CONSERVATORIUM VAN AMSTERDAM

Master's thesis

# Grouping structure and gesture: a sentence classification

by

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# Preface

The work presented in this thesis is the result of a master's research project in the field of music theory, which has been conducted at the Conservatorium van Amsterdam. The goal of the project has been to develop a classification of sentences based on grouping structure and gesture.

The thesis is organized as follows. Chapter 1 serves as an introduction to and motivation for this research. Chapter 2 gives an overview of the literature in the field of sentence theory, after which Chapter 3 contains an evaluation of the literature discussed in Chapter 2. Chapter 4 then presents our sentence classification in detail. Chapter 5, finally, comments on the accomplishments achieved, and gives directions for future work.

It is advised to read the chapters and sections in the order in which they appear in this thesis. The intended reader has a solid background in music theory.

# Acknowledgements

First and foremost, I thank my supervisor Paul Scheepers for igniting my interest in phrase structure in general and sentence theory in particular, for countless hours of discussion on this topic and many other topics as well, and for the incredible meticulousness with which you reviewed my thesis. Every single discussion we had was both informative and pleasurable. I would also like to thank my teachers Martijn Hooning and Michiel Schuijer for your interest in my research, and for the occasional yet always fruitful discussion to sharpen my thoughts.

Additionally, my gratitude goes to John Koslovsky and Matthew BaileyShea for putting me on the right track for my literature study. I also thank Victor Oskam for helping me develop my understanding of rhythmical sentence structures.

Finally, I thank my parents Paul and Inge Pisters, and my girlfriend Julia Westendorp, whose never-ending love, support, and patience have been as important as anything else.

# Contents

# Chapter 1

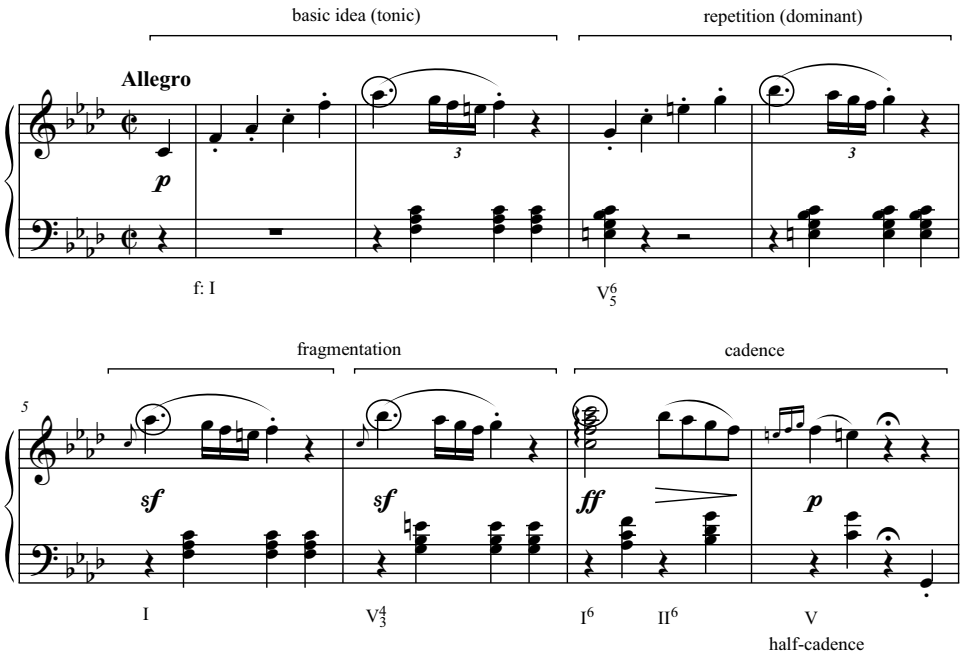
# Introduction

It is a well-acknowledged fact that the sentence plays a crucial role in classical phrase structure. Having been introduced by Arnold Schoenberg among his students in the first half of the twentieth century, the form has found its way into the writings on phrase structure of most theorists of later generations, often presented as one of two standard eight-measure theme paradigms, the other being the period. This approach can be traced from Schoenberg's *Fundamentals of Musical Composition*,[1] via his pupil Erwin Ratz (*Einführung in die musikalische Formenlehre*),[2] to William Caplin's monumental theory of *Classical Form*.[3] But also in the German music-theoretical literature has this approach found its way, for instance in the writings of Carl Dahlhaus[4] and Clemens Kühn.[5]

Although, as we will argue later in this thesis, at times considerable differences exist between some of these writings, practically all theorists mention the opening theme from Beethoven's piano sonata in f minor, opus 2 no. 1 (see Figure 1), as one of the most characteristic sentence-themes in the classical style. Indeed, this theme has come to represent the sentence in its ideal form more so than any other classical theme, featuring all the characteristics that have come to be typical of the form: a repeated basic idea, units of fragmentation and an increase in harmonic activity in the second half, an enormous sense of forward propulsion and motivic cohesion, and a half-cadence at the end providing an open-endedness that is very much in line with its forward drive. As such, it is often understood to be the counterpart of the much more balanced and self-contained period.

Matthew BaileyShea however has argued that focusing on this Beethoven theme as the ideal type for the sentence obscures the fact that the sentence can in fact be found in all sorts of different guises, forcing the analyst to all too often resort to the label "sentential" when discussing a theme that resembles the Beethoven theme, but which also lacks one or more of its characteristics. BaileyShea: "[T]he sentence is so "loose" by its very nature that it practically demands a single, clear *locus classicus* to ground what is, in practice, an extraordinarily elusive concept. (...) [H]owever, (...) such a strategy ultimately masks significant complications in defining the form. It also limits the range with which the form can be effectively utilized as an analytical tool. By defining the sentence in terms of a single, tightly knit model, and associating it with an explicit forward-striving "Beethoven rhetoric," especially in contrast to the period, theorists have oversimplified some crucial aspects of sentence structure."[6] BaileyShea therefore argues that multiple sentence models are needed to come to understand the full diversity of the form, providing four such models that we discuss in detail in Chapter 2.

[1] Schoenberg 1967
[2] Ratz 1973
[3] Caplin 1998
[4] Dahlhaus 1978
[5] Kühn 1998
[6] BaileyShea 2004, p. 9-10




In this thesis, we argue that, even taking BaileyShea's writings into account, some aspects of the sentence have remained underdeveloped, and that this situation sometimes prevents us from accurately describing sentential processes in the music of all sorts of styles and genres. There are essentially three issues that we argue have not received enough attention yet in existing theories – issues that we attempt to deal with in the current thesis.

Firstly, we intend to not focus on a single style or genre. Most theories do contain such a focus,[7] as a result of which a more or less style-independent sentence theory has as yet not been developed.

Secondly, when it comes to the classical style, we intend to not focus specifically on themes. Many transitions and development sections of classical sonata forms, for instance, exhibit clear sentential designs, i.e. grouping structure patterns that very much resemble those of sentence-themes. There has been little to no attention to such patterns in the literature. Our conceptualizations can partly be seen as an attempt to start to fill that gap.

Thirdly, we believe that sentential patterns can be encountered on multiple scales, and not exclusively on the scale of eight measures. Not only do we argue for the existence of miniature sentences on the scale of four measures, we also distinguish large-scale sentences which occasionally even cover more than thirty measures. There are, of course, limits to what can still be regarded as a sentence on very large scales, and we will speak of these limits also, but our approach is essentially scale-neutral.

In the remainder of this thesis, we therefore argue that it is crucial to our understanding of the sentence to approach it in a style-independent manner, focusing not only on the classical theme and not only on the standard eight-measure scale. Using these basic principles, we advance a classification of different sentence types based on grouping structure. We claim the sentence to be able to express a number of different gestures which are determined by the grouping structure of what is normally called the continuation. Using our grouping structure models, we also demon-

[7] For example, Schoenberg discusses mostly the classical style in Schoenberg 1967, as does Caplin in Caplin 1998 and other writings. BaileyShea has developed a theoretical framework for sentences outside the classical style in BaileyShea 2003, focusing on the style of Wagner's post-*Lohengrin* operas. Per Broman has written about sentential structures in the music of Bartók in Broman 2007, with an approach based mainly on Caplin and BaileyShea.

strate how different sentence models can interact, not only with each other, but also with other conventional forms such as the period.

In order to clarify our approach further, we start with a more detailed overview of the literature in Chapter 2. Chapter 3 then evaluates the literature in the context of the current study, after which Chapter 4 presents our sentence classification. Chapter 5 ends the thesis with some concluding remarks.

*A note on citations* – We have added no italics to citations. All italics in citations were added by the original author(s).

# Chapter 2

# An overview of the literature

In this chapter, we give an overview of the literature in the field of sentence theory. We focus on the state of the art in this field, which means that we provide an extensive summary of William Caplin's theory of classical form. It is the most comprehensive theory in the area of classical phrase structure to date, and thus of the sentence.

Since Caplin bases his theory explicitly on the writings of Arnold Schoenberg (the first theorist to describe the sentence) and Erwin Ratz, we discuss these authors as well.

Finally, we discuss a sentence classification developed by Matthew BaileyShea, who bases his sentence theory largely on the work of Caplin. This classification can therefore be seen more or less as an extension of Caplinian theory, although, as we will argue in Chapter 3, there are several important differences between both authors. We end this chapter with some concluding remarks in Section 2.5.

Of course, besides the authors covered in this chapter, many more theorists have written about the sentence in one way or another. Although we will mention some such theorists along the way, we do not include them in the current chapter, the goal of which is not to give an extensive historic survey of sentence theory, but to attempt to cover the most recent and most comprehensive writings in the field, to which the classification brought forth in Chapter 4 then forms a reaction.

Note that this chapter only provides summaries of the theories at hand. Evaluations thereof in light of the current study are given in Chapter 3.

## 2.1 Schoenberg

The concept of a sentence, as used in this thesis, was introduced by Arnold Schoenberg, initially only among his students. He gives an elaborate description of the phenomenon in *Fundamentals of musical composition*,[1] which was published posthumously in 1967, and can be seen as the result of his activities as a teacher in Los Angeles. The most important purpose of this textbook was "to provide for the average student of the universities, who has no special talent for composing or for music at all."[2] This purpose led Schoenberg to employ a set of musical "practice forms," which would guide the student towards musically appropriate results in a controlled, academic fashion. Regarding the construction of simple themes, Schoenberg distinguished two such practice forms: period and sentence.[3]

[1] Schoenberg 1967

[2] Schoenberg 1967, p. 214

[3] In Schoenberg's theory, period and sentence are theme types. No non-thematic fragments are discussed in terms of period or sentence. Regarding length, Schoenberg writes: "In the simplest case these structures consist of an even number of measures, usually eight or a multiple of eight (i.e. 16 or, in very rapid tempos, even 32, where two or four measures are, in effect, equal to the content of one)." His sixteen-measure examples 55a-c (composed

Schoenberg first sets out several basic principles with respect to the sentence, and proceeds to give numerous examples of themes from the literature. We follow this procedure in the next two sections.

### 2.1.1 Basic principles

The key characteristic of simple themes (period and sentence) lies in the concept of repetition. A sentence repeats its "primary phrase" or "basic motive"[4] instantly, whereas a period continues with contrasting material, only to postpone the required repetition until the beginning of the consequent. Central to this distinction is the concept of "comprehensibility": a primary objective of music is to be comprehensible, and for this a certain degree of repetition is essential. The period postpones this repetition until the last possible moment in a simple theme. The concept of variation can be applied in case a literal repetition is undesirable, but the recognizability of the material as such must not be jeopardized.

A common technique for realizing variation in the first half of the sentence consists of first presenting the "tonic form" of the basic motive, directly followed by the "dominant form." Schoenberg gives a table of harmonies that can be used in the dominant form, given the harmonic progression present in the tonic form, e.g. a tonic form of I–V can be answered by V–I in the dominant form, and a tonic form that uses only I is answered by a dominant form that uses only V.

The second half of the sentence "demands more remotely varied motive-forms," which is realized, at least in the practice forms, by the phenomenon of liquidation: "*Liquidation* consists in gradually eliminating characteristic features, until only uncharacteristic features remain, which no longer demand a continuation." The sentence is finally completed by a cadence, and does in this respect not differ from the period: "The end of a sentence calls for the same treatment as the consequent of a period. A sentence may close on I, V or III, with a suitable cadence: full, half, Phrygian, plagal; perfect or imperfect; according to its function."[5]

### 2.1.2 Examples

The book being a textbook as well as a theoretical treatise, the author proceeds to give numerous examples from the literature (mostly by Beethoven, Mozart and Haydn), so that his students can learn directly from the masters. Although he does not go into subsequent detail regarding precise terminology and definition with regard to musical phenomena that can and cannot occur in the sentence theme type, the examples nevertheless give a rough idea of his notion of sentence theory and the flexibility with which he applies it. In that respect, the following examples are the most remarkable.

Having already stated that the sentence can close with any kind of cadence, Schoenberg's citation of the first theme of Beethoven's piano sonata in c minor, opus 10 no. 1, first movement (not reproduced here), ends at measure 16, i.e. with dominant harmony in first inversion. In this case, Schoenberg seems to prefer thematic cohesion over cadential closure as a criterion for localizing the end of the sentence, as the perfect authentic cadence that follows directly afterwards is not included in the sentence.

Measures 5 and 6 need not necessarily develop thematic material presented in the first four measures. Schoenberg shows several examples, such as the beginning of Mozart's piano sonata in C major, KV 330 (see Figure 4.11 on page 57), in which measure 5 presents more or less new

by himself as examples, not reproduced here) seem to require a relatively slow tempo due to the harmonic rhythm, and therefore appear to be genuine sixteen-measure sentences.

[4] In Schoenberg's terminology, a phrase is a single musical gesture that usually occupies two measures. The basic motive is the phrase with which both period and sentence start.

[5] Schoenberg 1967, p. 58-59

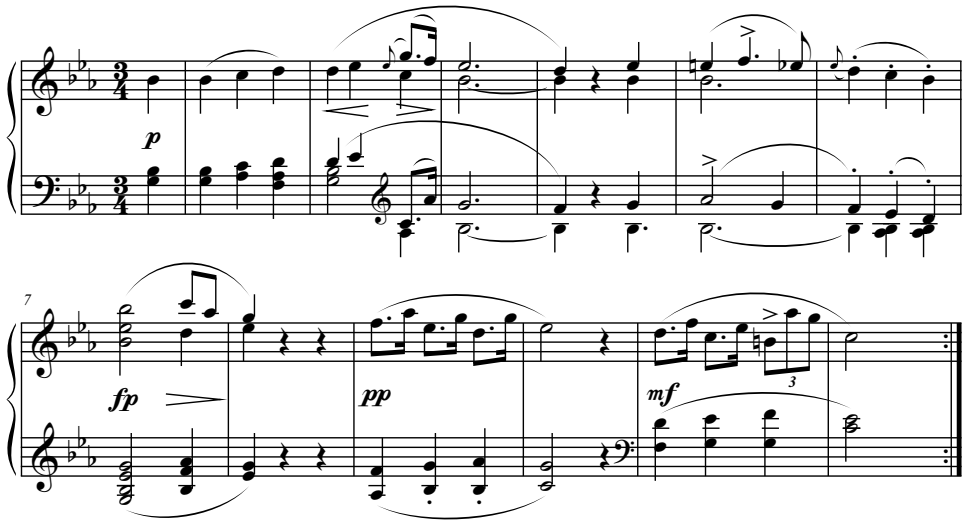



Figure 2.1: Schubert, piano sonata in E flat major, D 568, third movement

material. Nevertheless, in such cases, material derived from the basic motive tends to reappear towards the end of the sentence.

A sentence can be considerably lengthened, but also, more remarkably, shortened. Even structures that can be described as ternary, with three units of equal length (e.g. 4+4+4), can, according to Schoenberg, be interpreted as a sentence. Of the first twelve measures of the Menuet from Schubert's piano sonata in E flat major, D 568 (see Figure 2.1), Schoenberg remarks: "[A]nalysis as a sentence is supported by the similarity of the two segments, m. 1-4 and m. 5-8, to tonic form and dominant form. This hypothesis would lead one to expect a continuation of eight measures."[6] Again, we see that the repetition of the first phrase is used as primary criterion for the identification of the whole theme as a sentence.

Despite its obvious ternary organisation, this example from Schubert does employ what Schoenberg calls "condensing techniques" (i.e. groups of four measures are followed by groups of two measures), and this is indeed a primary characteristic of most sentences Schoenberg discusses. However, he also identifies sentences that do not exhibit this phenomenon, such as the first eight measures of Brahms' cello sonata opus 38 (see Figure 2.2). Schoenberg interprets measures 3 and 4 as a varied repetition of measures 1 and 2 (because of similarities in the rhythm), and again this initial repetition is crucial (even though the same material remains present, without any liquidation or condensing techniques, in the measures that follow).

This concept of repetition is given such strong importance that even musical fragments that do not contain a repeated unit of two measures at the beginning can be identified as a sentence, as long as the beginning displays some sort of repetitional pattern. Of measures 58 to 65 of Brahms' cello sonata opus 38 (see Figure 2.3), for instance, Schoenberg remarks: "[this fragment] has little in common with the practice form except for the repetitions of smaller segments (m. 5, 6) and the cadential process, in which the one-measure phrases of m. 3 and 4 are reduced to half-measure residues in m. 7-8, as confirmed by the phrasing in the accompaniment."[7] This would therefore be a sentence without a proper basic motive.

If such a basic motive does exist, a full repetition thereof is not required either: it is also possible that the repetition of this motive be interrupted half-way, as can be seen in the first eight measures of Haydn's piano sonata in B flat major, Hob. XVI:41, of which the fourth measure

[6] Schoenberg 1967, p. 61
[7] Schoenberg 1967, p. 62

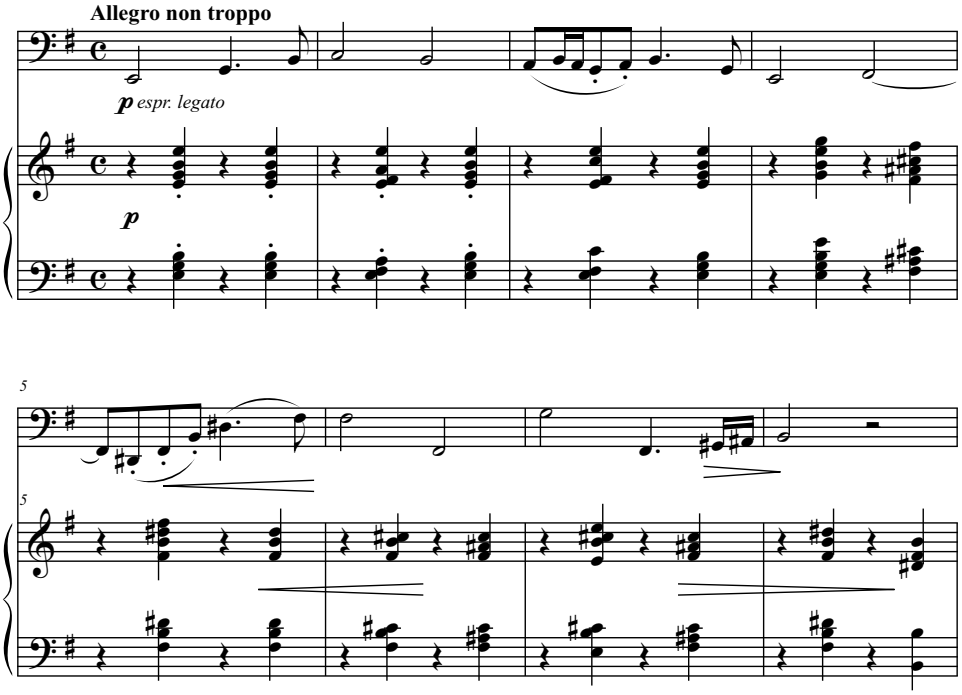



Figure 2.2: Brahms, cello sonata in e minor, opus 38, first movement

already presents condensing techniques (see Figure 2.4). Schoenberg nevertheless characterizes the theme as a sentence.

## 2.2 Ratz

In 1951, before the publication of *Fundamentals of musical composition*, Erwin Ratz, a pupil of Schoenberg, describes the sentence archetype in his book *Einführung in die musikalische Formenlehre*.[8] As Ratz states in the preface, the book is very much indebted to Schoenberg's legacy as a teacher. It is therefore quite remarkable that in Ratz's view, it is not the moment of repetition that is the crucial criterion for identifying a sentence, but the presence of the developmental process: "The eight-measure sentence (2 x 2) + 4, consists of a two-measure group, which is repeated and followed by a four-measure development, the essence of which is that part of the motives advanced in the two-measure group is dropped, resulting in a compression and acceleration of the musical process. In general, the development section also brings an increase in harmonic activity."[9] Ratz's use of the term development section ("Entwicklungsteil") to label the fifth and sixth measure of the typical eight-measure sentence is noteworthy, as such a label is absent in Schoenberg's terminology. Ratz's sentence necessarily possesses a forward-driving character and it is therefore by default closed with a half-cadence, which is more in accordance with the forward-going tendencies of the sentence than an authentic cadence, although such an ending is possible as well; Ratz mentions the opening theme of Beethoven's piano sonata in C major, opus 2 no. 3 (not reproduced

[8] Ratz 1973

[9] "Der achttaktige Satz (2 x 2) + 4, besteht aus einem Zweitakter, seiner Wiederhohlung und einer viertaktigen Entwicklung, deren Wesen darin besteht, das ein Teil der im Zweitakter exponierten Motive fallen gelassen und so eine Verdichtung und Beschleunigung der musikalischen Darstellung erzielt wird. In der Regel findet im Entwicklungsteil auch eine Beschleuniging in der harmonische Disposition statt." (Ratz 1973, p. 21-22)

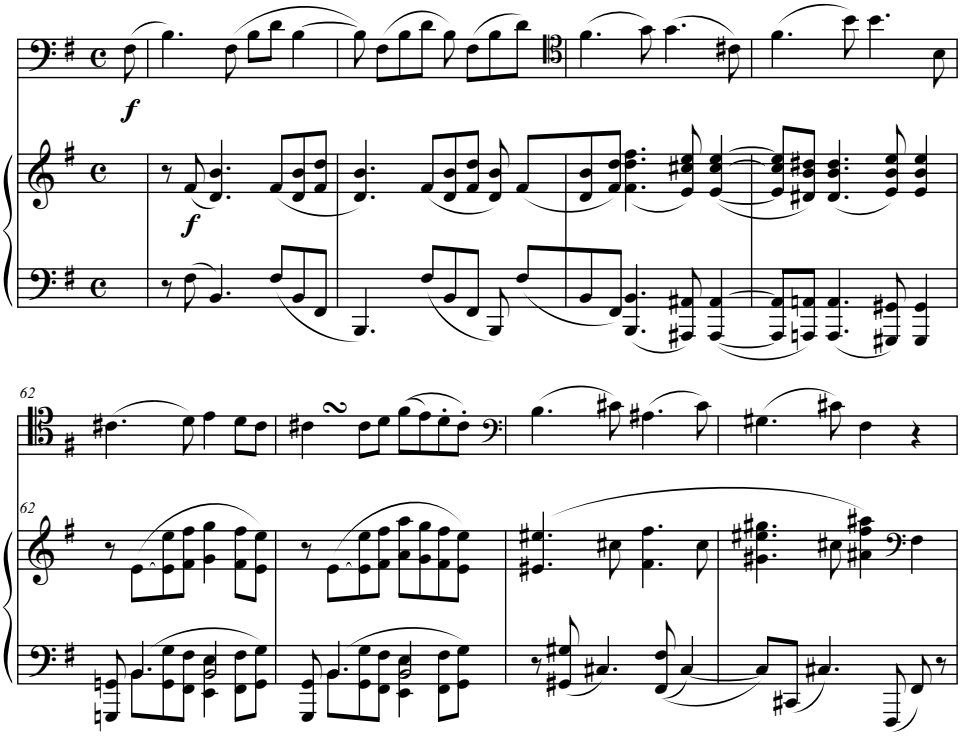



Figure 2.3: Brahms, cello sonata in e minor, opus 38, first movement

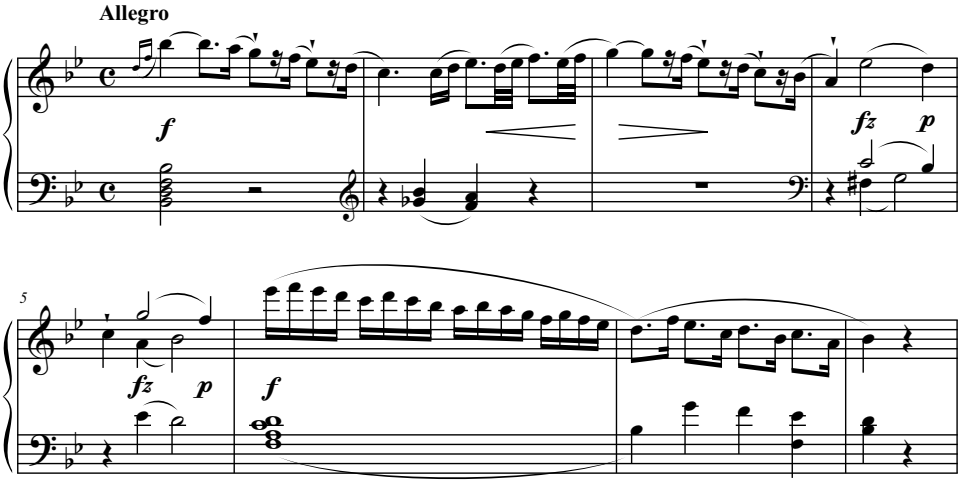



Figure 2.4: Haydn, piano sonata in B flat major, Hob. XVI:41, first movement

here), as an example of a sentence that ends with an authentic cadence.

As an example of the archetypal eight-measure sentence, Ratz cites the opening theme of Beethoven's piano sonata in f minor, opus 2 no. 1 (see Figure 1 on page 10), in which the speeding-up of the harmonic rhythm is considered exemplary, and analyzed as follows:

$$\begin{array}{lcccccccccc} & 2 & + & 2 & + & 1 & + & 1 & + & 1/2 & + & 1/2 & + & 1/4 & + & 1/4 \\ \text{f:} & \text{I} & & \text{V} & & \text{I} & & \text{V} & & \text{I} & & \text{II}^6 & & \text{I}^6_4 & & \text{V} \end{array}$$

The fact that Ratz divides the first half of the last measure in two quarter measures is especially remarkable, and illustrates nicely just how important this driving nature of the sentence is in his theoretical conception.

Ratz proceeds to mention that the sentence "as a construction principle" ("als Konstruktionsprinzip") can be found within other musical structures, like the period (in which antecedent and/or consequent can be constructed as a sentence) or the small ternary. He concludes with an analysis of the main theme of the second movement of Beethoven's piano sonata in E flat major, opus 7 (not reproduced here), which he describes as a small ternary ("dreiteiliges Lied") containing an eight-measure sentence at the beginning.

