a discussion of a fifth grade embedding, which uses numerals (p. 232) [0.28]

Interest in the number of possible schemas that could exist, which are all *Umformungen* of the original. For example, p. 116-118 he discusses an example analysis (apparently without real linguistic example) that could theoretically have 37,632 *Umformungen*, "Es wäre thöricht, bei dieser oder ähnlichen Perioden, die zu den Verwickeltsten gehörten, all möglichen Verän-

derungen darzustellen.” (p.118)

- (0.3) Daß ferner, wenn es (das Kind) nun zu sprechen versucht, das Radbrechen der Wörter es für Mütter und Ammen so liebenswürdig macht, es beständig zu herzen und zu küssen und es auch wohl durch Erfüllung alles Wunsches und Willens zum kleinen Befehlshaber zu verziehn: diese Liebenswürdigkeit des Geschöpfes im Zeitraum seiner Entwicklung zur Menschheit, muß wohl auf Rechnung seiner Unschuld und Offenheit aller seiner noch fehlerhaften Aeußerungen, wobei noch kein Hehl und nichts Arges ist, einerseits, anderseits aber auf den natürlichen Hang der Ammen zum Wohlthun an einem Geschöpf, welches einschmeichelnd sich der Willkür eines andern überläßt, geschrieben werden, da ihm eine Spielzeit eingewilligt wird, die glücklichste unter allen, wobei der Erzieher dadurch, daß er sich selber gleichsam zum Kinde macht, diese Annehmlichkeit nochmals genießt. (Lehmann 1833: 125-126, citing Immanuel Kant *Anthropologie in pragmatischer Hinsicht* 1798: 5)

0.0.4 Friedrich Bauer: *Grundzüge* (1850)

[0.30] Friedrich Bauer (1812-1874) studied theology and became the founding director of a missionary education centre in the Bavarian city of Neuendettelsau. This institute is still active today as *Mission EineWelt*. Among other duties, Bauer also taught religion and German grammar at his institute. In that context he wrote the *Grundzüge der neuhochdeutschen Grammatik für die unteren und mittleren Klassen höherer Bildungsanstalten*, which was first published in 1850. Bauer himself delivered various editions of this book up to his death in 1874.

[0.31] After Bauer’s death, the (now infamous) German dictionary maker Konrad Duden kept producing new editions of this grammar with only very minor changes. The *Grundzüge* remained popular and has seen at least 25 editions, the last one from 1908. However, that was not the end, as Bauer’s text was given a second life. After the death of Duden in 1911, Duden’s dictionary lived on and became a household name in Germany for everything related to the German language. In 1935, under the auspice of Otto Basler, the 11th Edition of the Duden dictionary was expanded with a German grammar (Basler 1935), which was basically a new edition of Bauer’s *Grundzüge* (without clear attribution to Bauer). Only after the Second World War was the grammar completely rewritten and new editions of that Duden grammar are still popular today.²

[0.32] In the grammatical analysis of complex sentences, Bauer (1850: 94-97) uses a graphical display in the tradition of Herling, Lehmann and Götzinger, although he does not explicitly cite them. The first similarity is that Bauer’s analysis only deals with the relation between main and subordinate clauses, not clause-internal structure. Second, and most telling, Bauer follows Lehmann’s convention to use capital letters for main sentences and lower-case letters for subordinate sentences. And finally, after a few pages of examples, Bauer comments, almost as an afterthought, that this analysis is called PERIODE, a clear implicit reference to Herling (1823).

Die künstmäßige Gliederung mehrerer Sätze in beigeordneter oder untergeordneter Verbindung zu einem ganzen heißt man Periode (“The artful arrangement of multiple sentences in coordinate or subordinate juncture into a whole is called *Periode*,” Bauer 1850: 97, translation MC).

²more biographical info: Jahnel. Fachbereichsbibliothek Evangelische Theologie (381): C XVII Ce 93

The first few basic examples of Bauer's syntactic analysis are shown in Figure 10 (Bauer 1850: 95). These examples are also found in exactly the same layout 85 years later in Basler (1935: 254). Each sentence is analysed in two ways: the text itself is subdivided into clauses, with subordinate clauses shifted down vertically and connected with lines. Additionally, there are structural analyses in the form of letters, with capital letters for main clauses and lower-case letters for subordinate clauses. First-level subordination is separated by a comma, while secondary or deeper subordination is indicated by vertical lines (and sometimes numerical superscripts). This analysis is rather similar to a constituency analysis with the abstract letters indicating the node labels and the clauses being the leaves. Specifically, subordination is not linked to an explicit superordinate word (i.e. to a head as in a dependency analysis), but to a superordinate abstract entity.

