JYVÄSKYLÄ STUDIES IN HUMANITIES 12

Riitta Rautio

Fortspinnungstypus Revisited

Schemata and Prototypical Features in J. S. Bach's Minor-Key Cantata Aria Introductions

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UNIVERSITY OF JYVÄSKYLÄ

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ABSTRACT

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The object of study was the *Fortspinnungstypus*, a concept introduced in 1915 by Wilhelm Fischer to describe small-scale forms, especially those of the Baroque period. The aim of the study was to explore whether a more detailed description of the *Fortspinnungstypus* can be given in a homogenous corpus of examples. The theoretical background consisted of the theory of formal functions (Ratz, Caplin), cognitive schema theory (Schank & Abelson, Rumelhart; Meyer, Gjerdingen), the prototype theory of concepts (Rosch), and the theory of metaphor (Lakoff, Johnson).

The material consisted of J. S. Bach's minor-key cantata aria introductions (N=125) fulfilling Fischer's definition of the *Fortspinnungstypus*. The objective was three-fold: (1) to give a description for the schema of formal functions of the *Fortspinnungstypus* by detecting frequently occurring structural features on several levels of abstraction; (2) to identify the prototypical features of the schema on various structural levels; (3) to explore the structure of the *Fortspinnungstypus* schema in terms of plot metaphor. The method used was reduction analysis (Meyer), quantitative feature analysis, and qualitative-interpretative analysis of selected examples, respectively.

The results showed that Bach's aria introductions tens to follow a schema of five formal functions: beginning, digression (cadence), sequence, bridge, epilog (ending). For each function 7-11 two-part harmonic-contrapuntal scripts could be identified. A prototype for the *Fortspinnungstypus* schema could be formulated only on a higher level of abstraction (harmonic functions, chord degrees). The dramatic curve of the *Fortspinnungstypus* was found to contain exposition, conflict, complication, climax, process reversal (*peripeteia*), and denouement. In harmonic terms, the dramatic functions corresponded to the formal functions. However, the development of the dramatic events on the motivic level didn't necessarily follow the schema of formal functions in a consistent way.

The results suggest that in his cantata aria introductions Bach used to follow an overall schema, which regulated not only the choice of structural elements but also to some extent their semantic-expressive content.

Key words: Fortspinnungstypus, formal function, schema theory, prototype theory, image schema, metaphor, musical plot

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FOREWORD

The present study brings together many areas of interest, which have occupied me more or less intensively for several years. In my earlier studies I had dealt with cognitive issues, such as theories of cognitive schemata, theories of concepts, and the temporal experience of music. These theoretical approaches found their way also to this study, which tackles the problem of musical form from a cognitive perspective.

I found the cognitive approach appealing because it is able to acknowledge the relationship between musical knowledge and knowledge concerning other domains, such as language. From the cognitive point of view there are no grounds to isolate music from other areas of human experience and knowledge. Thus, the distinction between attributes "musical" and "extramusical" becomes, I think, more or less artificial. One of the motivations behind this study was, indeed, my interest to explore the role of concepts borrowed from "extramusical" domains in the description of music-theoretical concepts.

I grew up surrounded by Bach's music, which in a way became my first "foreign language". Maybe this is the reason why I have always found Bach's music as narrating. The *Fortspinnungstypus* has always fascinated me because it seems to capture the dynamic and processive aspect of music better than many other formal types. As such it offers a challenge to any attempts to define it.

The research process was quite laborious not the least because of the large corpus of material, the analysis of which had to be performed manually in the lack of sufficiently developed computer programs. Carrying through a process of this magnitude in addition to the daily duties as a teacher became a more challenging struggle than I was able to anticipate.

During a nearly six-year period of more or less intensive research work I have got support from many quarters. I would like to thank the Faculty of Humanities and the Department of Music at the University of Jyväskylä, for supporting my research in the form of scholarships, which have made it possible for me to work as a full-time researcher. These altogether three months have been quite decisive for the progress of the research. I am also grateful to Professor Matti Vainio and Professor Jukka Louhivuori who as the heads of the Department of Music have significantly improved my facilities to do research also while working as a full-time teacher. I would also like to thank Professor Vainio for accepting this study in the series Jyväskylä Studies in Humanities.

I am deeply indebted to Professor Robert O. Gjerdingen and Professor Anne Sivuoja-Gunaratnam who as the preliminary evaluators of my thesis read the manuscript. Their valuable and perceptive comments helped me to improve the study in many ways. Professor Gjerdingen kindly gave at my disposal the manuscript of his book in progress, which provided important insights for my study.

During the research process several researchers of musical cognition have given me encouragement and critique. I am indebted to Professor Carol

Krumhansl for the enlightening conversations during her stay in Jyväskylä. In addition, the feedback I received in the Conference on Musical Imagery in Oslo 1999 helped me to sharpen the focus of my project.

I also want to express my warmest thanks to my colleagues at the Department of Music for their support during the process. I am especially grateful to librarian Hannele Saari for her indispensable help in acquiring scores and other material for my study. For lecturer Jouni Koskimäki I feel indebted for his help in my struggle with notation software. I wish to express my gratitude to Hannes Juutilainen for helping me to overcome the technical problems I encountered when editing my text. I also remember warmly all my pupils who with their fresh ideas and critical comments have made me re-evaluate my conceptions over and over again.

Finally, I would like to express my gratitude to my family and friends for giving support and encouragement. My deepest gratitude belongs to my husband Yrjö, who empathically shared with me all the many ups and downs during this process. He also gave me valuable help as a proofreader of my text in the final stages of the process. My most humble thanks go, however, to my son Lauri, who took with patience and bravery my continuous preoccupation with work.

I dedicate this book to the memory of my father. His gift to see beyond the seemingly self-evident has inspired me greatly in my scholarly work

Jyväskylä, 8 January 2004
Riitta Rautio

CONTENTS

1 INTRODUCTION

Musical form is not one of the most discussed topics in music theory or in music analysis. In fact, musical form seems to receive most attention and effort in class-rooms of music theory. Consequently, discussions focusing solely on musical form are sometimes considered to belong to the domain of music pedagogy, not to music analysis (Whittall 2003). Textbooks of musical form commonly understand 'form' in terms of conventional form types, generic categories. These types are usually described by letter symbols, such as ABA, referring to contrasting thematic-tonal areas. Although this mode of description, developed in the nineteenth century, is well-suited to Classic-Romantic forms, it is not adequate for Baroque forms, in which thematic-tonal material is usually not repeated in such a schematic manner.

The problem of discussing Baroque forms in terms of Classic-Romantic forms has been recognized as early as 1917 by Ernst Kurth, who in his study of Bach´s polyphony observed that textbooks have erroneously considered the regular metrical accentuation of song-like classic music as the basis for constructing melody in Baroque idiom (Kurth 1917, 153). William Rothstein (1989, vii) acknowledges the "profound differences" between the phrase rhythm of Baroque and that of Classic-Romantic music. Furthermore, in his recent study Joel Lester (2001) has pointed out that Baroque forms cannot be explained as being based on the same construction principles as the forms of Classic-Romantic music. Baroque small forms, such as dance movements, have been forced into the category of binary forms, since they, as Lester (2001, 52) observes, "looked sufficiently like binary forms".

One plausible mode of describing and explaining Baroque formal principles is provided by musical rhetoric. It is known that especially German Baroque theorists repeatedly presented analogies between music and classical rhetoric. In fact, the first conceptualization of musical form was made on the basis of rhetorical terminology. Many rhetorical analyses of Baroque compositions (e.g. Unger 1941, Kirkendale 1980, Street 1987), no doubt have increased our understanding of Baroque music. However, instead of focusing on musical structure, these studies seem to concentrate on finding parallels between rhetorical concepts and the structure of musical work.

The understanding of Baroque formal principles has been significantly advanced by the work of Austrian musicologist Wilhelm Fischer. In his essay *Zur Entwicklungsgeschichte des Wiener klassischen Stils* (1915) Fischer identified and described a small-scale form, which is based on sequential development and unrestrained proportions between the constituent parts, characteristic of Baroque music. This formal type, which he called *Fortspinnungstypus*, has not, however, been adopted to the taxonomy of tonal forms. It has not even been recognized as a form type in North-American music theory; for instance, the New Grove Dictionary only knows the term 'Fortspinnung' (spinning out) as a technique of working with musical material (Drabkin 2003). There are only a few studies dealing with Baroque music that refer to the term 'Fortspinnung', and there are even fewer studies using *Fortspinnungstypus* as the main tool for describing Baroque forms (Dreyfus 1985, 1996, Lee 1993). However, the *Fortspinnungstypus* is included in German music theory (see Grabner 1982, 173-174, Kühn 1995, 626). Moreover, Finnish music theory, due to its Austro-German heritage, has adopted the concept *Fortspinnungstypus*, which has even been translated into Finnish[1].

Musical form is by no means a unified concept. There have been different ways to understand 'form' among composers in different style periods, as well as among theorists and aestheticians dealing with the issue of musical form. In Western art music, attributes such as logic and coherence (Schoenberg 1990, 1) or organic unity stemming from the aesthetics of the 19th-century have prevailed as the basis for aesthetic judgment of musical form. One of the frequently stated distinctions within the concept of musical form has been made between (1) form as features shared by a large number of works and between (2) form as the unique result of deployment of particular materials and processes (see e.g. Bonds 1991, Whittall 2003). *Fortspinnungstypus* is a form in the first meaning of the term.

In the present study, the notion of form as conventional thematic-tonal template is rejected in favor of a *functional* notion of musical form, which views form as a chain of functionally differentiated parts. Arnold Schoenberg (1990), Erwin Ratz (1978), and William Caplin (1998) are among the major advocates of the functional approach. They assume that specific chains of *formal functions*, defined mostly by their harmonic characteristics, tend to appear frequently in tonal works. The basic assumption behind the present study is that forms with a developmental character, such as the *Fortspinnungstypus*, are best described by the functions, i.e. roles, its parts receive in the over-all form.

The notion of the functionality of form is related to the Aristotelian notion of drama as three functionally differentiated parts, beginning-middle-end, which give a drama a sense of wholeness and completion. Viewing musical form in terms of the beginning-middle-end paradigm narrows the gap between musical forms and literary forms. In the present study it is assumed that serious discussions on musical form must also deal with the meanings the musical structure conveys or expresses.

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[1] The Finnish term *kehitysmuoto* is a compound word containig terms *kehitys* and *muoto*, the English equivalents being *development* and *form*, respectively. The term *kehitys* corresponds the German term *Entwicklung*, not *Durchführung*. (see Aho 1977.)

The coarse division between functions, such as beginning, middle, and end, can be further specified through an analysis of a stylistically coherent musical material. In the present study such material consists of minor-key instrumental introductions of J. S. Bach's cantata arias representing *Fortspinnungstypus*, as defined by Fischer. The examples are supposed to have shared features since, as is well known, Bach had to compose cantatas according to a strict schedule. Therefore, it is likely that he also had developed a genre-specific procedure for constructing the aria introductions. Restricting the study to minor-key introductions produced a corpus of 125 introductions, which was found to be sufficiently large for analytical inferences. The reason for choosing introductions from Bach was that, compared to many of his contemporaries, his cantata arias are more easily available both in score and recordings. Moreover, the material was expected to offer a challenge for the analyst since Bach is known to have preferred individual structural solutions rather than stereotypical ones.

The purpose of this study is to explore whether the term *Fortspinnungstypus* can be understood to refer not only to a technique of working with the material but also to a formal category. The aim is to increase understanding – both theoretical and empirical – of the form and structure of *Fortspinnungstypus*, and, within the limits of the material, to give a more specific description of its structural as well as its expressive characteristics.

The structural characteristics of *Fortspinnungstypus* are to be discussed within the framework of schema theory formulated in cognitive psychology (Schank & Abelson 1977, Minsky 1977, Rumelhart 1980). The summary description of the *Fortspinnungstypus* category is assumed to be obtained, as the prototype theory of concepts suggests (Rosch), by listing a cluster of prototypical features (prototype) and prototypical examples of the category. The links between literary forms and musical forms are assumed to be metaphorical in nature. The theory of metaphors by Lakoff and Johnson holds that pre-conceptual image schemata, based on perception and bodily experiences, mediate between different domains of knowledge and experience. The present study is based on the assumption that such image schemata mediate between the domains of music and literature (narrative, drama, and rhetoric).

The present approach bears similarities to structuralistic approaches. However, methods of the structuralistic approach are used as tools for describing musical structures. The interest in structuralism will be methodological rather than ontological (see Eco 1971). The existence of mental structures can't be verified by means of musical analysis.

The thesis is divided into five main chapters, each of which approaches the *Fortspinnungstypus* from a different theoretical perspective. The first two chapters explore the *Fortspinnungstypus* from the viewpoint of music theory and analysis. Chapter 2 introduces Fischer's conception of the *Fortspinnungs-typus* and related forms such as the sentence (Germ. *der Satz*), and views studies, which have adopted the *Fortspinnungstypus* as a tool for analysis. Chapter 3 broadens the scope of discussion to include the theories of musical form as a chain of formal functions.

The following three chapters consist of schema-theoretical explorations of J. S. Bach's minor-key cantata aria introductions representing the

Fortspinnungstypus. Chapter 4 explores the *Fortspinnungstypus* from the viewpoint of cognitive schema theories. It also presents the results of the schema analysis performed on three structural levels. Chapter 5 deals with the issue of schema definition from the perspective of prototype theory of concepts. Moreover, it displays the results of prototype analysis, the aim of which is to identify prototypical features and prototypical instances for schema categories on different structural levels. Chapter 6 discusses the metaphorical relationship between *Fortspinnungstypus* and the plot structures of literary forms. The chapter ends with a plot analysis of selected introductions. Research questions concerning the schema analysis, prototype analysis, and plot analysis are presented in chapters 4, 5, and 6, respectively.

The present study belongs to the domain of systematic, rather than that of historical musicology. Accordingly, the basic theoretical framework of the study is cognitive theory rather than the musical conventions and practices of the Baroque period. However, the relevance of the analysis with respect to certain conventions and practices of the 18thcentury will be discussed in the end of Chapters 4, 5, and 6.

2 *FORTSPINNUNGSTYPUS* AND RELATED FORMS

Until the beginning of the 20th century, music theorists seem to have been quite puzzled by Baroque forms. In his *Musikalische Formenlehre* (1907), German theorist Hugo Leichtentritt discussed the form of the opening ritornello from the tenor aria of Bach's cantata no. 61. He suggested that the structure of the sixteen-measure ritornello does not bear any signs of a periodic structure, and considered the ritornello an example of an irregular phrase, which cannot be further classified. He understood the structure as being constructed of small groups: 2+2+1+1+2+1+1+1+1+2+2. (Leichtentritt 1967, 17-18.) Only eight years later Wilhelm Fischer's study showed that examples such as this aria ritornello, contain basically three different parts: the opening phrase(s), the sequential middle part, and the final cadence.

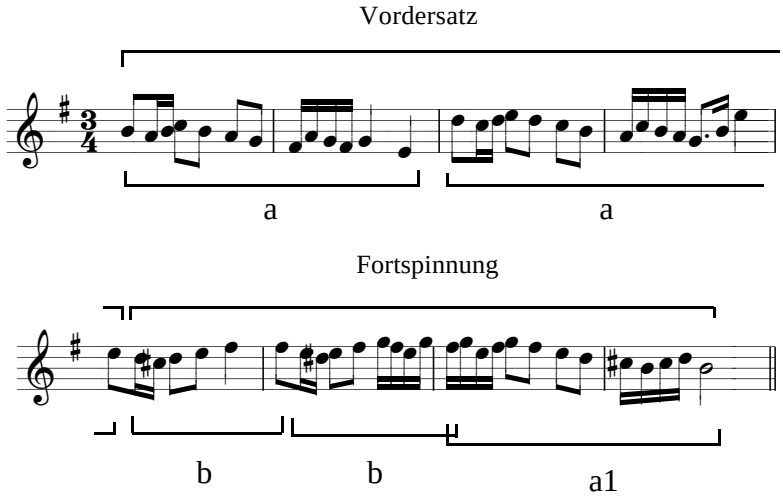
2.1 Wilhelm Fischer's *Fortspinnungstypus*

In his essay *Zur Entwicklungsgeschichte des Wiener klassischen Stils* (1915) Wilhelm Fischer introduced a new small-scale form type, which he named after its sequential development as the *Fortspinnungstypus*. Although Fischer focused on the stylistic change between the Baroque and Classical periods, and discussed the different functions and characteristics of *Fortspinnungstypus* in these two stylistic idioms, the most important contribution of the study was the recognition of one of the basic formative principles of the Baroque idiom. He considered the symmetric parallel period (basically aa^1), which he called the *Liedtypus*, to be a contrasting form category to the *Fortspinnungstypus* (Fischer 1915, 29).

In *Fortspinnungstypus* Fischer identified three parts: (1) the *Vordersatz*, (VS) (2) the *Fortspinnung*, (FS) and (3) the *Epilog* (E). According to Fischer, the first part ends either on dominant or tonic chord. The *Fortspinnung* consists of one or more sequences, which may be motivically related or contrasting to the *Vordersatz*. The *Fortspinnung* either stays in the main key or modulates. The epilog (*Epilog* or *Schlußsatz*), which may also be missing as an independent unit, closes up the form. (Fischer 1915, 29.) Example 1 displays the beginning of the

Sarabande from Bach's Suite E minor. According to Fischer (1915, 29), it consists of *Vordersatz* and *Fortspinnung*, which ends with a motive (a^1) introduced in the *Vordesatz*. The *Epilog*, Fischer claims, is missing from the example.

EXAMPLE 1 *Fortspinnungstypus* in Bach's Suite E minor (mm. 1-8) (Fischer 1915, 29).



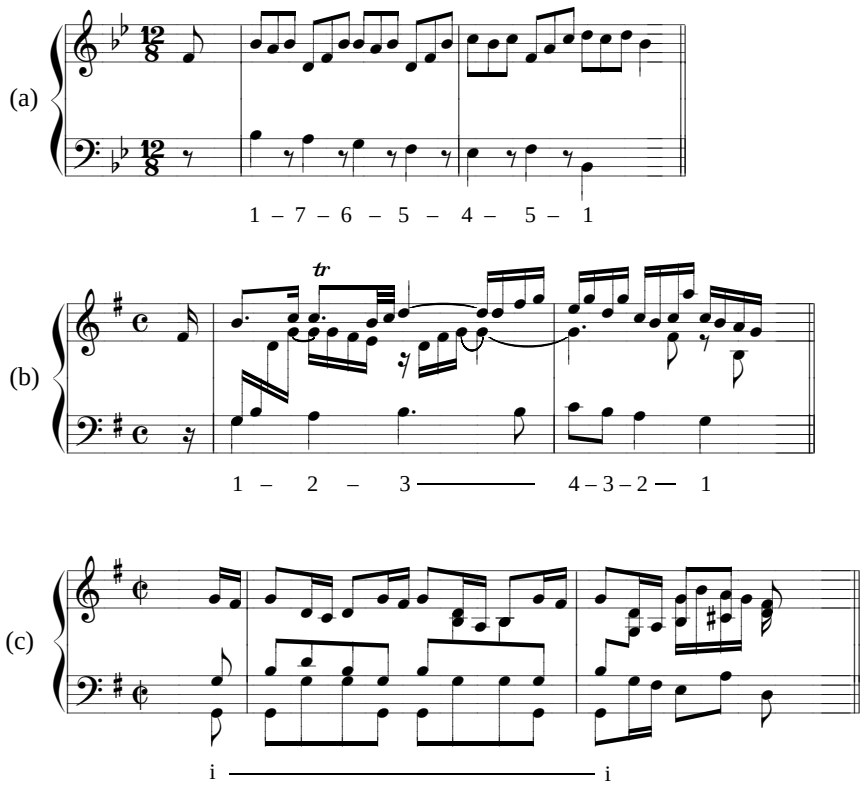
Fischer suggests that an *Epilog* should appear as a relatively independent unit, which may contain sequential treatment or the return of a motive (Fischer 1915, 47). Apparently, the motive (a1) in Example 1 does not meet the criteria set for an *Epilog*. However, Fischer acknowledges that the *function* of motive a1 is to constitute an end (*Abschluss*) of the *Fortspinungstypus*.

Fischer left the exact proportional lengths of the three parts of the *Fortspinnungstypus* undefined. He only stated that the sequential *Fortspinnung* is usually more extensive than the *Vordersatz*, and the *Epilog* is relatively short (Fischer 1915, 47).

Fischer also studied the harmonic, melodic and to some extent the rhythmic structure of each of the three parts. He attempted to give description of the basic forms (*Urformen*) of motives and phrases, which composers elaborate in various ways with melodic-rhythmic figures. He found that in many cases the first phrase of the *Vordersatz* was built on a harmonic progression I-IV-V-I. Harmonic progressions such as I-I-I, I-V-I, or I-IV-I, combined with rhythmic motive of three quarter notes followed by a quarter rest, were also frequent at the opening. The basic melodic forms (*Urformen*) in the upper-voice 1-1-1, 1-7-1, and 3-4-3 appear with the harmonic progressions, respectively. (Fischer 1915, 36-37.) Fischer also focused on the bass progressions appearing frequently in the *Vordersatz*. The most important of these were the ciacona pattern, for instance 1-7-6-5-4-5-1 (Fischer 1915, 38), the pattern 1-2-3-4-3-2-1 (Fischer 1915, 40-41), and tonic pedal (Fischer 1915, 41)(Example 2).

According to Fischer (1915, 41-43), there are various ways of building the *Vordersatz* from these opening motives and harmonic patterns. The *Vordersatz* may consist of a motive and its identical or varied repetition, or of its sequential transposition, or of its imitation. The *Vordersatz* can also constitute a *Fortspinnung* form in itself. (Fischer 1915, 41-43.) Fischer (1915, 47) considers the *Vordersatz* to have essentially a one-part structure.

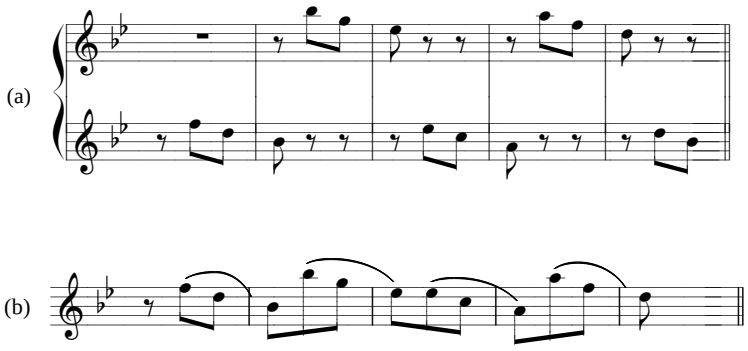
EXAMPLE 2 Opening patterns in *Fortspinnungstypus* according to Fischer. (a) The third movement from Bach's 6th Brandenburg Concerto, (b) Allemande from Bach's Suite G major, and (c) The first movement from Bach's 3rd Brandenburg concerto.



For the *Fortspinnung* Fischer specified three types of melodic sequences, based on the interval of transposition: a motive transposed by seconds, a motive transposed on chord tones, or a motive transposed partially (Fischer 1915, 33). The only harmonic progression Fischer discusses is the circle-of-fifths progression. He suggested that the circle-of-fifths progression is suitable for canonic melodic structures. The canonic imitation between two voices can also be seen as the basis for melodic sequence (Fischer 1915, 34-35.)(Example 3).