## 2.3 Caplin

In his 1998 book *Classical Form*,[10] William Caplin proposes by far the most comprehensive sentence theory to date. Not only that: the book proposes a complete theory of musical form for the instrumental music of Haydn, Mozart, and Beethoven. The pivotal concept of this theory is that of formal functions, which should enable the analyst to go further than simply unveiling the grouping structure of a work, and describe "the more definite role that [a certain group] plays in the formal organization of the work. For example, a given four-measure group may stand as an "antecedent" phrase in relation to a following "consequent"; an eight-measure group may serve as the "main theme" of a minuet; or a seventy-three-measure group may function as the "development section" in a sonata."[11]

The book, as Caplin acknowledges, is inspired directly by the writings of Schoenberg and Ratz, and can be seen as a working out into full detail of several concepts introduced more informally in Schoenberg's *Fundamentals* or Ratz's *Einführung*. The concept of formal functionality itself, for instance, originates from Ratz, and it is also because of this legacy that Caplin places the sentence, the period, and the small ternary at the center of his theory of classical thematic design.

Caplin defines the classical sentence as an eight-measure theme in which three formal functions are presented in direct succession: *presentation function*, *continuation function*, and *cadential function* – functions that depend heavily on local harmonic content. The first of these functions is presented in the *presentation phrase*,[12] which usually occupies the first four measures, the second and third functions are realized in the *continuation phrase*, usually found in measures five up till eight.

We discuss the presentation and continuation phrases in the next two sections. We then discuss the concept of loosely organized sentences and deviations from the norm, and conclude with an overview of so-called hybrid themes.

[10] Caplin 1998

[11] Caplin 1998, p. 9. It must be noted that Caplin does not provide dictionary definitions for the various formal functions he utilizes, a shortcoming he acknowledges and discusses in Caplin 2009.

[12] The term "phrase" is used by Caplin for a group of approximately four measures in length. By itself, it conveys no specific formal function.

### 2.3.1 Presentation phrase

The presentation phrase prolongs tonic harmony and consists of a two-measure *basic idea* with its direct repetition, and thus presents the theme's characteristic material to the listener. The repetition falls into one of three categories: "exact repetition," "statement-response repetition," which corresponds directly to Schoenberg's tonic and dominant form (see page 14), and "sequential repetition." The last category applies only in case both the melody and the harmony are transposed to a different scale-degree (a "melodic sequence" is not considered a genuine sequence by Caplin and is therefore considered of little importance in form-functional analysis). According to Caplin, repetitions of this category are rare, since sequential harmony typically does not prolong the tonic,[13] which is a necessary criterion for the sentence theme-type.[14]

### 2.3.2 Continuation phrase

The continuation phrase that closes the sentence typically brings material conveying continuation function, followed by material conveying cadential function. We discuss these functions separately in the next two sections. Some continuation phrases contain a fusion of these two functions – we discuss this phenomenon in Section 2.3.2.3.

#### 2.3.2.1 Continuation function

Continuation function, which can be found at the beginning of the second half of the sentence, is characterized by at least one of the following phenomena:

1. fragmentation,
2. acceleration of harmonic rhythm,
3. increase in surface rhythmic activity,
4. harmonic sequences.

Of these, fragmentation is encountered most frequently by far. This concept is taken directly from Schoenberg, who calls it *reduction* or *condensation*,[15] which is often found in combination with *liquidation* (which we discussed on page 14) – it means that the two groups of two measures from the presentation phrase are followed by groups of smaller size in the continuation phrase. This smaller grouping size is usually caused by repetition: the presentation phrase repeats its material after two measures, the continuation phrase contains a repeated one-measure idea. There need not be any motivic correspondence between presentation and continuation.

The other three phenomena are most often encountered in combination with fragmentation, but not always. Caplin cites the first eight measures of Mozart's violin sonata in A major, KV 402, as an example of a sentence of which the continuation phrase exhibits only an acceleration of the harmonic rhythm, and no fragmentation (see ahead, Figure 4.6 on page 52).

[13] Caplin mentions the first eight measures of Beethoven's piano sonata in G major, opus 14 no. 2 (not reproduced here), as a case of sequential harmony that does prolong the tonic. In his analysis, the harmony in measures 3 and 4 is labeled $II_2$, measure 5 brings $V^6$, and the tonic prolongation ends at the downbeat of measure 6, well into continuational material.

[14] There seems to be some ambiguity regarding this criterion, as Caplin initially, in a footnote, gives a number of examples of works that do start directly with sequential harmonies, such as the opening of Beethoven's Waldstein sonata, opus 53 no. 1. These examples, however, seem to be mere examples of sequential repetition, not of sentences starting with such a repetition. The examples discussed throughout the book indicate that sequential repetitions that do not prolong the tonic cannot be considered the presentation phrase of a sentence; for instance, on page 93, Caplin writes: "[T]he resulting lack of tonic prolongation prohibits us from speaking of a true presentation phrase."

[15] Schoenberg 1967, p. 58-59

#### 2.3.2.2 Cadential function

With respect to cadential function, which closes the sentence, Caplin remarks: "As a general rule, the boundaries of [cadential] function are limited by its underlying cadential progression. Thus, the initial harmony of the progression marks the beginning of cadential material (...) and the onset of the final harmony articulates the point of cadential arrival."[16] Indeed Caplin's theory also offers complete definitions, in terms of harmonic progressions, of the various classical cadences.

The presence of a cadential progression is however by itself not enough to realize cadential function. Another criterion must be met as well, which is central to Caplin's understanding of the concept of cadence: "A cadence essentially represents the structural *end* of broader harmonic, melodic and phrase-structural processes. Thus cadential function implies the presence of prior material – for example, presentational or continuational – on which the cadential function follows in order to effect thematic closure."[17] This follows directly from the fact that Caplin's formal functions are in fact an elaboration of Kofi Agawu's "beginning-middle-end" paradigm,[18] as Caplin himself discusses in more detail in the article *What Are Formal Functions?*.[19] In terms of this paradigm, cadential function corresponds to the "end," and without *initiating* and *medial* functions ("beginning" and "middle," respectively), there can be no such "end."

Cadential function has a distinct melodic component as well. This idea again originates with Schoenberg: whereas in material conveying presentation function the melody is highly characteristic for the work in question, cadential material often offers melodic material of more or less uncharacteristic nature. Indeed, the continuational material found in between typically strips the basic idea of some of its characteristics, leaving only fairly uncharacteristic material for the cadence. The term *liquidation* to characterize this process has also been taken directly from Schoenberg (see page 14).

A sentence must end with either a perfect authentic cadence, an imperfect authentic cadence, or a half cadence, which must be considered "the only genuine cadences in the classical style."[20] It is possible for a sentence to modulate to and close in another key.[21] A cadence can only be found at the end of the sentence; a presentation never closes with a cadence.

#### 2.3.2.3 Fusion

In some sentences, the cadential progression that concludes the theme is started immediately after the presentation phrase, i.e. at the beginning of measure 5 of the standard eight-measure sentence. The term continuation phrase is then replaced by the indication *continuation* ⇒ *cadential* ("continuation becomes cadential"). In such cases, Caplin says, "the cadential component vies for equal expression with the continuation function, or even surpasses it. (...) [W]hat we expect to be a continuation phrase (...) is understood retrospectively to be a cadential phrase based on an expanded cadential progression, a phrase that nevertheless contains continuational characteristics."[22] This phenomenon of two functions blended together in a single phrase is called *form-functional fusion*.

As an example of such a *continuation* ⇒ *cadential phrase*, Caplin cites the first eight measures of Haydn's string quartet in D minor, opus 42 (see Figure 2.5). Here, the cadential progression starts with the tonic in first inversion in measure 5, and covers the entire second half of the sentence, which is therefore labeled *continuation* ⇒ *cadential*. The fact that the tonic chord of measure 5 is included in the cadential progression results from Caplin's definition of the authentic cadence: "[a] *complete* cadential progression is made up of the fundamental harmonic functions

[16] Caplin 1998, p. 43
[17] Caplin 1998, p. 43
[18] Agawu 1991
[19] Caplin 2009
[20] Caplin 1998, p. 43
[21] Caplin notes that modulating sentences are most often found as a part of a larger structural organization, such as a small binary or a small ternary.
[22] Caplin 1998, p. 45-47

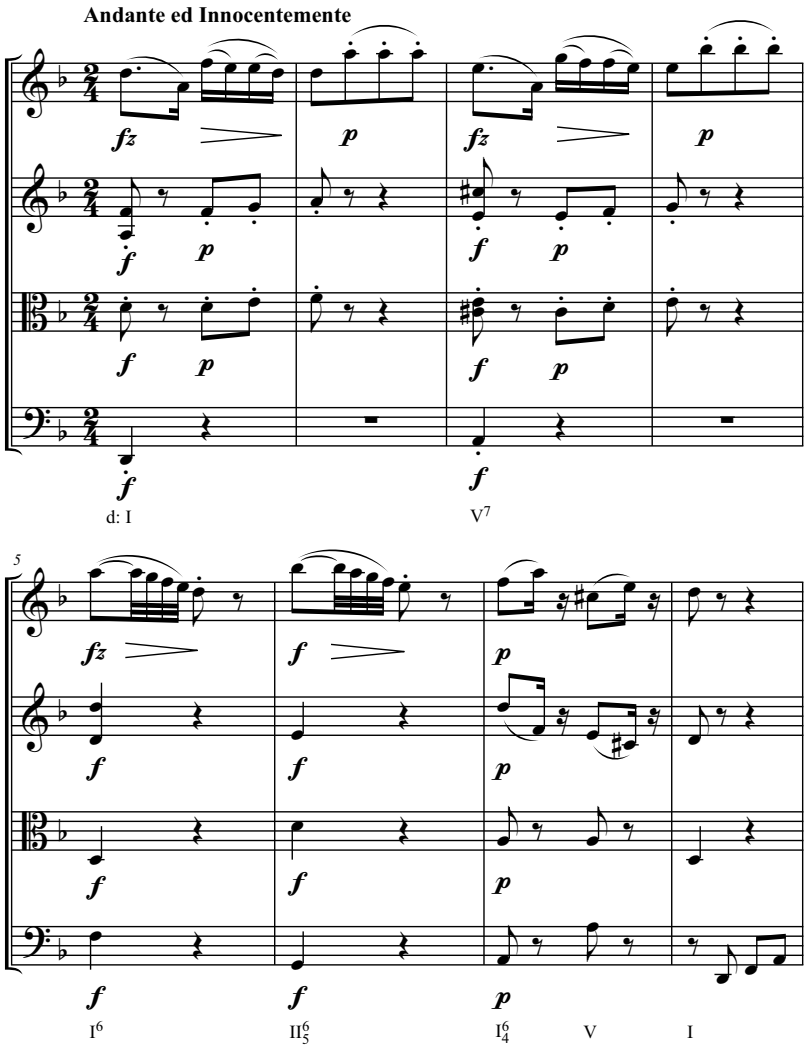



Figure 2.5: Haydn, string quartet in D minor, opus 42, first movement

in the following temporal sequence – tonic, predominant, dominant, and tonic."[23] The "basic form" of the authentic cadential progression in the classical style, according to Caplin's theory, is reproduced here in Figure 2.6.[24] Since in the Haydn example measure 5 already brings the tonic in first inversion, the cadential progression must be understood as starting at exactly that point, and the last four bars all possess cadential function.

### 2.3.3 Loose organization and deviations from the norm

An important aspect of Caplin's theory is the fact that a sentence, in its most typical form, is a tight-knit theme consisting of eight or sixteen measures. The distinction between tight-knit and loose organization stems from Ratz (the German equivalents are "fest gefügt" and "locker gefügt"). Without going into too much detail, one could think of tight-knit organizations as exhibiting symmetrical grouping structures, harmonic and tonal stability and cohesion in melodic-motivic

[23] Caplin 1998, p. 27
[24] Caplin 1998, p. 26, example 2.5a

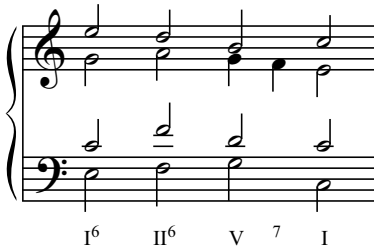



Figure 2.6: Basic authentic cadential progression in Caplin's theory of classical form

material, whereas loosely organized structures undermine one or more of these factors.[25] The main theme of a classical sonata movement is considered to be tight-knit by default; subordinate themes are almost always more loosely organized.

The characteristics of the sentence theme-type discussed thus far all concern tight-knit themes. With regard to loosely organized (subordinate) themes, Caplin remarks: "Most subordinate themes are constructed out of the three sentential functions – presentation, continuation, and cadential. One or more of these functions usually acquires a loose organization by means of various compositional techniques (...)."[26] He then proceeds to give an overview of numerous such techniques.

It must be made clear at this point that such loosely organized themes employing sentential functions are not considered genuine sentences, as Caplin remarks at an earlier stage in the book: "[W]e distinguish between a *sentence-like* (or *sentential*) structure and a genuine sentence, the latter being a specific tight-knit theme (...). In many cases (...), we recognize the presence of sentential characteristics without wanting to say that the resulting structure is a sentence proper."[27]

A substantially complicating factor now comes into play when we consider so-called "deviations from the norm" within *tight-knit* sentences. Caplin describes a limited amount of such deviations for the sentence theme-type: the presentation phrase, although hardly ever deviating from the norm, sometimes contains a basic idea longer than two measures;[28] the continuation phrase can deviate from the norm in three ways: extension of continuation function, expansion of cadential function,[29] and compression of the continuation phrase. Remarkably enough, the use of these four compositional devices is apparently not enough to render the whole theme loosely organized. Although this is not stated explicitly, one could suspect that the "deviations from the norm" receive this *status aparte* from the supposition that they can be found relatively frequently in main themes, whereas the other loosening techniques typically occur in subordinate themes.

The list of actual sentential loosening techniques is very long and contains a host of examples. We only give a short summary here, treating presentation phrase and continuation phrase separately in the next two sections. Subsequently, we discuss the limits to which a sentential structure can be loosened before it loses its key characteristics.

[25] Caplin's distinction between these two concepts is much more detailed, cf. Caplin 1998, p. 84

[26] Caplin 1998, p. 99

[27] Caplin 1998, p. 51

[28] Caplin cites the opening measures of the third movement of Mozart's G minor symphony, KV 550, as an example of a basic idea consisting of three measures (Caplin 1998, p. 41).

[29] Caplin speaks of "extension" when material of a certain function is being added when that function has in fact already been fully realized; "expansion" occurs when the material realizing a certain function surpasses the normative size. The latter technique is usually associated with cadential function.

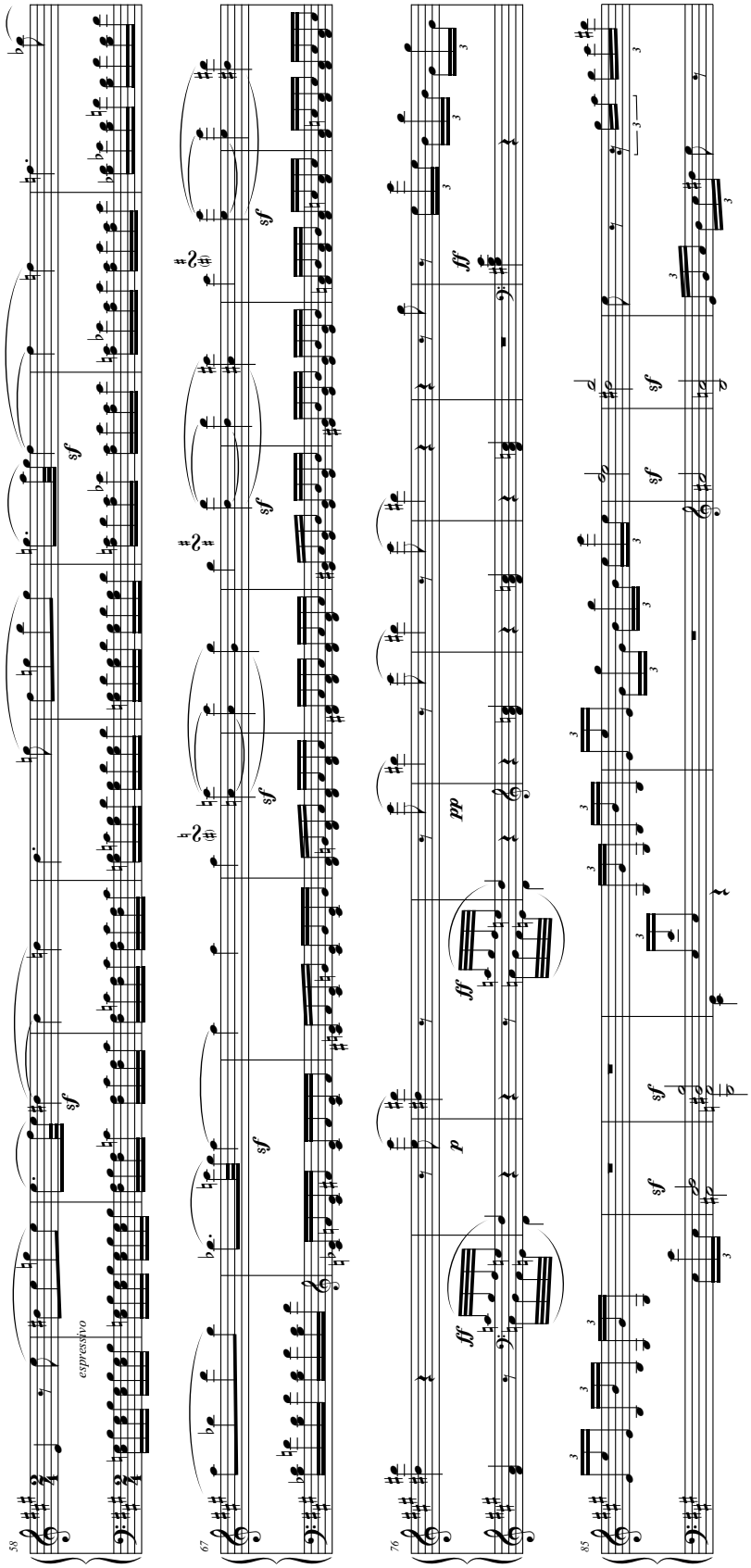



Figure 2.7: Beethoven, piano sonata in A major, opus 2 no. 2, first movement

#### 2.3.3.1 Presentation phrase

The presentation phrase can acquire a loose organization by an additional repetition of the basic idea, a repetition of the entire phrase, or weakening of the tonic prolongation. The latter can be realized by a number of techniques, viz. "by inverting the prolonged harmony, by placing the subordinate harmonies on metrically accented positions, or by undermining the prolongation with a dominant pedal."[30]

#### 2.3.3.2 Continuation phrase

One important loosening technique concerning the continuation phrase consists of separating the material with continuation function from the material with cadential function and assigning both their own distinct groups, which happens for instance in the subordinate theme of the first movement of Mozart's piano sonata in C major, KV 545 (not reproduced here).

Another very common technique extends continuation function by adding more fragmented units than the normative amount, thereby lengthening the continuation phrase. This also happens in the same Mozart theme from KV 545.

A third technique "delay[s] fragmentation by creating units of repetition that are initially the same size as those found in the presentation. In the absence of fragmentation, the sense of continuation must be expressed by other characteristics, such as an acceleration of harmonic change, quicker surface rhythms, or a harmonic sequence."[31]

Finally, cadential material can be loosened by extension (in which case a perfect authentic cadence fails to materialize directly) and expansion (when the cadential harmonies themselves are stretched out in time). Both loosening techniques have various subcategories, which we shall not discuss here.

#### 2.3.3.3 Loosening limits

As discussed above, classical composers can employ a wide variety of compositional techniques to render their themes loosely organized. In some cases, however, a theme is 'loosened up' to such a degree that it cannot be considered to be of a standard theme type. Below we discuss such situations with respect to the sentence.

A Caplinian presentation phrase must prolong tonic harmony. The reason this criterion applies also to loosely organized presentation phrases, is that sequential harmony necessarily entails continuation function. A sentential construction must provide presentation, continuation, and cadential functions (in that order), and therefore a theme starting with sequential harmonies can be considered neither a sentence nor sentential. Such a theme belongs to a separate category that is labeled "*Omission of an Initiating Function*," or, more specifically, to a subcategory thereof called "*Beginning with continuation function.*"

As an example of such a theme, Caplin cites what he calls the first subordinate theme from the first movement of Beethoven's piano sonata in A major, opus 2 no. 2, reproduced here in Figure 2.7. Caplin analyzes the theme as follows: measure 58 functions as an introduction, measures 59-83 exhibit continuation function (measures 59-76 make use of model-sequence techniques and measures 80-82 show fragmentation), and measures 84-92 (downbeat) are cadential, with an evaded cadence at the downbeat of measure 88 and a perfect authentic cadence at the downbeat of measure 92. Due to the lack of tonic prolongational harmony at the beginning of the theme, Caplin makes no reference to the sentence or to a sentential structure in his analysis.

A second interesting class of themes are those that are supported in its entirety by an expanded cadential progression. Caplin states that such themes indeed start with cadential function, and

[30] Caplin 1998, p. 99
[31] Caplin 1998, p. 100

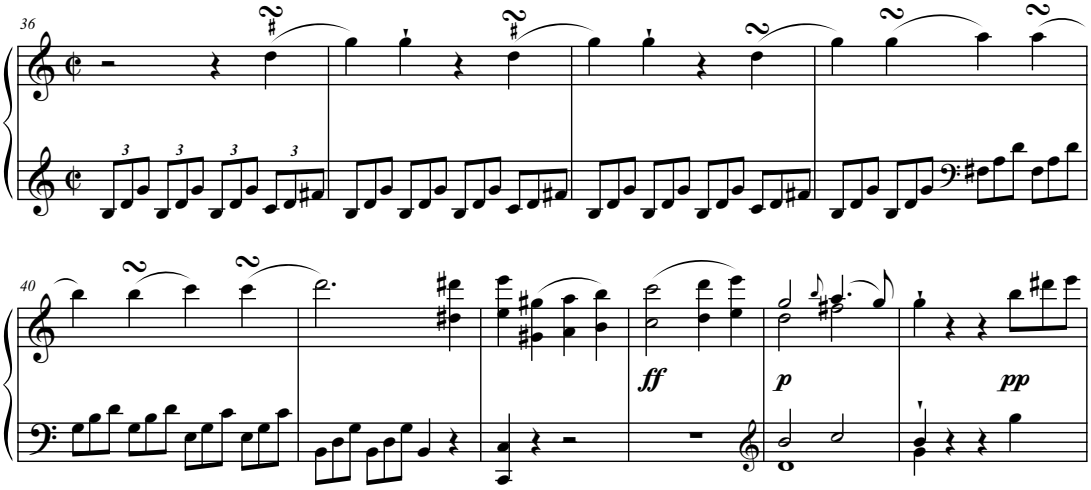



Figure 2.8: Haydn, piano sonata in C major, Hob. XVI:35, first movement

typically does not refer to the sentence or to sentential characteristics, even when the repetitional patterns usually associated with the sentence can easily be seen to be present in the theme. Again, such themes cannot be considered sentential because they do not pass through all three required functions (presentation, continuation, and cadential). Indeed, this theme-type also belongs to the category "*Omission of an Initiating Function*," more specifically to the subcategory "*Beginning with cadential function.*"

An example of such a theme comes from the first movement of Haydn's piano sonata in C major, Hob. XVI:35, reproduced here in Figure 2.8. Here we must recall that the cadential progression $I^6$–$II^6$–$V^7$–I is considered the basic authentic progression by Caplin (see Figure 2.6 on page 22). In this Haydn theme, the first six measures all prolong tonic harmony in first inversion, after which the cadence is finally fully realized. For this reason, cadential function is already present at the beginning, and although the theme starts with an immediate repetition of (one-measure) material, followed by fragmentation of this material, finally closing with a perfect authentic cadence, it cannot be considered a sentence. Moreover, Caplin remarks that the opening of the theme does not resemble a basic idea (which is almost always two measures in length), and therefore the case for labeling the beginning as presentational is further weakened.[32]

### 2.3.4 Hybrid themes

The last feature of Caplin's sentence theory that must be mentioned here, is the notion of so-called *hybrid themes*. A hybrid theme combines characteristics of both the sentence and the period, and is, like sentence and period, eight measures in length in its standard form. Caplin distinguishes four categories of hybrid themes; here, we discuss only two, which are labeled *antecedent + continuation* and *compound basic idea + continuation*.[33]

A hybrid theme of the first category, *antecedent + continuation*, starts like a period and ends like a sentence: the first four measures form a so-called *antecedent phrase*,[34] the remainder is constructed as a continuation phrase. An example of such a theme can be found at the beginning

[32] Caplin discusses a third subcategory of themes omitting initiating function, called "*Beginning with standing on the dominant.*" We do not discuss this subcategory here.

[33] The other two categories of hybrid theme types are called *antecedent + cadential* and *compound basic idea + consequent*.

[34] "Antecedent phrase" is the name of the opening phrase of a period. It consists of a two-measure basic idea (just like a sentence) followed by a two-measure *contrasting idea*. The antecendent phrase ends with a weak cadence.

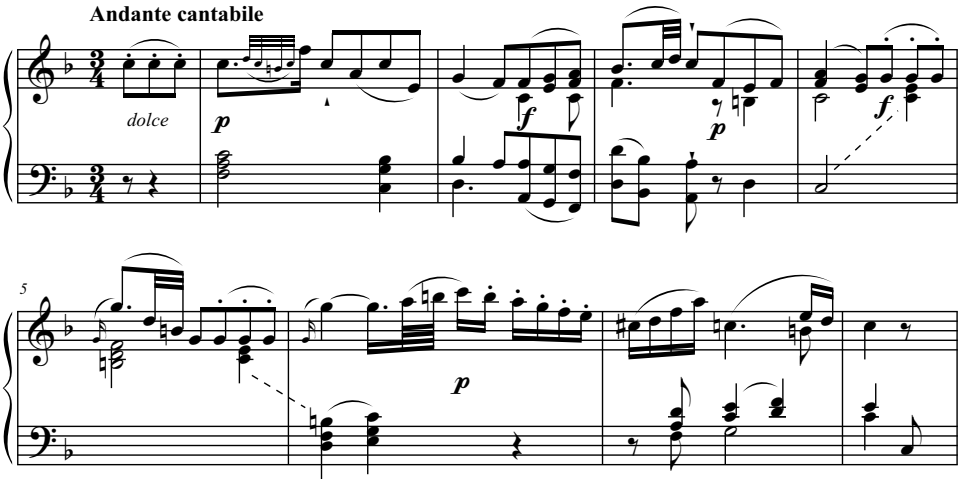



Figure 2.9: Mozart, piano sonata in C major, KV 330, second movement

of the second movement of Mozart's piano sonata in C major, KV 330 (see Figure 2.9). Caplin: "The first phrase is a standard antecedent – a two-measure basic idea followed by a contrasting idea ending with a half cadence. The second phrase begins with new material and modulates to the dominant region. Since the basic idea does not return, the phrase cannot be considered a consequent. Rather, the phrase projects the most typical feature of continuation function – namely, fragmentation of the preceeding two-measure ideas into one-measure units."[35]

The other class of hybrid themes, *compound basic idea + continuation*, resembles the first, but is different in the organization of the first four measures. A *compound basic idea* is similar to an antecedent, but does not realize a (weak) cadence at its end. Caplin defines the term as follows: "An initiating intrathematic function. It is a four-measure phrase consisting of a basic idea followed by a constrasting idea, which does not lead to cadential closure. It usually is supported by a tonic prolongational progression."[36] It is in itself already considered a hybrid construction due to the fact that it resembles an antecedent phrase in its melodic-motivic content and a presentation phrase in its use of tonic-prolongational harmony.