A more complex example discussed by Bauer is the sentence (0.4), analysed as Figure 11 (Bauer 1850: 97). Again, there is both an analysis of all main and subordinate clauses, written out with subordination marked by vertical lines, and there is a structural pattern with letters and symbols in the bottom right. This structural pattern has two cases of coordination (marked by a plus symbol), an internal subordination (marked by the brackets), a secondary subordination (marked by a vertical line) and a subordination at the end of the sentence (marked by a comma). I have attempted to combine both these analysis into a single constituency tree as shown in Figure 12. The structural pattern has been used as the node-labels, while the text itself are the leaves in the tree. Probably it would have been more accurate to analyse the subordination *c* as a simple frontal embedding of the second conjunct, using a comma in the analysis instead of brackets for a clause-internal embedding (viz. *A+c,A,a+a* instead of *A+A(c)A,a+a*), but that is some minor nitpicking.

- (0.4) Er schenkte ihr 300 Rubel und als er erfuhr, daß sie in Petersburg einen Vetter habe, stellte er ihre frei, ob sie ihre Reise fortsetzen oder ob sie umkehren wolle. (Bauer 1850: 97)

0.0.5 Karl Ferdinand Becker: *Deutsche Grammatik* (1829)

Karl Ferdinand Becker (1775-1849) one of the highly influential grammatical educators from the start of the 19th Century.

(Haselbach 1966)

In the introduction to the 1829 *Deutsche Grammatik* (Becker 1829: xvii-xix), even before he really starts the exposition of the grammar of German, Becker presents a few examples of how complete sentences should be analysed.

- (0.5) Wallenstein wußte längst den Inhalt ihrer Sendung als die Abgesandten des Kaisers ihm vor die Augen traten.

CoNLL-U table-format of Figure 13 with only slight cosmetic simplifications of the names for the dependency relations.

#	global.columns = ID FORM UPOS DEPREL HEAD		
1	Wallenstein Substantiv Nom.	Subjekt	0
2	wußte Verb Imperf.	Prädikat	1
3	längst Adverb	der Zeit	2
4	den Inhalt Substantiv Akk.	Gethanes (Gewußtes)	2
5	ihrer Sendung Substantiv Gen.	Attributiv	4
6	als Konjunktion	Adverbialsatz der Zeit	2

7	die Abgesandten	Substantiv Nom.	Subjekt	6
8	des Kaisers	Substantiv Gen.	Attributiv	7
9	ihm	Personalpronomen Dat.	Persönliches Objekt	11
10	vor die Augen	Substantiv mit Präp.	Ortsverhältniß	11
11	traten	Verb Imperf.	Prädikat	7

[0.39] subordinate sentences in (Becker 1833: 38-46) (*Eigenschaftssatz*=relative clause,
Dingsatz=complement clause)

- (0.6) Jakob schickte seinen jüngsten Sohn nicht mit den übrigen nach Aegypten, weil
schon einmal ein Sohn, den er ausgesandt hatte, nicht zurückgekehrt war, und
weil er fürchtete, daß auch diesem ein Unfall begegnen möchte.