There is a close relationship between the *Fortspinnungstypus* and forms with imitative texture, such as the fugue: the *Fortspinnung* part corresponds to the episode of the fugue, and furthermore, the *Vordersatz* resembles the exposition of the fugue, in cases in which the *Vordersatz* is based on imitation. According to Fischer, the *Fortspinnungstypus* can be explained as having emerged when the polyphonic texture of the upper voices was transformed into one melodic line (Fischer 1915, 47).

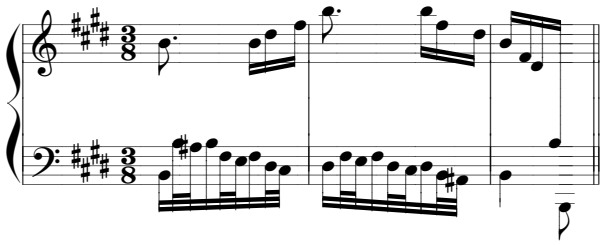
EXAMPLE 3 The inherent imitative structure of the circle of -fifths sequence. In item (b) the two-part imitative texture (a) is transformed into a single melodic line of the sequence (Fischer 1915, 35).



Fischer observed that motivic condensation is a typical feature of the sequential treatment in the *Fortspinnungstypus*. Compared to the original motive of the *Vordersatz*, the initial motive of the sequence tends to be shorter; according to Fischer it is usually half of the length of the original motive. If there are more than one sequence in the *Fortspinnung*, the motive is likely to become even shorter toward the end of the *Fortspinnung*. (Fischer 1915, 43-44.)

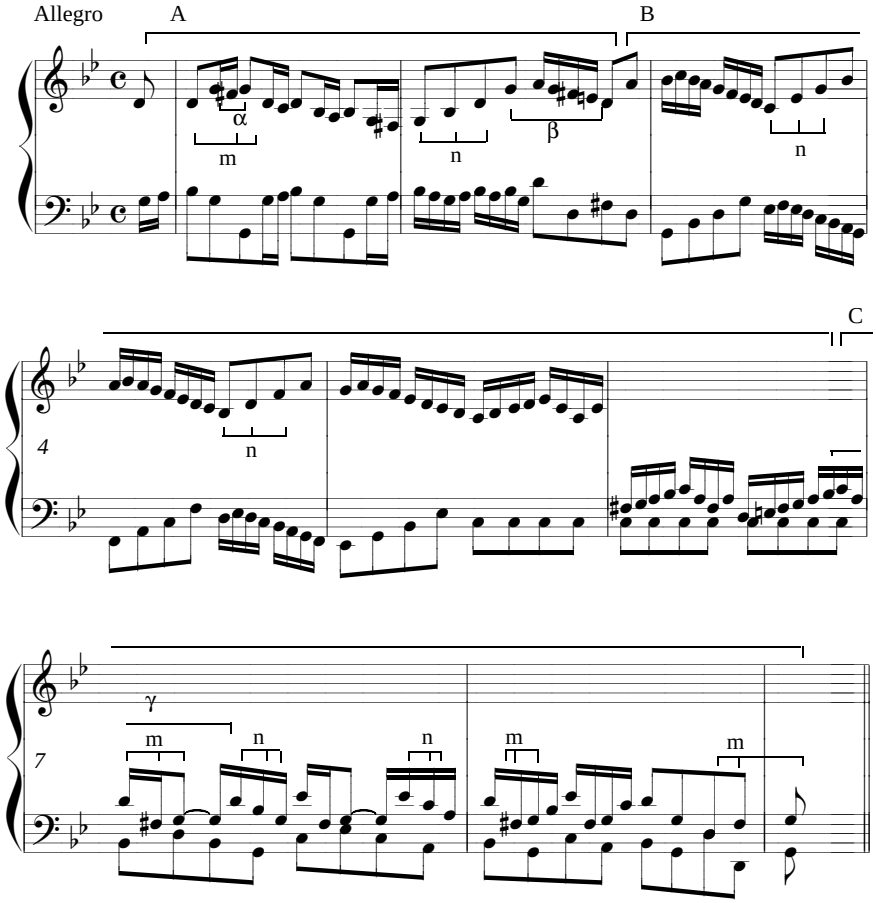
The identification of the *Epilog* appears to be problematic in Fischer's discussion. There seem to be no criteria for judging where the *Fortspinnung* ends, and where the *Epilog* begins. Fischer (1915, 44) states that the *Epilog* may merge into the cadence of the sequence and constitute, in its "most primitive" form, only the melodic elaboration of the final chord in a V-I cadence (Example 4).

EXAMPLE 4 An *Epilog* consisting of a V-I progression in Bach's three-part Sinfonia E major (Fischer 1915, 44).



According to Fischer (1915, 44) the *Epilog* may also appear as an independent phrase with its own motivic material (Example 5).

EXAMPLE 5 J. S. Bach: Sonata for Gamba and obligates Klavier G-minor. The Greek letters are found in Fischer's original analysis, the letters m and n are added for the purposes of the present study.



Fischer accounts the subdivision of mm. 1-9 to be 2+4+3. He seems to ground his analysis solely on motivic factors, since he points out that each of the constituent parts is based on different motive forms. The motive at the beginning of m. 7, which for Fischer signals the beginning of the *Epilog*, presents, in fact, a further development of the initial motive *m*. It contains the same pitch-classes D, F#, G with a retrograde rhythmic variant of motive m. The submotive F#-G acting in mm. 7 and 8 as a pedal point, creates textural tension, which is further heightened by shortening the motive γ in m. 8. This tension, requiring a resolution, refers more to a process of development than to a conclusion. The tension is resolved only on the third beat of m. 8, after which the pitches of motive D-F#-G (*m*) appear as chord tones and in longer note values. The third beat of m. 8 constitutes thus a more appropriate candidate for the point where the *Epilog* begins.

Fischer also discussed the mediating forms between the two basic melodic types (*Melodiebautypen*) *Fortspinnungstypus* and *Period*: the *Fortspinnungstypus* may resemble the symmetric period 4+4 = (4)+(2x1+2), or the *Fortspinnung* may begin with material identical with that of the *Vordersatz* (in this case the second part acts as a *Nachsatz*). The *Liedtypus* resembles the *Fortspinnungtypus* if both of its parts (antecedent and consequent) consist of *Vordersatz*, *Fortspinnung*, and *Epilog* (Fischer 1915, 31).

Fischer's approach is style-specific and empirical. His study is based on a large number of examples, which is why he succeeds in avoiding the pitfalls of the schematic or suprahistorical conception of form akin to many theorists of form. By focusing on examples of the Baroque period, he is able to specify various alternative realizations for the *Vordersatz*, for which he was able to present the most frequent or typical chord progressions and motivic patterns. However, because he emphasizes motivic structure as the basis of formal analysis, his description of the epilog remains vague.

Fischer's notion of the '*Fortspinnungstypus*' as an independent form category has not received wide support among theorists. Thirteen years after Fischer's essay, Friedrich Blume claimed that *Liedtypus* and *Fortspinnungstypus* are not comparable concepts. According to Blume (1928, 56) *Fortspinnungstypus*, unlike *Liedtypus*, is a way to act or to work (*Tätigkeit*, *Arbeitsweise*) not an established formal type (Blume 1928, 56). This view is also adopted by William Drabkin, who, in the New Grove dictionary, considers '*Fortspinnung*' as a technique and organizing principle, not as a type of construction (Drabkin 2003). These two views reflect the inability of the theorists to deal with such musical forms that cannot be represented as conventional formal schemes with definite conformant relationships. In this respect *Fortspinnungstypus* can be compared to the fugue, which also lacks a formal scheme with definite sectional organization and therefore a fixed symbolic description such as *aba* or *aab*. (see Dreyfus 1998, 135-141 and Lester 2001, 51-52). Despite the work of Fischer, the difficulties in categorizing non-symmetrical forms without thematic-tonal repetitions or recapitulations have continued until this day.

2.2 Related forms

2.2.1 Arnold Schoenberg's *Satz* form

Arnold Schoenberg adhered to the distinction between forms of symmetry and forms of sequential development, which he called *period* (*Period*) and *sentence* (*Satz*), respectively (Schoenberg 1990, 20-21). Schoenberg (see 1995, 174-75) borrows the term 'sentence' from grammar. He defines sentence with the help of a syntactic parallel: "A sentence is the expression of an idea by means of combining a number of words into a closed form." His concept 'sentence', shares many characteristics with the *Fortspinnungstypus*. In fact, the sentence can be considered as an application of the *Fortspinnungstypus* to the music of the Classic-Romantic period. Schoenberg emphasizes the symmetric proportions of the form, which is due to the fact that his analytical examples deal mostly with Classic-Romantic music. The period is a symmetric antecedent-consequent structure, corresponding to Fischer's *Liedtypus*.

Schoenberg considered the repetition of the opening motive (*basic motive*), unvaried or transposed, to be characteristic of the beginning of the sentence. In the Classical period the opening phrase (Fischer's "*Vordersatz*") was usually built on tonal contrast: the opening two-measure motive represents the *tonic form*,

and its varied repetition the *dominant form*. (Schoenberg 1990, 21.) Schoenberg (1990, 22) gives the following harmonic progressions for tonic and dominant forms:

tonic form		dominant form
I	–>	V
I-V	–>	V-I
I-V-I	–>	V-I-V
I-IV	–>	V-I
I-II	–>	V-I

According to Schoenberg, the first phrase of the sentence ("*Vordersatz*") has symmetric structure (*mm1*) and it ends on V or on I.

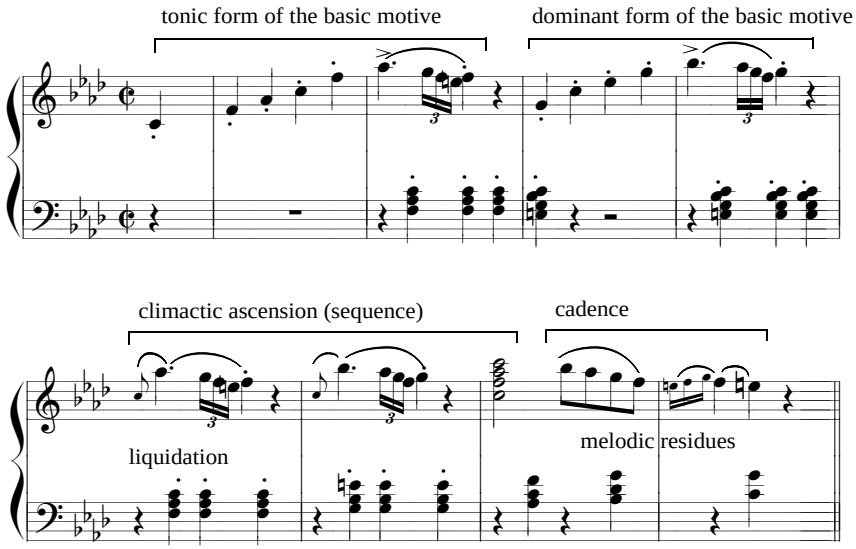
After the opening phrase, the sentence continues with sequential *development*, which is usually based on the transformation and condensation of the motives introduced in the opening phrase. The sequential pattern may include both melody and harmony, or the sequence may be partial or quasi-sequential (Schoenberg 1990, 58-59). Sequential progressions and developmental processes are restricted with a technique of *liquidation*. By liquidation Schoenberg (1990, 58-59) means the gradual elimination of characteristic features until only the uncharacteristic features remain. These uncharacteristic features don't demand continuation and the process can thus be brought to an end. The original motive of the sequence is condensed, in many cases to half of its original length. Sometimes this process of condensing continues, and the motive is further shortened. (Schoenberg 1990, 59.) This kind of a structural 'accelerando' in the sequence was described also by Fischer.

Schoenberg succeeds in describing the final part of the sentence in more accurate terms than Fischer did in his description of the *Epilog*. According to Schoenberg, *cadence function* has different melodic characteristics than the initial phrase. In cadences, the lengths of note values may become shorter or longer and, moreover, characteristic motives are likely to be substituted for uncharacteristic ones. Furthermore, the optional preceding climax is counterbalanced in the cadence function with a descending melody, returning the melody back to the middle register. (Schoenberg 1990, 29-30.) In contrast with Ficher's approach, Schoenberg defines the final part of the form (Fischer's *Epilog*) in functional terms: in order to perform its function, the final part has to possess specific rhythmic and melodic characteristics. In the problematic example by Fischer (Example 5), the changes Schoenberg describes occur only on the third beat of m. 8: the characteristic features of motive *m* are liquidated and the final idea is stated with longer note values (without the sixteenth notes characteristic of motive m).

Schoenberg constructs a schematic structure, a *practice form*, which describes the features shared by many examples of sentence form. In its simple form it consists of eight measures, the four first measures constituting a motive and its repetition (2+2). The continuation is characterized by development, which implies growth, augmentation, extension, and expansion, but also reduction, condensation, and intensification (Schoenberg 1990, 58). The beginning (mm. 1-8) of the first movement of Beethoven's Piano Sonata op. 2 no. 1 (Example 6) represents the *practice form*. The opening phrase (2+2),

presenting the tonic and dominant forms of the *basic idea*, is followed by a sequence (2x1), which leads to the final cadence (2). (see Schoenberg 1990, 59 and Ex. 52 a, p. 63.)

EXAMPLE 6 Schoenberg's practice form in the opening measures from the first movement of Beethoven's Piano sonata op. 2 no. 1 (Schoenberg 1990, 59).



The practice form is a kind of sentence-prototype, which an analyst can have recourse to when discussing more complicated cases. Schoenberg observes that the *practice form* is just an abstraction. Musical works commonly deviate from the norm, for instance with respect to the length of the form (Schoenberg 1990, 60). The idea of an ideal basic structure, which more or less exhaustively describes all examples of the class, can be dealt with in schema and prototype theories.

Because of its developmental character Schoenberg regards the sentence as a higher form of construction than the period. The sentence form not only presents the *basic idea* but also sets up the process of development (Schoenberg 1990, 58). His discussions about the problem of how to restrict the expansive developing forces manifested in the sequence are useful for the analysis of *Fortspinnungstypus* of the present study. In the Baroque period, and especially in the works of Bach, the process of condensing motives is evidently one of the most significant liquidation techniques. However, Bach also exploits other techniques to bring the expansive process to an end in a natural way and to prepare the move to the *Epilog*.

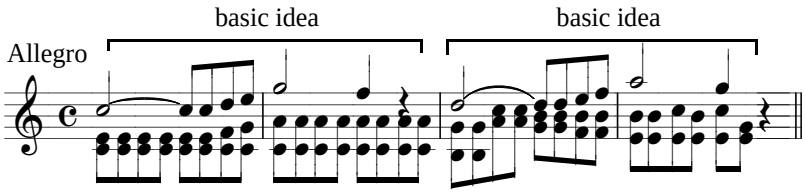
Schoenberg's pupil, Erwin Ratz (1978, 25) holds explicitly to the terms *Satz* and *Period* instead of *Fortspinnungstypus* and *Liedtypus*. Following Schoenberg, Ratz (1978, 21-22) describes *Satz* as being typically (*Paradigma* or *der Normalfall*) eight measures long with the subdivision of structure (2x2)+4. The two-measure opening phrase is repeated, after which follows a four-measure phrase consisting of development (*Entwicklung*) of a motive stemming from the two-measure phrase. The Satz ends with a cadence. If the length of the *Satz* is other than 8 measures, the proportion between parts is preserved. Ratz, like Fischer

and Schoenberg, regards the motivic condensation and structural acceleration as a typical trait of the *Satz*-form.

2.2.2 William Caplin's sentence form

William Caplin (1998, 35), in his study of Classical music adheres to Schoenberg's notion of sentence form, in which he distinguishes three formal functions: (1) *presentation*, (2) *continuation*, and (3) *cadence*. The first function constitutes the *presentation phrase*, the second and third together the *continuation phrase*. According to Caplin the *basic idea* introduces the melodic-rhythmic motive characterizing the whole piece. It also introduces the root-position tonic chord, which usually prevails to the end of the motive. The basic idea (statement) is usually followed by its transposed repetition (response) at a higher pitch level, usually by step, as is seen in Example 7 presenting mm. 23-26 from the 1st movement of Mozart's String Quartet in C. In Classical style, an exact repetition of the basic idea is also common.

EXAMPLE 7 A statement-response repetition at the opening of the sentence form. (Caplin1998, 38, Ex. 3.8.)



The basic idea and its repetition constitute the initiating function of the form. Characteristic of the presentation function is an ascending melody, which signals the opening function by setting up an expectation of a descending continuation. (Caplin 1998, 37.) The tonal content of the presentation phrase is tonic prolongation. The tonic may occur as the last chord of the presentation phrase or it may not appear until at the beginning of the continuation phrase. (Caplin 1998, 39-40.)

The continuation phrase contains both the continuation and cadential functions. The continuation function breaks up the tonal, melodic, and structural stability created in the presentation phrase. This is achieved by (1) phrase-structural fragmentation, (2) acceleration in the rate of harmonic rhythm, (3) increase in surface rhythmic activity, or (4) sequential harmonies. None of these is a necessary condition for the continuation function. (Caplin 1998, 40-41.) All four techniques indicate a heightened sense of movement. Caplin does not consider the techniques to have any specific order. They are rather like a selection of techniques, of which one or several in various combinations may occur.

The cadential function starts with the entry of a cadential progression, which usually occurs in a 8-measure sentence at the middle of the continuation phrase, either at the downbeat of measure 7 or at the upbeat to measure 7. In Classicism the cadence may be perfect authentic, imperfect authentic, or half cadence. (Caplin 1998, 45.)

Both Caplin and Schoenberg consider the proportion 1:1 between the presentation phrase and the continuation phrase to be a norm in Classical

compositions. Deviations from this norm are due to sequential and fragmentation techniques, which may lead to extensions of the continuation phrase (Caplin 1998, 47). In the Baroque period, as Fischer observed, the continuation phrases (*Fortspinnung+Epilog*) were commonly quite extended.

Like Schoenberg, Caplin (1998, 45) demonstrates the structure of sentence form by presenting a linguistic analog. He accounts that the *basic idea* is analogous to the subject and the presentation phrase is analogous to a compound subject of a linguistic sentence. As in a linguistic sentence the compound subject "the man and his dog", does not form a complete sentence but, instead, raises expectations for the predicate, which could be, to further quote Caplin, "ran together across the street". In a musical sentence the continuation and cadence functions act as the predicate for the musical sentence and bring the sentence to a closure.

2.3 Summary of the features of *Fortspinnungstypus* and related forms

Table 1 presents a summary of the descriptions of the structural features of the *Fortspinnungstypus* (Fischer) and the sentence form (Schoenberg and Caplin). The sentence form (*Satz*) as formulated by Schoenberg, Ratz, and Caplin is more likely to be accepted among the conventional categories of form, since all theorists outline a schema 1:1 for the proportional lengths of presentation phrase and continuation phrase. Describing the sentence form as a contrasting symmetric period 4+4 (*ab*) gives it an outlook, which is easier to adopt into the taxonomy of forms. The description, however, totally misses the most distinctive characteristic of the sentence form, the sequential development.

The tripartite structure shown in Table 1 is, concealed however, if the form is interpreted as being symmetrical. For example Berry (1986, 18-19) regards the beginning of the Scherzo of Beethoven's Sonata op. 2 No. 3 as a symmetric period 8+8, the first phrase ending on V and the second modulating to the dominant. Actually, the example is clearly a *Fortspinnungstypus* or a sentence form with presentation phrase (2+2)+4 and continuation phrase (6x1)+2. In the continuation phrase the sequential structure (6x1) together with the shortening of the two-measure motive to one-measure motive causes a strong sense of directed movement, which cannot be captured by describing the form as 8+8. Monelle describes mm. 1-8 of Beethoven's op. 2 no 1, the famous example of the sentence form, as "regular eight-measure period" (Monelle 2000, 111). In analyzing the "alte Weise" from Wagner's *Tristan and Isolde*, Lerdahl (1998, 34-35) describes the form of the first phrase with the concepts 'basic idea', 'sequence' and 'closure', recognizing the three parts of Schoenberg's sentence form. However, Lerdahl, like the others, emphasizes the symmetric structure of the form by interpreting it as a representative of a 4+4 schematic form. Lerdahl aims at discovering the normative length behind the irregular phrase lengths. This aim not shared by the present study, which regards Baroque idiom as genuinely epic-like and linear, not aiming at symmetrical proportions.

TABLE 1 Structural features of the *Fortspinnungstypus* and sentence form.

FORTSPINNUNGSTYPUS (Fischer)			**SENTENCE FORM (Schoenberg)**		**SENTENCE FORM (Caplin)**
Vordersatz			**Beginning**		**Presentation phrase**
melody,	beginning:	1-1-1 or 1-7-1 or	basic motive		basic idea
harmony,	beginning:	I-I-I or I-V-I or I-IV-I or I-IV-V-I	tonic form:	I or I-V or I-IV or I-II	tonic form: statement
	ending:	I or V	dominant form:	V or V-I or V-I-V	dominant form: response repetition
bass,	beginning:	1-7-6-5-4-5-1 or 1-2-3-4-3-2-1 or 1-1-1-1			
Fortspinnung			**Continuation**		**Continuation phrase**
					Continuation function
sequence(s): circle of fifths			"development" (quasi) sequence liquidation, condensation		(1) harmonic sequence and/or (2) fragmentation and/or (3) acceleration of harmonic rhythm and/or (4) increase in rhythmic activity (liquidation)
Epilog			**Cadence function**		**Cadential function**
cadence			uncharacteristic motives change of rhythmic values change in melodic contour ending on I, V, or III		ending on I or V

2.4 Recent studies on the *Fortpinnungstypus*

There are some studies which touch upon Fischer's *Fortspinnungstypus* but which neither develop the concept further nor present any systematic analytical applications. For instance, in his book dealing with phrase rhythm in tonal music, Rothstein (1989, 127-128) discusses briefly *Fortspinnungstypus*. From his analytical interpretations of Bach's C-major Invention (mm. 1-7) appearing on pages 30 and 127 one can conclude that the subdivision into three phrases and the subdivision into *Vordersatz*, *Fortspinnung* and *Epilog* are not entirely commensurate: Rothstein places the boundary between *Fortspinnung* and *Epilog* in the middle of the last phrase. It would seem that the phrase structure does not necessarily help in locating the exact point for the beginning of the *Epilog*. Agawu (1991, 54), in turn, considers the *Fortspinnungstypus* as an example of the beginning-middle-end paradigm, and Lester (2001, 63, 79-80) suggests that the tripartite structure of the *Fortspinnungstypus* corresponds to the imitation-sequence-cadence sections in Bach's works. Each of the parallel-constructed sections presents musical material on a more heightened level of activation than the section preceding it (Lester 2001, 53).