The opening measures of Haydn's piano sonata in C major Hob. XVI:35 (see Figure 2.10) are an example of such a theme. The first four measures resemble an antecedent, but since the contrasting idea, in its entirety, stands on the dominant, one cannot identify a half cadence at the beginning of measure 4. Therefore, the first four measures are labeled compound basic idea. The continuation phrase is labeled as such due to fragmentation and an acceleration of the harmonic rhythm.

## 2.4 BaileyShea

In the article *Beyond the Beethoven Model: Sentence Types and Limits*,[37] Matthew BaileyShea develops a classification of sentences based on Caplin's theory of formal functions. As BaileyShea argues, trying to understand the sentence by means of only a single archetype (the opening theme from Beethoven's opus 2 no. 1 piano sonata, used by practically all theorists writing on this topic) greatly obscures the fact that the sentence is a highly adaptable form which can be encountered

[35] Caplin 1998, p. 59
[36] Caplin 1998, p. 253
[37] BaileyShea 2004

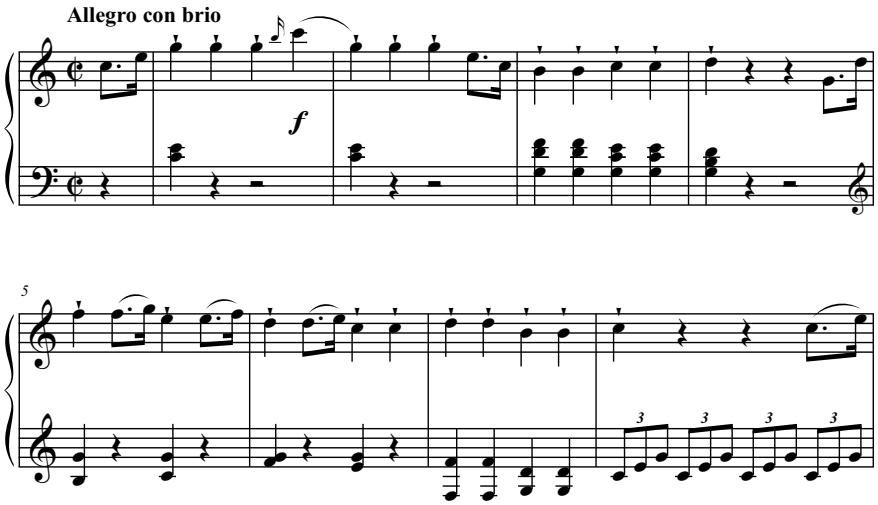



Figure 2.10: Haydn, piano sonata in C major, Hob. XVI:35, first movement

in multiple guises in various musical styles throughout history. Multiple sentence models are therefore needed to understand the sentence in all its potential.[38]

BaileyShea understands the sentence essentially to be a form with a hypermetric gestural quality, but he combines this idea with Caplin's formal functions: "From a hyper-rhythmic point of view, the sentence is best represented as a three-part gesture: short/short/long. Yet when considered from the perspective of Caplin's formal functions, it makes more sense to define it in two distinct parts: a 'presentation phrase' and 'continuation phrase'."[39] As a result, he largely adopts Caplin's sentence theory, employing such terms as presentation and continuation phrase, basic idea, tight-knit versus loosely-knit, etc., and reducing the importance of melodic-motivic material in analytical considerations. There are however two important differences between Caplin's and BaileyShea's sentence theories, one concerning the presentation phrase, the other concerning the continuation.

Firstly, BaileyShea rejects Caplin's view on the presentation phrase in that it must prolong tonic harmony. BaileyShea argues that if we wish to distinguish sentential gestures in music from other styles and genres than the instrumental music of Mozart, Haydn, and Beethoven, this criterion is simply too strict: "(...) tonality is not a *necessary* aspect of the form. Indeed, it is not hard to imagine a short/short/long proportion in which an idea is presented, repeated, and dissolved into continuation without any trace of common practice tonality."[40] That being said, BaileyShea adopts all other Caplinian criteria for the presentation phrase, meaning it consists of a basic idea of one to four measures that is repeated in one of three ways: exact (possibly with slight variations), statement-response, or sequential.

Secondly, BaileyShea emphasizes the importance of giving consideration to the internal grouping structure of the continuation phrase. Caplin's theory of classical form reduces the importance of grouping structure drastically, as Caplin explains in the introduction to *Classical Form*: "(...) formal functionality arises from harmonic, melodic, and rhythmic processes that are not necessarily the same as those that create the work's grouping structure. Function and group are often congruent, but this need not always be the case."[41] BaileyShea, on the other hand, writes: "Internal grouping structure is especially significant in the context of the continuation phrase. Even within

[38] A precursory classification is given in BailyShea's PhD dissertation (BaileyShea 2003), which differs on a number of accounts from the later classification found in the article. We restrict this discussion to the later classification.
[39] BaileyShea 2004, p. 10
[40] BaileyShea 2004, p. 11
[41] Caplin 1998, p. 4

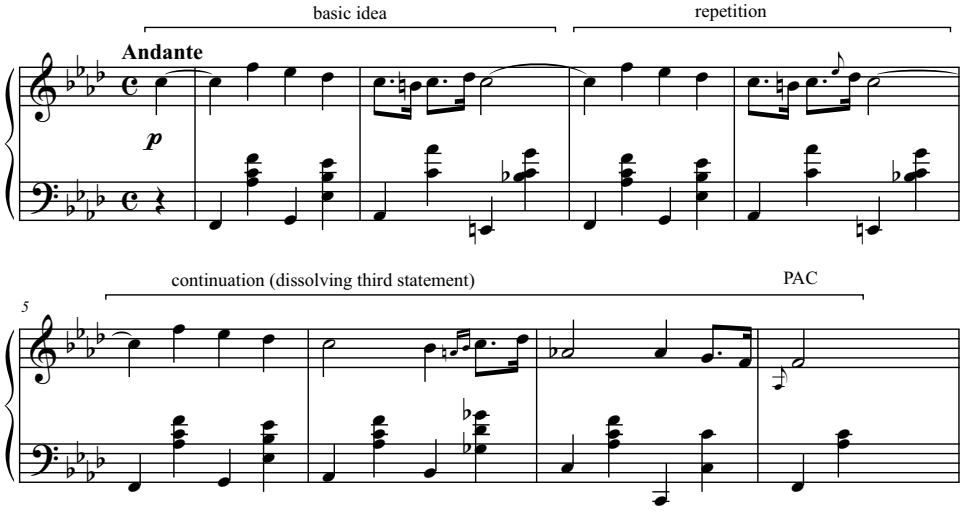



Figure 2.11: Chopin, Nocturne in f minor, opus 55 no. 1, with BaileyShea's analytical annotations

the Classical and early Romantic periods we can identify a variety of distinct sentence designs based largely, though not entirely, on the grouping structures of the continuation."[42] This focus on grouping structure enables BaileyShea to discuss sentences in a wide variety of musical styles, stating that, to a certain degree, "sentence expression does not depend upon common practice tonality,"[43] which is a significant deviation from Caplinian theory.

According to BaileyShea it is indeed the continuation phrase that is the most problematic when defining the form, and therefore the sentence had better not be understood as requiring a single, normative continuation. It is on the shape of the continuation phrase that BaileyShea bases four sentence models. All four, however, are seen as manifestations of the short/short/long gesture that is taken as the essence of the sentence. We discuss each model below.

### 2.4.1 Sentences with a dissolving third statement

A sentence with a dissolving third statement does not typically involve motivic fragmentation at the beginning of the continuation phrase,[44] but rather seems to state the basic idea a third time before entering "an undifferentiated process of dissolution,"[45] ultimately arriving at a cadence.

An example of such a sentence can be found at the beginning of Chopin's Nocturne in f minor, opus 55 no. 1, see Figure 2.11.

### 2.4.2 Sentences with a sentential continuation

In the second sentence model, the continuation phrase of the sentence is shaped like a miniature sentence in itself. This is the case when the beginning of the continuation features fragmentation techniques, which then results in a short/short/long gesture (regarded as one of the essential characteristics of the sentence by BaileyShea) on a smaller scale. The theme opening Beethoven's f minor piano sonata opus 2 no. 1 (Figure 1) belongs to this category, as do a host of other

[42] BaileyShea 2004, p. 13
[43] BaileyShea 2004, p. 13-14
[44] Although BaileyShea notes that fragmentation can be found in this sentence model, it is a more typical feature of the second model: sentences with a sentential continuation.
[45] BaileyShea 2004, p. 13

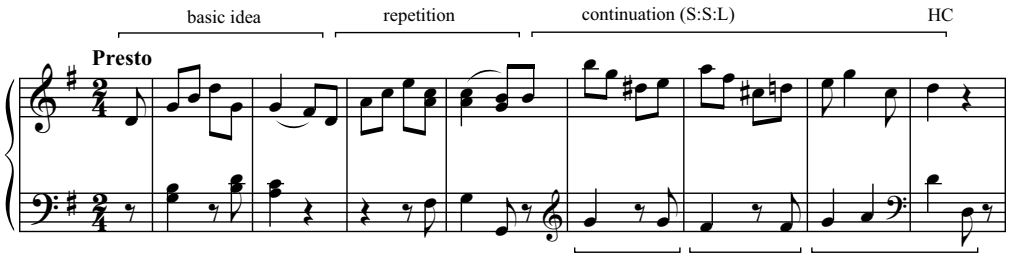



Figure 2.12: Haydn, piano sonata in G major, Hob. XVI:27, third movement, with BaileyShea's analytical annotations

classical themes. As another example, BaileyShea cites the theme from the final movement of Haydn's piano sonata in G major, Hob. XVI:27, see Figure 2.12.

It must be noted that, despite his acknowledgement of a continuation constructed as a miniature sentence, BaileyShea is cautious in accepting sentences on any other level than the standard eight-measure theme: "(...) the existence of a 'mini-sentence' (...) cannot go unchallenged. No matter how 'loose' sentences may appear, there are, of course, perceptual (and conceptual) boundaries in terms of size. (...) it is impossible to define the sentence in meaningful terms if it includes drastically different sizes, whether larger or smaller than the eight-bar scheme. (...) Still, the internal recurrence of the short/short/long proportion (...) does underline the significance of this rhythm as a primary impulse in the articulation of the form."[46]

An especially remarkable side-effect of accepting the possibility of a continuation shaped as a miniature sentence is the fact that, in the standard eight-measure theme, measure 5 were to express both the beginning of a "long" gesture (in the eight-measure sentence) and a "short" gesture (in the miniature sentence) simultaneously. BaileyShea writes: "(...) the continuation represents a longer, extended outgrowth of the sentence beginning (2+2+4), but on the other hand it involves a breaking down of the initial segments leading to cadence (2+2+1+1+cad.). Neither of these representations necessarily contradicts the other, but they do illustrate the complexity with which we hear such sentence types."[47]

### 2.4.3 Sentences with an AABA design

Sentences with an AABA design feature a 2+2+2+2 grouping structure. The third group of two measures often presents motivic material that contrasts with the basic idea, while the last group reiterates the basic idea one more time over the harmonies of the cadence. BaileyShea presents the fragment from Wagner's overture to *Der fliegende Holländer* given in Figure 2.13 as an example of this sentence model.

He goes on to note that "these sentences tend to be reserved strictly for thematic material. The design has an almost periodic balance to it and thus cannot be easily incorporated into looser sentential regions like the other two types. It is also particularly notable for its folk-like simplicity and is often reserved for vocal contexts."[48]

### 2.4.4 Sentences as Fortspinnungstypus

BaileyShea bases his fourth and last sentence model on Wilhelm Fischer's *Fortspinnungstypus*,[49] which comprises three parts: *Vordersatz*, *Fortspinnung*, and *Epilog*. BaileyShea notes that these

[46] BaileyShea 2004, p. 17-18
[47] BaileyShea 2003, p. 57
[48] BaileyShea 2004, p. 18-19. Another example given by BaileyShea is the folk tune Happy Birthday.
[49] Introduced in Fischer 1915.

correspond more or less to Caplin's presentation, continuation, and cadential functions, the main difference being that Fischer does not speak of a repeated basic idea in the *Vordersatz*. BaileyShea's fourth sentence model bears resemblance to the *Fortspinnungstypus* in the following two ways.

Firstly, the distinction between *Fortspinnung* and *Epilog* can be found in sentences in which continuation function and cadential function are expressed in two distinct groups (this is a loosening technique already observed by Caplin). Secondly, and more importantly, this fourth sentence model, like the *Fortspinnungstypus*, is typically larger than eight measures in length, and cannot easily be associated with a normative eight-measure model.

An example cited by BaileyShea is the opening of Mozart's C major piano sonata, KV 545, reproduced here in Figure 4.21.

It is remarkable to note that although BaileyShea adopts Ratz's and Caplin's notion of loosely-knit sentences, the sentence as *Fortspinnungstypus* must be regarded as a distinct sentence type in its own right: "Naturally, in Caplin and Ratz's system, this last type would fall under the general category of 'loosely knit sentences,' a fact with which I would agree. But the dichotomy between tightly and loosely knit forms, however useful, should not obscure the existence of alternative sentence types (...)."[50] Nevertheless, he does acknowledge that the sentence as *Fortspinnungstypus* "is more easily incorporated into loosely-knit contexts than other sentence types."[51]

## 2.5 Concluding remarks

We have seen that, despite the fact that each of the four authors discussed in this chapter explicitly builds his theory on his predecessors, there are still some noteworthy differences between them. These differences concern even the very essence of the sentence: for Schoenberg, the essence lies in the location of the first repetition, which ought to occur in measures 3-4 of the standard eight-measure model. In Ratz's model, the presence of a development section and a forward-striving character are most typical for the sentence. In Caplin's theory, the essence of all form, be it sentence, period, or anything else, is driven by tonality and local harmonic content. BaileyShea, finally, pleads for paying more attention to hypermetric grouping structure, while releasing Caplin's strictest harmonic criteria.

One can only conclude that apparently the sentence is a highly elusive concept of which even the essence is hard to pin down. A sizable theoretical framework seems to be necessary in order to fully understand the form and to be able to account for the multiplicity of appearances that it can assume. The development of such a framework is most explicitly pursued by Caplin and BaileyShea. The next chapter presents an evaluation of their sentence theories in light of the current study.

[50] BaileyShea 2004, p. 22
[51] BaileyShea 2004, p. 19

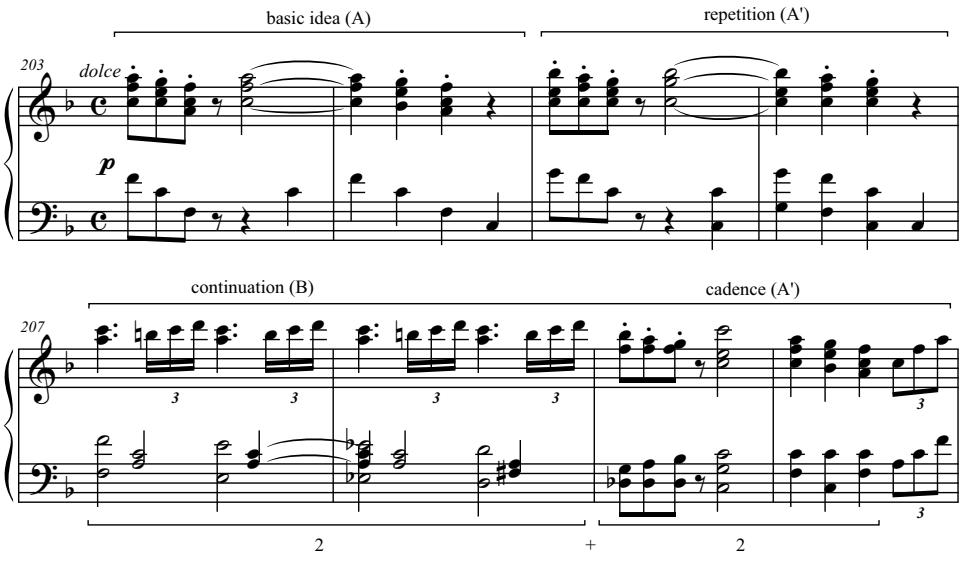



Figure 2.13: Wagner, *Der fliegende Holländer*, overture, measures 203 ff., with BaileyShea's analytical annotations

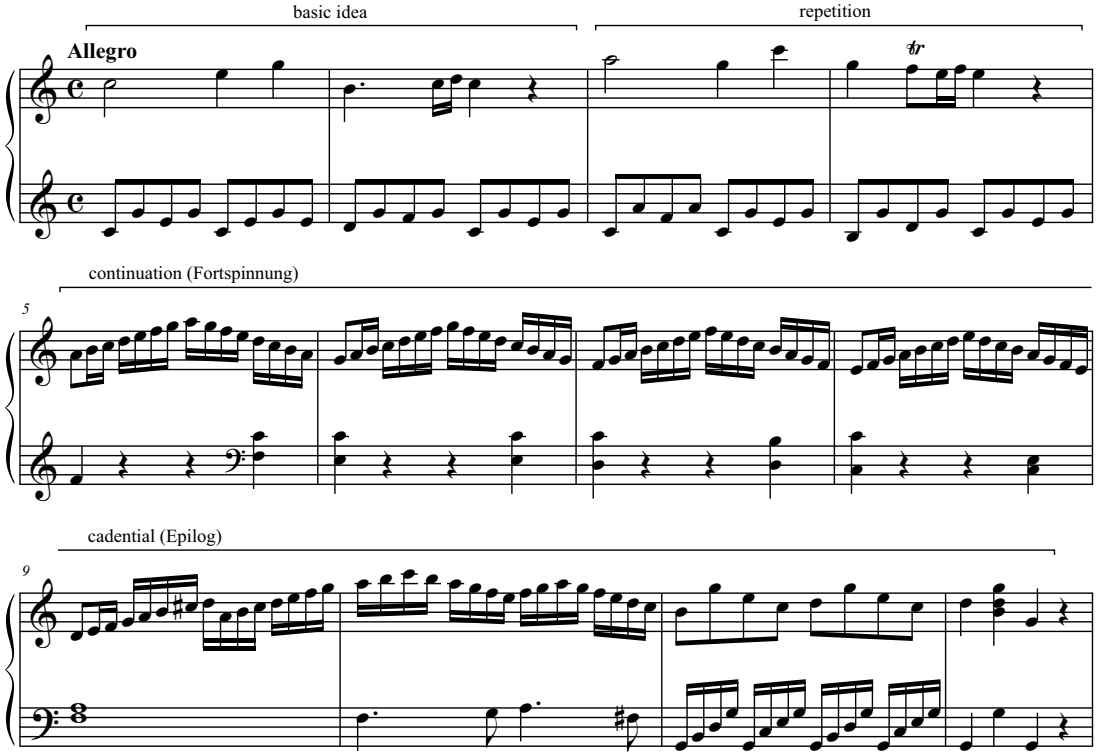



Figure 2.14: Mozart, piano sonata in C major, KV 545, first movement, with BaileyShea's analytical annotations

# Chapter 3

# An evaluation of the literature

In this chapter, we give an evaluation of the literature in the field of sentence theory. We restrict this discussion to the most comprehensive and recent writings on the sentence thus far, namely William Caplin's theory of classical form, and the sentence classification partly based on Caplinian theory by Matthew BaileyShea. The writings of both authors have been summarized in the previous chapter.

We discuss both authors in a separate section below, and finish this chapter with some concluding remarks.

## 3.1 Caplin

One must be careful when evaluating and, consequently, criticizing a theory as comprehensive and analytically powerful as Caplin's. Studying the theory gives one numerous insights into the classical style that one perhaps would never have attained without it, and it is arguably as thorough and systematic as any theory on this material could get. Nevertheless, we respectfully state that criticism on several points is necessary in light of the current study. Our main objections concern the very core of the theory, namely the fact that local harmonic progressions are taken as the essential deciding factor in form-functional analysis. This is clear already from Caplin's labeling of the various formal functions, "cadential function" bearing a direct and clear implication with respect to harmonic content. Most other functions have harmonic ramifications as well: material possessing presentation function prolongs the tonic, as does a compound basic idea, harmonic sequences imply continuation function, an antecedent ends with a weak cadence, a compound basic idea does not, etc.

We claim that this focus on harmony can become a significantly complicating factor when performing form-functional analysis. We state six objections against such a focus, in which we concentrate on issues that arise when analyzing sentences or sentence-like structures, although our objections often concern the theory as a whole and as a result advance a critique of the concept of formal functions as well.

*1. A focus on local harmonic progressions complicates the consideration of musical context in formal analysis.*

Since local harmonic progressions are taken as the primary criterion in formal analysis, it is in principle not possible to consider the context in which such a progression occurs. In case a theme begins with an expanded cadential progression, the theme's opening measure necessarily already exhibits cadential function, despite the fact that there is no previous material that the

cadential progression would bring to a close.[1] The same goes for a theme beginning with sequential harmonies and the resulting continuation function. The category "Omission of an Initiating Function" provides a theoretically plausible construction to accomodate such themes, but in the end it inevitably poses the question: if it is truly possible to *begin* a theme with material of *non-initiating* quality, then what do we mean when we label that material as such? In other words: what is the exact meaning behind the concept of formal functions?

As noted before, in the article *What Are Formal Functions?*[2] Caplin admits that this question has not yet received a satisfactory answer. The article is not meant to settle the matter once and for all, but rather serves as an exploration of several concepts in order to gain further insight into the notion of formal functionality. The most important of these concepts is that of *musical temporality*: "Central to our experience of time in general is our ability to perceive that something is beginning, that we are in the middle of something, and that something has come to an end."[3] What follows is an analysis of the relationship between this temporal beginning-middle-end paradigm and formal functionality.

Caplin gives an analysis of the first movement of Beethoven's symphony no. 1 in C major in terms of "beginning," "middle," and "end" labels, which are hierarchically organized to a significant degree. For instance, of the beginning of the second subordinate theme (measures 77-80, g minor) Caplin remarks: "This passage can be understood, moving from the surface to the background, (...) as the 'beginning,' of the 'middle,' of the 'end,' of the 'beginning,' of the entire movement."[4] What is meant by this statement is that we perceive these measures to be the beginning of the second subordinate theme, which is in the middle of the subordinate theme group, which ends the exposition, which opens the movement.

Although one could argue for this type of reasoning, things become less clear when Caplin subsequently associates formal functions with all these hierarchically ordered beginning-middle-end labels, resulting in a transformation of the beginning-middle-end paradigm into the formal function paradigm. This causes the "beginning" label to be associated with presentation as well as continuation function, with antecedent as well as consequent, and the "middle" and "end" labels with continuation as well as cadential. One is almost inclined to think that all combinations are possible, which is, ironically enough, the exact opposite of what Caplin is trying to demonstrate.

But regardless of the details in this particular analysis, it is clear that Caplin's understanding of formal functions goes beyond the identification of mere syntactic categories and actually involves the listener's experience of musical time. However, when we combine this principle with the fact that local harmonic progressions more or less dictate formal functionality, in the end it amounts to claiming that experiencing a certain harmonic progression necessarily results in a fixed temporal experience, and that the context in which this harmonic progression occurs is more or less irrelevant. Consider the beginning of the first subordinate theme of Haydn's piano sonata in C major, Hob. XVI:35 (see Figure 2.8 on page 25).[5] The theme is preceded by such a clearly articulated medial caesura that we suspect the vast majority of listeners to experience a *beginning* of the first subordinate theme in measure 36, not its ending, not even the beginning of the end. To claim that these listeners would possibly reinterpret measure 36 as cadential once the theme has ended is fair enough, but the claim that this also entails a "reinterpretation of musical time" would need substantial evidence as back-up, evidence that is currently lacking.[6]

[1] The only contextual requirement for cadential function seems to be that at the moment of cadential arrival, it must be possible to identify a certain musical process of significant proportions that is being brought to an end. For this reason, a theme that starts with a cadential progression of which the cadential arrival occurs before the end of the theme is not considered to start with cadential function, nor is the cadential progression to be associated with a true cadence. An example of such a theme can be found at the beginning of the trio of the third movement of Mozart's symphony no. 41 in C major, KV 551, discussed in detail in Caplin 2004 (not reproduced here).

[2] Caplin 2009

[3] Caplin 2009, p. 23

[4] Caplin 2004, p. 25

[5] The first subordinate theme of Beethoven's piano sonata in E flat major, opus 31 no. 3 (see Caplin 1998, p. 114, example 8.13(a)) is a similarly problematic example, discussed in this thesis on page 38.

[6] Of particular interest with respect to the experience of musical time is Vallières et al. 2009, which reports

*2. A focus on local harmonic progressions complicates the identification of sentential structures on other structural levels than the eight-measure theme.*

Sentential structures on other levels than the eight-measure theme receive only very limited attention by Caplin, as the harmonic basis required for the identification of sentences very often disappears when looking at smaller or larger structures.[7] Caplin does note that the antecedent phrase of a period can resemble a small-scale sentence in case the contrasting idea features continuational characteristics such as sequential harmonies and fragmentation. In case the basic idea consists of a one-measure idea that is immediately repeated, the design as a miniature sentence is even more clearly articulated. Caplin cites the first four measures of the first movement of Mozart's piano sonata in A major, KV 331 (not reproduced here), as an example of such an antecedent, which, as Caplin accentuates, is not a genuine sentence, but instead must be said to contain sentential characteristics. The term sentence can only be used when discussing themes on the eight or sixteen-measure scale.

It is his harmonic focus that causes Caplin to skip over the sentential design of, for instance, measures 3 and 4[8] of the opening of the second movement of Mozart's piano sonata in F major, KV 332 (see Figure 3.1), even though these measures clearly contain the statement and re-statement of a half-measure idea, followed by fragmentation into quarter-measure units, ending with a closing gesture and a cadence. Caplin ignores this build-up since measure 3 does not prolong the tonic and therefore cannot be associated with presentation function. As a result, he does not distinguish an entire class of sentence-themes that contain a miniature sentence (or sentential) in the second half, very much comparable to the antecedent-as-sentential construction he does acknowledge.

*3. A focus on local harmonic progressions complicates the identification of sentential structures in transitional and developmental passages.*

The harmonic organization of transitional and developmental passages often differs from that of themes in that tonic prolongation (and therefore presentation function) can be found relatively frequently at the beginning of themes, but is often absent from transitional and developmental passages. As a result, sentential structures are often not identified as such when one uses Caplin's theory.

Consider for example measures 101-109 from the third movement of Mozart's piano sonata in B flat major, KV 281 (Figure 3.2). These measures, following a perfect authentic cadence in E flat major, realize a modulation to B flat major, ending with a half-cadence. The first four measures would have to be labeled continuational by Caplin, as they are supported by a harmonic sequence. Measures 106 and 107, with their increased rhythmic surface activity, relatively quick harmonic rhythm, and sequentially repeated first-inversion chords would be continuational as well. The final two measures would, of course, be cadential. Yet a sentential design is clear from the fact that a two-measure idea is immediately re-stated and followed by units of half-measure size, with a corresponding acceleration of the harmonic rhythm. If one wishes to adhere to the axiom that a sentence must be a theme, then of course this is not a sentence. But the rhythmic background and grouping structure of this passage is exactly the same as that of a conventional sentence-theme, a fact that is all too easily overlooked when utilizing Caplin's formal functions.