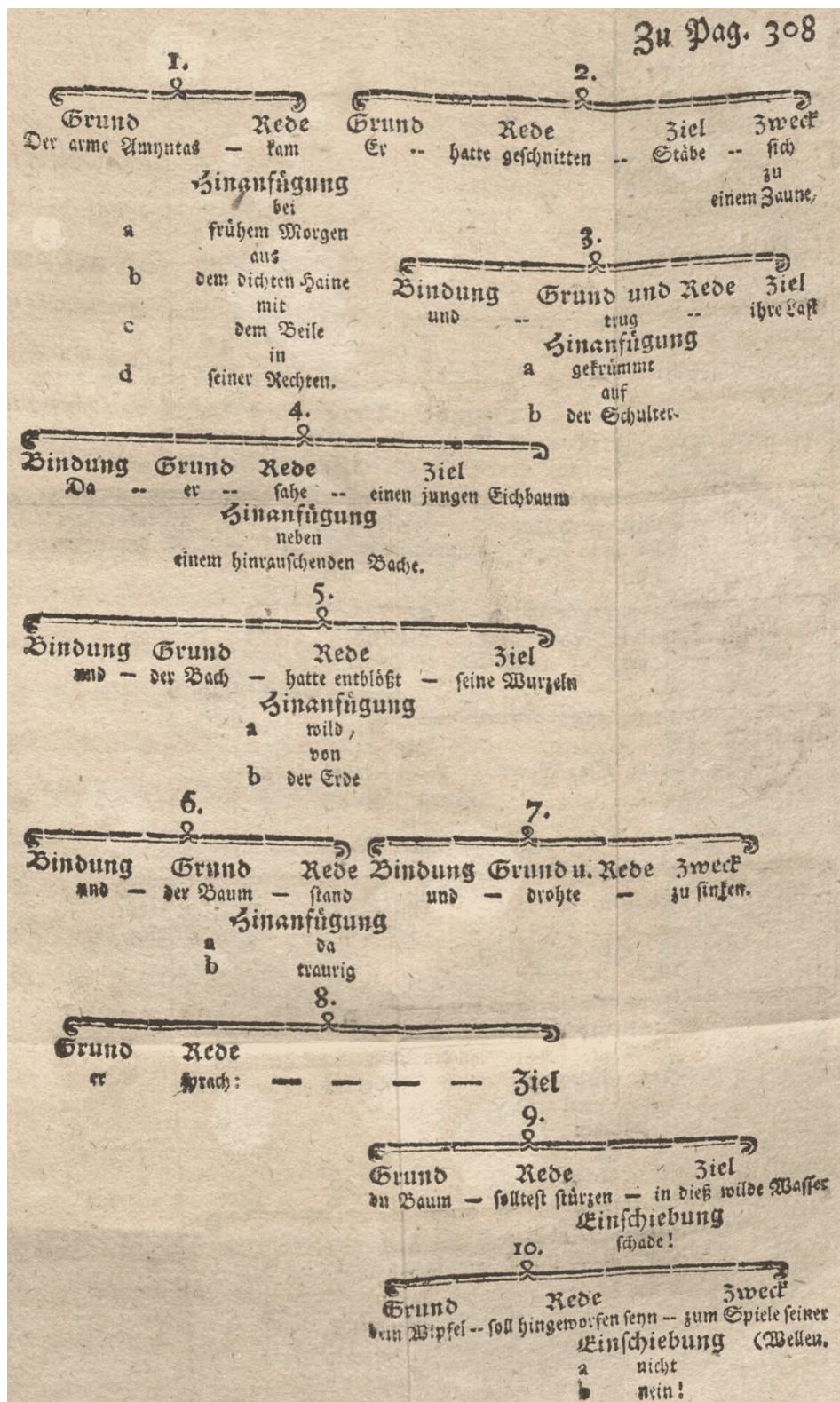


Figure 1: First page insert in *Deutsche Sprachlehre* (Moritz 1782: 308). Individual clauses are marked by a numbered bracket. Note the graphically lowered adjuncts (*Hinanfügung*) and the subordinated direct speech clauses (clause 9 and 10).

II.		
Grund	Rede	Ziel
Er -- nahm -- die schweren Stäbe.		
Hinansfügung		
a jetzt, von b der Schulter.		
12.		
Grund	Rede	Ziel
Er -- sprach:	-	
Grund	Rede	Ziel
ich -- kann hohlen -- andre Stäbe -- mir;		Zweck
13.		
Bindung	Grund und Rede	erstes Ziel
und -- hub an zu bauen -- einen starken Damm --		zweites Ziel
		vor den Baum,
14.		
Bindung	Grund u. Rede	Ziel
und -- grub -- frische Erde. der Damm -- war gebaut		
15.		
Bindung	Grund	Rede
und -- die entblößten Wurzeln -- waren bedeckt		
Hinansfügung		
mit		
16.		
Bindung	Grund	Rede
und -- die entblößten Wurzeln -- waren bedeckt		
Hinansfügung		
mit		
17.		
Bindung	Grund	Rede
und -- die entblößten Wurzeln -- waren bedeckt		
Hinansfügung		
mit		
18.		
Bindung	Grund	Rede
und -- er nahm -- sein Beil -- auf die Schulter,		
Hinansfügung		
jetzt		
19.		
Bindung	Grund und Rede	Ziel
und -- lächelte -- in den Schatten des geretteten		
Hinansfügung		
a noch einmal		Baumes hitt
b zufrieden		
mit		
20.		
Bindung	Rede	Ziel
und -- wollte zurück -- in den Hain -- Zweck 21.		
Bindung	Grund u. Rede	Ziel
um -- zu hohlen -- andre Stäbe.		