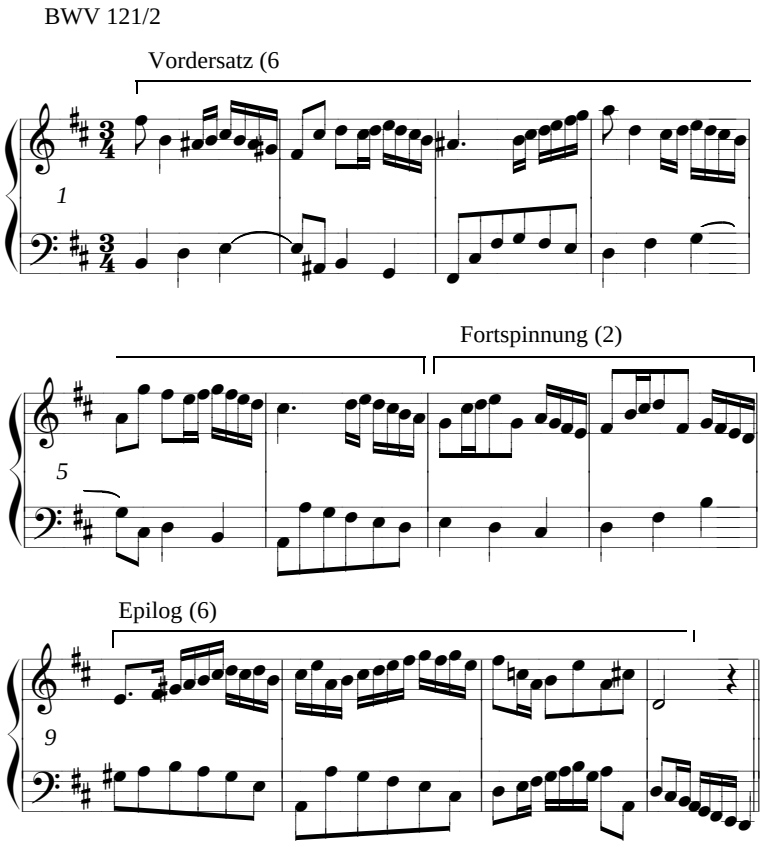
The dissertation of Hio-Ihm Lee (1993) deals with the form of the opening ritornelli of concertos, choir parts and cantata arias of Johann Sebastian Bach. The focus of the study is in the formal structure of the ritornelli. The total number of the opening ritornelli being analyzed was about 300.

Lee found that the basic form (*Grundform*) of the ritornelli representing the *Fortspinnungstypus* consisted most typically of six measures, the subdivision of which is 2+2+2. To the basic form category she included also larger ritornelli with the structural division of 4+4+4 and 8+8+8 measures (Lee 1993, 21). In all, Lee identified thirteen classes of variants of the basic form. The results of the analysis were presented in the form of diagrams, which show the phrase lengths (in measures), the motive structure (letter symbols), and the most important harmonic functions.

Lee (1993, 12) regarded harmonic cadences and motivic content as the main factors affecting the analysis of form. Cadences are not, however, of a great assistance in the analysis of the flowing and dynamic Baroque style. Defining the borderline between the *Fortspinnung* and the *Epilog* poses problems especially in those examples, which lack a distinctive caesura between *Fortspinnung* and *Epilog*. In Example 8 is shown the ritornello of cantata aria BWV 121/2. According to Lee's interpretation of the form, the epilog is four measures long and the *Fortspinnung* remains relatively short (two measures). According to this interpretation, the epilog would begin with a climax, at a point of highest intensification. If the function of the epilog is to present the conclusion, measures 9 and 10 cannot belong to the epilog since they are located in the middle of the most intensive development. The decisive reversal signaling the beginning of the epilog does not occur until in m. 11. A functional view of the *Fortspinnungstypus*, inspired by the literary models, leads to a different conception of the epilog. Epilog is something that does not show any tendency to increase the intensity but, instead, is supposed to *follow* the point of highest intensity (climax). Lee seems to have adopted from Fischer the idea of a

relatively extended epilog containing developmental material. Whereas both Fischer and Lee aim at discovering the grouping structure largely on melodic grounds, the present study focuses on finding the functionally differentiated parts of the *Fortspinnungstypus*. Schoenberg's definition of cadence function as something which follows *after* the development, and which introduces changes in rhythm and melody, appears to be more suitable for the definition of functionally meaningful *Epilog*.

EXAMPLE 8 Lee's analysis of the *Fortspinnungstypus* in Bach's cantata aria introduction BWV 121/2 (Lee 1993, 48).



In his studies of Bach's concerto ritornelli, Laurence Dreyfus (1985, 1996) has taken as the point of departure Fischer's *Fortspinnungstypus*. He criticized earlier studies of considering a ritornello as a succession of melodic motives labeled with letters of the alphabet (Dreyfus 1985, 329). Dreyfus prefers the functional view at the expense of the formal view: The three parts of the *Fortspinnungstypus* should be understood primarily in terms of harmonic functions. Thematic material is of secondary importance since it is only needed to carry out the functions. (Dreyfus 1985, 330.) Of primary importance is what these functions do, not how they do it (Dreyfus 1985, 333).

Dreyfus presented a more detailed harmonic distinction for the parts of the ritornello. He regarded the chord progressions I-V and V-I as critical features of the *Fortspinnungstypus*. The *Vordersatz* defines the tonic by referring to the dominant in the progression I-V. The *Fortspinnung*, in turn, lacks either a

defined tonic or an authentic cadence. It delays the arrival of a stable tonic by moving in conventional voice-leading patterns, such as 10-7-10-7, or 5-6-5-6, or 10-10-10. The *Epilog* contains an authentic cadence (V-I). It starts at the point where *Fortspinnung* ends, which is commonly the dominant chord. (Dreyfus 1985, 331.) The distribution of features across the three parts can be expressed with binary oppositions (Table 2). If the harmonic feature is present, the symbol is + ("marked"), if it is missing, the symbol is - ("unmarked") (Dreyfus 1996, 62).

TABLE 2 Distribution of the critical harmonic features across functional parts of the *Fortspinnungstypus* (Dreyfus 1996, 66).

	I-V	V-I
Vordersatz	+	-
Fortspinnung	-	-
Epilog	-	+

(+) = the feature is present; (-) = the feature is absent

The idea that the *Fortspinnung* is tonally unstable is clearly demonstrated in the table: both the definition of the tonic by progressions I-V and V-I are missing. What is also significant in the above table is the idea that *Fortspinnung* (sequence) avoids returning to the tonic with a V-I progression. Consequently, it is characteristic to the harmonic structure of the *Fortspinnung* to delay the arrival to the dominant, and thus to delay the resolution to the tonic. Moreover, the *Fortspinnung* part does not appear to be independent, since it has neither a beginning nor an end (Dreyfus 1996, 63).

Despite the fact that Dreyfus represents a functional view of *Fortspinnungstypus*, he explicitly denies narrative and linear characteristics of the form. He argues against the conception that a composer has to first invent the initial idea, which he then develops later in the course of the movement. (Dreyfus 1985, 357.) According to Dreyfus, Bach's ritornello movements should be regarded rather on a paradigmatic than on a syntagmatic axis (Dreyfus 1996, 63). His notion is quite innovative but in contradiction to the very essence of linear temporality. Although the composer may have invented the elements of his composition in some other order than the one appearing in the finished work, the tonal work is eventually brought back to linear temporality, which is governed by the functions presenting, developing, and concluding, in that order. In other words: the musical material is made functionally meaningful.

2.5 Essential differences between period and sentence

The difference between the formal principles of *Fortspinnungstypus* (*Satz*) and *Liedtypus* (*Period*) reflects a more general distinction between symmetrical and developmental forms acknowledged in German music-aesthetic and music-

theoretic tradition. Ernst Kurth (1917, 203) differentiated between forms with constant transition (*Übergang*), governed by *Fortspinnungs*-technique, and forms which are grounded on clearly distinctive groups, as is characteristic especially of music of the Classical period. In Mersmann's (1926, 96-97) dualistic system the concept *Ablauf* denotes closed, periodic, symmetrical forms containing clearly separated parts. By the term *Entwicklung* he refers to open forms, the parts of which grow from and into one another. Such form types as suite, song forms and rondo belong to *Ablaufsformen*, while forms like the fugue and sonata form belong to *Entwicklungsformen*. (Mersmann 1926, 96-97.) Mersmann (1926, 95) uses metaphors of *Kraft* (power) and *Raum* (space) to capture the fundamental characteristics of *Entwicklungsformen* and *Ablaufsformen*, respectively. In later German music theory, the concept *Fortspinnung* has been used to refer to non-symmetrical structures, based on literal or varied repetitions of the *Fortspinnungsmotiv* (Altman 1968, 15).

The identification of a conceptual category such as the *Fortspinnungstypus*, requires not only discovering the defining features of the category but also the identification of contrasting concepts. The symmetric *Period* is described by Fischer, Ratz, Schoenberg, and Caplin as a contrasting category to the *Fortspinnungstypus*/sentence form. The description of the *Period* constitutes at the same time the description of what is not a *Satz*. The defining features of *Period* are just those features that differentiate the sentence from the period. The normative structure of a *Period* is 4+4 measures; the first phrase ends on the half cadence, the second on a full cadence. (Ratz 1978, 21; Schoenberg 1990, 25). Ratz (1978, 22-23) presents two principles, which according to him are central to the psychological foundations of the functional notion of form. First, the independence (*Selbständigkeit*) of a *Gestalt* is recognized at the repetition (*Wiederholung*) of the *Gestalt*. Second, when the repetition begins, it is expected to be similar to the first phrase. Whereas the *Period* is self-contained and suitable to lyric expression, the *Satz*, due to the growing intensity and motivic condensation in the development, pursues forward and is suitable to first movement sonata forms (Ratz 1978, 24).

Fischer considered the difference between *Liedtypus* and *Fortspinnungs-typus* not only on structural level but also in their origins. He saw the *Liedtypus* as originating from folk dance and song (Fischer 1915, 29). For the Fortspinnungtypus he specified two historical origins: the polyphonic forms and basso ostinato forms (Fischer 1915, 47).

2.5.1 Temporal considerations

How essential is the difference between the two forms? The difference can be examined from the viewpoint of temporality. The tonal system is suitable for the expression of *linearity*, which is due to the fact that tonal motion is experienced as goal-directed, the ultimate goal being the tonic. A characteristic temporal form of tonal music is the move towards the point of greatest tension, which is a tonal region or a chord, which is relatively remote to the tonic. After this the tension is released and the tonic is reached as the point of resolution and goal. The most important dominant is the one preceding the return to the

tonic[1]. (Kramer 1988, 23, 25-26.) The description of *Fortspinnungstypus* (*Satz*) as a strongly forward moving process correlates clearly with the typical curve of tonal forms. An important subgoal in this curve is the dominant, which precedes the return to the tonic.

Linearity is also characteristic of literary forms of the Western culture. A dramatic or narrative curve underlies, for example, the Aristotelian notion of drama. According to William Barrett, the functionally differentiated parts beginning–middle–end imply that the "action begins at a certain point, rises toward a climax, and then falls to a dénouement." (quoted in Kramer 1988, 202.)

Whereas linearity is based on implications arising from the earlier events, *nonlinearity* arises from principles and tendencies governing the entire piece or section. In contrast to linearity, nonlinearity is not based on change or growth. Its principles are revealed gradually but they are not developed or determined from the previous events. (Kramer 1988, 20-21.) Kramer (1988, 42-43) suggests that the understanding of symmetrical proportions of music (the essential characteristics of the period) presupposes a nonlinear mode of listening.[2] One can comprehend the respective lengths of passages only by retrospective, atemporal understanding of the music, whereby the durations of the passages and their balance can be understood. The temporal order of the segments – the essential characteristic of linearity – does not affect the judgment of duration and balance. Kramer's nonlinearity could perhaps be understood as a temporal mode trying to overcome the sense of linear irreversible time, which is the prevalent mode not only of tonal music but also of the Western culture in general. Understanding nonlinearity requires "moving" back and forth in time in order to grasp the proportions of the segments of the music. Nonlinearity invites spatial metaphors, such as symmetry, to the understanding of music.

Karol Berger (1992, 457-460) has presented a distinction between *narrative* and *lyric* forms in music and literature. A narrative form, or temporal form, as he calls it, consists of parts, which follow each other in a determined order. The phases perform functions such as beginning, middle, and end. The beginning does not demand anything preceding it, the end nothing following it. The middle demands something both to precede and succeed it. According to Berger, the parts are connected to each other by an irreversible causation: if a earlier, then b later (->). In the lyric form the parts are connected through mutual implication: if a, then b (<->).

In his semiotic essays Raymond Monelle has dealt with two fundamentally different temporalities in music, which seem to bear some similarities to Kramer's distinction between linearity and nonlinearity and to Berger's distinction between narrative and lyric time, respectively. One temporal category Monelle calls *lyric time*, which originates in dance. It manifests itself in cyclically recurring accents and regular and logical structuring with no sense of

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1 Kramer considers the important dominant to occur near the point of recapitulation. Inthis respect the Schenkerian idea of the structural dominant near the end of the piece is not in accordance with the narrative curve. (Kramer 1988, 26.)

2 Kramer's discussion of time in music is based on the theory of J. T. Fraser (1978) whoproposes a system of temporal hierarchy, the levels of which don't exclude each other but can be present at the same time. Propositions about time can be simultaneously true and false. Linearity and nonlinearity, which represent different temporal levels are not contradictory in the sense of a law of contradiction: musical process can be both linear and nonlinear at the same time. (see Kramer 1988, 2-3.)

progression (Monelle 2000, 90-91). Another temporal category is *progressive time,* which according to Monelle is goal-oriented time, and which is a product of later historical development. Characteristic of it are progressive diminutions, as well as, shortening and quickening of thematic figures (Monelle 2000, 97-98). Monelle suggests that progressive time allows such concepts as narrative structure, climax, and dénouement to be brought into the sphere of music (Monelle 2000, 100). Monelle claims that progressive time emerged together with longer modulatory passages, which make points of tonal arrival more prominent. Moreover, the increased use of chains of sequences was a contributing factor for the emergence of progressive time (Monelle 2000, 100). Monelle regards Bach as a composer who reconciles lyric and progressive time. He demonstrates the two temporalities with two examples from Bach: a symmetrical phrase structure 4+4 in Bach's Gavotte (Fifth French Suite) represents lyric time (non-progressive time) despite the fact that the latter phrase ends on the dominant. In contrast, the Bourrée from the same Suite begins with a period of 4+6 also ending on the dominant. Due to the addition of a sequential part (two measures) into the latter phrase, the arrival to the dominant is more emphatic than in the Gavotte and the music, thus, represents goal-oriented, progressive time. (Monelle 2000, 99-100.) The *Fortspinnungstypus* with its sequential development possesses characteristics of progressive time, such as sequential structure(s) and structural accelerando. With the shortening of structural units temporal experience is shaped by the strong sense of movement and linearity.

In his study on temporal processes in music David Greene has regarded Baroque music as prose-like, and the music of Classicism with its paired phrases as poetic. The paired phrases of the Classical style balance each other, whereas in Baroque music phrases are connected to each other, like links in a chain. (Greene 1982, 27.) The two idioms have different relationships between future and past. Whereas paired phrases (Classicism) create an image of temporality, in which future events are "genuinely responsive to the past" (Greene 1982, 18), in Baroque music future unfolds out of necessity (Greene 1982, 7).

The distinction between narrative and lyric time (Berger), linearity and nonlinearity (Kramer), progressive and lyric time (Monelle) characterizes the structural differences between *Fortspinnungstypus* (*Satz*, sentence) and *Liedtypus* (Period, period). The lack of symmetrical pairs of phrases, the use of sequences and liquidation techniques in the *Fortspinnungstypus* implies narrative, linear, and progressive temporalities, whereas the symmetrical period implies rather to nonlinear and lyric temporalities. One should remember, however, that the two temporal categories don't exclude one another; what is linear on one structural level may be nonlinear on the next level. For instance, the *Vordersatz* may be nonlinear in the *Fortspinnungstypus*, and progressive in the *Liedtypus*.

2.5.2 Spatial considerations

In his book *Tonal Pitch Space* Lerdahl (2001, 232-233) has dealt briefly with the sentence form. Lerdahl's tree diagram representation of the sentence form is of special interest. The presentation phrase (Figure 1) consists of the statement (st) and counter-statement (c-st), which ends with a harmonic departure (Dep). The right branching of T->Dep harmonic progression of the presentation phrase, as

well as the left branching of final cadence S->D->T are adequate interpretations of the prolongational structure. What this tree diagram fails to depict is the harmonic motion of the sequence, starting from the first tonic of the continuation. In fact, it presents the sentence with exactly the same tree diagram as the symmetric period *aa*[1], the first phrase of which ends on the dominant and the second on the tonic (Figure 2).

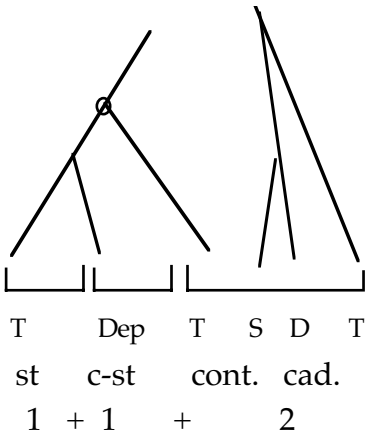

FIGURE 1 The normative prolongational structure of a typical sentence form according to Lerdahl (2001, 233).

Obviously, there are grounds for the interpretation presented in Figure 1, according to which the prolongation of the tonic chord extends from the initial chord to the beginning of the continuation phrase (sequence), since the tonic chord is literally (physically) present at the beginning of the continuation. (Lerdahl marks the tonic at the beginning of the continuation in parenthesis to indicate that it is optional). However, due to different harmonic and melodic contexts, the nature of the prolongations in figures 1 and 2 is quite different. Whereas the tonic in Figure 2 is a stable functional chord, the tonic in Figure 1 is a member of the sequence, and as such it is strongly destined to progress to the following chord, which is determined by the sequential pattern.

Originally, Lerdahl and Jackendoff (1985, 199) connected the branching presented in Figures 1 and 2 with forms containing a reprise, i. e. with forms in which the prolongation of the initial tonic is extended to the point where the initial thematic material returns (at the beginning of the consequent phrase as well as at the return of A in ternary and rounded binary forms). In the *Fortspinnungstypus* and sentence form there is no thematic return at the beginning of the continuation, which makes the first tonic chord of the sequence different from the initial tonic chord.

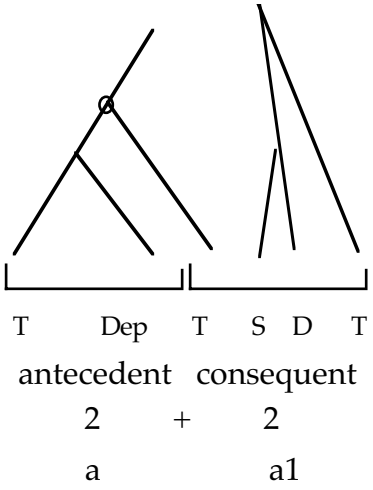

FIGURE 2 The normative prolongational structure of a symmetric period

In the present study the idea of a normative prolongation structure suggested by Lerdahl & Jackendoff will not be adopted since it does not capture the important, or even essential structural difference between the period and the sentence. The tree-structure model represents musical processes as occurring *within* the tonic function. It leans implicitly on the spatial metaphor, and obscures the processive character of the *Fortspinnungstypus*.

The issue of whether different temporalities of the period and sentence suggest that there is an essential difference between the two formal categories cannot be solved in the scope of this study. However, it is safe to say that each of the two formal principles invites different metaphors. Whereas the period easily calls for spatial metaphors, the sentence tends to arouse more easily metaphors of linear processes, such as narratives.

3 FUNCTIONAL FORM

3.1 Conceptual distinctions

At this point it is necessary to make distinction between the concepts *form* and *structure*. Structure and form are considered to be highly interdependent concepts (e.g. Salzer 1982, 224). Form may be understood as a broad concept including practically every detail of the structure, as Clemens Kühn's definition shows:

> Musikalische Form ist das Resultat all dessen, was ein Musikwerk ausmacht und in ihm zusammenwirkt, vom kleinen satztechnischen Detail bis zum grossen Zusammenhang, [...](Kühn 1995, 607).

The term *structure* usually refers to the harmonic and voice-leading aspects of the work (see Salzer 1982, 224 and Rothstein 1989, 104). *Form*, in turn, generally refers to the subdivisions and segmentations of the work, and to the various types of repetitions of the segments (Salzer 1982, 223, see also Rothstein 1982, 104). The subdivisions are associated with the grouping structure of the work, i. e. the segmentation into phrases, periods and sections. In the present study the term form refers to the internal division of the work into formal functions, which may or may not coincide with the grouping structure. Structure is understood as providing a tool for a more detailed description (harmonic functions, chord degrees and scale steps) of the constituent parts of the form.

Some theorists on musical form consider the dynamic process with its fluctuation between tension and relaxation to be distinct from the concept of musical form, which is thought to include especially the melodic and harmonic structure (Green 1979, 2-4; dynamic shape vs. musical form). Sloboda (1998, 28) refers to the distinction between structural and dynamic aspect of the musical work. Whereas structure involves syntax and intramusical references, dynamic aspect concerns extramusical references, which are based on analogical relationship between physical motion and musical motion. In the present study, it is suggested that such analogical relationships are the basis of metaphorical interpretations of musical form and structure.

3.1.1 Formal and functional views of form

Attempts to conceptualize musical form have brought up several different views on the subject[1]. The following discussion takes as the point of departure the distinction between (1) form as a conventional formal schema (*formal view*) and (2) form as an entity with functionally differentiated parts (*functional view*).

Wallace Berry distinguishes between musical form as a "thematic scenario" based on conventions of schematic design and "free" or "unusual" forms, which do not follow conventional schemes. According to him, classifying forms as formal schemes is largely based on the thematic content of the work, in other words, the thematic scenario. Both schematic and free forms are based on the succession of specialized formal processes (functions). (Berry 1986, 403.) Berry touches upon the issue of free forms quite briefly, tracing their emergence to the free treatment of conventional schemes. Common techniques of free treatment include enlargement or contraction of one formal scheme and the melting together of features from two schemes (hybrid forms). Moreover, and more importantly, he accounts free forms as being connected with some extra-musical content. In programmatic music, a literary text or program may be responsible for the continuity of musical structure. He also acknowledges that programmatic or textual structures may be compatible with conventional formal principles. The formal processes, such as thematic development, variation, and reprise, are central for especially those musical works, in which extra-musical factors determine unconventional formal design. (Berry 1986, 405.) Berry seems to associate extra-musical, specifically literary models with free musical forms.

Leonard B. Meyer has made a distinction between the two meanings of the term "form". According to him a musical composition *is a form*, if there is a particular scheme, which it implements, such as sonata-form, rondo, theme and variations. A musical work is a form, if it has on the highest level conformant organization. A musical composition *has form* if its parts are related functionally or syntactically with each other. Examples of such functional or processive forms, are developmental sections, cadential progressions, and sequences. (Meyer 1973, 91.) Purely formal structures, such as theme and variations (AA^1A^2...) are additive with no syntactic differentiation. (Meyer 1973, 93-94). When describing processive musical works Meyer refers to literary forms. Novels and plays are literary examples of entities, which have forms, but which are not based on any higher-level formal schemes (Meyer 1973, 91). Discussion of the functional (processive) notion of musical form involves, again, references to literary forms.

The present study is based on the assumption that the basis for the distinction between formal and functional views resides in different conceptions

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[1] One of the dichotomies within the concept of form, not amplified in this study, is between "inner form" and "outer form". Of the complexity of the concept *form* speaks the fact that theorists seem to define the terms in somewhat different ways (see Salzer 1982/1952, 223-224, Rothstein 1989, 104, Réti 1961, 109). To the outer form both Réti and Rothstein include the subdivisions of the work (phrases, sections etc.), to the inner form Rothstein includes the large-scale harmonic and linear layout, Réti, in contrast, the workings of motivic cells. Both conceptions of inner form aim at explaining the inner coherence behind or beneath the form.

of music. One considers music to be an autonomous art while the other acknowledges music's ability for "extra-musical" references. Examining musical forms as formal types involves purely musical references: the analysis of the degree of similarity between the structures of the temporal segments of a musical work. Viewing musical work as consisting of temporal segments functioning in some meaningful way in the over-all context seem to require with more or less substantial references to extra-musical phenomena. Literary forms and living organisms are the most commonly presented sources for analogies or metaphors in discussions of functional form. It should be noticed, however, that the formal functions can be, and have been discussed without extramusical references (see Agawu 1991, 51).