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the results of experienced and unexperienced listeners indicating whether they experience certain isolated passages from Mozart piano sonatas as beginning, medial, or ending. But since the passages have been isolated from their contexts, this study does not answer the question how context influences the experience of musical time.

[7] An exception is the sixteen-measure theme, which receives ample discussion.

[8] Even though this theme consists of only four measures, Caplin discusses it as if it were an eight-measure sentence, as we perceive one notated measure as two "real, experiential measures" (see Caplin 1998, p. 35).

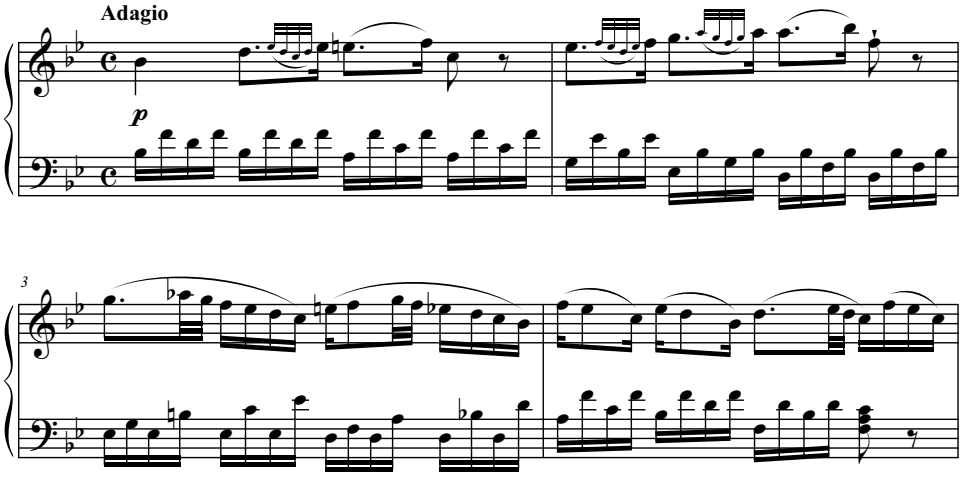



Figure 3.1: Mozart, piano sonata in F major, KV 332, second movement

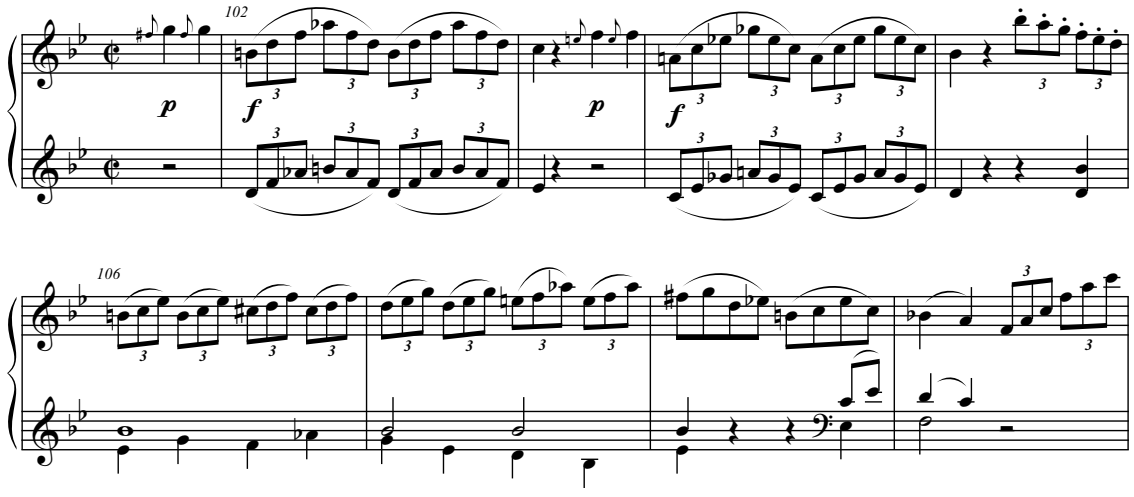



Figure 3.2: Mozart, piano sonata in B flat major, KV 281, third movement, measure 101ff.

*4. A focus on local harmonic progressions leads to insufficiently differentiated results in themes in which the harmony remains unstable for a relatively long period.*

As discussed before in Chapter 2, the subordinate theme of Beethoven's piano sonata in A major, opus 2 no. 2 (see Figure 2.7 on page 23) starts, according to Caplin, with continuation function, which remains the sole function for 26 measures, up to and including measure 83. Only in measure 84 do we reach a new function: cadential function. Of course, Caplin does note the various model-sequence techniques used, first in groups of four measures, then in groups of two measures, but he does not link this to the sentential procedures of repetition and fragmentation, because the necessary presentation function with its corresponding tonic prolongational harmony is missing. Yet this analysis of 26 measures of continuational material and eight measures of cadential material tells us nothing about the inner structural organization of the theme, which very much resembles that of a sentence. Especially when we consider two notated measures to correspond to one "experiential measure," we see a clear sentential design: two measures, immediately repeated,[9] followed by one-measure, and eventually half-measure units, after which a separate cadential phrase closes the theme. Such an analysis truly explains how the theme is organized, and it enables us to make comparisons to other relatively large-scale sentential structures. In fact, Caplin's analysis begs the question how it is possible for a theme to reside in continuational space for so long – a question that is answered by relating the theme to the sentence archetype, focusing on its repetitional pattern and grouping structure.

*5. A focus on local harmony as the decisive parameter in analysis negates the richness of the music of the classical style, in which multiple parameters, in varying degrees of significance, can contribute simultaneously to the realization of musical form.*

Caplin's attention to the interplay between multiple musical parameters and the impact thereof on musical form is limited, since local harmonic content usually is the decisive factor in his analyses. However, Caplin does acknowledge that some formal functions imply a certain category of melodic-motivic qualities. For instance, with respect to cadential function, he writes: "In addition to its requisite harmonic component, a cadential function often contains a distinctive melodic profile, a highly conventionalized formula that occurs frequently in the classical style. This cadential melody normally has a falling contour, which conveys the sense of "closing down" a melodic process. The cadential idea thus contrasts with the basic idea at the beginning of the theme, which (...) features a characteristic melody, one that "opens up" the melodic line."[10]

With this in mind, let us consider Caplin's analysis of the first subordinate theme of the first movement of Beethoven's piano sonata in E flat major, opus 31 no. 3 (see Figure 3.3).[11] In this analysis, the whole theme is said to express cadential function, since it is supported in its entirety by an expanded cadential progression. Yet the melodic-motivic content not at all resembles the "distinctive melodic profile" Caplin associates with this function. It rather seems to be more typical for an antecendent phrase or a compound basic idea, that is: *initiating* function, exactly what one would expect in light of the preceding medial caesura.

Instead of letting the expanded cadential progression of this theme dominate our form-functional analysis, we would argue for a more sophisticated description of these measures. The fact that the theme opens directly with an ECP, and that it thus, from a harmonic perspective, starts directly with "the beginning of the end," is a very valuable observation, as is Caplin's observation that the same thing goes for the first theme of this movement, and that both themes can thus be said to be harmonically related. Without contradicting this interpretation, we can however at the same time observe that the melodic-motivic material unequivocally signals a formal *beginning*, and that, as a result, these two parameters, harmony and melody, are not synchronized at this point. This

[9] The two initiating measures are repeated twice in this theme, a deviation from the norm that is not uncommon in the classical style.

[10] Caplin 1998, p. 43

[11] Caplin 1998, p. 114, example 8.13a

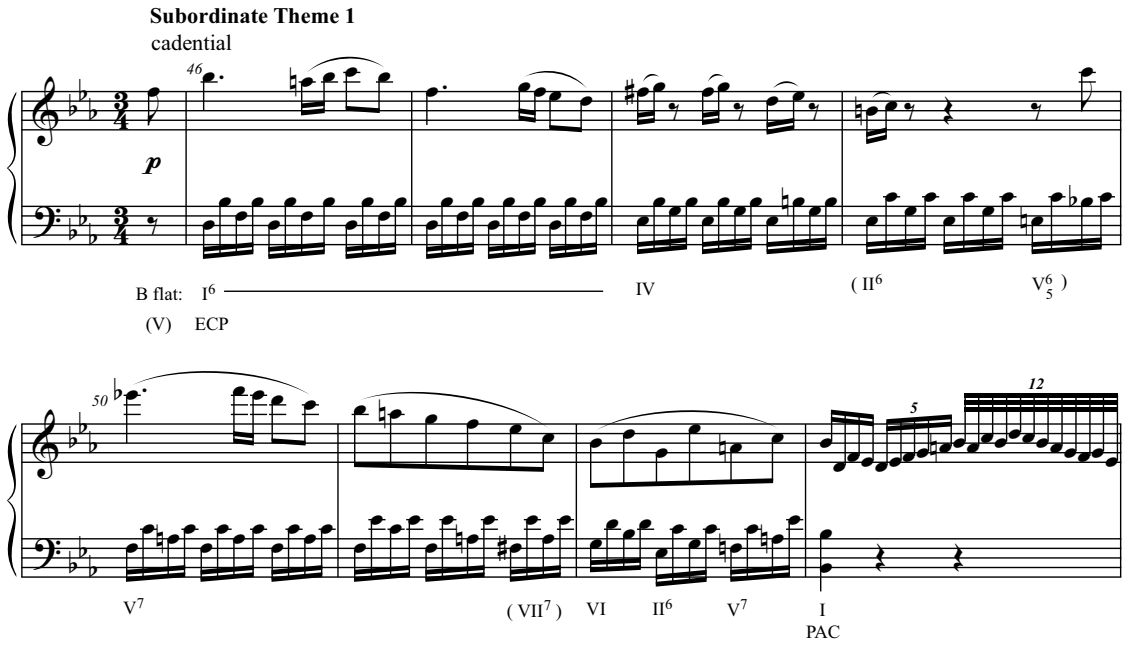



Figure 3.3: Beethoven, piano sonata in E flat major, opus 31 no. 3, first movement, measure 46ff., with Caplin's annotations

phenomenon, which one could call a "polyphony of parameters,"[12] is part of what gives this theme its subtle beauty and sophistication. When we let the harmony be the decisive factor here, we do the theme no justice: it would prevent us from observing the full richness and complexity of the classical style, robbing it of its innate artistic ambiguities.

*6. A focus on local harmonic progressions complicates the development of a derivative theory of form to cover music of other styles and genres than the instrumental music of Haydn, Mozart, and Beethoven alone.*

The sentence is perhaps the most common theme type in the classical style, and the use of sentential liquidation techniques may have even become more popular in the nineteenth century, especially in the works of Liszt and Wagner. However, the harmonic discourse of such works often differs considerably from those in the classical style. For this reason alone, a theory that depends heavily on local harmonic content must necessarily remain restricted to late-eighteenth-century and early-nineteenth-century music.

To be sure, Caplin's theory doesn't make any claims about any other than its core repertory, and it has no ambitions with respect to developing a derivative theory for any other style or genre, but one could question the persuasiveness of a theory which is supposed to account for the whole of classical form, but fails to address some of the most fundamental formal questions posed by works from, for instance, the romantic repertory.

As an example, let us consider a sentential structure from the first act of Richard Wagner's *Parsifal*: the male chorus *Zum letzten Liebesmahle*, which directly follows the *Verwandlungsmusik* (see Figure 3.5). One could hardly wish for a more clearly articulated sentential design in late Romanticism, yet a Caplinian approach to analyzing is not entirely without problems.

[12]The concept of a "polyphony of parameters," used multiple times throughout this thesis, seems to have originated from Dutch composer and music theorist Jan van Dijk.

We see that the initial unit of repetition is eight measures in length: four measures with the choir singing in unison, followed by four measures of instrumental music. We could thus expect to hear a thirty-two-measure sentence, which is almost exactly what follows: two groups of four measures in length, and a final, longer group of seven measures, totaling 31 measures.

Starting from the theory of *Classical Form*, we would first have to deal with the fact that a Caplinian sentence necessarily is a *theme*. Of course, the concept of a classical theme more of less dissolves in nineteenth-century Romanticism, while at the same time many classical theme-construction principles such as repetition, fragmentation, liquidation, antecedent-consequent pairs, etc. remain in use. This example from *Parsifal* demonstrates this nicely: in terms of grouping structure, repetitional patterns and tonal organization it very much resembles a classical sentence. But it is questionable whether the concept of a theme can be stretched to the extent that it can be applied to this passage, and thus it would be questionable whether we could be dealing with a sentence at all.

A more fundamental question however arises when we take a closer look at the harmonic content of these 31 measures. The first 16 measures begin and end in C major, with a short digression to the relative minor in measures 12-15. There is (beside the fact that it is sixteen measures in length) not much in the way of labeling this a Caplinian presentation phrase.[13] The eight measures that follow can easily be labeled continuational, as they bring fragmentation into four-measure units and leave the main key of C major in favor of E flat major and G flat major, resulting in a faster rate of key change. The last seven measures, however, are problematic, as we are now entering what should correspond to the last two measures of a classical eight-measure sentence, namely: cadential material. Yet we must wait for another five measures before the cadence actually starts (measure 30-31: II–$V^4_3$–I in C major).[14] In fact, the main key does not return until measure 30 – measures 25-29 bringing the keys of D major, A major, and E major first. The best we can do is label measures 25-29 continuational, before cadential material finally sets in in measure 30.

Once again we must stress that Caplin does not intend his theory of classical form to be applied to works such as the one discussed here, but this example demonstrates very well that the last group of a sentence does not necessarily *only* bring the harmonies of the cadence. This problem becomes extremely tangible in such a large-scale construction as this one, but traces of this very same problem can be discerned within the scope of the classical sentence-theme as well.

Consider for example the opening of the slow movement of Beethoven's piano trio in G major, opus 1 no. 2, reproduced here in Figure 3.4 with Caplin's analytical indications.[15] This theme is analyzed by Caplin as a regular eight-measure sentence, with an extension of the cadential idea towards the end, as a result of which the theme ends on the downbeat of measure 9. But when we look at the first half of measure 7, we see that it has received a separate bracket as if it is to be understood as a continuation of the fragmentation process started in measure 5. Only in the second half of measure 7 do we reach concluding function, since that is where the cadence starts.

We have several objections against this analysis. Firstly, the grouping structure indicates a formal ending at the downbeat of measure 7, since we are expecting to hear a regular sentence constructed as $2+2+1+1+2$ measures, in which we have now reached the final group. Secondly, the rhythmic surface activity subdues significantly, as if we are readying ourselves for the cadence. And thirdly, we observe that the sequential harmonies of measures 5 and 6 have stopped, and that we have reached more stable harmonic ground, again ready to begin a formal ending. Therefore, we claim that if we would wish to distinguish such a thing as "concluding function," and if that function were to correspond to our experience of musical time in the way Caplin argues, then

[13] Caplin also accepts sixteen-measure sentences in which the initial unit of repetition is four measures in length, containing a basic idea followed by a so-called contrasting idea. We see something similar here, with the chorus being alternated with only the orchestra playing, now within the scope of eight measures instead of four.

[14] Also, we would have to assume the possibility of a $V^4_3$–I progression to bring a cadence in this style, which, according to Caplin, does not exist in the classical style (the dominant would have to be in root position in order to speak of a genuine cadence) – but we believe that to be no unreasonable assumption.

[15] Caplin 1998, p. 46, example 3.16a

that concluding function must start at the downbeat of measure 7, lasting until the downbeat of measure 9. But the initial $V^6$–I progression then becomes a problem: do we include it in the cadence or not? If so, we can safely label these measures cadential. If not, we have made a formal grouping decision on non-harmonic grounds, and are therefore departing from Caplin's basic principle.

In Caplinian terms, it would probably be best to simply have the cadential progression start at the downbeat of measure 7 (contrary to his own analysis). But the Wagner example just discussed makes it clear that this solution is unsatisfactory. Experiencing the final stage of a sentence, or any stage for that matter, is not just about observing a certain harmonic progression. Beethoven shows us that melodic-motivic content and grouping structure, when perfectly synchronized, can constitute a stronger form-functional criterion than the presence of certain predefined harmonic patterns. In that respect, this Beethoven theme can be seen as the counterpart of the first subordinate theme from the E flat major sonata, opus 31 no. 3, discussed on page 38: a cadential progression need not necessarily indicate a formal ending, and vice versa: a formal ending need not necessarily start with cadential material.

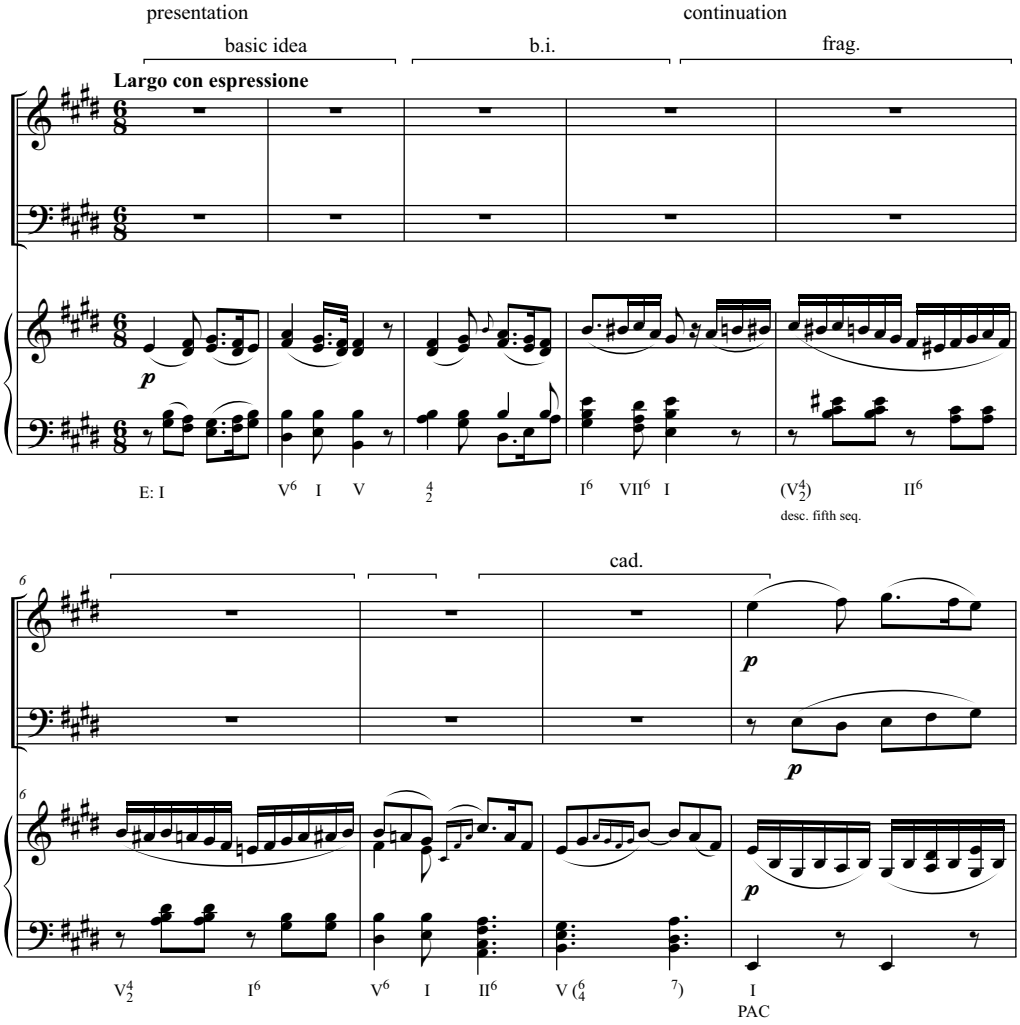



Figure 3.4: Beethoven, piano trio in G major, opus 1 no. 2, second movement, with Caplin's annotations

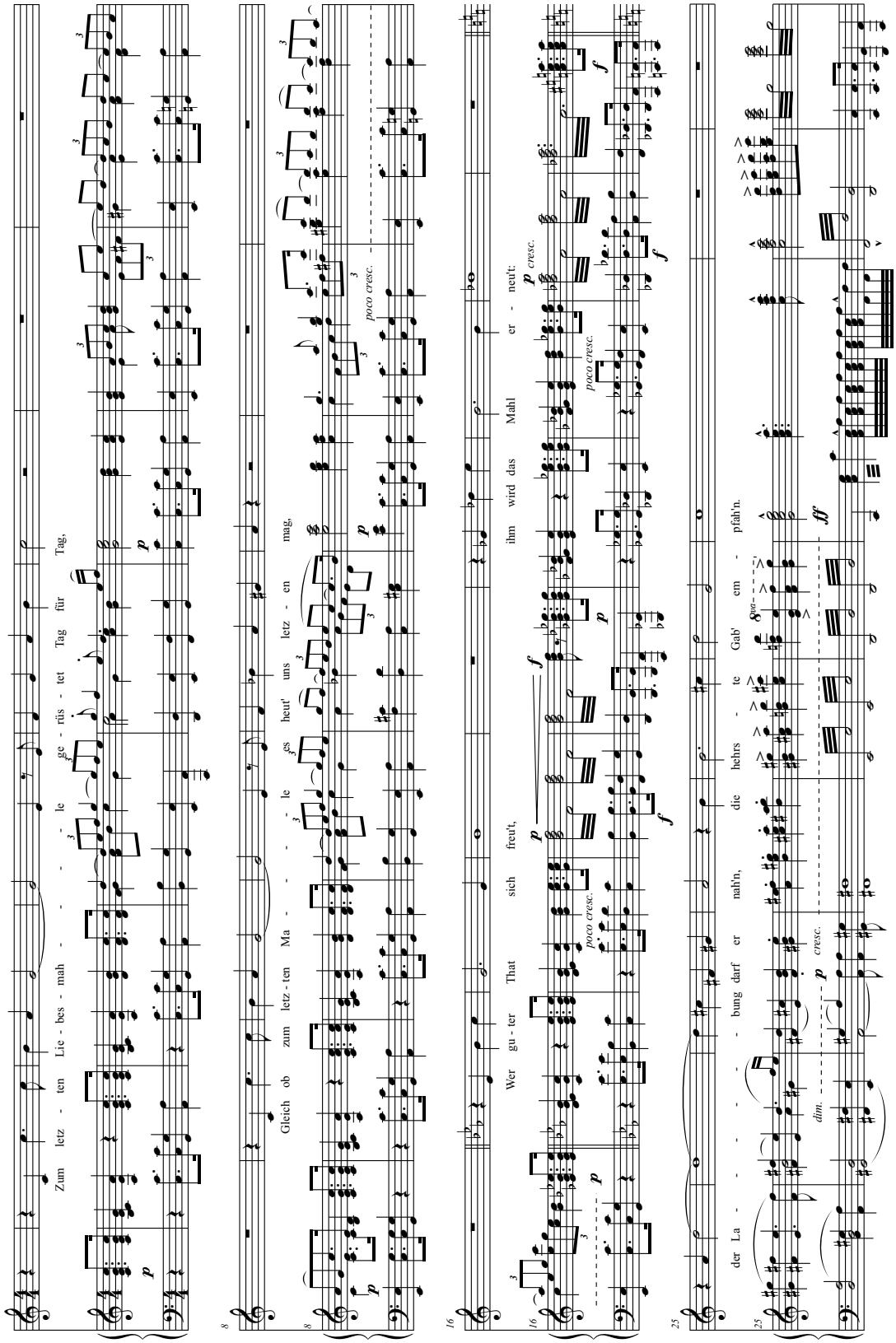



Figure 3.5: Wagner, from *Parsifal*, first act

## 3.2 BaileyShea

Many of the issues raised in the previous section are in some way or another related to the fact that, in strict Caplinian theory, sentential gestures cannot be identified as such when the harmony does not conform to a set of strict criteria. It is clear that Matthew BaileyShea's writings on sentences are an attempt to overcome these problems, even though BaileyShea does not critize Caplin's theory in detail. In fact, as mentioned in Section 2.4, he adopts the theory, and makes only a few adjustments, which enable him to speak more in terms of grouping structure and gesture, and less in terms of common practice tonality.

He combines this shift of focus with the claim that the archetypal status of the opening theme of Beethoven's f minor piano sonata, opus 2 no. 1, in fact obscures several other sentence models that may be equally entitled to such a status. Therefore, BaileyShea presents a classification of sentence types in which Beethoven's liquidating sentence theme is simply the main representative of one of these types – the various types being distinguished from each other mainly by the grouping structure of the continuation phrase.

As noted by BaileyShea, utilizing a more refined set of sentence types instead of a single normative type helps us in attaining differentiated and meaningful results when analyzing sentences, instead of having to resort to the vague label "sentential" that is all too often applied to musical passages that resemble the Beethoven f minor theme, but differ from it in a number of ways.

However, despite the fact that we regard it as a significant step forward in our understanding of the sentence, we believe some aspects of BaileyShea's sentence theory to remain somewhat unsatisfactory. We discuss three aspects below.

*1. The theory is based on Caplin's theory of classical form, but breaks with it in a fundamental way.*

BaileyShea takes Caplinian theory as a starting point, but takes considerable liberties with respect to Caplin's definitions. We already saw that BaileyShea's presentation phrase need not necessarily prolong tonic harmony. As a result, of course, sequential harmony is no longer typical for continuation function (since sequential harmony can occur in a presentation phrase also), as is the case with Caplin. And also concluding function, with its necessary cadential harmony, is treated with liberty by BaileyShea. In some cases, the concept of cadence is stretched somewhat to fit the music at hand, at other times, sentences are identified that simply bring no cadence at all. We give an example of both situations, one from Wagner's *Tristan*, the other from *Meistersinger*.

Figure 3.7 reproduces a fragment from the overture to Act Three of Wagner's *Tristan und Isolde*, including BaileyShea's analytical annotations. BaileyShea argues that these measures constitute a sentence that "ends with a cadence on VI."[16] We would argue, however, that it is questionable whether we are dealing with a cadence at all at this point, especially when one uses the term in a more or less Caplinian way. If we were indeed dealing with a cadence, it would have to be a deceptive cadence, which according to Caplin occurs "when the final tonic of the authentic cadential progression is replaced by a related harmony. The most common form of this progression sees the bass ascend stepwise from the fifth scale-degree to the sixth, which supports a submediant substituting for the implied final tonic (...)."[17] Yet this sentence from *Tristan* does not at all display the goal-directedness that we usually associate with the classical cadence. Instead, it simply contains three $\text{II}^6_5$–I progressions (not considered genuine cadences by Caplin), and only in the end veers away to VI.[18] So the passage is characterized by harmonic stasis, does not steer towards a cadence, and more or less dissolves at the end. It is therefore questionable if

[16] BaileyShea 2003, p. 96
[17] Caplin 1998, p. 29
[18] Whether this sixth degree is to be located in measure 25 or is already hinted at in measure 22 remains debatable.