Figure 2: Second page insert in *Deutsche Sprachlehre* (Moritz 1782: 308). Note another example of a subordinated direct speech (clause 13) and a subordinated adverbial *um zu+Infinitiv* clause (clause 21).

Grund und Rede **Ziel** **Zweck**
 so fühle ich, — daß mir dieses genug ist, — um vergnügt
Hinanfügung **nnd glücklich zu seyn.**
 wenn
ich meine Pflicht thue,

Figure 3: Complex sentence with syntactic functions assigned to subordinate clauses from *Deutsche Sprachlehre* (Moritz 1782: 299).

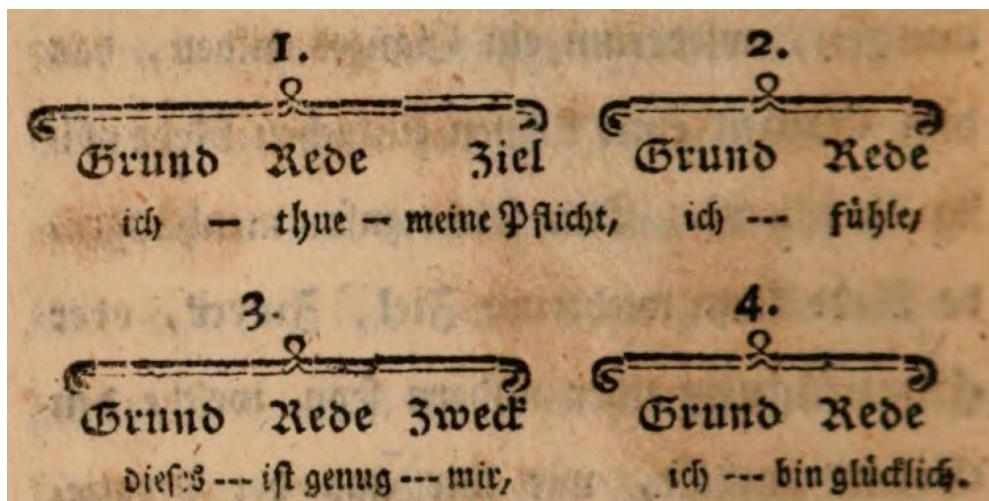


Figure 4: Separate analyses of the subordinate clauses of the complex sentence in (0.1) from *Deutsche Sprachlehre* (Moritz 1782: 300).

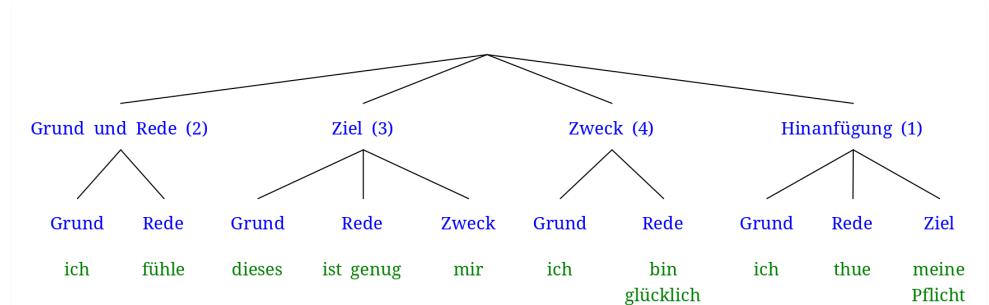


Figure 5: Constituency tree of the example in (0.1) following the analysis from Moritz (Moritz 1782: 299-300). Note the fixed ordering of the functional categories in each clause, making this a kind of “underlying” structure. The bracketed numbers indicate the ordering in the actual example.