According to Meyer, form and process are not contradictory concepts: Music is initially heard as a process, but after it is brought to a closure, the process is interpreted as forming a more or less closed formal unit on a higher level. In retrospect, the process has become a stable formal unit, which becomes a building block of musical structure. Processive and formal principles alternate as one moves from one level to another: what is processive on one level becomes formal on the next level. (Meyer 1973, 90.) Thus, the perception of structure evolves in time and is dependent on the level to which perceptual attention is directed. From this we can conclude that the dichotomy processive (functional) vs. formal is not necessarily an issue of contradiction, but rather the two aspects of form can work simultaneously in the same work. Understanding the over-all form as formal or processive depends on the perception of the form on the highest structural level.

3.1.2 Schematic view of form

The schematic view of form evolved in the nineteenth century. It arose partly as an antithesis to the organic-generative conception of form, but also responded to the pedagogical needs of conservatory education. The forms of individual works were classified according to the lowest common denominators into stereotypical categories (Bonds 1991, 148). What was central to this notion of form was that it was based on intramusical, not extramusical features (such as character) (Bonds 1991, 146).

Thematic aspect of the work is central in the identification of a formal schema. Meyer (1973, 44-45) discusses the effects that repetitions and returns of formal units have on the perception of form and process. Relationships between identifiable and discrete musical events based on similarity are called *conformant relationships*. Returns of motives and themes tend to articulate form (Meyer 1973, 49). The schematic-conformational concept of form represents, at the cost of temporal aspect, musical form as a spatial opposition between parts (Bonds 1991, 147-148, 153).

Meyer sees the significance of conformant relationships in the foreground coherence, which enables attention to be directed to higher-level syntactic processes (Meyer 1973, 65). As for the *Fortspinnungstypus* there is no fixed schema for thematic return. The conformant relationships in the *Fortspinnungstypus* are mostly found between motives, rather than between phrases. Neither the sequence nor the epilog usually contains a literal return to the initial motive. Thus, the formal description of the phrase structure would be

that of *abc.* Due to the sequential and quasi-sequential motivic repetition, the thematic content of the *Fortspinnungstypus* is not as random as the description *abc* would predict. As coherent surface structures the melodic-harmonic sequences enable the attention to be directed to the higher-level events and to the functional differentiation between parts.

The nineteenth-century taxonomy of musical forms by A. B. Marx is still influential to the present day understanding of musical forms (see e. g. Dreyfus 1998, 135-137, Lester 2001, 50). The reason why the schematic view persists in the textbooks of musical form is, simply, that many musical works can be meaningfully described as spatial opposition of temporal segments. The symmetrical period is suitable for formal description since its phrases are in conformant relationship with one another. But those musical forms, which on the highest structural level are processive, and which are based on functional differentiation between parts, not on fixed schemes of conformant relationships, require a different mode of description. The challenge of this study is to explore whether processive or functional forms, such as the *Fortspinnungstypus*, can be described as a schema of formal functions shared by several musical works.

3.2 The beginning-middle-end paradigm

In section 3.1 chapter it was noticed that theorists of musical form tend to refer to literary forms when demonstrating the functionality of musical form. The most general observation in linking musical and literary forms is that in both cases the beginning differs from the end and the middle is different from both of them. This functional specification between the constituent parts of musical form was acknowledged already in the Baroque period. In Baroque forms, as well as in tonal forms of later periods, the beginning-middle-end paradigm is supported by underlying harmonic structures.

3.2.1 Conceptualization of musical form in Baroque music theory

The beginning-middle-end paradigm was brought to Baroque music theory through the analogy of rhetoric. The earliest application of the disposition of rhetorical speech to musical form was made in 1606 by Joachim Burmeister. He followed the Aristotelian tripartition beginning-middle-end (see Aristotle Poetics VII.7), and labeled the three phases of musical form as (1) *exordium* (2) the body of the piece (*ipsum corpus carminis*), and (3) the ending (*finis*) (see Burmeister 1993, 202-203).

In his treatise *Der Vollkommene Capellmeister* (1739) Johann Mattheson presented a more detailed specification of the functionally differentiated parts of musical form. He followed the classical division[2] of rhetorical speech into six

[2] The division was presented in *Rhetorica ad Herennium* by pseudo Cicero (see Kirkendale 1980, 94). The rhetorical approach to musical form was revived in the 1980's. Ursula Kirkendale (1980) presented a rhetorical analysis of Bach's Musical Offering and Alan Street (1987) an analysis of Bach's 'Goldberg' variations. In both studies the rhetorical model closest to Bach's thinking was considered to be

parts *Exordium-Narratio-Propositio-Confirmatio-Confutatio-Peroratio*[3].The function of *Exordium* (introduction) is, according to Mattheson, to reveal the purpose of the discourse, and to prepare the listeners and raise their attention. *Narratio* (report) states the meaning and character of the discourse. *Proposition* (discourse) presents briefly the content or goal of the musical oration. (Mattheson 1739, 236.) *Propositio* acts as the argument (*thema*) of the musical speech; it is to be defended and proved correct in the course of the argumentation process. Mattheson held that the principal statement (*propositio*) is constructed from particulars, smaller passages, which are put together into a cohesive phrase by the composer. (Mattheson 1739, 122.) *Confirmatio* (corroboration) in Mattheson's terms refers to the varied repetitions of the thema. *Confutatio* (confutation) presents foreign-appearing ideas and refutes them. *Peroratio* functions as the end or conclusion of the musical oration. The musical oration, for example in arias, closes with almost the same passages, which were heard at the beginning. (Mattheson 1739, 236.) Mattheson did not intend the disposition to be a prescriptive model, which should be followed pedantically. (Mattheson 1739, 234).

The idea of equating musical form with the form of rhetorical speech brought the idea of functional specification of parts into the realm of musical form. Mattheson's six-part disposition, which, according to Agawu (1991, 52), presents the beginning-middle-end paradigm, was important in many respects. Agawu considers Mattheson's model to be important in the following three areas: (1) it recognized the wholeness of the musical form, (2) it made a distinction between "statement" and "elaboration", and (3) it recognized the rhetorical functions of the constituent parts. (Agawu 1991, 52.) Following the logic of rhetorical speech Mattheson's disposition presented musical form as a succession of functions in a specific order. In order for a speech to be understandable and persuasive, it needs to present thoughts and claims in a logical order, e.g. arguments cannot precede the proposition, peroratio cannot be stated in the middle and so on. Mattheson also refers to a three-part structure when stating that the rhetorically strongest arguments appear at the beginning, the weakest in the middle, and stronger ones at the end (see Mattheson 1739, 239).

Sequential structures were discussed in German Baroque theory as a part of musical rhetoric. According to Butler (1977, 80), the musical sequences, especially the ascending ones, were considered to be central to the techniques of *confutatio* in Baroque music. Another common technique of confutation, the thematic fragmentation, can be associated with sequence, since sequences were usually based on fragments of the thema. Moreover, in the course of sequences motivic material may be further fragmented. Butler (1977, 83-84) remarks that some Baroque theorists regarded the technique of thematic fragmentation as a separate section, *divisio*, which followed straight after the *propositio*.

Quintilian's Institutio oratoria. Quintilian used the terms *probatio* and *refutatio* (constituting the argumentatio) instead of *confutatio* and *confirmatio* (Kirkendale 1980, 94), the main divisions of the oratory being *exordium, narratio, probatio, refutatio,* and *peroratio* (Street 1987, 94).

[3] The correct order of the parts is found in Mattheson on page 235. As Kirkendale (1980, 94) remarks, on the next page Mattheson presents confirmatio and confutatio in reversed order.

Sequential patterns were discussed in terms of rhetorical figures, each which was considered to have certain affective meanings. Sequences can be associated with rhetorical figures *incrementum* (augmentation) and *congeries* (accumulation). The former (used by Burmeister and Walther) refers to the repetition of a musical passage by an ascending second (Bartel 1997, 209-212). The latter (used by Burmeister) refers to ascending or descending passages, in which perfect and imperfect consonances alternate (Bartel 1997, 229-231). For instance, the examples given of *congeries* by Burmeister can be written with thorough-bass symbols 5-6-5-6 (Burmeister 1993, 185, 298).

The rhetorical figure of *climax* (known also as *gradatio*) may also refer to a sequence. In musical rhetoric, the terms *climax* and *gradatio* originally referred to both descending and ascending gradual movement of voices. As an example of a *climax* figure Burmeister gives a melodic sequence descending by step (Burmeister 1993, 181)

Kircher's *Musurgia Universalis* (1650) was the first treatise to discuss *climax/gradatio* as an affective-expressive figure. Kircher specified the figure to contain ascending movement by step. (Bartel 1997, 220-221.) He associates the *climax/gradatio* figure with the heavenly and divine, as the following citation indicates (quoted in Bartel 1997, 223):

> The *climax* or *gradatio* is a musical passage which ascends by step, and is often used in affections of divine love and yearning for the heavenly kingdom, [...].

All the subsequent authors except Walther adopted the function of intensification for the *climax/gradatio* figure. (Bartel 1997, 220-221.) Scheibe (*Der critischer Musicus* 1745) developed further the expressive aspect of the *climax/gradatio* figure (Scheibe 1745, quoted in Bartel 1997, 224):

> The ascension (*gradatio*) occurs when one progresses by step from a weak passage to stronger ones, thereby gradually increasing the importance and emphasis of the expression or music. ... Is it not delightful when music begins most tentatively and, becoming progressively stronger and higher, finally evolves into the most powerful melody and harmony? This moves the attentive listener and causes wonder and amazement.

Sequences, among other ascending and descending passages, inherited specific affective contents from the old word-painting tradition. Ascending musical passages, which were called by the rhetorical term *anabasis* were considered to refer to exalted thoughts and affections and ascending images. (Bartel 1997, 179). The descending passages, which were assigned the rhetorical term *catabasis*, were thought to express descending, lowly, and negative images or affections (Bartel 1997, 214).

The expressive effects of the sequential passages were acknowledged already in the musical rhetoric of the Baroque. Thus, the middle part of the Fortpinnungstypus with its sequential structures was probably thought as possessing strong affective qualities and possibly also extramusical references.

3.2.2 Harmonic progressions

Meyer (1973, 91-92) describes the functional differentiation between the parts in a processive form by using the Aristotelian division into three phases: *beginning-middle-end*. He illustrates the processive form by examples from J. S. Bach. A fugue subject, as themes in general, may be processive, which means that it starts with a generative event, continues with a goal-directed movement, and finally arrives at a closure. (Meyer 1973, 91.) Larger forms, like the first two preludes from the Well-Tempered Clavier, Book I, may also have three phases having different syntactic and functional roles. *The beginning* is tonally relatively stable and closed, *the middle* consists of less stable sequential melodic-harmonic progressions directed on the prolonged dominant, and *the end* consists of a prolonged cadential progression. (Meyer 1973, 92.) The tonal roles of the functions Meyer describes, namely those of stability-instability-stability, are probably shared by many or most tonal works. However, as Agawu (1991, 131-32) observes, for each of the functionally specialized parts of beginning, middle, and end there are specific stylistic conventions. The sequences, which Meyer mentions as the typical content of the middle part, are common during the Baroque period. Even though the functional segments are interdependent, they are not, as a rule, interchangeable (Agawu 1991, 72). The fixed order of the functional segments suggests that the beginning-middle-end paradigm is a construct of linear temporality.

The division into beginning-middle-end can be found also in harmonic progressions, both on the global level of Schenkerian *Ursatz* (Figure 3) and on the level of local harmonic cadences (Figure 4). Agawu describes the formal functions of the *Ursatz* in the following manner:

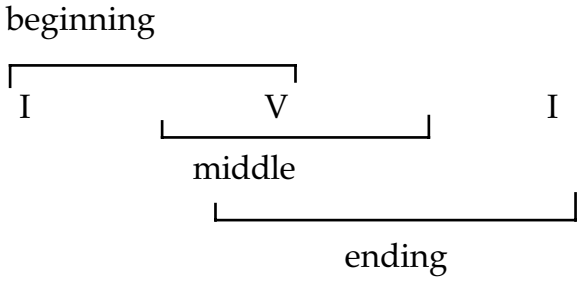

FIGURE 3 The beginning-middle-end paradigm applied to a Schenkerian *Ursatz*. (Agawu 1991, 53).

The beginning consists of I-V, the middle of V, and the ending of V-I. There is a progression from stability through instability back to stability. The first part (member) gives a stable point of departure, the second undermines and is returned to the initial point of stability. (Agawu 1991, 53.) Agawu's graph shows the three phases as overlapping. The considerable overlapping – especially between the ending and beginning – is, however, problematic. The idea of distinct functions is weakened if the long passages of music may be interpreted as having two functional roles simultaneously. The functions should

be defined harmonically and melodically in such a way that the distinction between adjacent parts would become clear.

In a complete authentic cadence TSDT the stable beginning and ending consist of tonic harmonies, which are separated from one another by an unstable middle part (S and D). According to Sadai (1980, 27) the functional harmonies TSDT form a full functional cycle, in which the tonic harmonies don't demand continuation. The dominant is the focal point of harmonic tension having one goal, namely the tonic. The subdominant harmony demands movement into a more tensional harmony. In Ratner's schematic representation of the cadential harmonic progression 1-4-7-1 (Figure 4), 1 is a stable point of departure, 4 moves away from 1, and 7 pulls back to tonic whereby the direction of action is reversed. After the return to 1 as a point of arrival has occurred, the tonic may form a new point of departure. (Agawu 1991, 55).

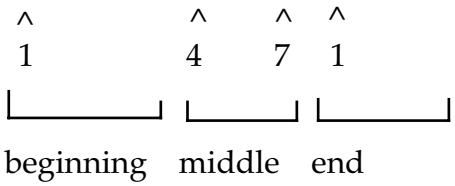

FIGURE 4 The rhetorical process of harmonies according to Agawu (1991, 55).

Agawu finds parallels between Schenker's Ursatz and Ratner harmonic model; 2 of the Urlinie corresponds to 4 and 7 in Ratner's schema (Agawu 1991, 55, see Ratner 1985). When discussing the contribution of harmony to form Ratner came to describe the very basic features of temporal linearity: "Events are planned so that the harmony follows an unbroken path from beginning to end, with progressions linked by means of their cadential relationships" (Ratner 1985, 48).

3.3 Theories of musical form as a chain of formal functions

The functional specification of parts, defined by disposition of rhetorical speech, continued to exist in later theories of form as well. Only the explicit analogies were dropped. For instance Schoenberg's notion of form can be understood as being covertly rhetoric (Bonds 1991, 158), despite the fact that the explicit metaphor he referred to is that of living organism. Schoenberg (1975, 407) seems to lean implicitly on rhetorical principles of formal organization when he describes various structural functions the ideas in a musical work have, such as "... introductory, establishing, varying, preparing, elaborating, deviating, developing, concluding,....". These functions in fact carry out the ground plan of Mattheson's rhetorical disposition (see Bonds 1991, 157-158). In fact, Schoenberg's theory of musical form was a theory of formal functions (Carpenter & Neff 1995, 59). He never presented his thoughts as a formal theory, but his ideas have influenced both the work of his pupil Erwin Ratz, as

well as the work of William Caplin, who has recently revived interest in the study of musical form[4].

3.3.1 Erwin Ratz's Urform of musical forms

Ratz proposed a general model for tonal forms and formal functions. He believed that behind the great variety of different tonal forms (sonata, rondo, the fugue etc.), an *Urform*, common to all form types, can be found. (Ratz 1978, 56.)

The *Urform* consists of five parts, the functions of which are the following (Ratz 1978, 56):

(1) presents the tonic
(2) carries away from the tonic (*Überleitung*, *Zwischenspiel*)
(3) stays in more remote regions (second theme, *Durchführung*)
(4) takes back to the dominant of the home key (*Rückführung*)
(5) confirms the attained tonic

The basis for distinguishing between the functions is tonal, not melodic. The succession of functions is described with two fixed tonal elements: the tonic and the dominant. The outer parts are tonally stable, the middle part represents a tonally dissonant area, and the 2nd and 4th parts are transitional. The dominant chord is central not only in returning to the tonic, but also in presenting the tonic. According to Ratz (1978, 56-57), this five-part structure needs not to be fully realized in every work: parts may be fused or even be missing. In forms of smaller scope, for example in a 8-measure theme, the 3rd and 4th part may merge with one another.

3.3.2 Wallace Berry's structural functions

Another view concerning the structural functions of music has been presented by Wallace Berry. In his book *Form in Music* 1966/1986 Berry (1986, 403-04, 406-07) distinguished between five types of formal functions, or formal processes, as he calls them. The formal processes are active both in musical works following a conventional formal scheme, and in "free" forms, which are not based on schematic forms. The five formal functions or processes are

(1) process of introduction
(2) expository process
(3) process of transition
(4) developmental process
(5) process of resolution

Features characteristic of the *introduction*, found typically at the beginning of the form, may be a restricted or lacking motivic-thematic content, dissonant harmony, and a general sense of arousing expectations concerning the

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[4] Caplin's approach has been considered to represent neo-*Formenlehre* (see e. g. Lerdahl (2001, 242)

following events. The *exposition* presents thematic/motivic ideas. For instance, the *statement* of the original motive may be followed by its elaborated *restatement*, both of them appearing in a relatively stable context. The *transition* involves development and movement from "here" to "there" in a relatively short span of time. The situations prior and after the transition are usually opposed in some respect. The *development* is, contrary to the exposition, mobile, fragmentary, episodic and intensified of its action. It explores and reviews presented material. The final phase, *resolution*, represents conclusion and closure. Tonally, it is based on a cadence or a cadential pedal point, thematically on a review of the previous material. (see also Berry 1987, 5-6)

The structural functions not only refer to the structural roles of the musical events, but are also associated with *expression*. According to Berry (1987, 23), function is "the role of an event in the import of expressive content and significance".

Berry maintains that structural functions can be defined in terms of intensity change, for which he recognizes three possibilities: increasing intensity (*progression*), subsiding intensity (*recession*), and unchanging intensity (*stasis)*. Motion in music is associated with these three qualities. (Berry 1987, 7.) Characteristic of the progression is movement towards relative mobility, dissonance, acceleration, relative complexity, and distance from the normative state. Recession refers to the movement towards resolution, reduced intensity, consonance, deceleration, simplicity and inactivity, normative, and a relatively resolutive condition. (Berry 1986, 406.) He considers several elements, not only tonal ones, to be the source of intensity changes. Progressive action may be due to the following elements (Berry 1987, 11):

TABLE 3 Features characteristic to progressive action according to Berry (1987, 11).

musical parameter	description
melodic movement	up
harmony	away from tonic
tonality	away from the primary system
meter	toward shorter units
tempo	acceleration
texture	greater interlinear diversity and conflict
timbre	increased sonorous weight and penetration, also higher register

The shortening of the sequential motive, mentioned both in the definition of *Fortspinnungstypus* and *Satz*, is a characteristic feature of Berry's progressive action. The sense of recessive action is accomplished by the opposite characteristics. The final cadence of the *Fortspinnungstypus*, as of any other tonal form, represents commonly the opposite characteristics, such as descending melody, harmonic movement towards the tonic, as well as, textural and timbral simplicity and clarity.

3.3.3 William Caplin's theory of formal functions

Recently, Schoenberg's and Ratz's ideas of functional form have been revived in the work of William Caplin, who develops further Ratz's idea of formal functions and strives for no less than a comprehensive theory of formal functions (Caplin 1998, 3). He hasstudied formal functions in conventional formal types, such as period, sentence, binary and ternary forms, sonata and rondo forms.

Caplin distinguishes the concept of formal function from other, more traditional, concepts of musical form. He does this by listing some features, which are decisive to the characterization of formal functions. First, formal functions are not identical with grouping structure. A group may coincide with a function, but it may as well contain several functions, or one function may contain several groups. Second, melodic-motivic structure is not decisive in identifying the functions. Third, functions are defined by their harmonic, melodic, and rhythmic charateristics. Especially the role of local harmonies is crucial in identifying the functions. (Caplin 1998, 4.) The most obvious deviation from the traditional notion of form is the differentiation of formal function from the groups of the grouping structure. The other significant feature of Caplin's functions is the low status given to melodic-motivic and thematic traits. In traditional formal analysis the use of formal symbols of the alphabet is based on melodic characteristics. In defining the functions, the significance of local harmonies override the significance of melodic-motivic material. In Caplin's words (1998, 10): "the underlying harmony of a passage is an essential criterion of its formal function."

3.3.4 Summary

By synthesizing the views of Ratz and Berry, six functions can be distinguished, all of which need not be present in a single form. The underlying harmonies can best be described with functional symbols, allowing numerous different chord-degree and voice-leading realizations (Figure 5).

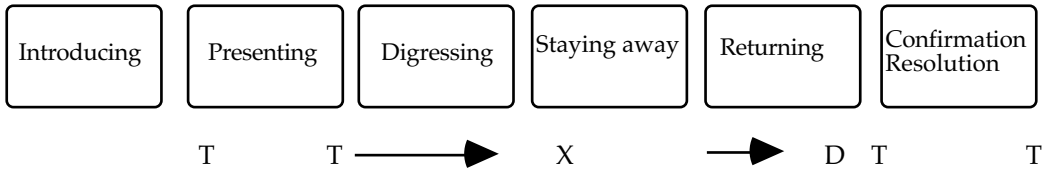

FIGURE 5 Chain of formal functions in tonal forms.

Formal functions are closely tied with harmonic structure, which defines the structural content of each formal function and the over-all shape of the form.

3.4 Harmonic structure of the formal functions

Caplin distinguishes three kinds of harmonic progressions: *cadences*, *prolongations*[5], and *sequences*, which as formal-functional categories can overlap: more than one category can be assigned to a single passage (Caplin 1998, 262, note 7). Caplin's categories of harmonic progressions don't seem to be fully compatible with Berry's structural functions, which are based on musical movement. Whereas the sequence unambiguously represents movement, the cadence may act in two functional roles: either as a stable element in a prolongation or as a confirmation of the endpoint of a movement. Cadences prolonging the tonic represent different function than cadences directed to some other degree than the tonic. In the following, cadences are presented as one group, since they, despite the fact that the may represent more than one function, are, unlike the sequences, based on functional harmony.

3.4.1 Cadence

Caplin (1998, 43) makes a distinction between the different usages of the term *cadence* and the adjective *cadential*. In the most narrow meaning cadence refers to a point of *cadential arrival*, a moment, which marks the end of a thematic unit. Another conventional use of the word is *cadential progression*, which refers to specific types of harmonic progressions used to confirm the key. *Cadential function*, in turn, refers to a longer span of time, a phrase or an idea that gives a signal of the forthcoming cadential arrival. The cadential function also includes parameters other than harmony, such as melody and phrase-structure.