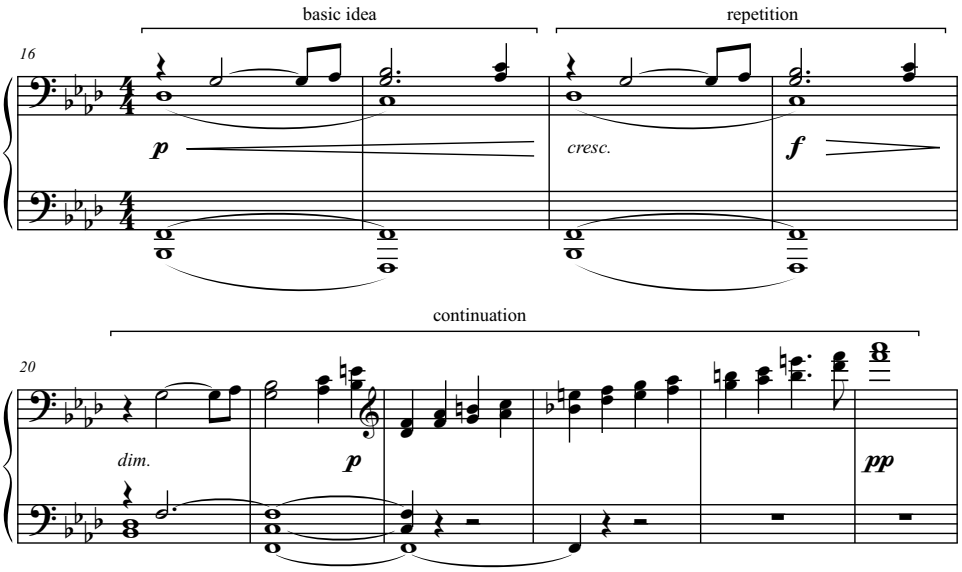



Figure 3.6: Wagner, Tristan und Isolde, overture to Act Three, measures 16 ff., with BaileyShea's analytical annotations

the ending ought to be labeled cadential, assuming one uses the term in a way that is comparable with Caplin's use.[19]

The second example concerns a fragment from Act One, Scene One of *Die Meistersinger von Nürnberg* (see Figure 3.7). BaileyShea: "Here the orchestra plays a strictly accompanying role. In fact, if anything, we could speak of the orchestra resisting the voice in this example. (...) The conventional 1+1+2 metric grouping, along with the emphasis on end-rhyme (fragen/wagen) distinguish this passage as a relatively 'closed' unit, but the transitional harmonies beneath the voice leave it more or less open-ended in terms of its tonal goal."[20] In other words: the fact that we perceive a sentential design in these measures is caused mostly by the vocal part and by the structure of the text – the harmonies heard in the orchestra are of minor importance in this respect.[21] That means that if we wish to hold on to the axiom that a sentence passes through presentation, continuation, and cadential function, then we must accept that these functions be decoupled from their Caplinian harmonic associations, which lie at the core of Caplin's theory.

BaileyShea's adoption of Caplinian theory provides him with a useful terminological apparatus, but the actual meaning behind these terms differs significantly from those found with Caplin. By decoupling formal function and local harmonic content, BaileyShea's theory seems to put aside what lies at the heart of Caplin's formal functions, while refusing to radically break with it.

[19] Of course, BaileyShea is right when he claims that we can still perceive these measures to be sentential. This can only be explained from a hypermetric point of view: two groups of two measures are followed by a group of four measures. This would have been no different if the passage would have sustained tonic harmony all the way up to the end. In other words: we need not necessarily hear a cadential progression in order to perceive a sentential design, a fact acknowledged by BaileyShea, as attested to by his analysis of the *Meistersinger* fragment to be discussed directly below.

[20] BaileyShea 2003, p. 149-150

[21] It must be noted, though, that the repeated dominant and tonic chords in the first two measures do contribute to an interpretation of these measures as presentational, and that the final two chords could be interpreted as a deceptive cadence in the mediant key, d minor.

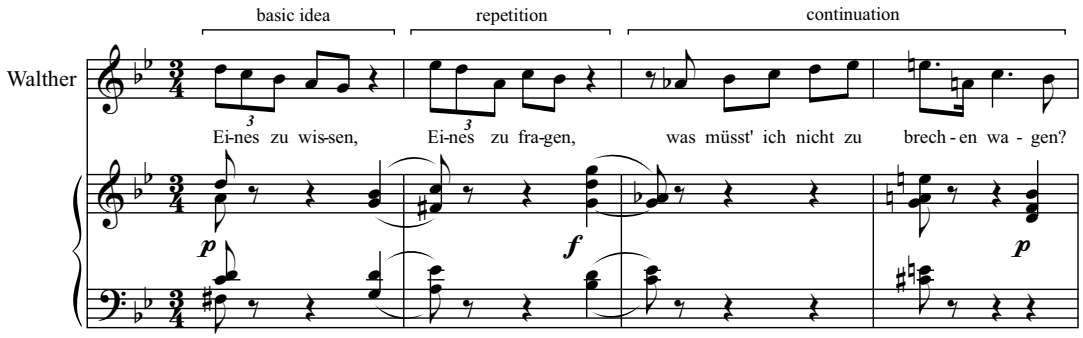



Figure 3.7: Wagner, from Die Meistersinger von Nürnberg, Act One, Scene One, with BaileyShea's analytical annotations

*2. When it comes to the classical style, the theory focuses on the eight-measure theme and more or less neglects sentential structures on a different scale and within non-thematic areas.*

BaileyShea seems to follow Caplin's axiom that a classical sentence is necessarily a theme. When writing about sentences in the music of Wagner, BaileyShea notes that "[tight-knit] sentences become more and more common in the late seventeenth and early eighteenth centuries; they reach a peak in the late eighteenth and early nineteenth centuries; and eventually become scarce in the art music of the twentieth century. From that point of view, sentences in Wagner are heard in the context of a gradual 'loosening' of sentence restrictions (...)."[22] While it is true that the music of romantic composers such as Wagner displays less and less tightly knit sentences, this observation must not obscure the fact that all kinds of sentential structures pervade non-thematic areas (such as development sections or transitions) already in the classical style. Remarkably enough, BaileyShea amply discusses Wagner's sentential loosening devices, such as off-tonic presentation phrases, but does not discuss the very same loosening devices as can be found in classical development sections.

Similarly, BaileyShea rejects the notion of sentences on scales other than the eight-measure theme,[23] stating that "it's impossible to define the sentence in meaningful terms if it includes drastically different sizes, whether larger or smaller than the eight-bar scheme."[24] As a result, BaileyShea, similar to Caplin, does not discuss large-scale sentential gestures that, in our opinion, all too often take up large portions of classical development sections.

As we have argued earlier in this thesis, we believe that, in the classical style, sentential designs can frequently be discovered outside the realm of the eight-measure theme. Despite BaileyShea's attention to sentential gesture and hypermetric organization, this topic receives only little attention in his writings.

*3. Despite the great variety in sentence types, all are assumed to express the same short/short/long gesture.*

BaileyShea combines Caplin's sentence theory with a gestural approach, meaning that all sentences must not only go through the three Caplinian stages of formal function (presentation, continuation, and cadence), but also in their entirety express the hypermetric gesture short/short/long. In order to be able to analyze sentences in various musical styles, BaileyShea chooses to "separate the basic *hyper-rhythmic* gesture of the sentence from the various pitch-based options that bring

[22] BaileyShea 2003, p. 12-13

[23] The only exception being the category of sentences of which the continuation phrase is shaped as a miniature sentence, discussed previously in Section 2.4.2 on page 28.

[24] BaileyShea 2004, p. 17

it to life. Issues such as cadence, sequence or motivic fragmentation all play a supporting role to a broader, much more basic gesture: the presentation of a musical idea, its immediate repetition, and its continuation (...). Each of these parts is expressed according to a basic, three-part rhythmic pattern, generally articulated with the proportion *short: short: long*. Characteristics such as liquidation, sequential repetition, acceleration of harmonic rhythm, and cadence are indispensable to our understanding of the sentence, but it is [this gesture] that is most central; it is the backbone of the sentence, the essence of the form."[25]

As said, BaileyShea considers the second half of this gesture, the long part, to be the most problematic when defining the sentence, and on the various shapes of this part he bases his sentence variants. We would argue, however, that his variants actually express gestures *differing* from each other. We explain our view below.

The first variant, called the "sentence with a dissolving third statement," can roughly be described as two preliminary attempts to set up a certain musical idea, after which a third attempt finally brings a grander and more conclusive statement of that idea, in the end closing the musical process with a cadence. This indeed corresponds to a genuine short/short/long gesture, likened by James Hepokoski and Warren Darcy to "two preliminary bounces on the diving-board, followed by a third that precipitates the actual dive."[26]

However, of the second variant, called "sentence with a sentential continuation," we would argue that an opposite gesture is at play. Here, the continuation does not bring a third, more elaborate statement of the basic idea. On the contrary, it starts to break it down into smaller fragments, entering a process of decay rather than expansion. The first variant conveys a sense of "opening up musical space," using two preliminary short gestures to clear the way, while in the second variant the short gestures are not preliminary at all: they simply present the basic idea directly, in its entirety. In a figure of speech, one could say that the second sentence variant "zooms in" on the basic idea, concentrating on certain aspects of it while leaving out others, whereas the first variant "zooms out" of the basic idea, letting us hear what comes after it.[27]

Of course, as already discussed in Section 2.4.2, BaileyShea acknowledges this problem to a certain extent, claiming that measure 5 of a standard eight-measure sentence works as a short gesture on a low structural level within the form, and simultaneously begins a large gesture on a higher level. We could argue against this claim by noting that if the last four measures are to be grouped together as a single long group on a high structural level, then the same could be said of the *first* four measures. In that case, the sentence of the second type could be represented, in measure groups, as follows: $4 + 4 = (2 + 2) + (1 + 1 + 2)$.

But the discussion as to which system of measure groups represents the second sentence type best is so vague as to be almost pointless. Suffice it to say that we prefer a view of opposing gestures for the first two sentence types, all the more so since the third sentence type then stands exactly in between. Where the first sentence type brings about an enlargement of gesture and the second a compression, the third does neither: the continuation of the third sentence type simply keeps the gestures at the same size found in the presentation. This explains its alleged simplicity. The fact that nothing complicated happens in measure 5 renders this sentence type extremely suitable for simple folk tunes.[28] It is indeed so well balanced that it is often overlooked in discussions on sentences, with its relatively weak forward-striving energy and goal-directedness compared to the first sentence variant, let alone the second.

Although we agree that the sentence must ultimately be defined in terms of gesture, we argue for a more differentiated approach in this context. We discuss this more fully in the next chapter.

[25] BaileyShea 2003, p. 48

[26] Hepokoski and Darcy 2006, p. 84

[27] Of course, not all sentences with a sentential continuation develop material from the basic idea in the continuation phrase. Even in those cases, however, the sentence shifts its focus from two-measure material to one-measure material, resulting in a similar shift in scope, and thus also, we would say, in gesture.

[28] Also BaileyShea notes that this type is "particularly notable for its folk-like simplicity and is often reserved for vocal contexts." (BaileyShea 2003, p. 19)

## 3.3 Concluding remarks

In this chapter, we have given an evaluation of the sentence theories by William Caplin and Matthew BaileyShea. We have argued that Caplin's focus on harmony tends to obscure sentential designs in several situations, an objection that resonates with BaileyShea's writings as well, since BaileyShea does not incorporate Caplin's strictest criteria with respect to harmonic content in his own sentence classification. Rather, BaileyShea pays more attention to grouping structure, especially that of the continuation phrase. Nevertheless, he adopts Caplin's theory largely and takes over a large part of the theory's terminology.

We very much support BaileyShea's shift of focus from harmony to grouping structure, and we would argue to take this shift one step further. We believe the sentence to be essentially a rhythmic pattern, one that can even be expressed without the use of pitch at all. Based on this principle, we propose a sentence classification that actually corresponds to some extent to BaileyShea's, the main difference being that our classification assigns a distinct gestural quality to each sentence variant, instead of supposing all to express a short/short/long gesture. As a result, our classification is slightly simpler than BaileyShea's as well.

We present our classification in the next chapter.

# Chapter 4

# Sentence classification

In this chapter, we propose a new classification of sentences based on hypermetric grouping structure models. After a brief introduction in Section 4.1, we present our sentence categories in Sections 4.2 up to 4.4. Since our classification is based on grouping structure, we discuss how both melodic-motivic content and harmonic content contribute to the shaping of groups in Section 4.5. Subsequently, we compare our sentential grouping structures to those found in periods (Section 4.6) and small binaries (Section 4.7). We end this chapter by discussing some loosening techniques with respect to sentences in Section 4.8.

## 4.1 Introduction

In the article *Sentence and period*, Carl Dahlhaus writes: "The fact that the complementary contrast between half cadence and authentic cadence is fundamental for a period does not at all imply that for its counterpart, the sentence, a similar tonal moment (just a different one) would be essential: there is no reason to expect or even take for granted a similar hierarchy of criteria. Rather, a sentence is primarily characterized by the repetition of a motive in the first half (*Vordersatz*) – a repetition from which then, as mere repetition cannot stand on its own, a development or *Fortspinnung* emerges."[1]

This basic principle, that a sentence, as opposed to a period, does not necessarily need to correspond to a fixed set of criteria with respect to harmonic content, can be elaborated upon by observing that sentential constructions can be found in repertoire in which there is no harmony at all, for instance in pieces for solo percussion.

Consider for example the following excerpt, taken from Morris Goldenberg's *12 Progressive Solos for Snare Drum*:

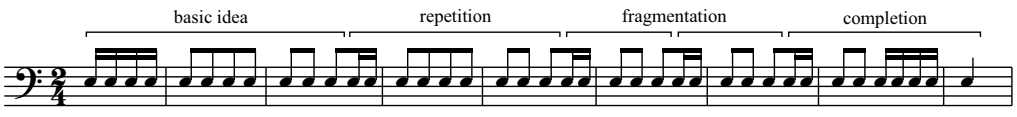


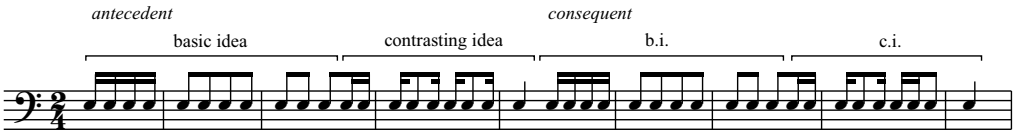

Figure 4.1: From: M. Goldenberg, *Left Light March*

[1] "Daß für eine Periode der ergänzende Gegensatz zwischen Halb- und Ganzschluß konstitutiv ist, besagt keineswegs, daß für den Gegentypus des Satzes gleichfalls ein tonales Moment – nur eben ein anderes – entscheidend sein müßte: Nichts berechtigt dazu, eine analoge Hierarchie der Kriterien zu erwarten oder gar für selbstverständlich zu halten. Ein Satz ist vielmehr primär durch eine Motivwiederholung im Vordersatz charakterisiert, eine Wiederholung, aus der dann, da bloße Repetition nicht für sich zu stehen vermag, eine Entwicklung oder Fortspinnung hervorgeht." Dahlhaus 1978, p. 24

Although the only active musical parameter here is rhythm, this excerpt clearly displays a sentential design. The opening two measures can be seen as a standard two-measure basic idea (with upbeat), which is immediately repeated in measures 3 and 4. Measure 5 then brings a unit of repetition one measure in length, which corresponds exactly to a sentential fragmentation process. We even see the use of liquidation techniques, as the basic idea now gets interrupted halfway. A final variant of the basic idea then closes the fragment.

In other words, the fact that we can easily distinguish sentential designs in pitchless repertoires proves Dahlhaus' claim that a sentence is primarily governed by the repetition of motives.[2] The fact that the same cannot be said of the period can be demonstrated in a similar way.

Suppose we wish to create a pitchless period based on the same basic idea:




Although we now get an eight-measure construction that is "periodical" in the sense that the second half seems to provide a musical response to the material found in the first half, we cannot with certainty say that this passage corresponds, above all, to the classical period. After all, the necessary cadential content to make such a claim is absent. Besides associating this passage with the period, we could perhaps just as easily think of it as a mere repetition, or as the opening of a sixteen-measure sentence. Without a weak cadence halfway and an authentic at the end, we may associate these measures with a period, but the correspondence between Figure 4.1 and the classical sentence is much more compelling.

It is clear that the sentential design unmistakably present in Figure 4.1 cannot be identified as such using terminology that depends on any musical parameter other than rhythm. The fact that this passage is most obviously associated with the classical sentence (we can even quite easily think of a full-fledged classical sentence with exactly the same surface rhythm) and not to any other classical constructions frequently found in the literature, makes a strong case for the validity of developing a sentence theory for classical music based on rhythmic abstractions, as is done in this thesis.

When defining these abstractions, we have to make several decisions with respect to the essential and accidental properties that we wish to ascribe to the sentence. It would be very well justifiable to consider the presence of a fragmentation process as an essential feature of any classical sentence, since this process is found so often in the repertoire. We have chosen to make a more inclusive decision, however, taking the location of the *first repetition* as the most important criterion for the identification of sentences. With this decision, we follow in the footsteps of Schoenberg, who understood the essence of the sentence to be the immediate repetition of the first two measures (as opposed to the period, which repeats the first two measures in measures 5 and 6).[3] This approach enables us to create an overview of several different sentence types, and to observe how these different types exhibit hierarchical constructions.

Therefore, we understand the abstract eight-measure sentence to be a musical construction that begins with two groups of two measures. After this initiating gesture, in principle three things can happen, on which basis we distinguish three sentence variants:

- the group size increases; this corresponds to our first sentence type;
- the group size stays the same; this corresponds to our second sentence type;

[2] As noted before on page 27, also Matthew BaileyShea remarks that the sentence does not necessarily depend on common practice tonality.

[3] Schoenberg 1967, p. 25

- the group size decreases; this corresponds to our third sentence type.

We understand these differences in group size to be differences in gesture. The first sentence variant starts with two relatively short gestures after which a longer gesture follows; it contains two preliminary attempts to set up a musical idea, and a final, more conclusive attempt. The third variant does the exact opposite, it does not "open up" the musical space, but compresses it into smaller units. The second variant stands in between: no increase in group size and no decrease, but a simple, more neutral continuation of the same gesture found in the beginning.

We discuss each sentence variants below in a separate section.

## 4.2 First sentence type: increased group size

The first sentence variant presents a musical idea and its repetition, after which a larger idea emerges or the initial idea is expanded. This sentence type can be very frequently encountered on the four-measure scale, and somewhat less often on the scale of the standard eight-measure theme. This sentence exhibits the genuine, unequivocal short/short/long gesture often associated with the sentence in general. The four-measure variant is often found within themes or theme-like structures, such as a period, or within the contrasting middle section of a small ternary.

Figure 4.2 shows the beginning of the second movement of Beethoven's piano sonata in G major, opus 49 no. 2. This movement opens with a small ternary, which consists entirely of four-measure sentences of the first type: the exposition brings a period of which both antecedent and consequent are short/short/long sentences, the contrasting middle section is again similar, and the recapitulation brings an exact restatement of the period, with the melody transposed up an octave. As a result, this opening theme brings no less than five times the same sentence: short/short/long on the four-measure scale.

In this Beethoven theme, all long gestures start with the same motivic material as the preceeding short gesture, but bring a more elaborate version of this idea which takes more time to complete. This technique is used very often in the short/short/long sentence, and it corresponds to what BaileyShea calls the *Sentence with a dissolving third statement* (see Section 2.4.1 on page 28).

Sometimes, however, the long part brings motivic material that contrasts with the motive from the short parts. This is the case, for instance, in the opening of the second movement of Beethoven's piano sonata in g minor, opus 49 no. 1, reproduced here in Figure 4.3. Here, the long part introduces a descending motive, whereas the initial idea contained an ascending motive. Only at the very end, the descending third is picked up from the initial motive (b–g and c–a in the short gestures become f♯–d in the long gesture).[4]

Interestingly enough, there is a third possibility when it comes to the motivic content of the short/short/long sentence. Instead of bringing a dissolving third statement or a contrasting motive, it is also possible for the long part to introduce a motive of which the *ending* corresponds to the initial motive. Where Beethoven in Figure 4.2 expands the motive to let us hear what comes after it, in Figure 4.4 he expands it to let us hear what comes *before* it. This excerpt, taken from the f minor piano sonata opus 2 no. 1 (third movement), starts with a motive containing a descending third in quarter notes on the downbeat of the first measure (b♭–g), which is then repeated in the second measure (a♭–f), after which a larger gesture brings new motivic material that again ends with a descending pattern in quarter notes on the downbeat of measure 4; the third has now become a second: b♭–a♭.

As already mentioned, this sentence type is ubiquitous on the four-measure scale. It can also be found on larger scales, however, as can be seen in Figure 4.5, which shows the subordinate

[4]One could argue that, in this fragment, the melodic line at the beginning of the long part actually exhibits fragmentation techniques, with e–d–c being repeated a fourth lower as b–a–g. The ascending pattern in the left hand however does not support this grouping structure.

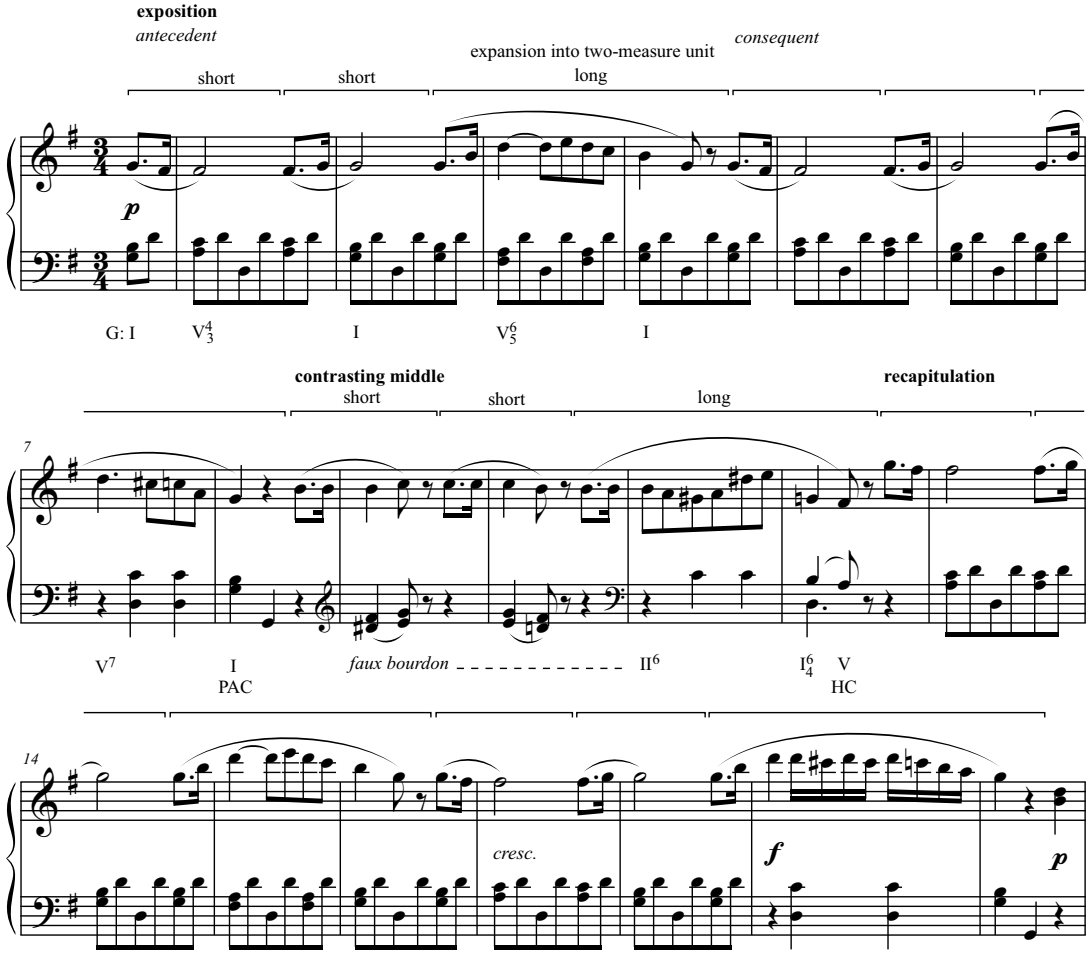



Figure 4.2: Beethoven, piano sonata in G major, opus 49 no. 2, second movement

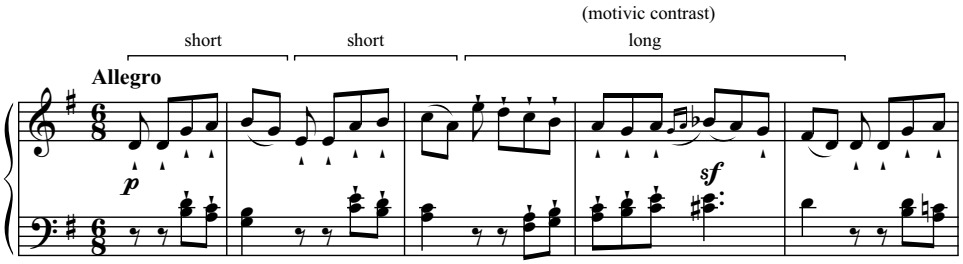



Figure 4.3: Beethoven, piano sonata in g minor, opus 49 no. 1, second movement

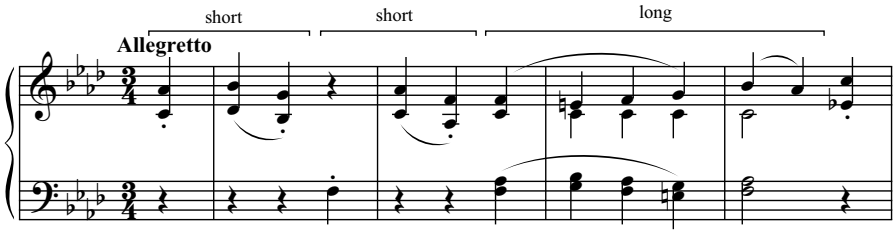



Figure 4.4: Beethoven, piano sonata in f minor, opus 2 no. 1, third movement

theme from the second movement of Beethoven's piano sonata in F major, opus 10 no. 2.[5] This theme clearly starts with two groups of four measures.[6] Measures 47-54 can then be interpreted as a single, uninterrupted group, due to the instability of the harmony in measures 49-50 (a dominant $^4_3$-chord). Also from a melodic perspective this makes sense, since the last eight measures serve to reach and subsequently depart from a melodic climax, which is found halfway the second half of the sentence. Thus a case can be made for analyzing this sentence according to the $2+2+4$ model. Especially noteworthy is the fact that this construction results from the fact that Beethoven has chosen to move the motive of the descending second, which we find in the basic idea in measures 41-42 (f–e♭) and measures 45-46 (g♭–f), from the melody to the inner voices (a♭–g, m. 49-50). If the melody in measures 49-50 would have been similar to the basic idea, as suggested in the "rewritten ending," a different grouping structure would most likely have emerged.[7]

On even larger scales this sentence type is extremely rare, for the simple reason that the long part would become too long to be perceivable as a single, uninterrupted group.