Zur kürzeren Bezeichnung der Sätze und ihrer syntactischen Verhältnisse mögen folgende Zeichen dienen: h heiße: gramm. Hauptsatz; b Adjectivsatz, β , wenn er verkürzt ist; a, Adverbialsatz, α , derselbe verkürzt; s, Substantivsatz, σ derselbe verkürzt. Die Exponenten z. B. a^2 bedeuten die Grade der grammatischen, an h z. B. h^2 die Grade der logischen Abstufung: $\frac{1}{2}$, $\frac{1}{3}$, daß der Hauptsatz, oder $\frac{2}{3}$, $\frac{3}{3}$ daß der Adverbialsatz in zwei oder drei Theile zerschnitten ist. Die Coeffizienten z. B. $2h$, bezeichnen die Zahl der gleichgeltenden Hauptsätze; bei a, b, s ihre Hinweisung auf die Hauptsätze, oft ihre Beordinungen.

Figure 6: Notation for the analysis of sentence structure proposed by Herling (1832).

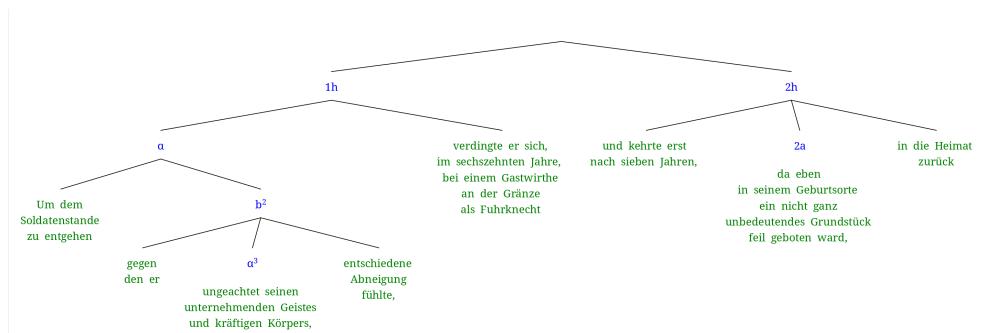


Figure 7: Constituency tree illustrating Herling's analysis (Herling 1832: 233) of the example in (0.2) using a modern visualisation. Crucially, the clauses are linked to each other without attaching them to any specific words as would be the case in a dependency structure.

- 1) \overbrace{A} $\delta.$ $\mathfrak{B}.$ „du sagst mir mit Bestimmtheit, daß
a er bald zu kommen gedenke.“ „Ἐγὼ γε
θαυμάζοιμί ἂν, εἰ οὗτος ὁ ἀνὴρ ἀφίξεται.“
- 2) a: A. „daß er bald zu kommen gedenke, sagst du
mir mit Bestimmtheit.“ „Εἰ οὗτος ὁ ἀνὴρ
ἀφίξεται, ἐγὼ γε ἂν θαυμάζοιμι.“
- 3) A (a) A. „Du sagst mir, daß er bald zu kommen
gedenke, mit Bestimmtheit.“ „Ἐγὼ γε εἰ
οὗτος ὁ ἀνὴρ ἀφίξεται θαυμάζοιμί ἂν.“

Figure 8: Three basic structural mechanisms of subordination from Lehmann (1833: 58). The first is called *Anfügung* or *Nachperiode*, the second *Vordersatz* or *Vorderperiode*, *Vorausschickung*, the third *Einschaltung*.

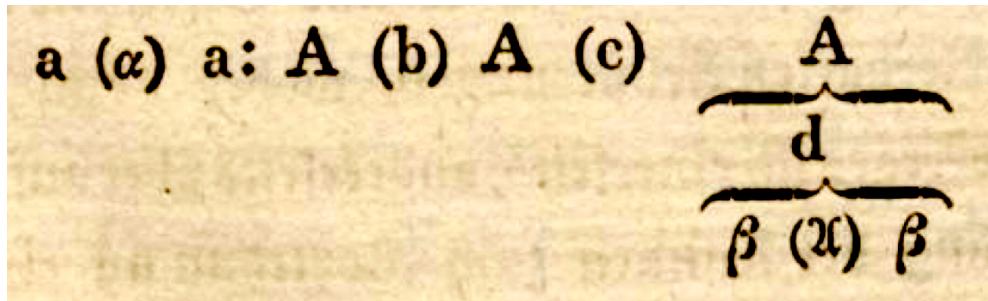


Figure 9: Lehmann's (1833: 126) analysis of Kant's sentence (0.3).