Caplin presents two major categories for cadential progressions: the *authentic cadential progression*s and the *half cadential progressions*. An authentic cadence must have a root position dominant chord and a root position final tonic. The authentic cadence is *complete* if it contains all harmonic functions in the following order: tonic, subdominant (called pre-dominant by Caplin[6]), dominant and tonic. An authentic cadence is *incomplete* if the initial tonic and/or the subdominant (predominant) is omitted. Each of the members of the authentic cadence can be altered or embellished. The initial tonic can be preceded for example by V2, or it can be altered into a V/iv. The subdominant, in turn, can be replaced for example with N6 or the diatonic subdominant can be followed by vii°7/V, accomplished by a chromatic alteration in the bass. The dominant function can be expanded for instance by an added cadential six-four. When the final tonic following the dominant appears in inversion or in altered form, or is replaced with a related chord (such as i6, V/iv, VI), a *deceptive cadence* emerges. (Caplin 1998, 27-29.)

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5 As a category of harmonic progressions, prolongation is superfluous in the context of this study, since tonic prolongations contain (at least) one cadence.

6 Caplin (1998, 23) uses the term pre-dominant to refer to the group of harmonies (all of them not directly related to the subdominant harmony) preceding the dominant. He acknowledges that the avoidance of the term subdominant is largely due to the influence of Schenkerian theory to the North-American notion of functional theory of harmony (Caplin 1998, 262, note 5). In the present study the subdominant is considered to constitute one of the three harmonic functions.

The half cadence contains in principle the same functional progression as the authentic cadence. The significant difference being that the half cadence ends on the dominant, the penultimate chord of the authentic cadence. The dominant chord, which is usually a root position triad, is stable enough to constitute a goal for the harmonic progression. In a complete half cadence tonic and subdominant (pre-dominant) chords precede the final dominant. As in the authentic incomplete cadence, either the initial tonic or the subdominant functions can be omitted. (Caplin 1998, 29.)

3.4.2 Prolongation

Prolongation is a harmonic progression sustaining a single harmony over a period of time. The intervening chords are in functional relationship with the prolonged harmony, which enables the description of prolongation techniques also with chord degree or functional symbols. However, certain voice-leading patterns are highly characteristic of low-level prolongations. Caplin (1998, 25-26) distinguishes between four categories of prolongations: (1) pedal point, (2) neighboring chords, (3) passing chords, and (4) substitute chords. *Pedal point* as a technique of prolongation sustains the root of the prolonged harmony in the bass, the prolonged harmony appearing usually at the beginning and at the end of the prolongation. Caplin mentions that the pedal point is commonly used in the codettas, but it can also appear at the beginning, as the present study will show. By *neighboring chords* Caplin refers to a harmonic progression, in which the initial harmony reappears at the end of the prolongation, the intervening chord forming a neighbor tone pattern in the bass and/or soprano parts. According to Caplin, for example a I-V-I progression is better understood as a prolongation than a cadential progression. *Passing chords*, in turn, form a prolongation, in which the prolonged harmony is found at the beginning and at the end of the prolongation, and a passing tone pattern is displayed by at least one of the parts. *Substitute chords* refer to a prolongation technique, in which the prolonged chord degree is followed by a chord representing the same function, such as I-vi, or ii-IV). In the present study, the notion of prolongation is extended also to concern harmonic functions.

As a formal function, prolongation is most stable when its first and last chords are identical not only with respect to their roots but also with respect to their bass and soprano pitches. A prolongation over the same chord root is less stable if it occurs between two chords possessing the same root but different inversion and/or soprano position. Lerdahl & Jackendoff (1985, 182) call the former kind of prolongation a *strong prolongation* and the latter one a *weak prolongation*.

3.4.3 Sequence

Music theorists have not showed all that much interest in sequences although sequences are encountered frequently in all tonal music and they have also been recognized as one of the most important developmental techniques. According to Richard Bass (1996, 265) this reluctance to deal with sequence is largely due to the undermining attitudes of both Schoenberg and Schenker. Schoenberg (1983, 283) considered sequence to be a mechanistic device and

warned against its immoderate use. In Schenkerian analysis the sequence is treated as a structurally subordinate element to the *Stufe* (see Bass 1996, 265). Moreover, sequences can not be included in the functional theory of harmony either, since they are not based on functional harmonies. From the viewpoint of functional theory, sequences contain illogical progressions. Furthermore, in Riemannian theory they were regarded as melodic rather than harmonic formations (Mickelsen 1977, 82.) One of the factors affecting the lack of interest in Baroque forms may be the excessive use of melodic-harmonic sequences in the Baroque idiom.

Two concepts, *repetition* and *transposition*, can be regarded as being essential to the definitions of sequence. Renwick (1995, 140) defines sequence as follows: "Sequences are formed by the transposed repetition of tonal elements — chords, motives, and combinations of thereof." According to Schoenberg, "A *sequence*, in its strictest meaning, *is a repetition* of a segment or unit in its entirety, including harmony and the accompanying voices, *transposed to another degree*." (Schoenberg 1980, 59 note 2.) Richard Bass (1996, 266), in turn, uses the terms *pattern* and *projection* to refer to the material being transposed and to the transpositional scheme.

Sequences are commonly classified according to the direction of the motion and the interval of transposition. Six categories of sequences can be formed as follows: descending sequences (1) by step, (2) by third, (3) by fifth, and ascending sequences (4) by step, (5) by third, (6) by fifth. (Renwick 1995, 140, Caplin 1998, 29, Schoenberg 1983, 283[7]). These transposition intervals are considered to be more natural than their inversions. (Renwick 1995, 140-141.) Categorizing sequences into these six categories proposes, however, some problems. For instance, in Renwick's system the interval of transposition refers to the interval between transposed melodic motives, whereas Caplin, for instance, uses the intervals between chord roots as the basis of categorization. These two modes of categorization may produce two different categorizations for the same chordal progression. (Example 9). While Caplin discusses the sequential progression as being based on a *descending fifth* (between chord roots), Renwick takes it to represent the sequence category *descent by step* (between melodic patterns).

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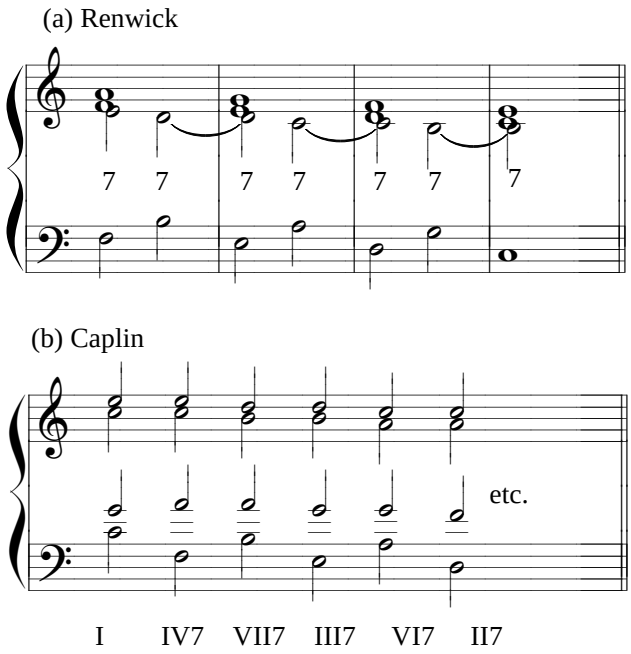
[7] Schoenberg mentions the intervals of minor or major second or third, and perfect or augmented fourth, up or down, as the transposing intervals. By fourth he refers to what Renwick and Caplin calls a fifth.

EXAMPLE 9 Two interpretations of the circle-of-fifths sequence (Renwick 1995, 144, Ex.5-6 (m), Caplin 1998, 28, Ex. 2.11 (c).



Renwick represents the Schenkerian view, according to which sequences should not be considered as harmonic events but as patterns of voice-leading: "Ultimately the sequence is characterized melodically rather than harmonically" (Renwick 1995, 139). This is because listeners tend to pick up repetitions of the motive which emphasize the stepwise descending structural line. The chords inserted into this contrapuntal scheme are due to the avoidance of consecutive fifths and octaves, and they are therefore considered as a result of voice-leading, not of harmonic progression. (Renwick 1995, 145.) Both figured bass notation and linear intervallic patterns indicating the interval between the outer voices are used to describe the patterns of voice leading. (Forte & Gilbert 1982, 85.)

The most accurate mode of description, adopted in this study, is to anchor the description of the voice-leading to the scale steps of the key, as shown in the following:

5	6	4	5	3	4	2	3
3	4	2	3	1	2	♭7	1
1	1	♭7	♭7	6	6	5	5
1	4	♭7	3	6	2	5	1

This mode of description can unambiguously differentiate for example between the different subtypes of "the circle-of-fifths" sequences.

Some theorists consider the three-fold appearance of the repeated element, e.g. motive, as the minimum requirement for the sequence (Renwick 1995, 140, Piston 1978, 297). Renwick calls the first appearance of the element *proposition*, its transposed repetition causing the effect of directed motion *digression*, and the second repetition the *confirmation*. Further repetitions are

redundant. (Renwick 1995, 140.) Composers rarely repeat the sequential pattern more than two times (three-fold appearance). However, two-fold appearance of the motive can be considered as a sufficient for sequence definition since it already introduces its distinctive traits: repeated melodic-harmonic pattern and the interval of transposition (Bass 1996, 266). In the present study also those sequential transpositions containing only proposition and digression, are considered to constitute a sequence. The number of repetitions is not restricted by the sequence itself: it does not have any fixed beginning or ending, and it can start and stop at any chord thus producing different lengths of the progression (Dahlhaus 1990, 104-105). In his aria introductions Bach seldom confirms sequential structure by a second repetition. The generally held notion that the transposed pattern should contain at least two harmonies (see Schoenberg 1983, 283, Bass 1996, 266) is adopted in this study. Consequently, a sequence should contain at least four chords.

According to Renwick, (1995, 140) the sequence should be understood as a process taking the music from one point to another. It is, then, a suitable device for formal functions containing movement, such as Berry's progression and recession. Caplin suggests that the most important characteristic of a sequence is to move away or return back to a specific harmonic function. The sequence itself represents a more or less unstable condition. (Caplin 1998, 29.) According to Schenkerian theorists, the sequence may form a middleground prolongation, if it returns back to the initial chord degree (Renwick 1995, 142). Although this is undoubtedly an acceptable analytical observation, it seems more reasonable to assume that a sequence is more easily associated with a sense of movement, than with a sense of prolongation. Moreover, a sequence rarely returns to its initial chord degree, which implies that composers themselves may not have considered sequences as devices of prolongation. The function of a sequence is to present directed movement, which avoids a functionally stable tonic. The sense of movement may be weakened, if the transposed repetition concerns only melody or only harmony. These incomplete sequences are called *modified* or *partial* sequences[8] by Schoenberg (1980, 59 note 2). In the present study the necessary condition for a sequence is the transposition of the harmonic and melodic pattern by the same interval. A *statement-response* repetition, in which the melodic motive is transposed, but chord roots and texture do not follow the transpositional pattern, should not be regarded as a sequence (Caplin 1998, 39). The sequential repetition and the statement-response repetition are also likely to perform different functions in the over-all form.

Sequential progressions are commonly thought not to possess a clear sense of harmonic functionality. The sequential pattern, not the functionality of chords, define the syntax of chord succession. For example, when discussing the sequence of circle-of-fifths progression, Dahlhaus (1990, 58-59) states that it cannot be defined completely in terms of functions. In a sequence two adjacent chords may have a functional relationship of D-T, for example between a secondary dominant and its resolution, but the function of the latter chord may

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[8] Schoenberg prefers partial sequences, since they are less mechanical (Schoenberg 1983, 283). Moreover, he recognizes that in some cases a sense of transposed repetition may be created, although there are no literal transpositions. These instances he calls *quasi-sequential*.

be unclear in relation to the key. Caplin admits functional status only to the first and last chord of the sequence (Caplin 1998, 29). The functionally strongest chords are not the chords within the sequence itself, but, instead, the chords just before the sequence and the chord following immediately after the sequence.

Schoenberg states that diatonic sequences in minor keys lead more easily to a modulation than sequences in major keys. The lowered seventh degree (subtonic) of the natural minor scale tends to lead to a modulation to the relative major. Schoenberg points out that in such cases it is important to reintroduce the leading tone in order to avoid premature modulation (Schoenberg 1980, 59). For example, in a harmonic sequence i-iv-♭VII-III, which is common in the material of the present study, the arrival to the dominant function after the sequence is tonally a significant point of reversal signaling a return back to the tonic of the home key.

Meyer discusses the sequence in terms of uniformity, which means either the equality of both the sequential pattern and the interval of transposition, or only the equality of sequential patterns (Meyer 1956, 168-169). For instance, in minor key the sequence I-IV-♭VII-III-VI is based on uniform relationships, since it consists of major triads transposed by pure fifth. According to Meyer, uniformity is an exceptional mode of building up musical progressions; every uniformal element appears as equally important to the consciousness. As the progression continues, every element begins to seem as an equally satisfying goal. What the listener soon apprehends is the mode of continuation, not the ultimate goal of the sequence. (Meyer 1956, 163.) The sequence itself could continue indefinitely. The ambiguity listener experiences arises from the uncertainty about when and how the sequence will be broken or taken into conclusion. (Meyer 1956, 169.) The point where the sequence is exited constitutes the point of reversal, which may act as a climax of the process. The reversal is the point, which enables more successful anticipations. (Meyer 1956, 171.) For example, the entering of the dominant function chord after the sequence enables the listener to orient to the situation, to what has happened in the sequence and what is likely to happen next (Meyer 1956, 178). The evaluation of the sequence can occur only afterwards, in Meyer's words: "Only when the sequence is timeless in memory can the relationship of its parts to one another and to the total series be comprehended" (Meyer 1956, 177). However, the real time experience of the sequence is characterized more or less by a sense of uncertainty.

3.4.4 Problems of harmonic analysis

The analysis of the harmony of Baroque music presupposes understanding of thorough-bass practices. However, thorough bass figures should not be understood as chordal analysis. The figuring indicates only the interval structure of the vertical pitch complex measured from the prevailing bass tone. The figuring is defective because it makes no distinction between non-chord and chord tones. Moreover, it cannot indicate the function of the chords within the key, for instance the figure 5/3 may be used of any chord degree. (Lester 1994, 88.) What the written-down thorough-bass figures provide is information about the pitch collection composer has intended at that particular point. This

can be useful for example in analyzing harmonically ambiguous situations concerning two-part textures. In the present study the thorough-bass figures are important as an authentic mode of categorizing and labeling the vertical pitch complexes, rather than as analytical categories.

Thorough-bass practices, step-theory, and functional theory describe pitch complexes on different levels of abstraction. The point of reference of the chord description is different in each of the harmonic theories. In the thorough-bass description it is the prevailing bass pitch, in the chord-degree description it is the root of the chord, and in the functional theory it is the tonic of the key.

Later harmonic theories, such as the theory of chord degrees and the functional theory of harmony, which are based on more abstract conception of harmonic categories, are needed for a fuller understanding of harmonic structure.

3.4.4.1 Harmonic functions

In theories of harmonic functions, all tonal harmonies are reduced into three principal functions the tonic (T), dominant (D), and subdominant (S). Harmonic functions refer to the roles individual chords possess within the key. The step theory with its system of labeling chords with Roman numerals has been the ruling approach for chordal analysis[9]. However, it is quite commonly agreed that some chord degrees, such as IV and ii6/5, possess similar sounding qualities and perform the same function in specific chord patterns. The theory of harmonic functions provides tools for expressing the functional similarity between different chord degrees. In the present study harmonic functions are understood as super-ordinate level categories indicated by capital letter symbols T, D, S, which, in contrast for instance to the functional symbols of the Riemannian theory, are not intended for specifying the structure of the chord.

As an analytical concept the harmonic function is more abstract and more problematic than that of the chord degree. The German term *Klang* (Engl. sound), used in the Riemannian functional theory, is not synonymous with the concept of chord. Harrison (1994, 38) points out that chords are found on the score, whereas functions are a matter of perceptual judgment. Unlike a chord degree, a harmonic function refers to an aural entity, not to a collection of intervals (Wason 1985, 104, 126). A harmonic function can been understood as a wholistic perceptual quality, which different chord degrees may share within a specific key (Harrison 1994, 36-37).

If the harmonic function is experienced as an undivided entity, in which the constituent features are "melted" together, attempts for a featural description of the harmonic function are most likely to meet difficulties. Which features are responsible for the particular aural image of each function? Moreover, which chord degrees can be accepted to each functional category? For the purposes of categorization, the holistic conception of function needs to

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[9] In recent years, however, there has been some signs of a revival of interest in the functional theory of harmony. For instance, Lerdahl (2001) used functional symbols to describe the harmonic events in the prolongational structure. Originally the generative theory of tonal music, which he developed together with Jackendoff, was based on the Schenkerian conception of a hierarchy of harmonic events, which they indicated solely by chord-degree symbols.

be dissolved into its constituents.

Harrison maintains that harmonic functions can be traced from the individual pitches of the chord. (Harrison 1994, 43-44.) He identifies for every pitch of the scale a functional role, which is derived from its position in primary chords (Table 4). Functionally the most powerful degrees are the 'roots' of the primary chords (1, 5, and 4), which constitute the *bases*. The thirds of the primary chords (3, 7, and 6) are called *agents*, and the fifths in primary chords (5, 2, and 1) are called *associates*. (Harrison 1994, 45.)

Functional role	Primary chords I	V	IV
associate	5	2	1
agent	3	7	6
base	1	5	4

TABLE 4 The functional constituents of tonic, dominant, and subdominant chords (see Harrison1994, 45).

In the functional hierarchy of the chord members, the bases are functionally the most powerful. The second most powerful members are the agents. The associates are the least powerful since the presence of the associate, i. e. the fifth of the chord, does not affect the function dramatically. If the associate is missing, the chord is functionally complete, although the triad is structurally incomplete (Harrison 1994, 55).

Primary chords I, V, and IV are functionally powerful because the bases are their roots. A root remains a root even after an inversion, but the functional status of the base is dependent on how it is placed in the chord. A base can operate functionally only under two conditions: (1) it is the lowest sounding voice in a chord, and (2) if it is not in the lowest voice, it has to be accompanied by its functional agent. (Harrison 1994, 46). Base and root don't necessarily refer to the same pitch in chords, which contain two potential bases, such as 1 and 5 in the tonic triad. If 5 appears in the lowest sounding voice, it acts as a functional base and the chord becomes functionally a dominant. The root of tonic chord remains the same regardless of the inversion. In passages based on pedal points, bases and chord roots may also be separated. The lowest sounding pitch, the pedal, becomes functional base. (Harrison 1994, 46-47.) The agents are only attached to one function, which means that they communicate function unambiguously (Harrison 1994, 49). Paradoxically, the agents are more reliable bearers of harmonic functions than the bases. The first inversions of I, V, and IV, which have agents as their lowest sounding voice, are likely to preserve their function.

The secondary triads II, III, VI, VII, which represent a functional mixture, are even more sensitive to context effects than the primary triads (Harrison 1994, 62-63). The interpretation of the function depends on the spacing and doubling of chords, which can change the emphasis given to individual tones. The most decisive factor is, however, the functional content of the lowest voice.

The secondary representatives of harmonic functions are located a third apart, either above or below, the main representatives. Their functional characteristics are due to the common pitches with the main representatives. (Sadai 1980, 77, Agmon 1995, 201)

Winold (1986, 22) has presented the relationship between chord degrees and harmonic functions in the form of a table (Table 5). He also gives verbal descriptions of the characteristics of each harmonic function, according to which the three functional classes can be distinguished from each other. These characterizations also refer to the ways, in which the harmonic functions can participate in the construction of different formal functions.

Functional class	T	S	D	linear
chord degrees	I, I6, VI	IV, IV6, II*), II6, II7, II65 II43, II42	V, V6, V64, V7, V65, V43, V42 VII6, VII7	I64, III
characteristics	stability	preparation	instability	
	arrival release		motion tension	

*) = only in major keys

TABLE 5 Various chord-degree alternatives for functions T, S, and D according to Winold (1986, 22).

By linear chords Winold refers to such passages in which chords emerge as a result of linear, contrapuntal motion. There is not a full agreement concerning the function of the secondary chords. Harrison (1994, 61-62) assigns functions to secondary triads II, III, and VI and their inversions as follows:

	functional status	chord degree
S	Strongly subdominant:	II6, II64, VI
	Weakly subdominant:	II
D	Strongly dominant:	III6, III64
T	Strongly tonic:	VI6, VI64, III

TABLE 6 The functions of the secondary chords according to Harrison (1994, 61-62).

The most prominent difference between the views of Winold and Harrison lies in the interpretation of VI, which according to Winold, represents tonic function, whereas Harrison takes it to represent strongly the subdominant function. It might be said that, as a context-free structure VI may indeed bear a strong subdominant function. Yet, as a deceptive resolution of the dominant it

represents the tonic function. Similarly, the leading tone chord (vii°) has the potential to express the subdominant function, although it usually functions as a dominant, a fact that both Harrison (1994, 66) and Sadai (1980, 77) observe.

The understanding of harmonic functions has changed in the course of history. According to Dahlhaus (1990, 120) in the compositional practice of the late 17th century, as documented by Lorenzo Penna in 1697, second degree chord ii had an independent status, in contrast with later functional theories, which regarded it as a substitute for IV. In modern terms, Penna reduced the chordal system into four primary degrees I, ii, IV, and V. Gradually, the subdominant began to gain more importance. As Lester (1992, 132) observes, it was in 1726 that Rameau adopted the *sousdominante* to his harmonic theory. He used the label *sousdominante* for scale-step 4 and for the added-sixth chord built on scale-step 4. In the present study II is regarded as a subdominant function chord, which in some contexts, due to the pitches it shares with the leading tone chord, may represent also dominant function.

One of the characteristics which separates functional theory of harmony from the dominating Schenkerian approach, is the status of the subdominant chord. Whereas in Schenkerian analysis the subdominant chords are subordinated to the dominant and considered to be a *dominant preparation* or *predominant* (Harrison 1994, 98), the functional theory gives it an independent status. Instead of interpreting IV or ii6 as a mere prefix of the dominant chord, the present study assumes the equality of three harmonic functions.

In categorizing individual pitch-complexes into functional categories one needs to consider simultaneously not only the structure of the harmony but also its context of appearance.

Sadai (1980, 202) gives the following three criteria for the functional significance of diatonic chords:

(a) root appears in bass (exceptions)
(b) chord is emphasized by a leap to or from the chord, or emphasized metrically
(c) progressions in which both S and D functions are present in that order and which fulfill conditions (a) and (b)

If the criteria are not met, chords are according to Sadai *prolongational* or *connective* chords, not functional chords (Sadai 1980, 203). In the present study, the idea of an on-off switch of functionality is rejected. Rather, the functional strength, or functional significance of chords, is understood as being graded. The above list of conditions of functional significance by Sadai increases understanding about the prototypicality of harmonic functions. Moreover, it is important also because it points out that a linear bass movement indicates a weaker functionality than a bass moving with leaps.

Theorists of functional harmony seem to acknowledge, as Riemann did, the existence of non-functional harmonic progressions, in which the linear and melodic characteristics prevail over the functional and vertical characteristics. Terms like *linear chords* (Winold) and *connective chords* (Sadai) refer to chord progressions mediating between functionally unambiguous harmonies. For instance, third-related progressions such as i-VI-iv, or iv-ii°-vii°-V, can be understood as progressions from tonic to the subdominant and from

subdominant to the dominant, respectively. The mediating harmonies are not functionally significant. They represent temporal transition from one functionally significant harmony to another.