This first sentence type could be dubbed the *diving-board sentence*, as illustrated by a quote from James Hepokoski and Warren Darcy's book *Sonata Theory*: "In the broadest sense (...), we understand the sentence as a modular shape that is best defined *gesturally* (or anapestically) as an initial double- (or triple-) impulse that proceeds to "take off" into a longer or more conclusive idea: two preliminary bounces on the diving-board, followed by a third that precipitates the actual dive."[8]

## 4.3 Second sentence type: unchanged group size

The second variant displays unchanged proportions throughout the whole sentence. On the eight-measure scale this typically means $2+2+2+2$.[9]

[5]Other examples: the opening eight measures of Chopin's Nocturne in f minor, opus 55 no. 1, see Figure 2.11 on page 28, which contains a dissolving third statement, and the opening eight measures of Beethoven's violin sonata in c minor, opus 30 no. 2 (not reproduced here), which contains a contrasting motive in measure 5 (although this sentence could be interpreted as a type 2 sentence as well). A very clear example from a non-thematic area can be found in the opening of the development section of Mozart's piano sonata in F major, KV 332 (see Figure 4.15), discussed in Section 4.5.2.1.

[6]From a Caplinian standpoint we might be able to say that two notated measures actually correspond to one experiential measure in this theme. This would mean that we could experience this theme as if it were written in 6/8 time, which seems plausible given the tempo indication. This would then be a regular eight-measure sentence.

[7]We do not wish to claim here that musicians necessarily will experience this theme as a $2+2+4$ model instead of a $2+2+2+2$ model. Only a statistical survey would be able to provide a decisive answer regarding musicians' intuitions. Still, without wishing to disregard the theme's grouping structure ambiguity, we believe an analysis as a $2+2+4$ sentence is justifiable. In general, we believe that eight-measure themes following the $2+2+4$ sentential pattern have a tendency to break down into four groups of two measures.

[8]Hepokoski and Darcy 2006, p. 84

[9]This sentence type corresponds roughly to what BaileyShea calls the *Sentence with an AABA design*. From a gestural point of view, however, we see no apparent reason to require the motivic content of the beginning to reappear near the end.

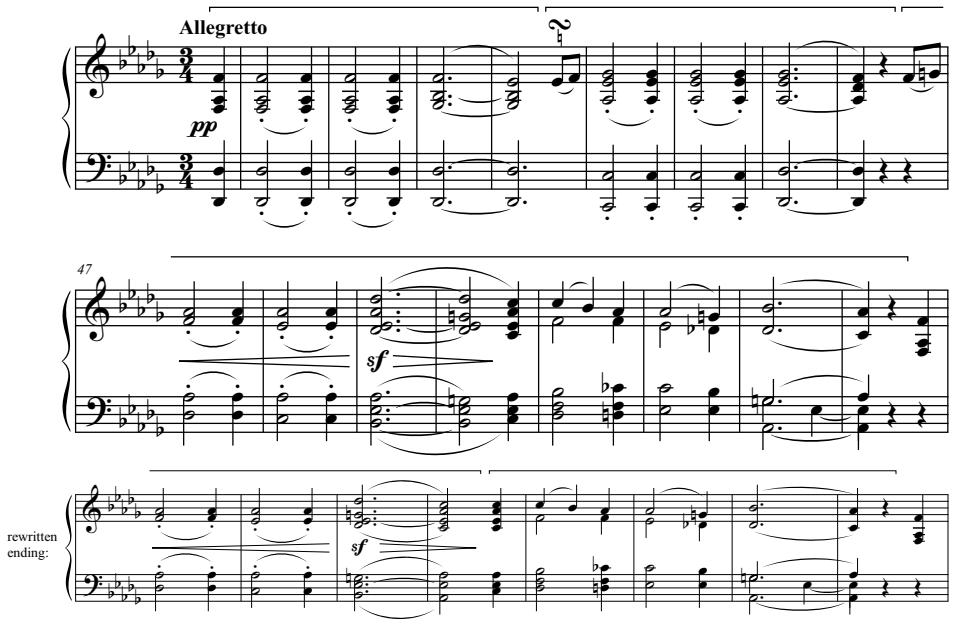



Figure 4.5: Beethoven, piano sonata in F major, opus 10 no. 2, second movement, measures 39ff.

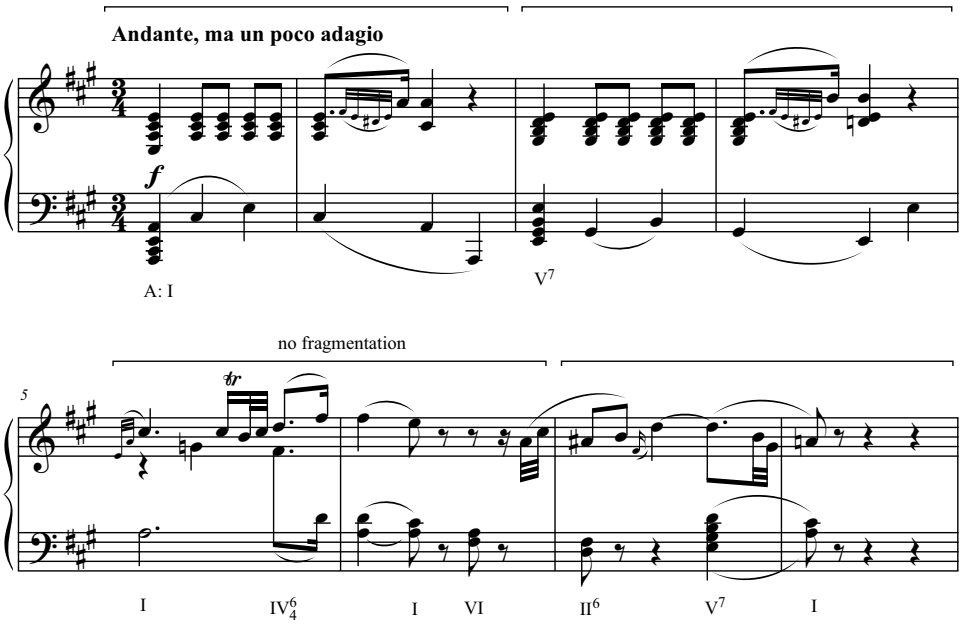



Figure 4.6: Mozart, violin sonata in A major, KV 402, first movement (violin tacet)

As the proportions remain unchanged, the composer often uses various techniques to indicate that in measure 5 "something else" is beginning (i.e. not a second repetition of the basic idea), including, amongst others, an increase in harmonic or melodic activity, working towards a melodic climax, or exploring new tonal regions.

An example of such a sentence can be found in the opening of Mozart's violin sonata in A major, KV 402 (see Figure 4.6). Although measures 5-6 simply prolong the tonic, we see that as a result of the introduction of the g natural and the subsequent $IV_4^6$ chord, the music touches subdominant harmony for the first time in the theme. The melodic-motivic content also contributes to a sense of contrast in measure 5.[10]

The $2 + 2 + 2 + 2$ sentence type, which is typically found on the eight-measure scale, is often encountered in vocal pieces, as its grouping structure model is very suitable for setting texts consisting of regularly constructed quatrains. It could therefore be nicknamed the *vocal sentence*. Schubert's *Winterreise* song *Auf dem Flusse* opens with such a vocal sentence (Figure 4.7), which is directly repeated, after which we find another vocal sentence (Figure 4.8), also repeated. These four sentences correspond exactly to the first four stanzas of the poem. In the first sentence, the third group of two measures is set apart from the beginning by a sudden, unexpected shift towards d sharp minor, with dynamic indications *ppp* and *sehr leise*. The other sentence ("In deine Decke") realizes a sense of contrast at the same location, by working towards a high e in the solo part while the accompaniment becomes more active, extending its sixteenth notes over the barline.

It must be noted that this sentence type shares its grouping structure model with the archetypal eight-measure period. Especially when the second group displays dominant harmony and the last group brings a perfect authentic cadence, as is the case in the Mozart example in Figure 4.6, the similarity to the period cannot go unnoticed. We return to this issue in Section 4.6.

## 4.4 Third sentence type: decreased group size

The third and last sentence variant decreases the group size in its second half, and therefore exhibits fragmentation techniques. As we shall see, fragmentation can be realized in a number of different ways.

The most obvious sentence with fragmentation consists of eight measures and contains one-measure units in measures 5-6, followed by one two-measure unit in measures 7-8. This variant is the one most commonly associated with the sentence archetype. Indeed, the famous opening of Beethoven's f minor sonata, opus 2 no. 1, largely follows this rhythmic pattern. With its grouping structure of $2 + 2 + 1 + 1 + 2$, this variant contains a miniature type 1 sentence in its second half $(1 + 1 + 2)$ – as a result, it shows a subtle sense of symmetry, as it contains both a decrease in group size in measure 5 (two-measure groups are followed by one-measure groups) and an increase in group size in measure 7 (one-measure groups are followed by a two-measure group). The recurrence of the two-measure unit gives this model a certain balance that perhaps explains why it has turned out to be so popular. Some themes use this recurrence to draw upon motivic material from the basic idea in the last two measures. An example of this procedure can be found at the beginning of the trio from Haydn's piano sonata in G major, Hob. XVI:27, see Figure 4.9.

Many type 3 sentences, however, contain an additional degree of fragmentation, resulting in the grouping structure model $2+2+1+1+\frac{1}{2}+\frac{1}{2}+1$. Instead of a type 1 sentence, we now see another type 3 sentence in the second half $(1+1+\frac{1}{2}+\frac{1}{2}+1)$. An example of such a sentence can be found in the first eight measures of the final movement of Mozart's piano sonata in D major, KV 311,

[10] Caplin analyzes this theme in a similar way: "To compensate for the absence of fragmentation, Mozart accelerates the harmonic rhythm in these measures. To be sure, the IV chord introduced on the third beat of measure 5 (and preceeded by its own dominant) is a neighboring chord in a root-position tonic prolongation. Nevertheless, compared with the lack of any ornamental chords at the level of the idea unit in the presentation, this embellishing of the tonic in the continuation creates a sense of greater harmonic activity." (Caplin 1998, p. 41-42)

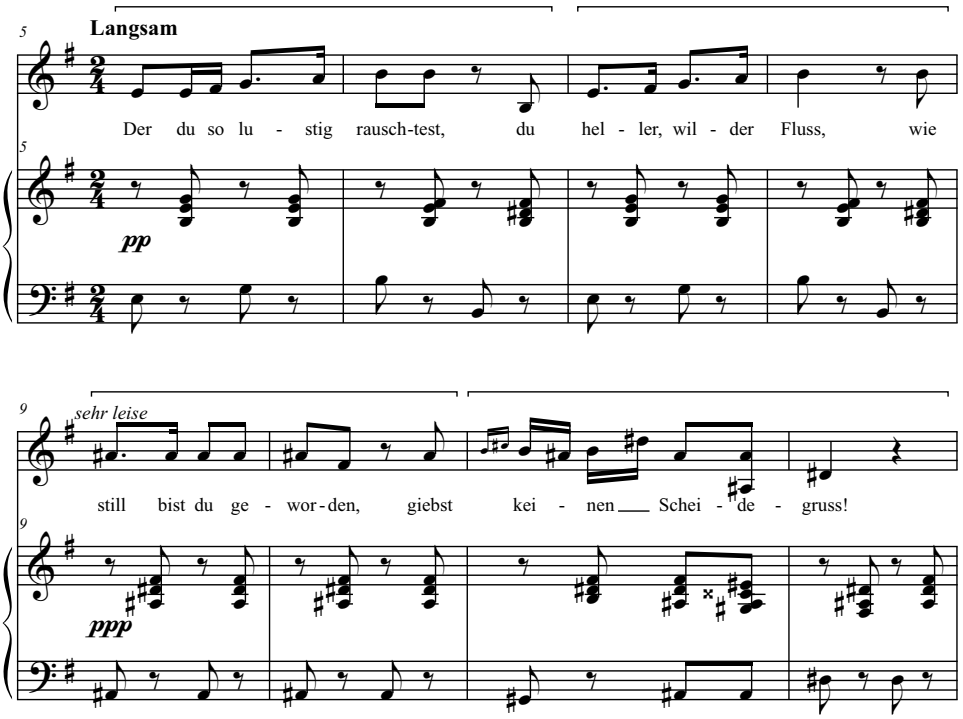



Figure 4.7: Schubert, *Auf dem Flusse*, measures 5ff.

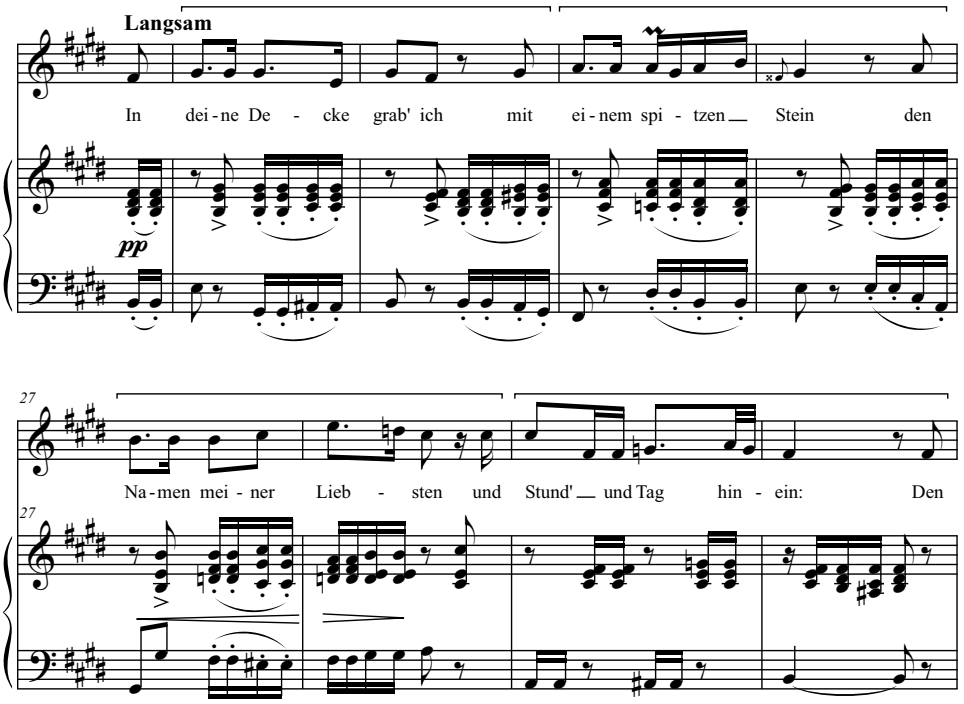



Figure 4.8: Schubert, *Auf dem Flusse*, measures 23ff.

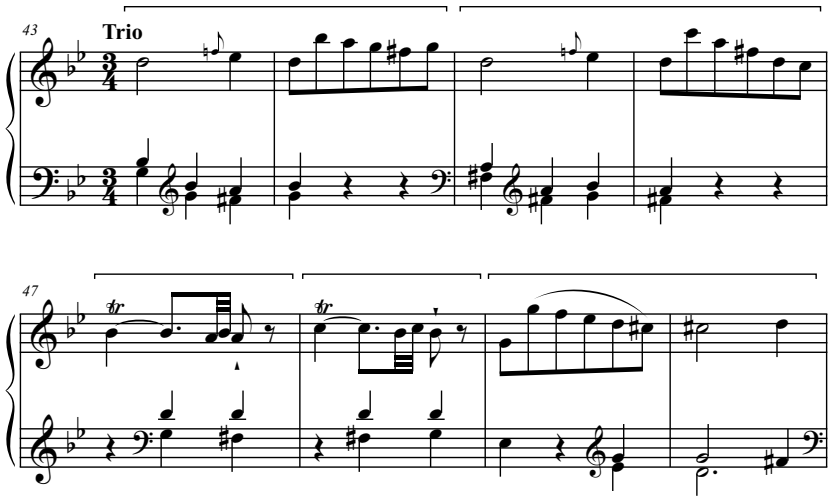



Figure 4.9: Haydn, piano sonata in G major, Hob. XVI:27, second movement, measures 43ff.

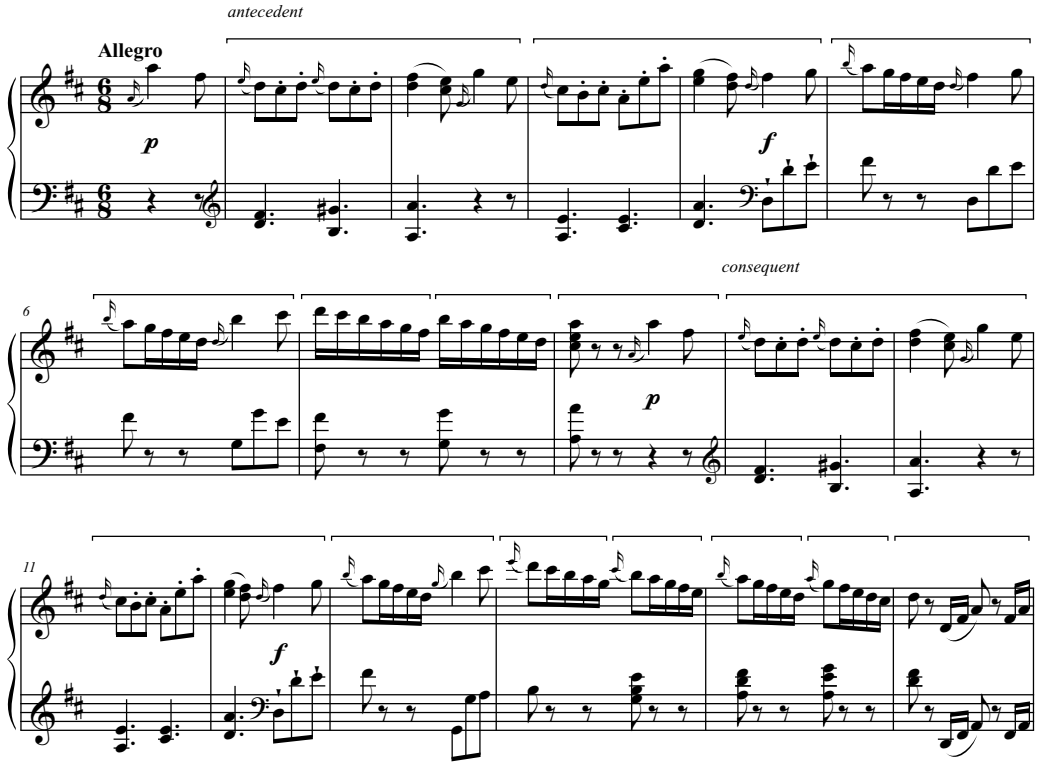



Figure 4.10: Mozart, piano sonata in D major, KV 311, final movement

the antecedent of a compound period (see Figure 4.10). In this sentence, both the melodic-motivic material and the harmony in measure 7 contribute to the fragmentation into half-measure units – as a result, the end of the sentence is extremely energetic. The consequent that starts in measure 9 also contains fragmentation into half-measure units, but starts this process already in measure 14, one measure earlier than the antecedent.

Both the Beethoven f minor theme opening the opus 2 no. 1 piano sonata and the Mozart theme just discussed feature motivic cohesion between the first and second half of the sentence. This motivic cohesion, together with the use of fragmentation techniques, results in a strong forward-driving energy that is so powerful that it is generally regarded as typical of the sentence. Indeed, practically all writers on the sentence use the Beethoven theme as the first and most typical example of the form. This should however not overshadow the existence of sentences exhibiting fragmentation techniques that bring motivic *contrast* in the second half. An example of such a sentence is the opening of Mozart's piano sonata in C major, KV 330 (see Figure 4.11). With a relatively static harmonic foundation, and no motivic development in measure 5, this theme is of a far more simplistic nature than for instance the Beethoven f minor theme, but it does contain a shift in scope from two-measure material to one-measure material in measure 5, which is typical of the gesture associated with the type 3 sentence.[11]

The type 3 sentence can be found on many different hierarchical levels. Not only are many eight-measure themes constructed as a regular type 3 sentence, also many periods consist of two miniature type 3 sentences, one in the antecedent, the other in the consequent (we already saw that the same thing is true for miniature type 1 sentences). An example of such a miniature sentence can be found at the beginning of Mozart's A major sonata, KV 331, where the motivic compression and acceleration of the harmonic rhythm both contribute to a process of intensification in measure 3 (see Figure 4.12).

Also on larger scales, the type 3 sentence can be frequently encountered. Figure 4.13 shows almost the entire development section of the first movement of Mozart's piano sonata in C major, KV 309. It starts not with a two-measure unit of repetition, but with an *eight*-measure unit (although the repetition is condensed into six measures). We see that this unit already comprises two well worked-out musical gestures: an arpeggiated g minor triad, played *forte*, followed by two echos, and a more cantabile gesture which in itself consists of a repeated two-measure unit. These eight measures realize a modulation from g minor to d minor – what follows is a transposition of the first eight measures (with omission of the two echos), as a result of which the music modulates from d minor to a minor, again a fourth lower. This group of six measures is followed by fragmentation: the units of repetition now become two measures in length, and finally one measure (measures 77 and 78). These units exhibit model-sequence techniques, very characteristic of measures 5 and 6 of the eight-measure sentence. The fragment ends with a perfect authentic cadence ($\sharp IV^7$–$V^7$–I) in a minor.

Not only do the proportions in the grouping structure here correspond very well to a regular type 3 sentence, we even see that the initial motive is developed and liquidated when the fragmentation process starts in measure 73. As a result, the whole passage has an enormous sense of unity. Moreover, this large-scale sentence, which contains an additional degree of fragmentation in measures 77-78, shows very well that a type 3 sentence can harbor another type 3 sentence in its second half: the grouping structure of measures 73-82, $2+2+1+1+4$, corresponds almost exactly to a regular eight-measure type 3 sentence, with only the last, cadential group being stretched out in time.

[11] By saying that measure 5 here brings a contrasting motive, we do not wish to claim that this motive is completely unrelated to the first motive: whereas the initial motive is basically a descending C major triad (with ornamental notes), the second motive is an *ascending* F major triad. The motive in measure 5 can therefore be seen as a compressed inversion of the initial motive.

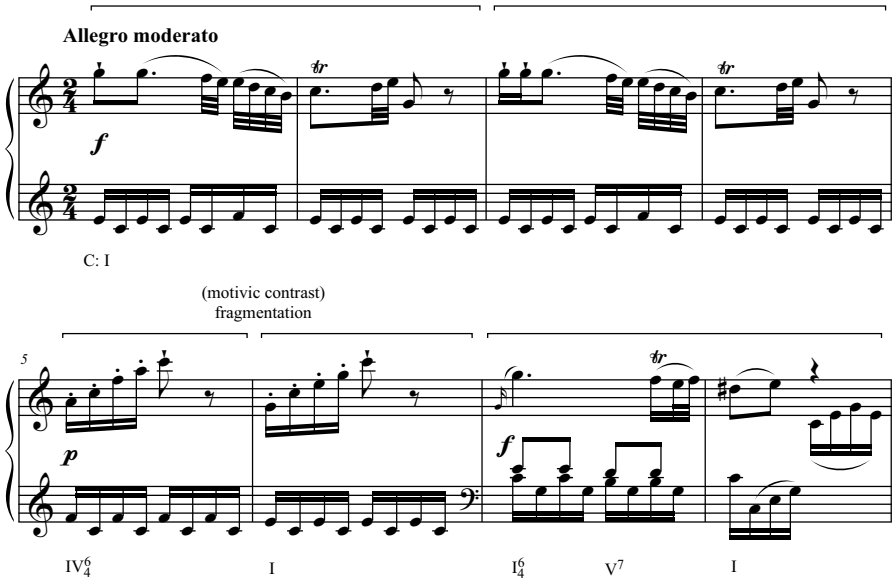



Figure 4.11: Mozart, piano sonata in C major, KV 330, first movement

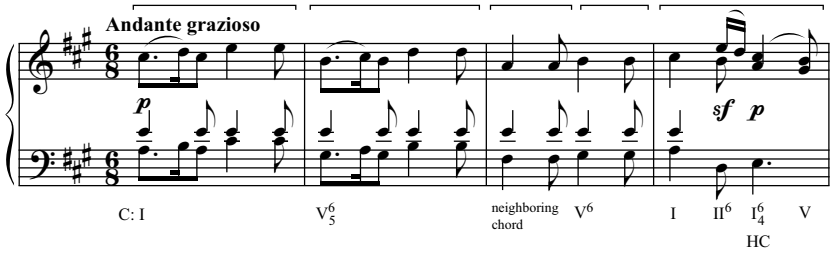



Figure 4.12: Mozart, piano sonata in A major, KV 331, first movement

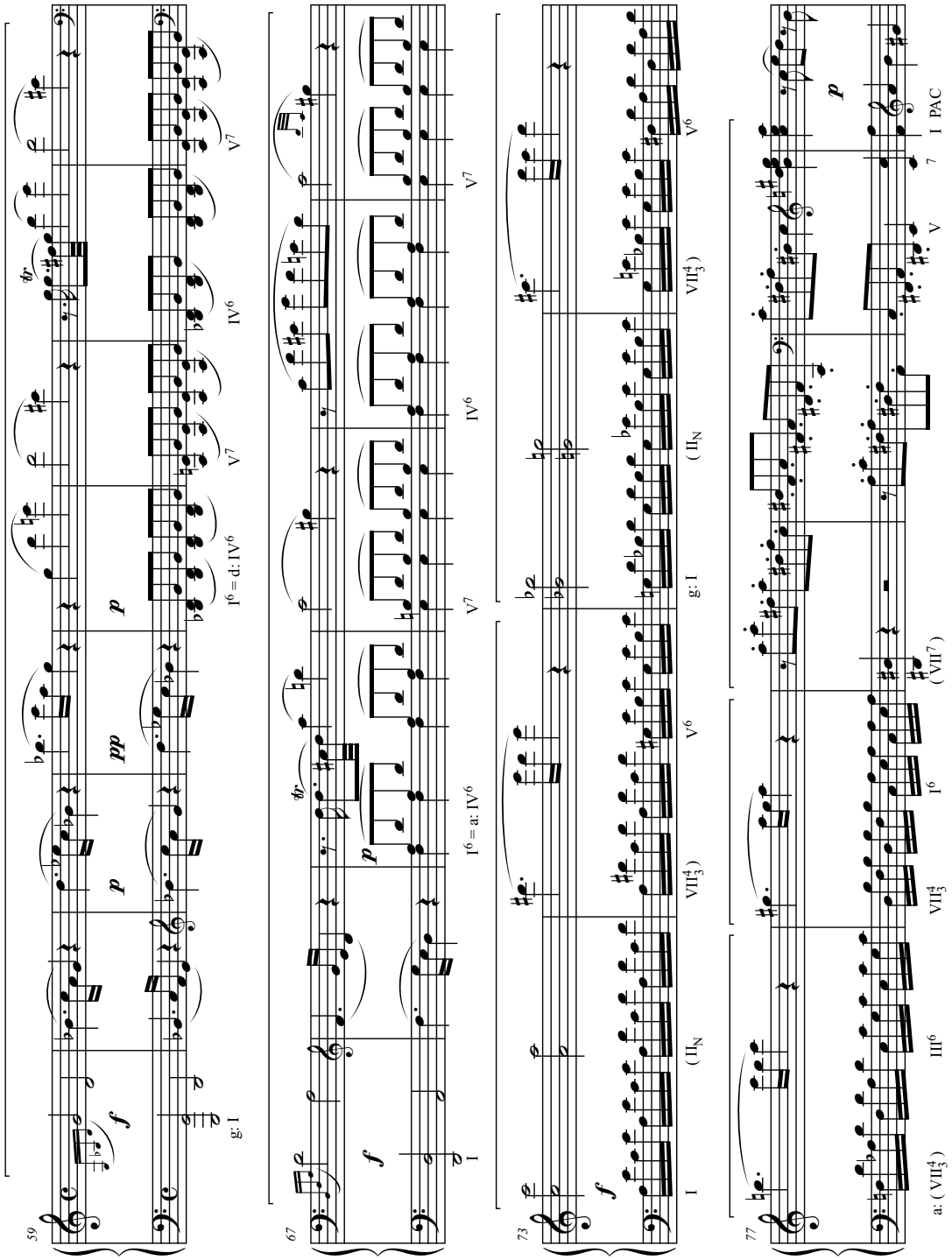



Figure 4.13: Mozart, piano sonata in C major, KV 309, measures 59 ff.