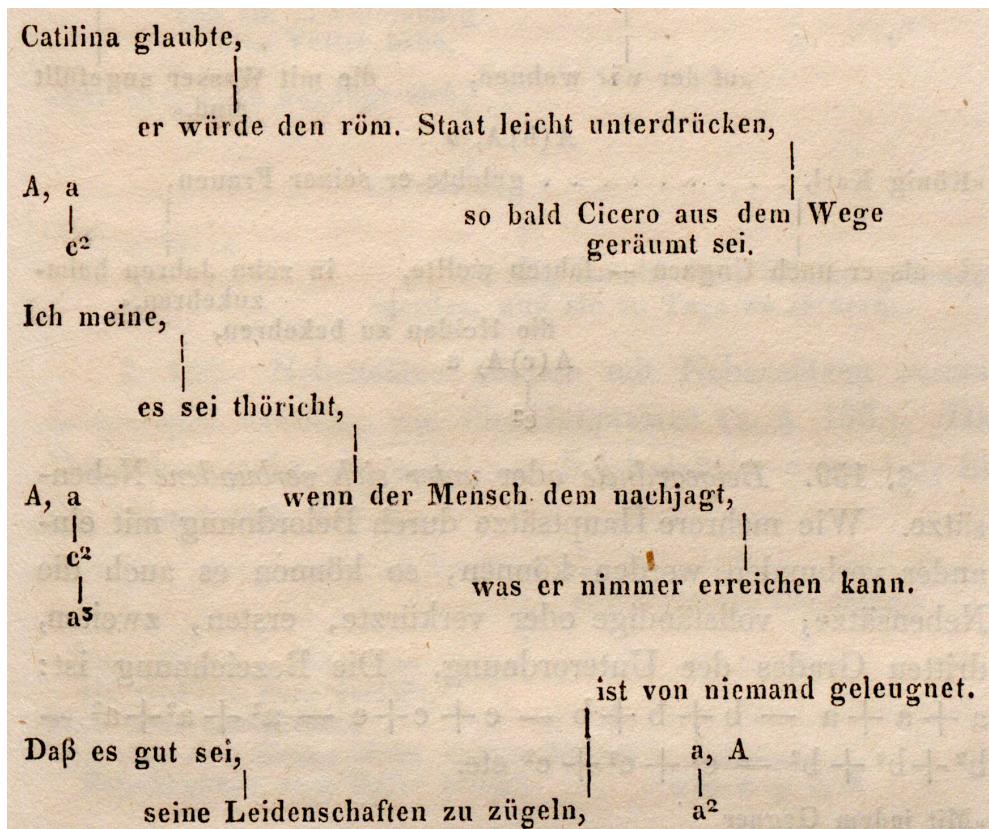


Figure 10: Basic examples of Bauer's sentence analysis (Bauer 1850: 95). There are three sentences analysed in this excerpt, with subordination structure indicated by vertical lines and the structural patterns to the side, summarised with letters.

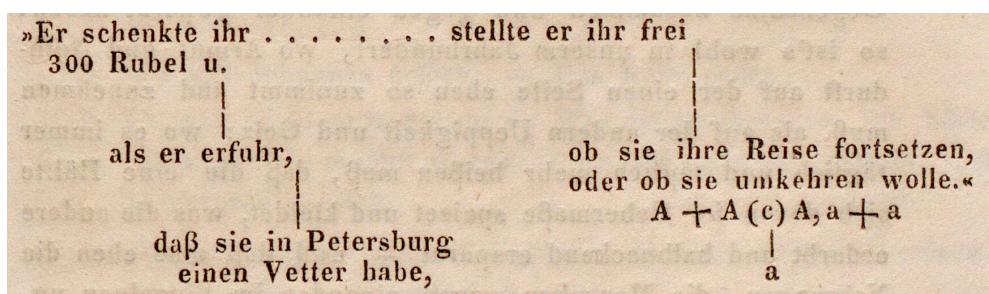


Figure 11: Analysis of the complex example in (0.4) from Bauer (1850: 97). Note both the use of vertical lines for subordination and the separate abstract analysis with symbols in the bottom right.