As an analytical tool, the functional theory becomes problematic only if one attempts to address one of the three harmonic functions to each and every chord in the texture. Some passages, such as sequences and other linear passages, are simply not based on functional harmony. Moreover, since functional categories don't have clear-cut boundaries (Agmon 1995, 201), chord degrees may belong to a functional category with varied grades of membership.

3.4.4.2 Problems with unfigured basses

The first question in the practical analysis is how to conclude on the basis of a two-part texture, occasionally having no thorough bass figures, which chord or harmonic function is present in the texture at a given moment? As is well known, the bass may sometimes point out the function directly, or at least it may in itself exclude certain functional explanations. For example, if the bass tone is either 5 or #7, the function is quite unambiguously dominant (D). Following the ideas of functional ***b****ases* and ***a****gents* of diatonic triads, formulated by Harrison, we can present a probable harmonic function corresponding to the bass tones of the scale (**b** = base, **a** = agent):

	b		***a***	***b***	***b***	***a***	***a***
bass:	1	2	3	4	5	6	7
	T		T	S	D	S	D

The above presentation is a theoretical overview concerning the most probable harmonic function of each scale-degree of a key. Scale degree 2 remains without any functional explanation since it is neither a base nor an agent of I, IV, or V. From the possible functional interpretations, only tonic function is excluded. As a member of V and vii° it can represent a dominant function, and as a member of ii°, it could represent subdominant function. The context in which 2 appears defines its function. As a rule, if a chord built on the supertonic (2) in the bass progresses to V, it is likely to act in subdominant function; if it progresses to i, it most likely represents the dominant function.

At the beginning of 18th century several Baroque thorough-bass treatises presented idiomatic harmonic patterns for harmonizing diatonic stepwise ascending and descending basses. These so called rule of the octave (*règle de l'octave*) presentations capture the most commonly used harmonic practices, which can be used as a point of departure in judging what would be the most probable harmonies to specific bass tones. According to Christensen (1992, 92) the *règle* was important for education, as well as for musicians. It was thought that the rule of the octave presentations were especially useful for accompanists, who had to find the appropriate harmonization to unfigured basses.

Five rules of the octave by Gasparini 1708, Campion 1716 (in Lester 1994, 72) Heinichen 1728 (in Buelow 1986, 230), Rameau 1722, and Mattheson 1735 (in Renwick 1995, 12) are presented to demonstrate the Baroque conventions of

combining chords with bass tones. They display several common features as well as some minor differences.

Gasparini and Heinichen present the ascending bass scale only up to the sixth scale step, whereas Campion, Rameau and Mattheson present a scale ascending and descending a full octave. The chords, indicated by scale degree symbols, are presented in Table 6:

treatise	bass:	1	2	3	4	5	(#)6	#7	1
Gasparini 1708		i	vii°6	i6	iv or iiø65	V	iv6	-	-
Campion 1716		i	vii°65	i6	iiø65	V	IV6	V65	i
Rameau 1722		i	V43	i6	iiø65	V	IV6	V65	i
Heinichen 1728		i	vii°6	i6	iv	V	iv6	-	-
Mattheson 1735		i	V43	i6	iiø65	V	IV6	V65	I
		T	D	T	S	D	Tp	D	T

treatise	bass:	1	7	6	5	4	3	2	1
Gasparini 1708		-	-	iv6	V	V2	i6	vii°6	i
Campion1716		i	v6	iiø43	V	V2	i6	V43	i
Rameau 1722		i	v6	iiø43	V	V2	i6	V43	i
Heinichen 1728		-	-	iv6	V	V2	i6	vii°6	i
Mattheson 1735		i	v6	iiø43	V	V2	i6	V43	I
		T	(D)	S	D	D	T	D	T

TABLE 6 Presentations of the *règle de l'octave* by five theorists of the late Baroque period. Instead of the original thorough-bass figures the harmonies are indicated with chord-degrees and harmonic functions.

The only root-position chords in the *règle* are found on the first and fifth degrees of the scale. This indicates that these degrees were acknowledged quite widely, both historically and geographically, as having a special status among the diatonic chords. According to all theorists, scale step 3 receives the first inversion of the tonic chord, which can be considered to be the most probable harmonization of the mediant in the bass. Scale steps 1, 3, and 5 should be harmonized both in ascending and descending contexts with i, i6, and V, respectively.

The descending scale in Table 6 is in retrograde relationship with the ascending scale. The retrograde does not change the chord degrees attached to tones 1, 2, and 3: the same chords are used in both directions. However, scale step 4 is treated differently in ascending and descending contexts. In the context of an ascending scale there is a subdominant function chord on scale step 4 leading to dominant chord (as is functionally correct). In the descending context scale step 4 is preceded by dominant, which is why it cannot be harmonized with iv or ii6/5. All of the above presentations of the descending context suggest V2 on scale degree 4 and the resolution of V2 to i6 (as is functionally correct). The ascending 5 proceeds through a deceptive resolution to iv6 or IV6, the ascending #7 resolves to i. The only functionally puzzling moment occurs in the descending context on scale steps 7 and 6, which are accompanied by a first inversion dominant minor triad v6 and iv6 or iiø4/3, respectively. The bass pattern 1-7-6-5 was perhaps not yet understood functionally in the late

Baroque. As a traditional passacaglia bass pattern of an earlier period it carried harmonies which were not in accordance with the functional thinking of the late Baroque period. Dahlhaus (1990, 140-141) considers the bass patterns of the early 17th century as foundations on which various chord progressions might be constructed. The constant factor in them is the bass, not the chord progression, which may vary. According to Dahlhaus, the tones of a bass formula don't necessarily have a definite relationship with the tonal center: each bass tone can be explained as a result of historical convention. In Dahlhaus's words, the bass formula "represents nothing but itself". In the present study, chord progressions based on a well-established bass pattern may cause some problems, since the chords don't necessarily behave functionally in such patterns. The bass 1-7-6-5 is quite common with Bach, who may harmonize the bass with a circle-of-fifths sequence (chord degrees I-IV-VII-III-VI) or with chords i-(i2) -iv6-V, the latter of which is a functionally unambiguous solution T-S-D (Phrygian cadence). The chords could also be interpreted, following Sadai, as non-functional *connective chords* between the tonic and the dominant

In spite of its simplicity, the *règle* provides a well-grounded guide for harmonic interpretations. In ambiguous harmonic situations one should prefer stereotypical solutions, as Arnold (1961, 839) observes in connection with incomplete figuring: "it's better to err on the safe side".

4 *FORTSPINNUNGSTYPUS* AS A COGNITIVE SCHEMA

4.1 Introduction

In chapters 2 and 3 it was discovered that several theorists working with theories of formal functions attempted to formulate general form types, such as *Urform* (Ratz) of tonal forms, *Normalfall* (Ratz) or practice form (Schoenberg) of sentence form. Musical form in the meaning of features shared by a number of musical works (Bonds 1991) can be understood in terms of schema theory. According to schema theory, musical structures are understood as knowledge structures, schemata, which are stored and processed in memory.

Baroque composers, musicians, and audiences, as well as musicians, and listeners of today are likely to (have) possess(ed) knowledge about the formal procedures of Baroque style. The knowledge about the shared features concerning formal conventions, such as the *Fortspinnungstypus*, is likely to be presented as schemata in the long-term memory of the composers, musicians, and listeners. Since Bach and his contemporaries did not explicate their conceptions of musical form, we cannot know for certain to which extent their knowledge of the construct later theorists have called the *Fortspinnungstypus* was explicit and to what extent it was implicit. Indirect inferences of the existence of a '*Fortspinnungstypus* schema' can be drawn, however, from the recurrent features of the compositions.

If people use a schema in comprehension and retrieval either consciously or unconsciously, it is said to have psychological validity. If people can access knowledge about the properties of the schema, for example in situations where structural judgments are made, it has psychological reality. (Mandler 1984, 36.) Verifying the psychological validity or reality of the *Fortspinnungstypus* is beyond the scope of the present study. The schema theory is used primarily as a tool for conceptualizing and describing the formal and structural features of *Fortspinnungstypus*.

4.2 Theoretical foundations

4.2.1 Schema theories in cognitive psychology

Frederick Bartlett (1932) introduced the concept of schema in connection with his studies on memory. He discovered that remembering is not an act of literal reproduction but an act of reconstruction, which is performed differently on each occasion (Bartlett 1932, 204). By the concept schema he referred to "an active organization of past reactions, or of past experiences (Bartlett 1932, 201).

After Bartlett, several scholars have worked in the domain of the schema theory. Ulric Neisser (1976, 54) defined schema as being internal to the perceiver, modifiable by experience, and specific to what is being perceived; it accepts information and is changed by that information; it directs movements and exploratory activities. According to David Rumelhart (1980, 41), all our generic knowledge is embedded in schemata: "our schemata *are* our knowledge". Schemata represent knowledge at all levels of abstraction, say, from knowledge of ideologies to knowledge of meaning of particular word. Rumelhart (1980, 40-41) also observes that schemata represent knowledge rather than definitions. Since schemata are not restored as propositions, defining or describing schema categories for theoretical purposes proposes problems. This applies to music as well as to other domains of knowledge. Schemata have both structural and processive aspects. In the present study the focus is on the structural aspects of schemata, although some schema theorists have explicitly defined schemata as active processes (see Rumelhart 1980, 41).

4.2.1.1 The structure of schemata

Since Bartlett found remembering not to be literal, in subsequent studies attention was directed to the relationship between the abstract and concrete levels of representation. These studies developed further the idea of hierarchical abstraction of knowledge in schemata.

Instead of the term schema, Marvin Minsky (1977, 355) used the term *frame* of a data structure, which represents information of stereotyped situations in the memory. Frames are networks consisting of nodes and relations. The different levels of knowledge abstraction are represented by the frame so that the higher levels of abstraction are fixed. They represent things that are always true. The lower levels have many terminals or slots, the content of which is specific, but which have to fulfill the conditions set for the slots.

Schank and Abelson dealt with the different levels of abstraction by proposing schemata on two basically distinct levels. Those schemata, which contain general knowledge about how goals are achieved, are called *plans*. Plans store information about the connection of states or events, how they precede and succeed each other. (Schank & Abelson 1977a, 70.) A plan is a series of actions that will realize goals (Schank & Abelson 1977b, 428). *A script*, which contains knowledge about well-known situations, consists of slots and requirements about how to fill the slots. A script is an interconnected whole, in which the content of one slot restricts the potential content of other slots.

(Schank & Abelson 1977a, 41.)

According to Rumelhart (1980, 40-41) schemata can embed one within another: Schemata consist of subschemata, as procedures consist of subprocedures. Moreover, schemata have variables, as plays have roles, which can be played by different actors, and as a script of a play allows variation (Rumelhart 1980, 36).

4.2.1.2 Event schema

Event schemata store information about temporal events. Jean Mandler defines event schema in the following way (Mandler 1984, 14):

> An *event schema* is a hierarchically organized set of units describing generalized knowledge about an event sequence. It includes knowledge about what will happen in a given situation and often the order in which the individual events will take place.

Mandler emphasizes the part-whole relationship in an event schema "... in an event schema there are serial connections among the items in a given unit as well as a link between each item and the larger unit of which it is a part." The items are connected horizontally (serially), as well as vertically, to the whole of which they are a part. (Mandler 1984, 14.)

In an event schema items may have three kinds of relationships based on the strength of their connection. The connections, from the strongest to the weakest are: (1) causal relationships, (2) purely temporal sequences, in which the order of events is not necessary, but regulated by the convention, and (3) arbitrary temporal connections, which refer to a set of events occurring in optional order. (Mandler 1984, 14.) For event schemata of tonal music, the second class of connections seems to be relevant. Structural and syntactical conventions have established a specific order for the individual musical events in a musical segment, so that some events have a high probability, some others a low probability of occurring.

Schank and Abelson have demonstrated the flexibility of schemata with reference to a restaurant script, which contain information about the episodes (entering, ordering, eating, and exiting). The actions within the episodes may vary without the schema losing its significance as an adequate interpretation of the situation. (Schank & Abelson 1977b, 424-425.) The four episodes are necessary for the schema but the individual actions within the episodes usually vary, for example, according the type of the restaurant. Moreover, one can for instance repeat episodes “ordering” and “eating”.

4.2.2 Cognitive schemata in music

Music is a natural field for applying schema theories. The conventions of tonal music, especially those within each stylistic idiom, are consistent enough for schematic representations to emerge. It seems plausible to assume that musical conventions, such as chord progressions and formal types have become musical knowledge structures stored in the long-term memory of the listeners. Competent listeners have implicit knowledge about what elements are probable in the sequence of musical events and in which order they are likely to

occur. Such musical schemata can be considered as examples of Mandler's *event schemata*.[1]

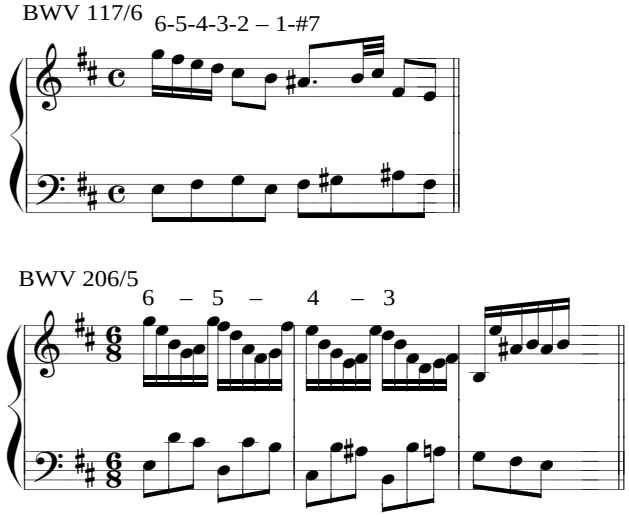
4.2.2.1 Low-level schemata

The most influential applications of the schema theory to music have been presented by Leonard B. Meyer and Robert Gjerdingen. Meyer (1973, 213) originally used the concept of *archetypal patterns*, to describe the classes, in terms of which particular musical events are perceived and comprehended. In his later study (1989), Meyer explicitly substituted the term archetype for schema. Meyer (1989, 51) gives the following definition for schemata:

> Schemata are patterns that, because they are congruent both with human perceptual/cognitive capacities and with prevalent stylistic (musical and extra-musical) constraints, are memorable, tend to remain stable over time, and are therefore replicated with particular frequency.

Meyer discovered several categories of melodic schemata appearing frequently on the foreground or middleground in tonal music. These melodic schemata are the gap-fill schema, the changing note schema, the linear, the model-complement schema, the model-parallel schema, the model-mirror schema, and the converging schema (Meyer 1973, see also Gjerdingen 1988, 50-53). At the core of Meyer's schemata there are so called Gestalt laws of perception. For example, the linear schema is based on the law of good continuation and the changing note schema on the law of symmetry. Example 10 displays two examples of a descending linear schema.

EXAMPLE 10 Linear schema; (a) presents a simple surface-level linear schema acting as a cadence formula, (b) exhibits a higher-level schema the pitches of which constitute a linear descent.



[1] All musical schemata are not event schemata. The tonal relationships between pitches or chords are represented as a tonal schema, which stores non-temporal knowledge about tonal relationships (Krumhansl 1990). However, the tonal schema is abstracted from tonal event sequences.

Musical passages looking different at the outset may be representatives of the same schema. For example, as Example 10 indicates, the linear schema may be found in a simple form or in an elaborated form demarcated with sequential repetition, which strengthens the linear tendency in the melody.

Meyer's ideas differ from that of classical *Gestalt* theorists in the respect that he emphasizes the role of learning in schema formation and maintains that both the innate perceptual laws and knowledge structures acquired through learning are active in the process of perception (see Meyer 1956, 84-85). If a particular schema is encountered frequently in music, it is likely to be represented, as a result of learning, in the memory of listeners as well as in the memory of composers.

Based on the *Gestalt* laws of perception, Meyer's schemata are easily perceived and remembered and also likely to form stable representations in the memory. How should one, then, understand those recurrent structural patterns in music, which are not directly based on psychological (*Gestalt*) laws, but, instead, constitute well-established melodic and/or melodic-harmonic patterns? In order a pattern to be represented in the memory, it should not be perceptually complex. On the other hand, through frequent occurrence even a complicated pattern may become a schema. For example, at the beginning of 17th-century the chromatically descending bass pattern (*lamento bass*) must have been experienced as a complex structure, but by the days of Bach it had become a common musical-rhetorical figure. Meyer (1973, 214) observes that psychological principles of perception and established musical norms are in close relation with each other: "[...] most traditionally established norms have some basis in innate constants, and, on the other hand, patterns derived from innate constants become parts of tradition."

In the present study a structural pattern encountered frequently in some repertoire is called a schema. Whereas Meyer's melodic schemata are defined by quite general characteristics concerning the over-all contour, general intervallic content (stepwise vs. leaping), and direction, in the present study schemata are defined in terms of harmonic functions, chord degrees, and scale-steps.

Robert Gjerdingen's (1988) study on changing-note schema has been, at least in two respects, highly influential to the ideas of the current study. First, it raises a small-scale form, basically a symmetric period, to the focus of study. Second, it tackles the problem of exposing the graded structure of a schema category, a problem, which in textbooks of music theory has been traditionally avoided by demonstrating theoretical concepts by a few scattered examples. The major difference between the two studies is that whereas Gjerdingen investigated the historical distribution of one schema, this study explores the distribution of several schemata across one specific form type.

Among Meyer's schemata there is one script-like schema, the changing-note schema, which is defined with a detailed specification of chord degrees and scale-step patterns. Gjerdingen (1988, 64) gave a more specific description of the schema in the form of an analogous diagram, which contained not only fixed but also alternative features. Gjerdingen performed a statistical analysis of about 280 examples of the changing-note schema dating from the years c. 1720-1900. From the distribution of the examples of the changing note schema 1-7 ... 4-3, he discovered that its population distribution curve bears similarities to the

normal curve, with two exceptions. Firstly the schema is taken into use with resistance. Secondly, after a prolonged peak, the curve dives relatively steeply. The main factor causing the deviations from the normal curve is, according to Gjerdingen, memory, which tends to resist not only the recognition and acceptance of the schema but also the giving up the schema in favor of new schemata. (Gjerdingen 1988, 104-105.)[2]

One interesting finding in Gjerdingen's study was that the schema did not initially emerge as a simple basic model, which would later have acquired more sophisticated forms. Instead, the first instances of the schema were complicated and ambiguous. Simpler and stereotyped forms (prototypes) of the schema were developed and used more extensively only later. (Gjerdingen 1988, 107.) In contrast to Gjerdingen's study, the present study cannot systematically investigate the life-spans of the low-level schemata in the cantata material since for a great number of cantatas the exact year of composition is not known. Some observations concerning examples with known dates of composition will be presented, however.

4.2.2.2 Composite schema structures

Both Meyer and Gjerdingen have extended their schema-theoretical explorations to concern also more complicated schema structures formed by joining together several lower-level schemata.

Meyer (1980) discusses a schema used in the Classic-Romantic period, which combines the changing-note and gap-fill schemata. The instances of this schema share some traits with the *Fortspinnungstypus* and sentence form. Meyer does not make explicit references to either of them but some of his ideas are relevant here, in spite of the fact that his study concentrated largely on melodic implications. The schema instances consist of two parts A and B, the lengths of which are usually 2(=1+1)+2 (or 2(=1+1)+3). The first part opens up with motive m, which is followed by its variant m'. (Meyer 1980, 182.) The structure of the schema is clearly displayed in mm. 1-10 from Mozart's Piano Sonata K. 283[3] (Example 11).

On the basis of the examples Meyer presents of this schema, one can conclude that part B begins typically with a sequential or quasi-sequential progression, which leads to a cadence. With this analysis Meyer makes a significant contribution to the functional understanding of musical form by introducing the concept of *process reversal*[4]. In Example 11 this reversal occurs as a transition from the relative tension, mobility, and uncertainty of A to the relative relaxation, stability, and certainty of B. This kind of reversal Meyer calls a *syntactic climax* (Meyer 1980, 184, 189). However, the beginning of part B is characterized by instability: Part B begins with a quasi sequential passage,

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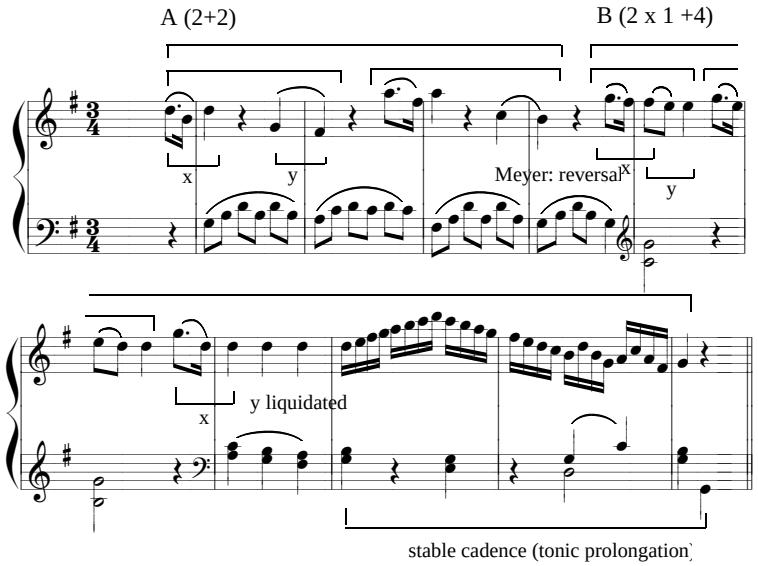
2 Meyer (1980) has demonstrated the influence of style change on the structure of a schema. With three examples from Mozart, Beethoven, and Berlioz he was able to show how the schema instantiations reflect the change of stylistic ideals between Classicism and Romanticism.

3 Schoenberg (1990, 73) categorized this passage as a sentence form.

4 The term 'reversal' is borrowed from Aristotle's Poetics (Meyer 1980, 202, note 20). This is a further example of the tendency to explain processive forms, such as the sentence form, through an analogy to literary forms, in this case to a concept borrowed from drama theory.

which is liquidated in measures 5 and 6. Furthermore, the linear descent in the bass implies a directed movement. Stability is restored only gradually in part B, not at the beginning of part B. In one of his later writings, Meyer observes that the reversal may be accomplished in the course of a longer passage, as well, not necessarily in an instant (Meyer 1989, 304). In the current study, part B, which corresponds to VS+FS (continuation phrase) in *Fortspinnungstypus*, is considered to consist of three functional parts: (1) the mobile and unstable progression ((quasi)sequence), (2) the first functional harmony (harmonies) (reversal), and (3) the stable area consisting of the final cadence (epilog). The reversal is likely to begin at the point, at which sequence is exited.

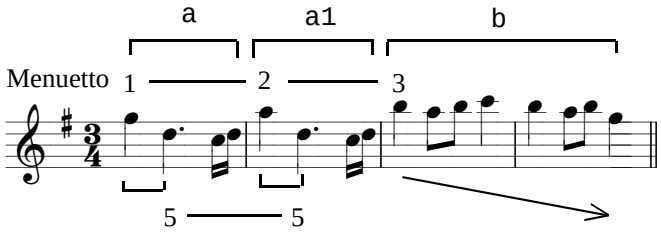
EXAMPLE 11 A combination of changing-note and gap-fill schemata in mm. 1-10 from the first movement of Mozart's Piano Sonata G major K. 283. (Meyer 1980, 185.)