As we have seen, fragmentation techniques can be employed in a number of different ways. Some sentences realize fragmentation by means of a miniature type 1 sentence, others contain a miniature type 3 sentence. And in the consequent of Mozart's KV 311 theme (Figure 4.10), we have seen fragmentation techniques without the use of a miniature sentence. All these variants can best be grouped together under the name *sentence with fragmentation*.

## 4.5 What makes a group?

We have introduced our sentence variants above without going into too much detail regarding the grounds upon which certain grouping structures emerge in analysis. An important point of discussion remains, therefore, how melodic-motivic content and local harmonic progressions both give shape to the various grouping structures we have distinguished. We discuss both parameters in separate sections below.

### 4.5.1 The role of melodic-motivic content

The melodic-motivic content plays a leading role in distinguishing groups. As we have seen in Figure 4.1, we can identify a sentential grouping structure even in pitchless repertoires. In such cases, it is only the motivic organization that is able realize a certain grouping structure. Similarly, we have seen that a sentential grouping structure can be distinguished in cases in which the harmony is relatively static, even tonic-prolongational. In Mozart's C major theme opening KV 330 (Figure 4.11), tonic harmony is prolonged all the way up to measure 6, while a sentential design is clear due to the motivic organization of the theme. In the first four measures of Beethoven's G major theme from the second movement of the piano sonata opus 49 no. 2 (Figure 4.2), tonic and dominant are simply alternated while the motives bring forth a type 1 sentence.[12]

Dominant-prolongational type 3 sentences can also frequently be encountered, for instance in contrasting middle sections of small ternaries. Consider for example measures 38-41 from the final movement of Haydn's string quartet in B flat, Hob. III:1 (Figure 4.14), which is a fourteen-measure dominant-prolongational type 3 sentence, as indicated with the brackets above the staff. Of course, the harmony does support this structure by alternating two different dominant sonorities (V and $I_4^6$).

A final example of a harmonically static type 3 sentence can be found at the beginning of Richard Wagner's *Die Walküre* (Figure 4.23 on page 72). This sentence prolongs tonic harmony, with no changes in sonority. One could call this a rhythmic sentence, similar to the one in Figure 4.1, since the harmonic content contributes nothing whatsoever to the realization of its grouping structure.[13]

Sentential grouping structure arises first and foremost by melodic-motivic repetition. Since a sentence opens with a repeated gesture of a certain size, it is often the repetition of some melodic-motivic idea (or group of ideas) that sets the sentence in motion. In type 3 sentences, repetition of motives plays a crucial role also in the continuation, in which the units of repetition become smaller in length compared to the opening gesture. In type 1 sentences, melodic-motivic repetition tends to come to a halt in the continuation.

But motivic repetition is not the only deciding factor. Often, a clear separation of different motives causes multiple groups to emerge. We already saw this for the type 1 sentence opening the second movement of Beethoven's piano sonata in g minor, opus 49 no. 1 (Figure 4.3). In

[12] Other examples: Mozart, aria *Batti, batti, o bel Masetto* from *Don Giovanni* starts with a compound period, of which both antecedent and consequent are tightly-knit type 3 sentences with tonic-prolongational harmony in measures 5 and 6; Mozart, symphony no. 41 opens the first movement with a loosely-knit type 3 sentence that brings a tonic pedal point during its fragmentation process.

[13] It must be noted that this sentence is in fact extremely loosely organized. We discuss this aspect further in Section 4.8.

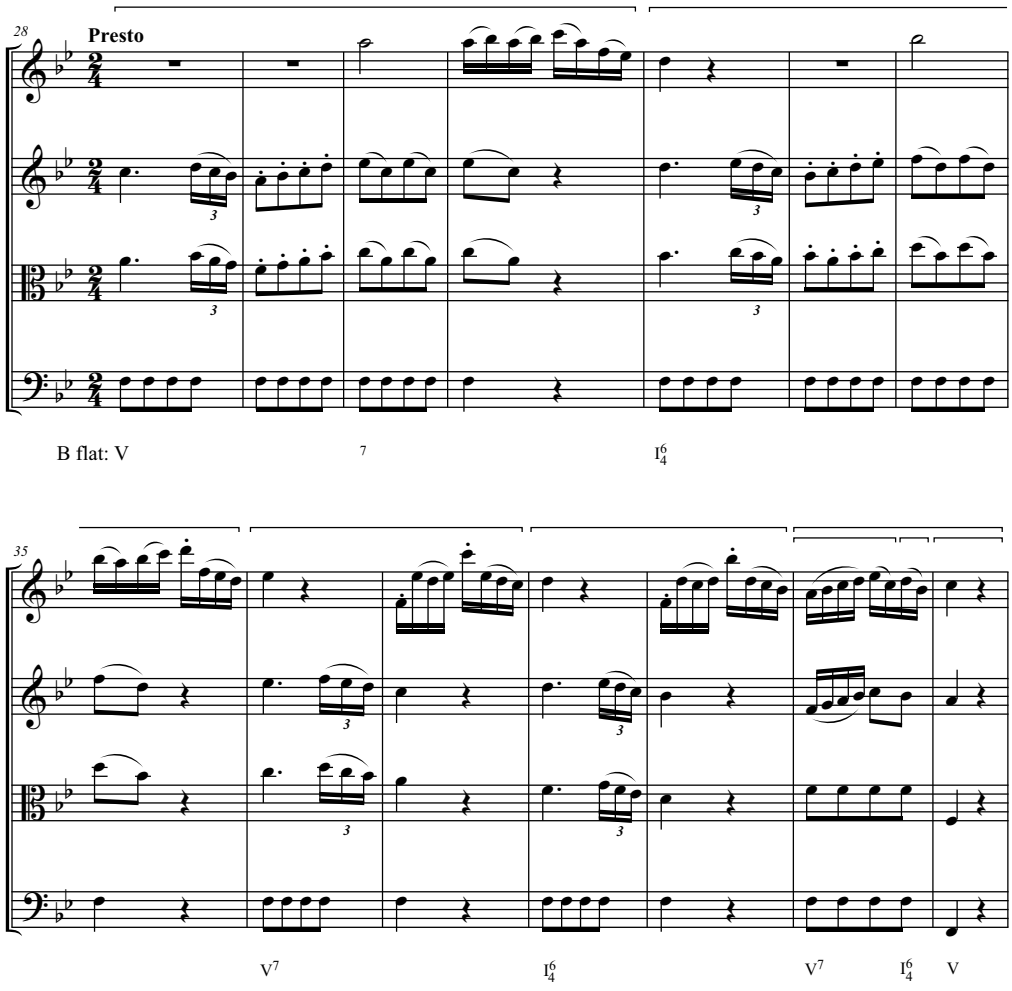



Figure 4.14: Haydn, string quartet in B flat major, Hob. III:1, final movement, measures 28 ff.

this sentence, a clearly separated, new motive starts halfway measure 2, causing a separation of groups. Similarly, measures 5-8 of the opening theme from Mozart's violin sonata in A major, KV 402 (Figure 4.6), brings two clearly separated melodic-motivic ideas, which readily persuades us to distinguish two groups in these measures.

### 4.5.2 The role of harmonic content

Local harmonic content plays a supporting role when it comes to identifying groups in analysis. We have seen in the previous section that occasionally the harmony of a sentence is more or less static while the motivic organization is responsible for creating a sentential design.

Nevertheless, it is possible for the harmony to support a sentential grouping structure very actively. This effect is strongest when the beginning of a new group is underlined by a change in harmonic function. Occasionally, however, a mere change in sonority gives some support to the identification of different groups (when for instance V is followed by $I^6_4$, or I by $IV^6_4$, or vice versa).

When harmony and melodic-motivic material both support a certain grouping structure, a single, unambiguous sentential construction can be expressed. This is for instance the case in the four-measure type 3 sentence in Mozart's A major theme from KV 331 (Figure 4.12). In such cases, a strong forward-striving pulse can be realized, as we already saw in measures 7-8 of the last movement of Mozart's piano sonata in D major, KV 311 (Figure 4.10).

However, when the harmony brings a functional change while the melody *does not* call for the identification of a new group, an interesting situation can arise in which both parameters appear to operate very much independently from each other. This is the case for instance in measure 7 of Beethoven's f minor theme opening opus 2 no. 1 (Figure 1 on page 10). In this measure, motivic fragmentation has come to end, but the harmonic rhythm is accelerated further when compared to the previous measures. The question then arises: does measure 7 realize an increase in musical tension or a relaxation? A case could be made for both answers – as a result, we can again say to be dealing with a "polyphony of parameters," a concept already introduced earlier in this thesis,[14] meaning harmony and melodic-motivic content are not always collaborating to realize a single, unambiguous formal process. A lack of synchronization between these parameters can enable us to experience the music in different ways, sometimes significantly complicating formal analysis.

#### 4.5.2.1 The cadence

Although the sentence is, in our conception, primarily dictated by motivic organization and less by harmonic content, the cadence is a strong factor which puts limits on what can be called a sentence or sentential. Practically all theorists assume that a sentence cannot extend over a cadence: once we encounter a cadence, the sentence comes to an end.[15] Also BaileyShea writes that "the sentence, according to all existing models, never exceeds a single cadential span (...)."[16]

Although we do not wish to argue with this view, it must be noted that the grouping structure associated with the type 3 sentence (i.e. a decrease of group size after two groups of equal size) can often be found across multiple subsequent cadential spans as well. It is in such cases that we encounter the limits of what can still be called a sentential gesture.

Consider for example Figure 4.15, which shows almost the complete development section from Mozart's piano sonata in F major, KV 332. It opens with a regular eight-measure type 1 sentence in measure 94-101, which is then repeated one octave lower. The units of repetition then become two measures in length instead of eight measures. Note that from measures 113 even the dynamics,

[14] See page 38.

[15] The only exception could possibly be Caplin's hybrid theme type *antecedent + continuation*, see Section 2.3.4 on page 25, in which a half cadence concludes the first half. In Caplinian theory such themes are no sentences, but of course they do contain certain sentential characteristics.

[16] BaileyShea 2003, p. 88

with *forte* and *piano* alternated very quickly, contribute to the fragmentation process, causing the units of repetition to arguably be even one measure in length.[17] The dominant chord that causes a half-cadential arrival in measure 123 is then prolonged for four measures (which are themselves organized as a small-scale type 3 sentence) up to measure 126.

Just like the fragment from KV 309 discussed in Figure 4.13, this development section contains what seems to be a large type 3 sentential gesture. The difference with KV 309, however, is that this KV 332 fragment contains two perfect authentic cadences: one in measure 101, the other in measure 109. Another difference is that whereas KV 309 started a liquidation process at the onset of the fragmentation and therefore exhibited motivic cohesion all the way through the sentence, KV 332 brings motivic contrast in measure 109, and a radical change in character. As a result, this fragment of 33 measures tends to "fall apart" into separate groups that simply stand next to each other without forming a larger, cohesive pattern. Whether the passage is eventually to be called a sentence or even sentential remains very questionable, but the grouping structure remains strikingly similar to the type 3 sentence nevertheless.

Of course, the cadence is also a deciding factor when determining whether a certain passage is a period or a small binary rather than a sentence. We discuss this in the following two sections.

## 4.6 Sentence versus period

As we have argued in Section 4.1, we regard the sentence as being primarily driven by hypermetric and motivic phenomena, imposing not many requirements with respect to local harmonic content such as cadence, while the period, on the other hand, does require a weak cadence halfway and a stronger cadence at the end, typically a half-cadence and a perfect authentic cadence, respectively.

The fact that both forms, sentence and period, have different foundations with respect to the actual musical content indicates that they can enter into dialogue with each other when the hypermetric grouping structure resembles that of a sentence, while the harmonic content resembles that of a period. We discuss this dialogue below, using three examples of classical themes that all contain sentential characteristics, but each one being more "periodical" than the previous one.

The similarity between sentence and period is strongest when we look at the vocal sentence, with its $2+2+2+2$ grouping structure model being exactly the same as that of the archetypal period. We already touched upon this issue when discussing the opening theme from Mozart's violin sonata in A major, KV 402 (Figure 4.6 on page 52). We called this theme a sentence instead of a period, even though measure 4 features dominant harmony and measures 7-8 bring a perfect authentic cadence. Here, another criterion for identifying periods arises, which, confusingly enough, does not concern harmonic content at all: measures 5-6 ought to bring a restatement of the opening two measures in order to speak of a period. Without this sense of reprise it is unclear if we could be dealing with a period at all.[18]

But there is another complicating factor in this theme, namely that it is unclear whether measure 4 features a half cadence or not. In Caplinian theory, this question must be answered in the negative, since the dominant chord here features a seventh and, moreover, is already given in measure 3. As a result, we are dealing with a statement-response type repetition of a basic idea and not with a half cadence, which in turn means that we have a presentation phrase in the first four measures instead of an antecedent phrase. Although we do not wish to argue with this view per se, we do note that by its harmonic organization, this theme lends itself much more to an analysis as a period (or a "periodical" theme) than most other sentences.

[17] This passage is actually very ambiguous in its grouping structure: we can assume groups of one-measure size due to the harmonic rhythm and the dynamics, groups of two measures due to the recurrence of tonic and dominant pairs, and finally even groups of four measures as a result of the fact that measures 114-117 are repeated a perfect fifth higher in measures 118-121.

[18] Caplin is very clear on this topic: "To create the impression of repeating the antecedent phrase, the consequent must begin with a restatement of the initial basic idea." Caplin 1998, p. 53

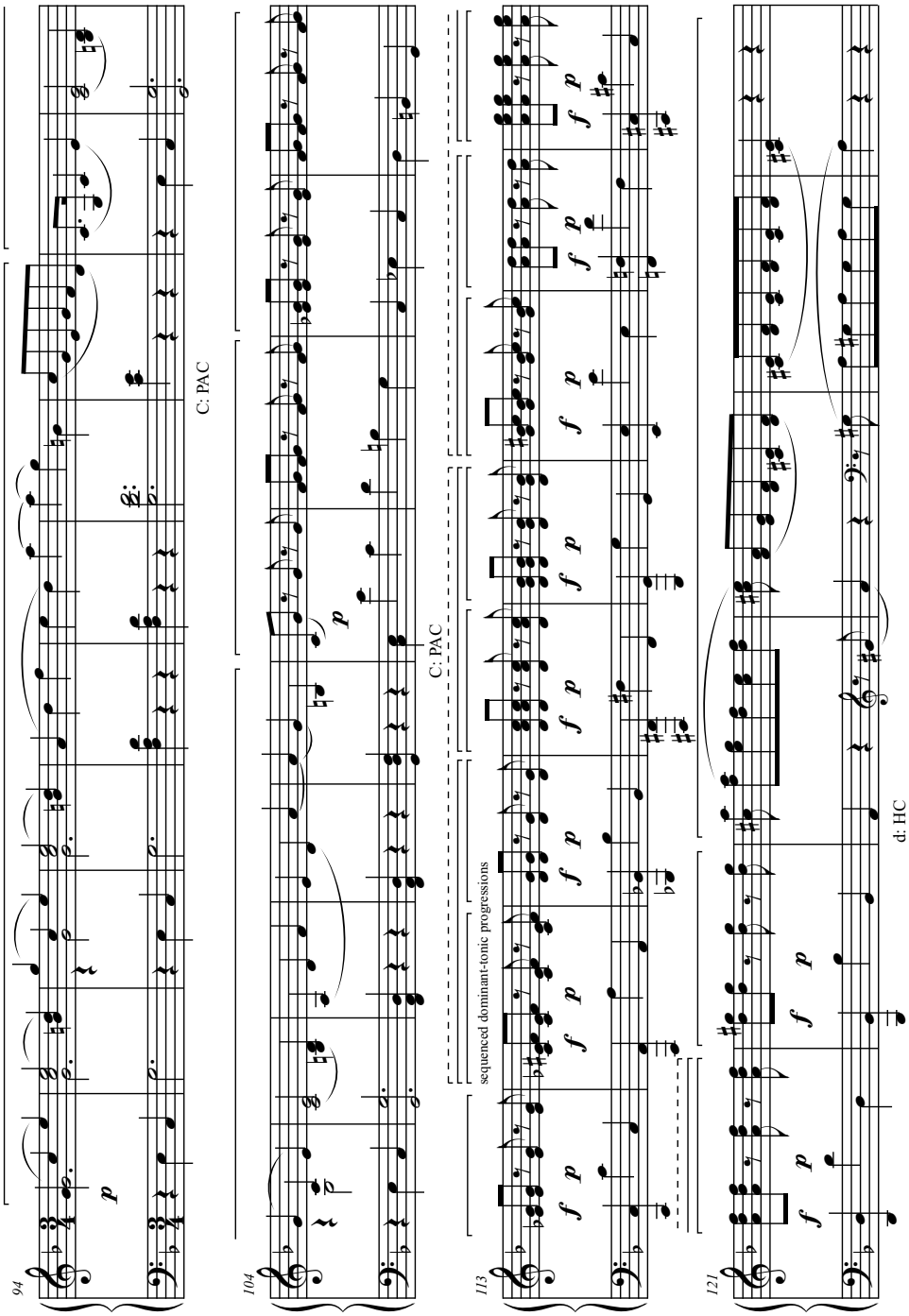



Figure 4.15: Mozart, piano sonata in F major, KV 332, measures 94 ff.

We can take this another step further when we consider a theme much like this Mozart theme, but which does bring a restatement of the first two measures in measures 5-6. Figure 4.16 shows the subordinate theme from Beethoven's violin concerto. Just like the Mozart theme, it starts with a statement-response type repetition of the initial two measures, now arriving at a dominant triad in root position in the fourth measure. Yet Beethoven then concludes this theme as if it were a period, bringing a restatement of the initial idea in measures 47-48 and a perfect authentic cadence at the end.

We now have three options. We can choose to accept the axiom that the statement-response repetition of the first four measures signals the beginning of a sentence, that the grouping structure corresponds to the $2+2+2+2$ model, and that we are therefore dealing with a type 2 sentence. This would obviously be very undesirable as the allusions to the period unquestionably present in this theme would not be accounted for. Secondly, we can choose to reinterpret measure 46 as a half cadence, and label the whole theme a period. This analysis would be better, but it would neglect the fact that measures 47-50 *could* have concluded the theme as a sentence. In fact, the second repetition of the initial idea in measures 47-48 gives this theme a sense of redundancy very well described by Caplin: "Of the logically possible ways in which the various phrases of the sentence and period can be combined to make a hybrid, one pattern is conspicuously absent [in the theory of *Classical Form*] – a theme that begins with a presentation and ends with a consequent. (...) The resulting redundancy of material within an excessive tonic prolongation likely explains why this potential type of hybrid seldom occurs in the repertory."[19]

In other words, our third option would be to interpret this theme as belonging to the rare hybrid category *presentation + consequent*. Although this may be the best option we have, we must still explicitly mention that this particular presentation phrase lends itself relatively well to a continuation as a period, since it ends with a dominant triad in root position. Therefore, the theme does not simply "switch" from sentence to period halfway; the continuation as a period is already prepared by the presentation phrase.

We discuss a final, even more intricate example of a theme that brings a half cadence in measure 4, which is then followed by a restatement of the initial idea, while the theme as a whole can still be seen to exhibit sentential characteristics.

Figure 4.5 shows the opening of the second movement of Beethoven's piano sonata in f minor, opus 2 no. 1. At first glance, this theme appears to be a straightforward period, featuring a half cadence in measure 4, a restatement of the beginning in measure 5, and a perfect authentic cadence at the end. But when we take a closer look, we can discern a type 1 sentence in these measures as well: measures 3-4 bring a varied repetition of the first two measures, featuring almost exactly the same harmonic organization and a descending melodic pattern in measure 3 very much comparable to the melodic line in measure 1. Then, a second repetition of the initial measure is set up in measure 5, and a grander version of the opening material arises, spanning four measure and eventually reaching a cadence – a procedure we recognize from the type 1 sentence. Especially noteworthy is the fact that the $I_4^6$–V progression found in measure 2 is not repeated in measure 6, as a result of which the music now "takes off" in a new direction – a procedure not often found in the consequent of a conventional period.

Now we do not at all wish to claim that this Beethoven theme must be interpreted as a sentence and not as a period. Rather, we plead for a nuanced approach to analyzing sentences and periods, an approach in which both concepts can enter into dialogue. Of course, in the majority of cases, we are very clearly dealing with either one (or neither, for that matter), but the fact that the criteria with respect to sentences' and periods' essential characteristics are distributed over different musical parameters (melodic-motivic material, grouping structure, and harmonic content) which can all behave independently from each other according to a "polyphony of parameters," indicates that distinguishing between the two will not always be a straightforward matter. A multifaceted approach to analysis as proposed here then becomes necessary.

[19] Caplin 1998, p. 63

Not only does the sentence occasionally enter the realm of the period, its grouping structure can also frequently be encountered in small binaries. We discuss this issue in the next section.

## 4.7 Sentence versus small binary

In the previous section we discussed the relationship between the sentence and the period. Similarly, there can be a correspondence between the sentence and the small binary.

We largely use Caplin's definition of the small binary here, which means that it is a theme comprising two parts, the first often presenting a conventional construction (such as a sentence or a period) of eight measures that closes with a cadence, after which the second part usually brings a contrasting middle section of four measures, comparable to that of the small ternary, and finally presents a four-measure cadential unit that closes the theme.[20]

Figure 4.18 shows such a small binary: the opening of the final movement of Haydn's piano sonata in E major, Hob. XVI:31. Due to the repeat of the first four measures[21] in measures 5-8, we could expect a continuation as a sentence. When the first eight measures are then repeated, this expectation is thwarted, but when we finally reach measure 9, i.e. the contrasting middle, we now *do* encounter a repeated unit of two measures, very much reminiscent of the fragmentation process of the sentence we could be expecting in the first place. There is even a sense of fragmentation into half-measure units in measure 14, after which a cadence finally closes the theme (but not before the last eight measures have been repeated as well).

Of course, the binary organization accentuated by the repetition signs results in a balance that is not typical for the sentence at all. But we do see that, once a composer has written units of equal lengths for a certain period of time, he is bound to enter a fragmentation process sooner or later. This happens in the sentence (type 3), as well as in many constrasting middle sections of small binaries.[22] It must be noted, though, that the association with the sentence is strongest in case the first eight measures of the small binary consist of a repeated four-measure unit (for instance when the small binary opens with an eight-measure period). In case the first eight measures are constructed as a sentence in themselves, the association with a large-scale sentence becomes weaker.

The sentence can play a role in the small binary in another way as well, in that the entire second part can be organized as a sentence as well. Consider the opening of the second movement of Haydn's piano sonata in A major, Hob. XVI:30. This small binary opens with a type 3 sentence in the first eight measures, which is the followed by *another* type 3 sentence in measures 9-16: the repetitional pattern of these measures is clearly $2 + 2 + 1 + 1 + 2$. We already saw that two eight-measure sentences can form a sixteen-measure period, but here we see that two eight-measure sentences can also form a small binary. The most obvious difference between the two constructions is that the small binary has repeat signs while the sixteen-measure period does not. But another difference is the fact that, in the sixteen-measure period, the opening of the consequent reiterates the beginning of the antecedent. The small binary discussed here displays very nicely how a subtle reorganization of the harmony at the beginning of the second sentence, working towards subdominant harmony in measure 12, prevents us from associating the passage with a period.

[20] Caplin's description of the form is much more detailed, cf. Caplin 1998, p. 87-93.

[21] These measures are themselves constructed as a miniature type 3 sentence.

[22] The same is true for contrasting middle sections of small ternaries, but the recapitulation at the end of the small ternary cannot be associated very well with anything that happens in a regular type 3 sentence.

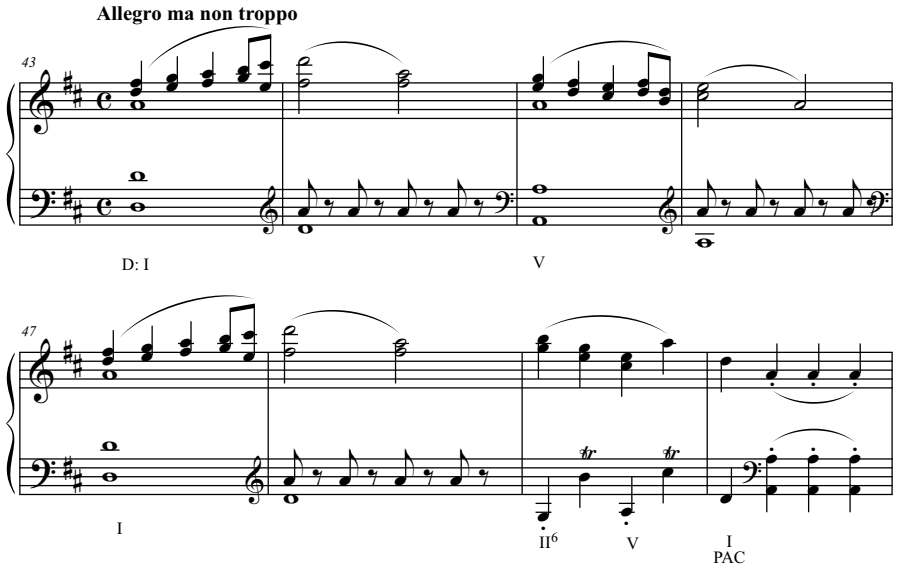



Figure 4.16: Beethoven, violin concerto in D major, opus 61, first movement, measures 43 ff.