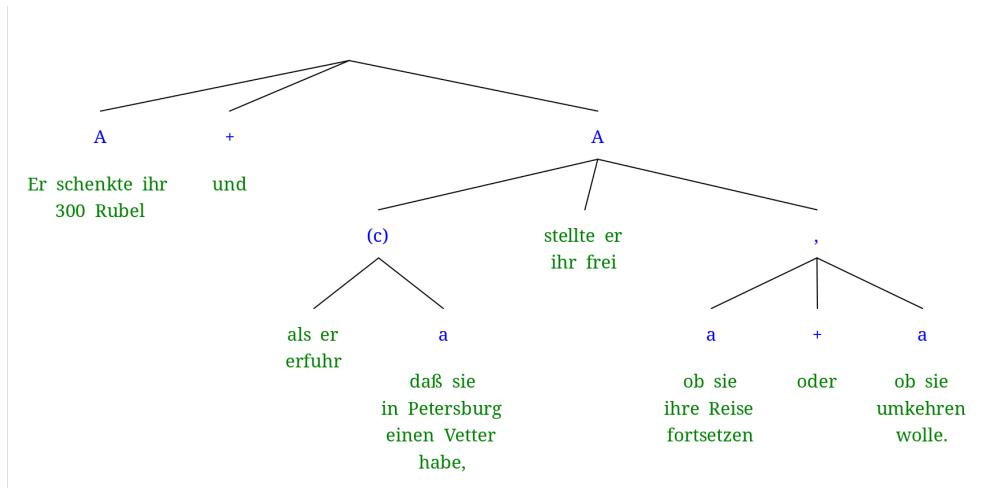


Figure 12: Possible structure combining the text from example (0.4) and the structural letter-analysis from Figure 11 into a contemporary-style constituency tree.

	Wortform.	Grammatische Bedeutung.
1 Wallenstein	Substant. N.	Subjekt des Hauptsatzes.
2 wußte	Verb. Imperf.	Prädikat zu 1.
3 längst	Adverb	der Zeit zu 2.
4 den Inhalt	Substant. X.	Gethanes (Gewußtes) zu 2.
5 ihrer Sendung,	Substant. G.	Attributiv zu 4.
6 als	Konjunktion	des Adverbialsatzes im Verhältnisse der Zeit zu 2.
7 die Abgesandten	Substant. N.	Subjekt des Adverbialsatzes.
8 des Kaisers	Substant. G.	Attributiv zu 7.
9 ihm	Personalpron. D.	Personalisches Objekt zu 10, 11.
10 vor die Augen	Subst. mit Präd.	Ortsverhältnis zu 11.
11 traten.	Verb. Imperf.	Prädikat zu 7.

Figure 13: Tabular analysis of the complete sentence (0.5), from the introduction of Becker (1829: xvii).

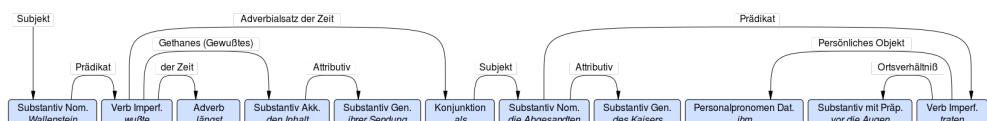


Figure 14: Graphical display of the CoNLL-U format based on Figure 13. Display is generated at <https://urd2.let.rug.nl/~kleiweg/conllu/>

I. Hauptsatz.	
1. Jakob	Subjekt.
2. schickte	Prädikat zu 1.
3. seinen	Attribut zu 5.
4. jüngsten	Attribut zu 5.
5. Sohn	Leidendes Objekt zu 2.
6. nicht	Aussageweise zu 2. (Leitf. §. 41).
7. mit den übrigen	Bestimm. Objekt. Gesellschaft zu 2.
8. nach Aegypten,	Bestimmendes Objekt. Ort zu 2.
II. Bestimmungssatz des Grundes zu 2 in I.	
1. weil	
2. schon einmal	Zeit zu 4.
3. ein Sohn,	Subjekt.
III. Eigenschaftssatz zu 3 in II	
1. den	Leidendes Objekt zu 3.
2. er	Subjekt.
3. ausgesandt hatte, Prädikat zu 2.	
Zu II.	
4. nicht zurückgekehrt war, Prädikat zu 3 in II.	
IV. Bestimmungssatz des Grundes zu 2 in I.	
1. und weil	
2. er	Subjekt.
3. fürchtete,	Prädikat zu 2.
V. Dingsatz. Leidendes Objekt zu 3 in IV.	
1. daß	
2. auch diesem	Ergänz. Objekt. Personens. zu 4.
3. ein Unfall	Subjekt.
4. begegnen möchte. Prädikat zu 3.	

Figure 15: Tabular analysis of complex sentence (0.6) with various subordinate clauses, from Becker (1833: 43).

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