Another schema identified by Meyer is the so-called *Adeste Fidelis* schema, which was used especially during the Baroque and Classical periods[5]. Meyer (1989, 51) describes the characteristic features of the *Adeste Fidelis* schema (see Example 12): opening motives *aa*^{1} above a tonic-dominant harmony, the repetition of the dominant tone appears as a middle-voice phenomenon in a skip from 5 to 1, or from 1 to 5, and from 5 to 2, or 2 to 5. The initial ascending structural melody is 1-2-3 is followed by a (linear) descending melody, which ends on a full or half cadence. The descending part is twice as long as the initial motive *a* (and *a*^{1}).

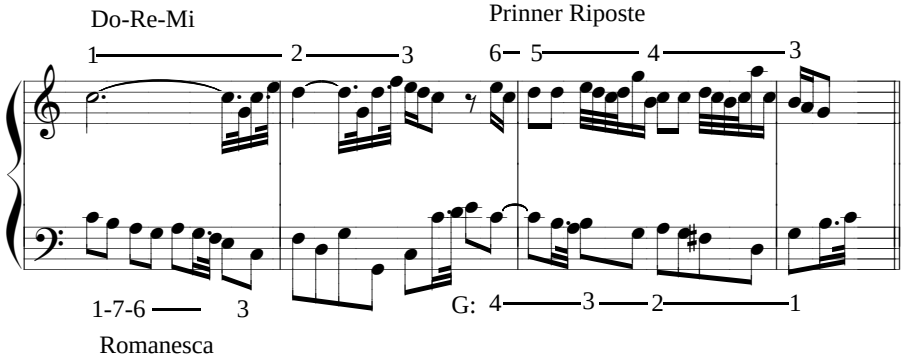
5 The name *Adeste Fidelis* refers to structural resemblance between the schema and the well-known Christmas hymn *Adeste Fideles*, which was most probably composed by John Francis Wade in 1740's (see Zon 1996).

EXAMPLE 12 An example of the *Adeste Fidelis* schema (Meyer 1989, 53, Ex. a).



Gjerdingen (1991, 1996, in progress) has studied the structural conventions of the galant idiom. His findings concerning the structural schemata are relevant for this study since the galant and the late Baroque, as overlapping style periods, have influenced one another. Gjerdingen (1996) identified two typical opening gambits in galant idiom. The first of them has as its characteristic feature a descending bass pattern 1-7-6-3 (*Romanesca)*. The second opening gambit is based on an ascending melodic line 1-2-3 (*Do-Re-Mi*). According to Gjerdingen the first opening schema is frequently followed, or answered, by a *Prinner Riposte* schema, which comprises a stepwise descent 4-3-2-1 in bass accompanied in parallel motion by the upper voice pattern 6-5-4-3. (Gjerdingen 1996, 368-369, see also Gjerdingen, in progress.) Example 13 shows a composite schema structure the constituent parts of which are the *Do-Re-Mi* schema, the *Romanesca*, and the *Prinner Riposte*.

EXAMPLE 13 The opening measures of the first movement of Pietro Locatelli's Flute Sonata op. 2, no. 8 (1732). The excerpt is transposed to C major. (Gjerdingen 1996, 370.)



In mm. 3-4 is there is an additional stereotypical surface feature, characterized by a supertonic a^2 "displaced" in a higher register than the other tones of the melody. Gjerdingen has called this surface feature the “high-re complex” (or the “High Re Drop”, see Gjerdingen, in progress), which he identified originally in a changing-note schema, where it may act as a confirmation either of a modulation or a tonicization (Gjerdingen 1988, 127) Example 13 shows the “High Re Drop” in a modulatory context although this time it is found in a *Prinner Riposte*. According to Gjerdingen (1988, 173), the use of the “high-re complex” reached its peak around 1755 or 1760, which implies that it may have already been in use by the time Bach composed the majority of his cantatas.

One of the most cliché-like patterns of the Baroque idiom, the circle-of-fifths sequence, is according to Gjerdingen actually an older version of the *Prinner Riposte*. In a circle-of-fifths sequence every other chord of the progression forms a stepwise descent, which may be outlined by the outer voices in the manner of the *Prinner Riposte*. (Gjerdingen 1996, 372-373.):

6		5		4		3
IV	(VII)	III	(VI)	II	(V)	I
4		3		2		1

Besides the schema, which Gjerdingen called *Prinner Riposte*, a few other schemata for continuation were identified already in the middle of the 18th century. Joseph Riepel (1755) introduced three harmonic schemata, which appear at the double bar in a two-reprise form. The first schema Riepel called the *Monte* (mountain). It is based on an ascending harmonic progression, which can be described, for example, with chord degree symbols as V7/IV-IV-V7/V[6]. The second schema which consists of a descending harmonic sequence V7/ii-ii-V7-I Riepel called the *Fonte* (fountain)[7]. The third schema, called the *Ponte* (bridge) refers to a dominant prolongation, which resolves to the tonic[8]. (Knouse 1986, 49-50, see also Gjerdingen 1991, 1996.)

Taken together, the stereotypical patterns found in the galant style could also function in a *Fortspinnungstypus*. The *Do-Re-Mi* and the *Romanesca* schemata could function as the opening schemata of the presentation phrase. Basically, the *Prinner Riposte*, *Fonte*, and *Monte* schemata can be encountered as sequences in the *Fortspinnungstypus*.

Gjerdingen points out that in the 18th century it was crucial for a court composer to master the conventional building blocks of music in order to be able to make music his audience, and especially his patron could understand (Gjerdingen 1996, 367). One can assume that this kind of comprehensibility was required also of composers writing music for the services of the church. The stock patterns of church music may have originated at least to some degree from the choral melodies and from the four-part arrangements of the chorals, which the members of the congregation were familiar with.

4.2.2.3 A schema for functional form in tonal music

Musical form, understood as a chain of formal functions (see Chapter 3), seems to meet the criteria set for the structure of an event schema. It possesses specific order of formal functions and various levels of abstraction (Figure 6). The highest level, the level of formal functions, acts as the *plan* of the form. It sets up the tonal goals and subgoals of the form, and also sets up restrictions for the general melodic-harmonic content of each function. The first restriction is based on tonal syntax, which binds formal functions together. The second restriction, in turn, guarantees that the contents of each function corresponds to the beginning-middle-end paradigm: for example, the beginning is likely to be

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6 See Riepel 1755, 45.
7 See Riepel 1755, 46.
8 See Riepel 1755, 44.

carried out with different kinds of schemata than the ending. What kind of melodic-harmonic content is suitable for, say, beginnings depends on the stylistic norms.

The underlying harmonies of each formal function can be best described with harmonic-functional symbols. The harmonic-functional level provides restrictions for the chord-degrees. Furthermore, chord-degree progressions set the restrictions for the two-part harmonic-contrapuntal schemata of the outer voices, which can fulfill each chord-degree progression. The harmonic-contrapuntal schemata (such as 1-2-3; 1-7-1), embedded in each formal function, have to accommodate to the function they are performing, yet at the same they have to time connect in a syntactically correct way with each other.

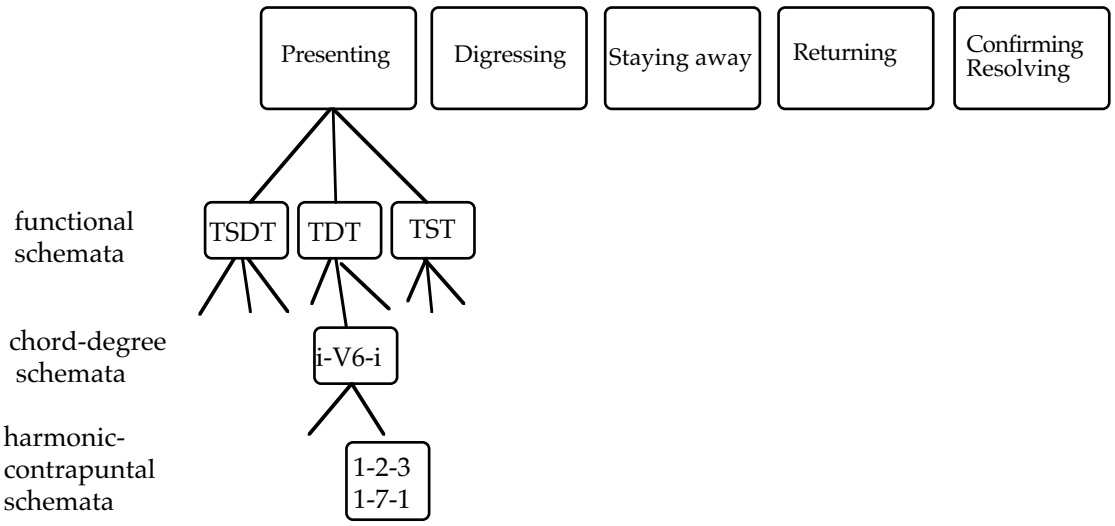

FIGURE 6 The sub-schema structure of the schema of formal functions representing the different levels of abstraction for an opening formula 1-2-3; 1-7-1.

The harmonic-contrapuntal schemata can be called *scripts*. The scripts specify the content of each function in detail. A script is assumed to present the lowest level of schema representation, and it is not assumed to consist of a configuration of subscripts (Rumelhart 1980, 37).

Figure 6 presents an idealized description of the schema of formal functions. In reality, the schema categories are not as clear-cut; instead, in practice many examples are ambiguous and follow the schema only partly.

4.3 Towards schema analysis

4.3.1 Research questions

The aim of this chapter is to explore to which extent, and on which structural levels, the instrumental introductions of Bach's minor-key cantata arias representing the *Fortspinnungstypus* share common structural features. The three levels of abstraction are:

(1) the schema of formal functions
(2) the schemata of the harmonic progressions fulfilling the formal functions, and
(3) the two-part scripts fulfilling the formal functions

It is assumed that if the same succession of formal functions can be found in the majority of examples, and, furthermore, if the schemata on levels (2) and (3) are used consistently – the same schema is used in the same formal function in several examples – it is possible to identify subcategories within the *Fortspinnungstypus* category. This being the case, the level and accuracy of description presented by Fischer could be exceeded, and the description of form could be extended to the domain of structure.

4.3.2 Method

4.3.2.1 Methodological foundations

In the present study, harmonic functions serve in an important methodological role as superordinate level concepts. The tentative stages of the analysis suggested that it is necessary to have a common superordinate-level category for chords acting in the same functional role, such as iv and ii°6 in subdominant function and V and vii° in dominant function. Functional theory, and especially its basic idea of categorizing diatonic chords into three functional categories, provides a means to deal with more general harmonic categories than that of chord degrees. Schema-theoretically, the harmonic function acts as a higher-level slot, which sets restrictions for chord-degrees fulfilling the slot. In sequences the scale-degrees are assumed to act as higher-level categories, since sequences are not thought to be based on functional harmony. Moreover, scale degrees are used also as a device to give a more specific description to functional harmonic progressions.

The identification of musical schemata involves distinguishing, the structurally important pitches from the structurally less important ones. Metrical accentuation is known to be a significant factor in the perception of harmonic structure. In perception, pitches and chords appearing on metrically strong beats tend to be recognized as more important than those on metrically weak beats.

Lerdahl and Jackendoff (1985) have proposed a theory of the hierarchical structure of metrical units and accents. At the very core of their theory is the assumption (in fact a well-formedness *rule*) that metrical beats are evenly spaced in time and that on every level of the metrical hierarchy, strong beats occur either on every second or every third beat (Lerdahl & Jackendoff 1985, 69). The basic *metrical units* would consist of two beats in duple meter and three beats in triple meter. From these building blocks the entire metrical structure of a work can be constructed.

One should, however, be careful in applying generative cognitive principles into actual musical situations. Firstly, composers may treat meter in a way they see appropriate for their purposes. Secondly, listeners may understand the meter in a different way from how it is notated. Caplin (1998, 35) distinguishes between *notated* and *real* measures. By real measure he refers

to the experience listener has of the basic metrical unit of the music. Meters based on a triple metrical unit, such as 3/8, should according to Lerdahl and Jackendoff contain one event, which is metrically more important than the other two. A mechanistical application of this metrical hierarchy would produce, perhaps, adequate results in opening gambits but not necessarily in concluding cadences, in which the harmonic rhythm is known to be faster. If only those events occurring on every third beat in triple meter and on every other beat on duple meter were considered as structurally important, only the first and last chords of a cadence would remain as structurally important. A flexible approach, which recognizes the changes in harmonic rhythm, is necessary in order to recognize the cadential harmonic schemata.

Lerdahl & Jackendoff allow some deviations from their rule-based system in the reduction of cadence. Following Schenker they emphasize the role of the penultimate dominant chord. The dominant is interpreted as a high-level event no matter how weak it is in the metrical structure: "the dominant [...] must be retained in order for the reduction to make musical sense" (Lerdahl & Jackendoff 1985, 155-156).

A similar but more flexible approach to reduction has been suggested by Leonard B. Meyer who provides three rules of thumb for the analysis of melodic schemata. Meyer (1973, 121-122) maintains that the most important factor affecting to the structural weight of pitches is their place in metrical accent hierarchy: the higher the pitch in metrical hierarchy, the more structural weight it possesses. Pitches found on the same level in the metrical hierachy are considered to be on the same structural level in the pitch organization. Meyer, however, lists two exceptions to these metrical criteria. A metrically strong pitch cannot be structurally important if it does not belong to the prevailing chord. Consequently, instead of non-chord tones, the resolutions of the non-chord tones are structurally important. The other exception, also applied in the present study, concerns sequential repetitions, specifically the motivic liquidation. In each transposition of the sequential pattern the structurally important tone is located at the same position in the pattern. For example, if in the first statement of the sequential pattern the first pitch is metrically the most accented and therefore structurally the most important pitch, the first pitch of every subsequent pattern has to be considered to be the most important pitch, no matter what its metrical placement.

4.3.2.2 Procedure

In the present study, meter was regarded as the principal criterion in assessing the structural importance of the pitches in both functional and sequential harmonic passages. The analysis proceeded through the four stages displayed in Table 7.

TABLE 7 The four levels of the analytical procedure for schema identification.

level	functional progressions	sequential progressions
	metrical criteria	metrical criteria
1	harmonic functions - schema of harmonic functions	scale degrees - schema of root progression
2	bass patterns	bass patterns
3	upper-voice patterns	upper-voice patterns
[4	embellishment of patterns]	[embellishments of patterns]

First, the most frequent schemata consisting of functional harmonies and the most frequent sequence schemata labeled with scale degree progressions were exposed (level 1). In the course of analysis it became apparent that in functional progressions schemata typically consist of 3-4 functional harmonies, whereas in sequences they comprise four chords. With respect to cadences, both the dominant and the subdominant are considered to be essential elements of a cadence regardless their metrical position.

Second, the most frequent bass patterns fulfilling the functional and sequential harmonic schemata were discovered (level 2). After the most frequent bass patterns located on the relatively strong metrical positions were found, examples with metrically displaced schema pitches were included in the bass pattern category. These less clear instances of the schema were considered to be members – even though less typical members – of the bass pattern category.

As a third stage, the most frequent upper-voice counterpoint(s) to the bass pattern was detected. In the process of identifying upper voice counterpoints (level 3), the simultaneity of upper-voice pitches with the pitches of the bass pattern was, in some cases, considered to be a more important criteria than the metrical one.

Fourth, with respect to certain larger categories, one specific mode of embellishing a two-part script could be detected.

To give an example, one of the most common functional progressions at the beginning of the introduction is TDT (level 1). Recurrent bass patterns fulfilling the TDT progression were searched from the members of TDT category (level 2). For instance, the bass pattern 1-5-1 occurs frequently as a bass pattern in the TDT-category. A recurrent counterpoint for the 1-5-1 bass pattern was an ascending pattern 1-2-3 (level 3).

Initially, then, the analysis proceeded in bottom-up direction, and the structural pitches were selected according to Meyer's rules of thumb. However, the analytical method was developed in interaction with the material. Analytical observations increased the understanding of the schema categories and led to more sophisticated analytical interpretations. The metrical criteria proved to be

useful as a point of departure, but in the course of the analysis it became obvious that meter is not the only factor influencing the identification of well-established patterns. This is in line with the common assumption that schema identification involves not only bottom-up but also top-down processes: that is, a schema can often be identified also in such examples, which have (to a moderate extent) metrical and melodic variations[9].

The harmonic schemata, and consequently the two-part scripts were first identified according to their tonal-harmonic role in the overall form. One of the difficulties in the analysis of formal functions is that melodic-rhythmic groups, such as sub-phrases, phrases, and sections don't necessarily coincide with formal functions: In a single group two functions may fuse together, and, conversely, a single function can be executed with more than one group.

4.3.3 Materials

4.3.3.1 The selection of the material

The selection of the material for the present study presupposed preliminary analysis in order to find the introductions representing the *Fortspinnungstypus*. Consequently, analysis consisted of two phases: the preliminary stage and the actual analysis with quantitative (schemata and prototypicality) and qualitative (metaphor of plot) approaches. The material was restricted to include only the minor-key introductions since, as representatives of the same mode, they were assumed to form a structurally coherent body of examples. Major-key introductions are likely to follow a different harmonic plan. Including both minor-key and major-key introductions in the material would have increased the number of structural categories and thus made the analysis unnecessarily laborious. At the first stage, the material consisted of all Bach's minor-key cantata-aria introductions listed in *Bach-Werke-Verzeichnis* (Schmieder 1969), and available in the NBA (*Neue Bach Ausgabe*) edition[10]. All the opening introductions, which have bass as their only written voice, were left out since, due to the lack of the upper voice, two-part schema-analysis could not be carried out on these examples. From the rest of the material, only those opening introductions corresponding to Fischer's definition of the *Fortspinnungstypus* were included in the analysis. The criteria concerned only the middle cadence and sequence: the introductions included in the analysis had to contain a clearly articulated middle cadence, followed by a sequential passage. The excluded introductions consisted mainly of symmetric periods and introductions based on imitation. The criteria were kept loose in order to ensure that even those introductions bearing less distinctive similarities with the *Fortspinnungstypus* were included.

At the final stage of analysis the material consisted of 125 minor-key aria introductions categorized at the preliminary stage as representatives of the

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[9] See Lindsay & Norman (1977, 488-489) about bottom-up and top-down modes of information processing.

[10] Robert L. Marshall, the leading figure of the study on Bach's sketches, prefers the NBA edition. He remarks that no edition, not even the NBA, is completely trustworthy. Bach's intentions cannot in many cases be reconstructed, since the autograph manuscripts no longer exist, and the later manuscripts differ from each other (Marshall 1989, 15).

Fortspinnungstypus (see Appendix 1). The other minor-key introductions not included in the study are listed in Appendix 2.

4.3.3.2 Bach's cantatas

Cantatas form the largest single body of works among Bach's compositions. It is commonly assumed that Bach composed originally five annual cycles of church cantatas, each of which consisted of about sixty cantatas. (see e.g. Boyd 1997, 120). A considerable number of the church cantatas have been lost. Taken together the number of extant cantatas (sacred and secular) is some 210. The number of cantata arias is more than double that number, since there are usually at least two arias in each cantata.

According to Dürr (1975, 23) the first cantata period extended from 1707 to 1712. Thus, the first cantatas were composed already during Bach's stay in Mühlhausen and during the first four years of the Weimar period. Of these early cantatas only one (BWV 196) is included in the present study. In the later Weimar years (1713-1716) Bach wrote approximately one church cantata in four weeks (Marshall 1989, 115). In 1713 he also wrote what is now considered his first secular cantata (Dürr 1975, 25). Bach had used *da capo* arias even before the Weimar period but according to Dürr (1975, 32) from 1715 his *da capo* arias became more complicated and the form was treated more freely. In the present study are included nine arias from this period. In Köthen (1717-1723) Bach composed mainly secular cantatas, of which one aria (BWV 202/5) is included in this study.

During Bach's Leipzig period cantatas became an essential part of his duties as a composer and conductor, which can be seen as a huge increase in the cantata production during the first years in Leipzig. Of the cantata aria introductions included in this study more than half (65 = 52%, N=125) stem from the first three years (1723, 21 arias; 1724, 25 arias; and 1725, 19 arias) in Leipzig. The number of arias, the first performance of which is known to have been in 1726, is still as high as 16. After this the number of FST introductions diminishes as does the number of cantatas composed. The rest of the cantata arias, 33 in all, included in the study were composed between the years 1727-38. For nearly half of them the date of the first performance can be given only with an accuracy of two or more years.

The studies of Meyer (1980, 1995) and Gjerdingen (1988) suggest that the same schema structure can prevail decades, even over more than a hundred years. One can therefore assume that the change in the structural schemata in Bach's cantatas in the three decades (from the 1710's to the 1730's) is not likely to be very drastic.

4.3.3.3 Statistical description of the material

In the following, the general characteristics of the material (N=125) are illustrated with statistical descriptions concerning the distribution of keys, meters, and the number of voices. Moreover, a statistics about the most common proportions between the lengths of *Vordersatz* (presentation phrase) and *Fortspinnung + Epilog* (continuation phrase) are presented.

The distribution of keys encountered in the aria introductions is presented in Table 8.

TABLE 8 The distribution of keys.

key	fr	%
Bm	32	25,6
Em	28	22,4
Am	15	12,0
Gm	15	12,0
Dm	12	9,6
Cm	10	8,0
F#m	10	8,0
C#m	2	1,6
Fm	1	0,8
	125	100

The most frequent key in the material is B minor, which appears in one fourth of the examples. The second most frequent key is E minor, which, together with B minor, cover almost half of the material.

Table 9 shows the distribution of meters across the material.

TABLE 9 The distribution of meters across the material.

meter	fr.	%
C	48	38,4
3/4	22	17,6
3/8	19	15,2
6/8	13	10,4
C| [11]	8	6,4
12/8	8	6,4
2/4	4	3,2
9/8	2	1,6
12/16	1	0,8
	125	100

The most common meter signature is C. More than one third of the examples are written in this meter. Simple triple meters 3/4 and 3/8 are almost equally common, covering together about one third of the examples.

The distribution of the number of voices across the examples is presented in Table 10.

[11] The symbol C| refers in this study to the alla breve time signature.

TABLE 10 Number of voices in the texture.

number of voices	fr	%
2	70	56,0
3	17	13,6
4	24	19,2
5	5	4,0
6	6	4,8
7	2	1,6
8	1	0,8
	125	100

The number of written voices varies from 2 to 8 voices. The table shows that more than half of the examples are written for two voices. The second most frequent texture type is four-part texture: one fifth of the introductions were written for four voices.

Table 11 displays the most frequent proportional lengths between *Vordersatz* (presentation phrase) and *Fortspinnung + Epilog* (continuation phrase)

TABLE 11 Proportional lengths between *Vordersatz* and *Fortspinnung + Epilog*.

VS:FS+E	
proportion	frequency
1 : 2	34
1 : 1	25
1 : 3	13
2 : 3	8
1 : 5	4
5 : 7	4
4 : 13	3
	91 (N = 125)

The continuation phrase (*Fortspinnung + Epilog*) tends to be longer than the continuation phrase (*Vordersatz*). The most frequent proportional schema is 1:2, which Lee found in her study as a basic form (*Grundform*) for proportional lengths in Bach's ritornelli.

4.4 Analysis

4.4.1 Schema of formal functions: level 1 description

The analysis of examples representing the *Fortspinnungstypus* (N=125) showed that the schema of formal functions consists typically of a succession of five formal functions, which are presented in Figure 7 with a general description of the harmonic-functional content of each formal function, the over-all characteristics of the harmonic process of the functions (stability/mobility), and the labels for groups (B, C, S, Br, E).