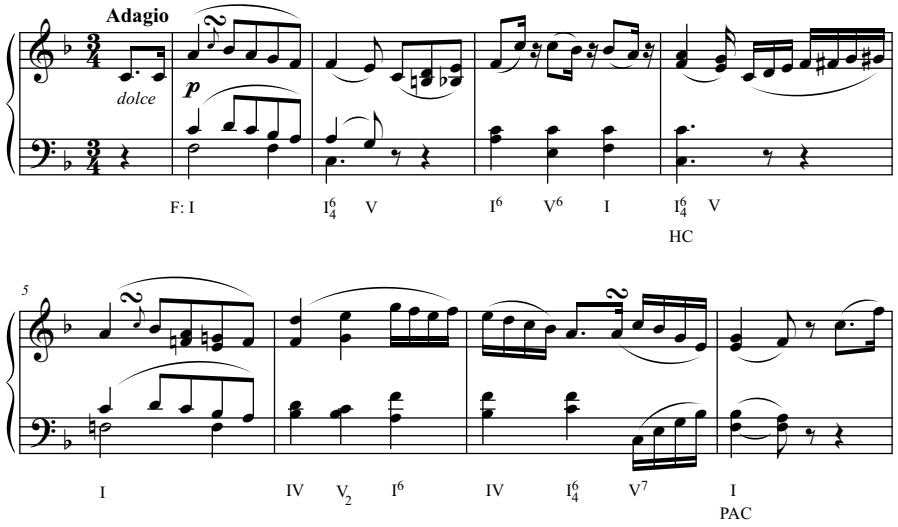



Figure 4.17: Beethoven, piano sonata in f minor, opus 2 no. 1, second movement

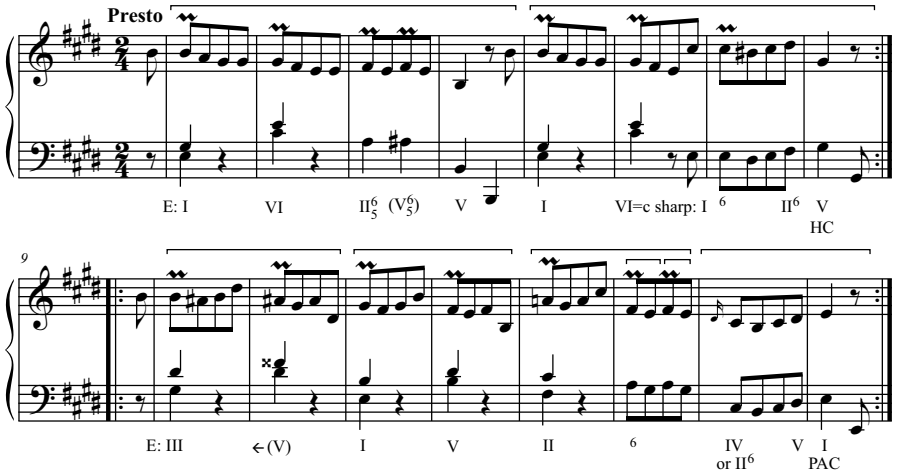



Figure 4.18: Haydn, piano sonata in E major, Hob. XVI:31, third movement

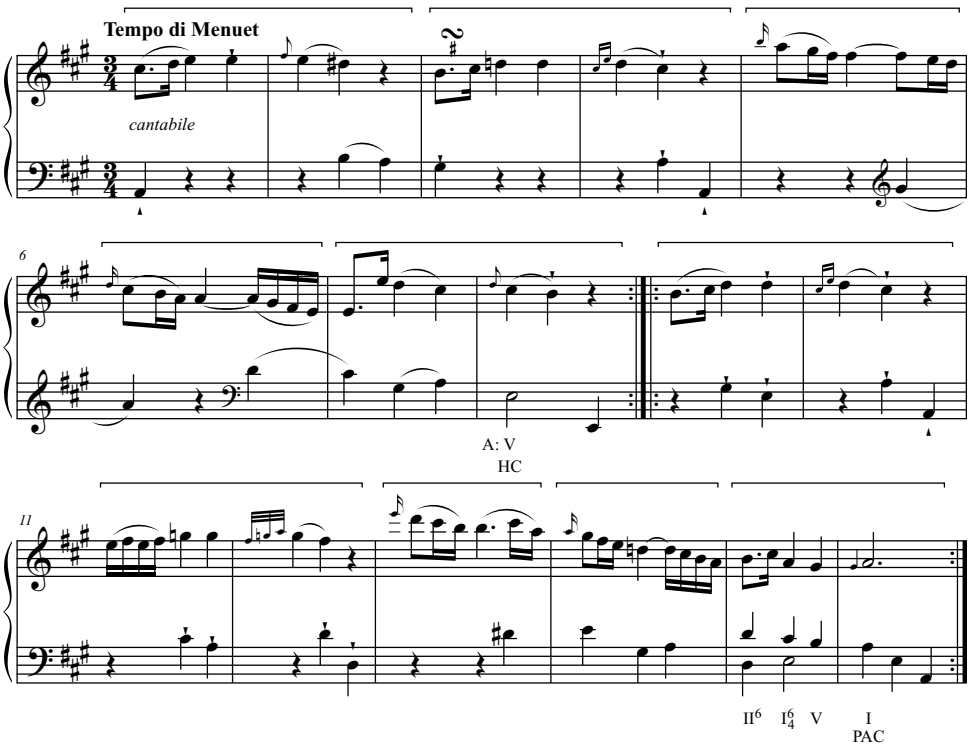



Figure 4.19: Haydn, piano sonata in A major, Hob. XVI:30, second movement

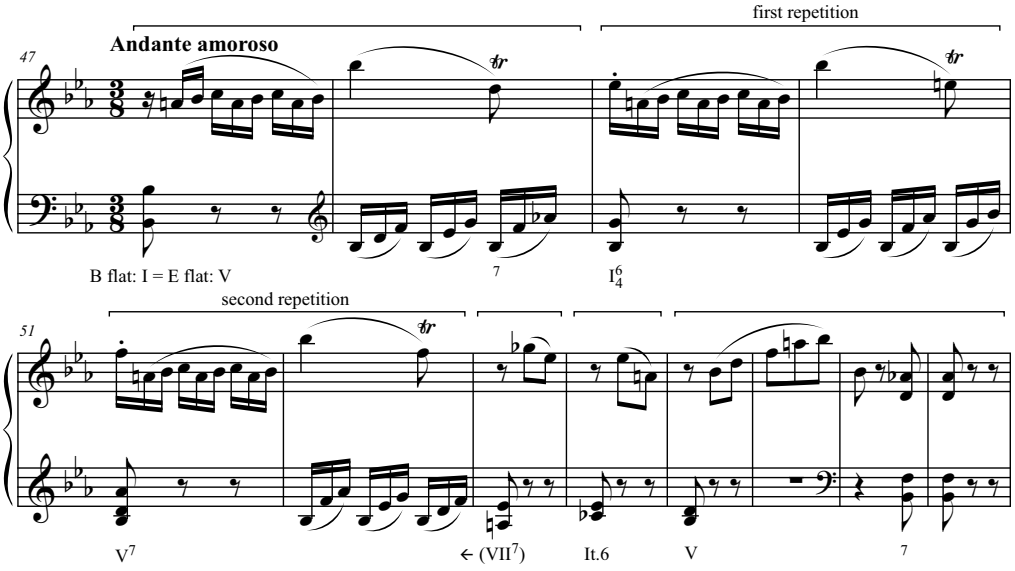



Figure 4.20: Mozart, piano sonata in B flat major, KV 281, second movement, measures 47 ff.

## 4.8 Loosening techniques

There are several ways in which a sentence can be loosely organized. The term "loosely organized" in our context means that the grouping structure does not conform to the standard patterns we have seen so far, in which the total number of measures is equal to a power of 2. Since the sentence is a highly adaptable form, many such loosening techniques are thinkable. We discuss four important techniques in separate sections below, with examples mainly from type 3 sentences, of which loosely organized variants can be encountered very frequently.

### 4.8.1 Two initial repetitions

A common way to loosely organize the opening of the sentence, is to provide a second repetition of the initial idea. An example of this technique is given in Figure 4.20, the development from the second movement of Mozart's piano sonata in B flat major, KV 281. Of particular interest is the fact that we might be expecting additional units of fragmentation after such a long initiating phase; but Mozart chooses to compose only two such units, as if we were dealing with a regular eight-measure sentence.

### 4.8.2 Additional units of fragmentation

The most common way for a composer to extend the type 3 sentence beyond its normative size, is to include additional units of fragmentation. This technique is ubiquitous both in eighteenth- and nineteenth-century music, and is often employed to construct sentences of very large dimensions. An example can be found in the subordinate theme of Mozart's piano sonata in C major, KV 454, see Figure 4.21.[23]

[23]This loosening technique bears resemblance to the *Fortspinnungstypus*, as argued by BaileyShea in BaileyShea 2004 (see also our discussion in Section 2.4.4).

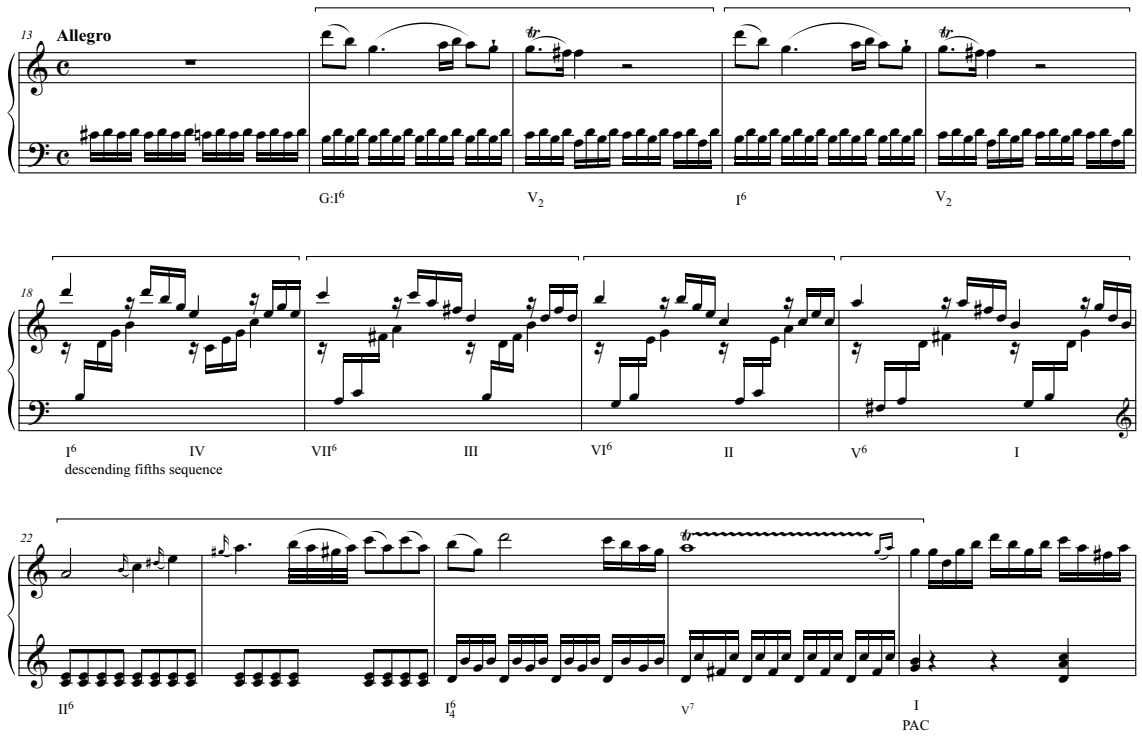



Figure 4.21: Mozart, piano sonata in C major, KV 545, first movement, measures 13 ff.

### 4.8.3 A separate closing group

Occasionally, a sentence is closed with a group that is clearly separated from the previous groups. This group is most typically found after a fragmentation process; the closing group is then larger than the units of fragmentation, bringing the fragmentation process to a halt while entering the final phase of the sentence. Often, this closing group is supported by cadential harmony, but this need not necessarily be the case.

This phenomenon is often found in combination with additional units of fragmentation, as a result of which the sentence can grow quite large. This can be observed in the Mozart example discussed in the previous section (Figure 4.21), which exhibits both loosening techniques.

### 4.8.4 Combinations of different sentence types

We often find hints of several different sentence types in one and the same musical passage. When this happens, we are mostly dealing with combinations of sentence types 1 and 3, often also employing loosening techniques already discussed in the previous sections. Since it is near impossible to give a complete overview with respect to the ways in which several sentence types can interact, we merely discuss a few examples in this section. Although these combinations can be found in the music of the classical style as well, it is especially in nineteenth-century Romanticism that these ambiguities are sought after most actively. Therefore, the examples in this section are taken from the works of Liszt and Wagner, each example bringing an increase in complexity.

In some cases, we cannot easily distinguish a sentence with two initial repetitions from a regular type 1 sentence. This is the case in the fragment from the overture to Act Three from Wagner's *Tristan und Isolde*, discussed earlier on page 43, Figure 3.6. We can choose measure 20 to signal the beginning of a long gesture, as if the whole fragment were a type 1 sentence, but we can also say to be dealing with a second repetition of the initial idea in measures 20-21 (now shortened

with one quarter note), after which a fragmentation process starts. The difference between these two analyses lies in the status one wishes to ascribe to the fragmented units in measures 22-25: are these to be understood as functioning on the same structural level as the initiating phase, or must they be seen as subordinate to an overarching, large gesture?

The separate closing group discussed in the previous section can be a source of ambiguity also. Figure 4.22 shows a fragment from Liszt's b minor sonata, the dominant pedal point preparing the famous *Grandioso* theme in D major. At first glance, this fragment seems to be a regular type 3 sentence with an initial repeated unit of six measures, units of fragmentation of two measures each, and a separate closing group in measures 101-104. But as a result of the motivic cohesion all the way through the sentence, the closing group also seems to present a more elaborate version of the main motive (the descending scale in the left hand), which reminds us of the continuation of a type 1 sentence.

This latter interpretation becomes even more convincing when we observe that Liszt does not employ liquidation techniques at the beginning of the fragmentation process; instead, he uses a diminuted version of the descending scale motive. In that sense, the separate closing group provides a continuation for this motive not heard earlier, not even in measures 81-92, an effect that is strongly related to the gesture associated with the type 1 sentence. Nevertheless, the validity of an analysis in terms of a type 3 sentence, especially of measures 81-100, remains unquestionable.

A similar, but more complex example can be found at the opening of Wagner's *Die Walküre*, see Figure 4.23. As argued in Section 4.5.1, a sentential design is expressed solely by means of motivic organization, as the harmony remains a completely static tonic pedal point throughout the whole fragment.

Wagner's compositional technique in these measures is actually quite clear: a two-measure melodic motive is presented in the first four measures, after which both the first half and the second half of this motive are repeated in isolation (measures 5-8 and 9-10, respectively). As a result, however, measures 8-9 restate the initial two measures, and we may therefore experience an *interruption* of the fragmentation process at this point. It then becomes an option to interpret measures 5-9 as a type 1 sentence with two initial repetitions – this would be very debatable, though, as measures 8-9 do not bring a more elaborate version of some musical material at all, but rather fall back on something already heard before.

On the other hand, we *may* be able to identify a type 1 sentence at the end of this fragment, as it is closed with a relatively large group of four measures. But where does this sentence begin? Observing the motivic organization, we might locate it in measures 11-16, and interpret it as a $1 + 1 + 4$ model. Another option would be to assume a more balanced $2 + 2 + 4$ model, accommodating measures 9-10, and likewise measures 11-12, in a single group due to their motivic correspondence. This, however, would not account for the repetitions found within these two-measure groups themselves.

This Wagner example demonstrates how different sentence types can interact to a high degree, eventually even blurring the boundaries between them. Although a simple sentential design is clear right away in the first six measures, multiple sentence models and loosening techniques are needed to accurately describe the form that the fragment as a whole is expressing.

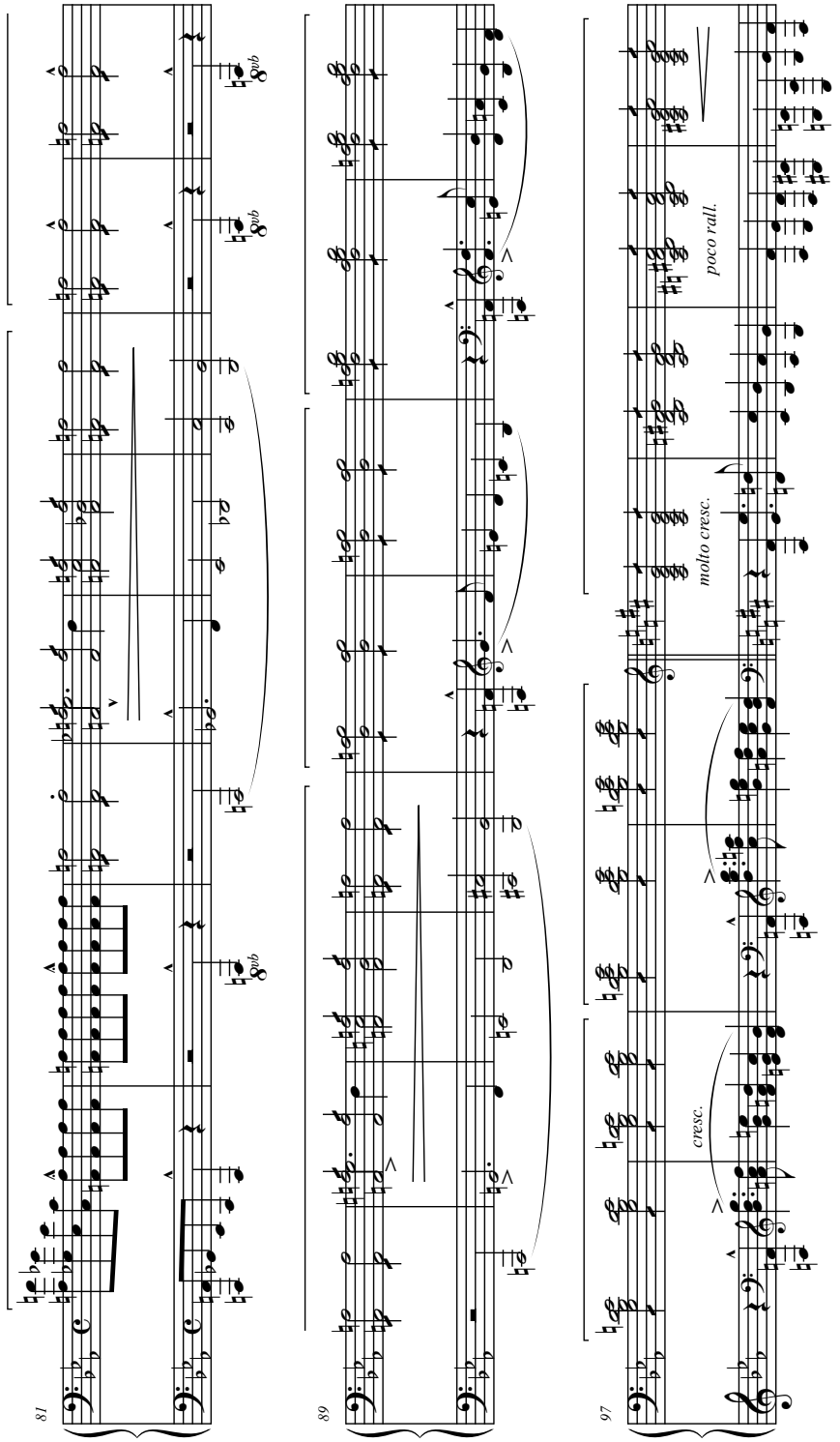



Figure 4.22: Liszt, piano sonata in b minor, measures 81 ff.

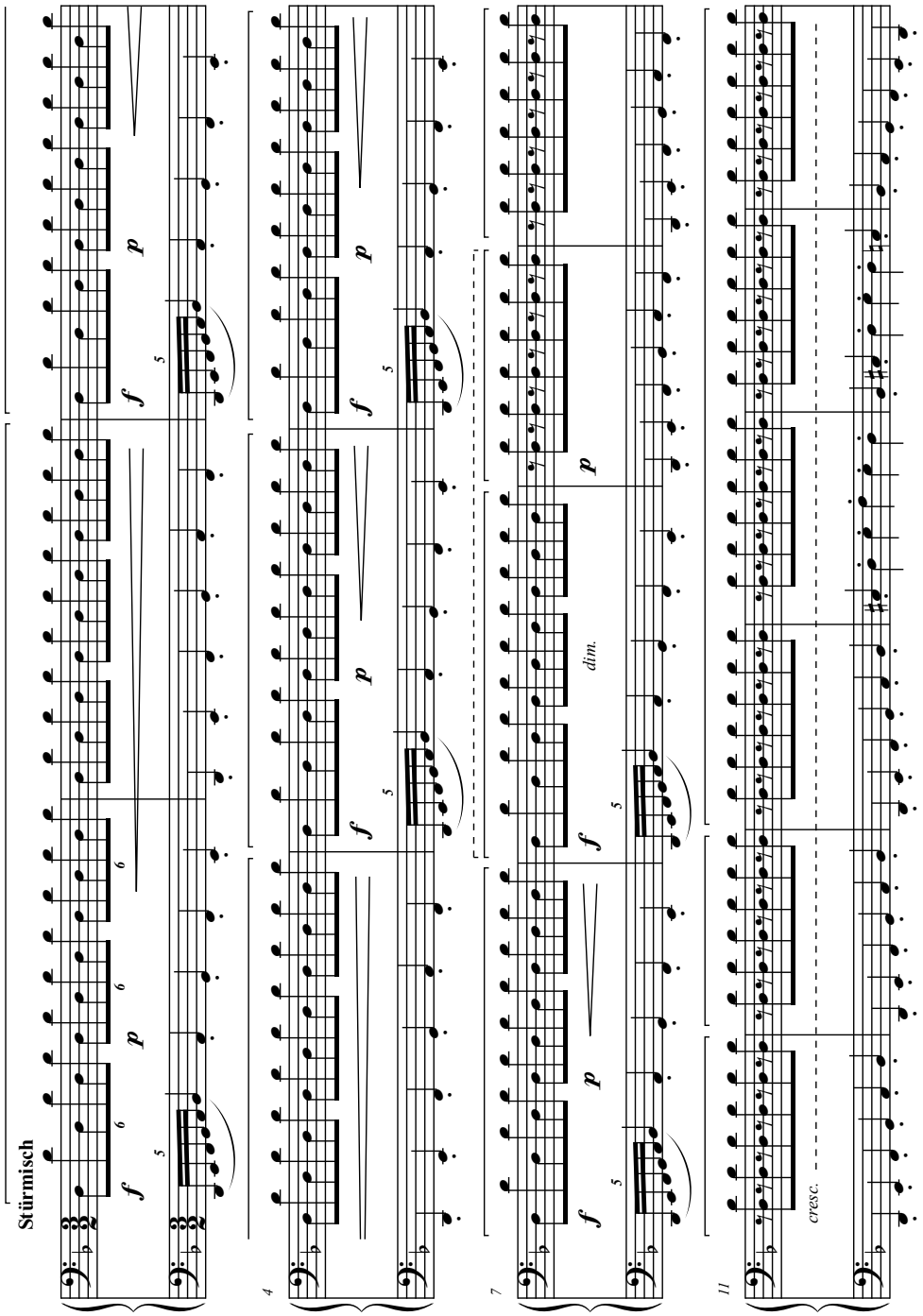



Figure 4.23: Wagner, opening of *Die Walküre*

# Chapter 5

# Conclusions

In this chapter we provide some concluding remarks with respect to the research presented in this thesis. Section 5.1 provides the main accomplishments that have been achieved, and Section 5.2 gives some directions for future work.

## 5.1 Main accomplishments

In this thesis, we have given an extensive overview of the current state of the art in sentence theory. We have discussed both William Caplin's and Matthew BaileyShea's writings in detail and have provided evaluations thereof in light of this study. We have argued for the necessity of understanding the sentence as essentially a hypermetric gestural pattern, in which the grouping structure of the continuation is of crucial importance.

Based on this premise, we have introduced three sentence types, each with a distinct gestural quality. We have discussed the criteria according to which groups surface in analysis, and have made comparisons between sentences on the one hand, and periods and small binaries on the other hand. Finally, we have discussed sentential loosening techniques in terms of grouping structure, and have observed how different sentence types can interact to form structures of rather high complexity.

Central to our conception of the sentence is that it is a grouping structure model decoupled from the actual musical content. That means that sentential patterns can occur in the realm of a transitional or developmental passage as well as within a theme, and that our sentence patterns are not restricted to the classical style or the eight-measure scale.

Some might object to our approach, calling it over-generalized or even trivial. Indeed, as mentioned before, many theorists discuss the sentence solely in the scope of thematic areas. Non-thematic areas then may contain sentential characteristics, but no sentences. After all, if we were to allow sentences to appear in such non-thematic areas, would not almost everything be a sentence then? We, on the other hand, would argue that using the term "sentence" only for themes, and "sentential" for structures in non-thematic areas or on different scales, creates a problem of terminology: calling a passage "sentential" would then seem to indicate that its structure is to be seen as somehow derived from that of a classical sentence-theme. Yet sentential grouping structures are so ubiquitous in western art music that it is absurd to claim that they were developed by eighteenth-century composers of classical themes, and that all other such structures must be seen as derivatives thereof. On the contrary, these grouping structures resonate through all music of at least the seventeenth to twentieth centuries, they form the backbone of western art music. While it is true that tight-knit classical sentence-themes may be the most consistently and unambiguously worked-out exemplars of such grouping structures, with Beethoven's f minor theme from opus 2 no. 1 being perhaps the *primus inter pares*, such themes are ultimately mere

realizations of an essentially rhythmical pattern that is, as we have argued, not at all restricted to a certain style, genre, era, formal location, or hierarchical level.

Trivial as such a pattern may seem, coming to grips with the ways in which composers of sentences realize these grouping structures is no simple matter at all. We have argued for the concept of a polyphony of parameters to accurately describe how both harmonic content and melodic-motivic content give shape to musical form. With this concept, we have intended to express the fact that both parameters can imply different formal processes at the same time. For instance, the harmony can indicate a formal ending by starting a cadential progression, while the melody still conveys highly characteristic material, or, conversely, the melody can reach a point of relaxation while the harmony is not yet cadential.[1]

We have also argued that it is this polyphony of parameters that occasionally causes difficulties when distinguishing the sentence from the period. Since the criteria for the sentence are mostly related to rhythmic patterns and motivic organization, while those of the period are primarily related to harmonic content and cadence, both concepts enter into dialogue when harmonic and melodic-motivic content are manipulated independently from each other. Therefore, it is not always clear whether we are dealing with a sentence or a period, and as a result the traditional sentence-period dichotomy can be seen to be somewhat misleading.

Finally, we have seen that combinations of different sentence gestures, along with the use of loosening techniques, can result in analyses in terms of our sentence types that are not at all straightforward or shallow. In such analyses lies the potential of our approach: the flexibility with which we have defined our sentence types renders them powerful in analysis, while the analytical results can still be seen to be quite meaningful.

## 5.2 Future work

In this thesis, we have discussed the sentence without going into too much detail regarding other conventional classical thematic designs, such as the period. This one-sided approach may seem out of balance, as the sentence is so often juxtaposed with the period as two opposing paradigms of classical theme construction. Yet, we have argued that the criteria that lie at the heart of the sentence are actually quite different than those of the period: while a sentential design is primarily based on the organization of melodic-motivic material and grouping structure, a period needs to meet distinct criteria with respect to harmonic content and cadence. We believe this legitimates a focus on the sentence as opted for in this thesis.

Still, the concept of a period needs a similarly thorough elaboration as the sentence has received here. We have remarked occasionally that a certain passage seemed "periodical," but in the end such a claim remains somewhat unsatisfactory. More research would be needed to determine the exact relationship between, for instance, a statement-response type repetition of the basic idea of a sentence (with the statement ending on V and the response on I), as described by Caplin, and a conventional eight-measure period. We could label the former "periodical," but the grounds upon which we would choose to do so should ultimately be made explicit.

Finally, we would very much advocate further research regarding combinations of sentence types and loosening techniques. We have discussed a small number of fragments from works of Liszt and Wagner featuring sentential constructions that exhibit rather high degrees of complexity. It is not at all unthinkable that more typical loosening techniques will surface than the ones described in this thesis if one were to focus on this specific topic, which would deepen our understanding of the sentence further.

[1] We have demonstrated this complementarity with two Beethoven themes, see Figures 3.3 and 3.4, and our analyses thereof.

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