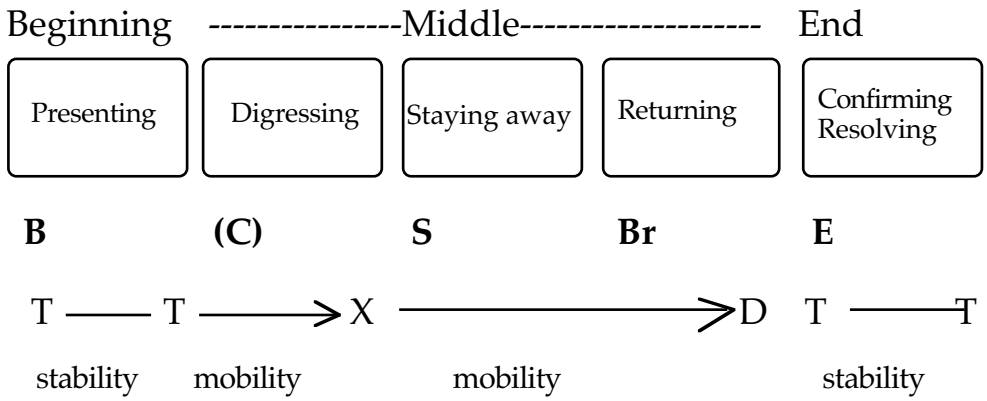


FIGURE 7 Schema (plan) of formal functions of the *Fortspinnungstypus*.

In the beginning (**B**) as well as in the end (**E**) are found tonally stable areas, representing a full or incomplete functional harmonic cycle (tonic prolongation). The beginning (**B**) may consist of two groups (B1 and B2, for example the basic idea and its transposed repetition). The second function, digression, represents movement away from the tonic chord. The digression may be confirmed by a cadential function (**C**), or it may be accomplished by just a cadential arrival. In some cases there may be two groups (C1 and C2), which both act in a cadential function, usually directed to different harmonic goals. For example, C1 may end on the dominant harmony and C2 on an authentic cadence in relative major or dominant minor. A middle cadence (**C**) leading to some other goal than the tonic represents a dramatic moment, a conflict, which needs to be resolved. In harmonic respect, the cadence is embedded in a mobile passage. What it confirms is the departure from the tonic chord. Usually, the Vordersatz ends with a digression.

The mobile middle part is continued by the sequence (**S**) and bridge (**Br**). The sequence represents mobility, the ultimate goal of which cannot be fully anticipated in the course of the sequence. Usually the sequence does not extend to the dominant function, and a separate bridge (**Br**) progressing to the dominant is needed. The bridge acts as a point of reversal, and it also marks a return to functional harmony.

The schema of formal functions may be articulated by a distinct melodic-rhythmic-harmonic group for each function. Sometimes the functions don't get support from the grouping structure. In the former case functions are maximally separated, which means that there is one group for each formal function. In the latter case one function can either contain more than one group, or vice versa, one group can contain more than one function.

If the chain of formal functions of the *Fortspinnungstypus* is considered to be an event schema, individual instances are suspected to follow the schema in many different ways. The most common chain of functions is Presenting – Digressing – Staying away – Returning – Ending, as shown in Figure 8 (a). In some examples individual part(s) of the chain may be repeated as shown in (c), (d), (e), and (f), in which cases an extra digressing group, a sequence, a bridge or a combination of the sequence and bridge is added, respectively. In some schema instances certain functions may be omitted, as shown in (g) and (e). However, if the digression is omitted (g) and the presentation ends on the tonic, the sequence may take the digression function, as happens in some introductions with an ascending sequence. Functions may also be fused within a single group, for instance, if a melodic-harmonic sequence is omitted, its place is taken by a dominant prolongation, which is executed with melodic sequences in one or several voices of the texture. Thus, the group possesses characteristics both from the sequence and the bridge.

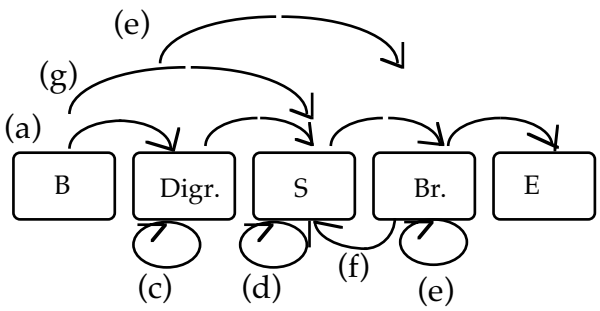
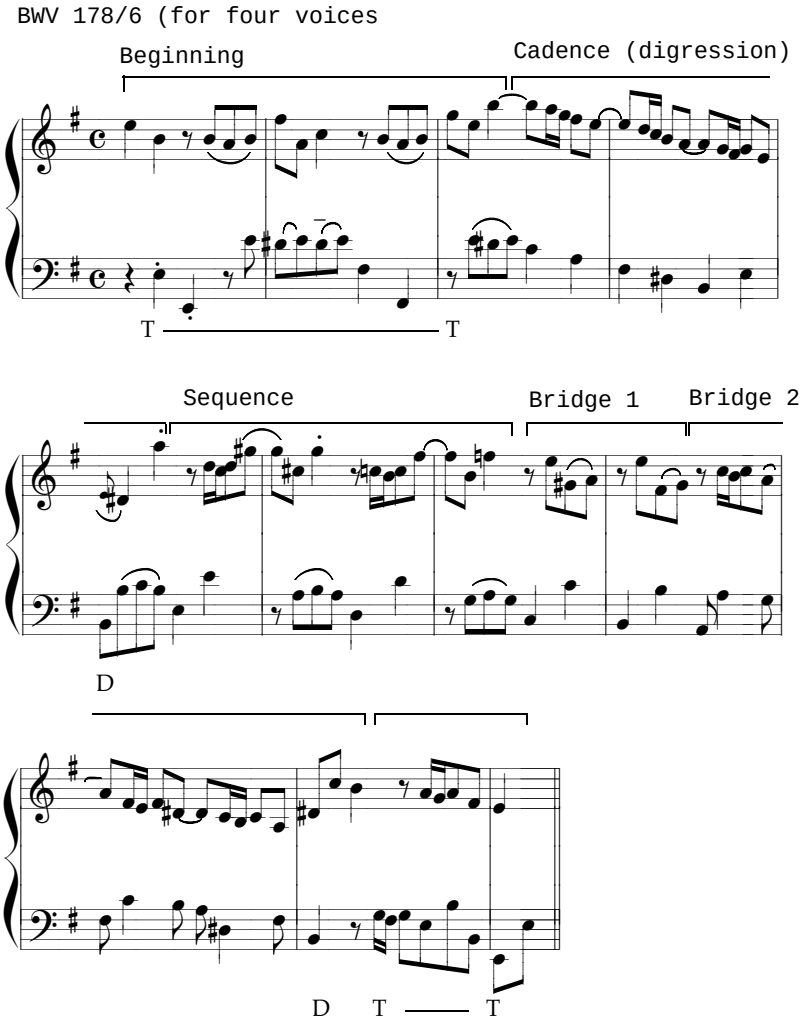


FIGURE 8 Different paths for events in the schema of formal functions.

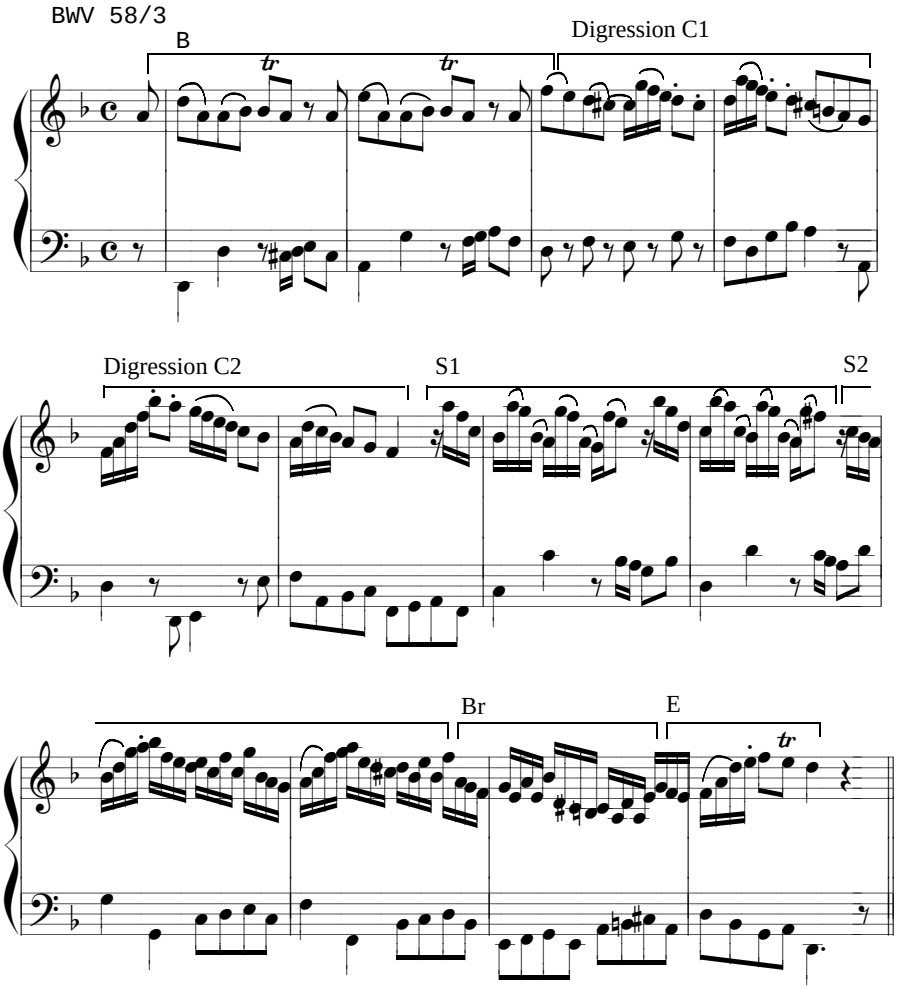
The basic form of the schema is illustrated with BWV 178/6 (Example 14), which displays all formal functions. The tonic prolongation (B) extends to m. 3, and leads to a half cadence, which represents cadence function C. The sequence lasts from m. 5 to m. 7. The sequence is followed by a bridge (Br1), which introduces in the upper voice a stationary tonic (mm. 7-8), while the bass continues the stepwise descent of the sequence. Br1 leads to prolonged dominant function harmony (mm. 9-10)(Br2), which re-establishes functional harmony and the expectation of the tonic. The epilog (E) is based on tonic prolongation.

EXAMPLE 14 The formal functions in BWV 178/6.



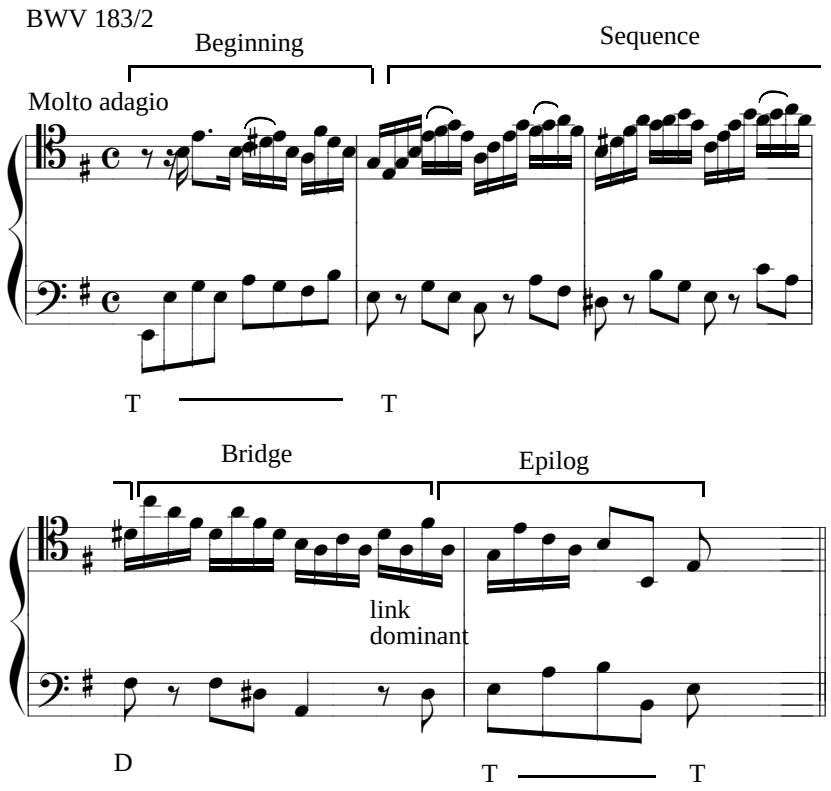
BWV 58/3 (Example 15) consists of a rich string of formal functions B C1 C2 S1 S2 Br E (loops (c) and (d) in Figure 8). The tonic prolongation (B) extends to the beginning of m. 3. The digression is accomplished with two groups, the first of which is a cadential function directed to the dominant (C1), the second being a cadential function directed to the relative major (C2). This extended digression leads to a two-sequence development. The first sequence (S1) is ascending leading to V/iv, from where the second sequence (S2) takes over ending on VI7. What follows in m. 11 is the liquidation of the sequence motive, which harmonically functions as a bridge (Br) between sequence and epilog, and which brings the music to the dominant. A tonic prolongation (E) closes the introduction.

EXAMPLE 15 The formal functions in BWV 58/3.



The introduction of BWV 183/2 (Example 16) lacks the digression function. The initial tonic prolongation endures the entire presentation phrase. The ascending sequence (mm. 2-4) leads to the dominant, and acts in a dual functional role of a sequence and a digression. A dominant prolongation acts as a bridge, which re-establishes the functional harmony and prepares for the move to the epilog. The epilog starts with an up-beat dominant harmony linking the dominant prolongation and epilog together. After the "link dominant", a tonic prolongation follows.

EXAMPLE 16 The formal functions in BWV 183/2.



4.4.2 Harmonic progressions fulfilling formal functions: level 2 description

The most frequent harmonic-functional schemata of the beginning, digression, bridge, and epilog, and the most frequent chord degree schemata of the sequences are presented in Figure 9:

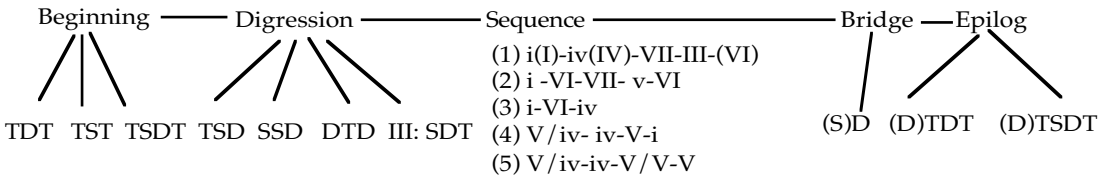


FIGURE 9 The most frequent harmonic-functional and sequential schemata fulfilling the formal functions.

4.4.2.1 Beginning

The beginning consists of a functional cycle, which begins with tonic function harmony and, after proceeding via the subdominant and/or the dominant, returns back to the tonic. Consequently, there seems to be three essentially different ways of constructing the opening progression. The most frequent of them (N=69) contains only tonic and dominant harmonies (TDT). The other ways of constructing the opening chord progression introduce subdominant

harmony in functional progression TSDT (N=21) or plagal progression TST (N=5). Unlike TSDT and TST schemata, TDT schema is metrically quite consistent: the dominant harmony is usually metrically weaker than the preceding and succeeding tonic harmonies.

4.4.2.2 Digression

The most frequent digressions in Figure 9 are a half cadence in the tonic key and a modulation to the relative major. Both of the cadential progressions represent a harmonic digression, and set up expectation of a return back to the tonic chord. Modulation to the relative major is perceptually a more salient event since it proposes not only a change of tonic but also a contrast of mode.

In all, there are 57[12] half cadential progressions acting in a cadential function. Of these, only six cadential progressions[13] don't lead straight to the sequence, but appear, instead, in the middle of the presentation phrase.

In the half cadence progressions, the ultimate dominant chord is preceded by chords which signal the arrival of the dominant chord. Since the harmonic rhythm of the cadence is relatively fast, the cadence is, in most cases, prepared during a single metrical unit. There were three basically different functional chord progressions in the half cadences: TSD, SSD, and DTD. The most frequent successions of chord functions were:

(1)	T	S	D
(2)	S	S	D
(3)	D	T	D

In patterns (1) and (2) the first and the third function tend to be metrically more accented than the second. Pattern (3) is metrically more varied: The first dominant function chord may be found on a strong beat in a metrical pattern, or – equally likely – on a weaker beat in a metrical pattern. In the functional category DTD, the metrical placement of functions does not seem to be a critical feature.

Modulation to the relative major is found in 10 examples as a cadential function (C) with functional schema TSDT in relative major. In addition to these examples, a tonicization of the relative major is found in 19 examples.

4.4.2.3 Sequence

The recurring sequence schemata and their respective frequencies are as follows:

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[12] 6/5; 9/3;11/4; 22/2; 26/4; 32/1; 35/2; 40/4; 45/5; 46/5; 47/2; 49/2; 52/3; 55/3; 57/3 (excluded in later discussions as an unclassified case); 58/3; 60/3; 63/3; 78/4; 81/1; 82/5; 84/1; 90/1; 98/3; 101/4; 103/3; 108/5a; 108/5b; 110/4; 117/3; 117/6; 129/3; 132/5; 135/5; 136/3; 136/5; 139/4; 146/5; 147/3; 147/5; 148/2; 151/3; 157/1; 157/2; 175/2; 178/6; 181/1; 184/4; 188/3; 199/2; 201/5; 201/9; 205/7; 207/3; 213/9; 214/5; 215/7; 248/51.

[13] 11/4; 58/3; 108/5a; 201/5; 201/9; 215/7.

	sequence type					frequency
(1)	i(I)	iv(IV)	bVII	III	(VI)	67
(2)	i	VI	bVII	v	VI	5
(3)	i	VI	iv			7
(4)	V/iv	iv	V	i		8
(5)	V/iv	iv	V/V	V		6
(6)	III	♭VII	iv	i		3
					total	96

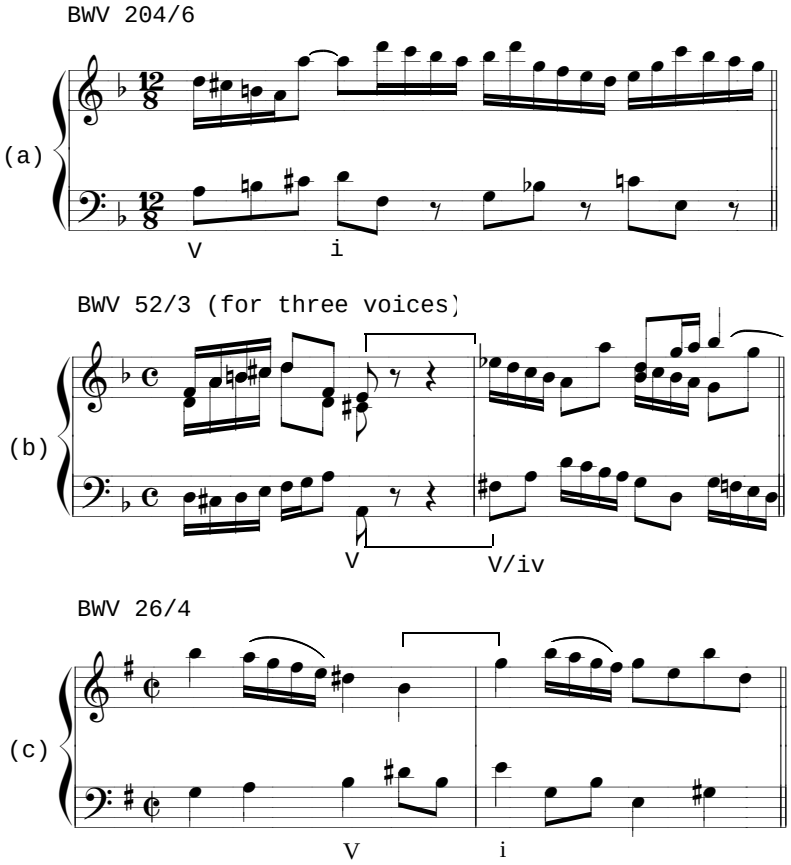
TABLE 12 The most frequent sequence types and their frequencies.

The most frequent sequence schema is the circle-of-fifths sequence, which appears either as the first or second sequence 67 times in the material. Of the five recurrent sequence schemata only schemata (5) and (6) are ascending, the rest of the schemata being descending. As representatives of formal functions, descending and ascending sequences may well be used for different functional purposes. Descending sequences are more likely to be perceived as returning back to the tonic, since they represent Berry's structural function *recession* and subsiding intensity. Ascending sequences with their increasing intensity are better suited for creating a sense of moving further away from the tonic, called *progression* by Berry.

In the majority of examples the presentation phrase ends with a harmonic digression, the resolution of which the first and the second sequence delay. Consequently, the formal-harmonic function of the sequence(s) is to avoid a sense of arrival to a stable tonic, i. e. to avoid an authentic cadence (V-i).

Each of the sequence schemata, except for (6), begins with a chord, the root of which is the tonic. The first chord does not, however, appear as a stable "home-coming", due to several factors, which tend to weaken its functionality and stability. The first chord of the sequence may appear on a weak beat (Example 17 (a)), or the sequence may begin with V/iv, which as a secondary dominant implies resolution to the subdominant chord (Example 17 (b)). Moreover, there is frequently a gap in the texture between the first chord of the sequence and the dominant ending the presentation phrase, as indicated in Example 17 (b). In sequences following a half cadence, usually either the leading tone of the upper-voice or the dominant of the bass are left without proper resolutions, which for both of them would be the tonic pitch (Example 17 (c)).

EXAMPLE 17 The weakening of the tonic function in the first chord of the sequence.



In harmonic contexts described in Example 17, the first-degree triad cannot act as a satisfactory resolution to the tonal digression, presented by the last chord of the presentation phrase.

The V-i chord progression is missing in all sequence schemata, with the exception of the sequence schema (4). The resolution occurs, however, at a point in which the sequential pattern has already been established. In such a context, a diatonic first-degree triad does not appear unambiguously as a stable goal, since a continuation according to the sequential pattern is also implied.

4.4.2.4 Bridge

Sequences are directed passages and, as manifestations of the law of good continuation could, once they have started, be carried on indefinitely. A specific formal function is called for to stop and reverse the sequence before the arrival of the final cadence. The bridge schema is structurally the most vague of all formal functions. Both its beginning and end are defined by the neighboring groups, those of the sequence and the epilog.

The formal function of the bridge is to take the music back to the stable tonic (in modulating ritornelli the function is to perform the modulation). It acts as the reversal or climax between a state of harmonic instability of the sequence and a state of harmonic stability of the epilog. Harmonically, the schemata between the sequence and the epilogue usually consists of a simple SD

functional progression, which is immediately followed by the first chord (T) of the epilogue (final cadence). If the sequence has ended on the dominant, the bridge may consist of an extended dominant harmony.

4.4.2.5 Epilog

Epilog schemata are typically based on a prolongation of the tonic function harmony. The epilog contains a progression of functional harmonies, either a TDT or TSDT cadence, the first and last chords being usually metrically the most accented. The first epilog chord is typically preceded by a dominant harmony. This "link dominat", which belongs both to the bridge and the epilog, is included in the analysis of the epilog schema. The functional-harmonic schemata for epilog are:

(1)	(D) | T D | T
(2)	(D) | T S D | T

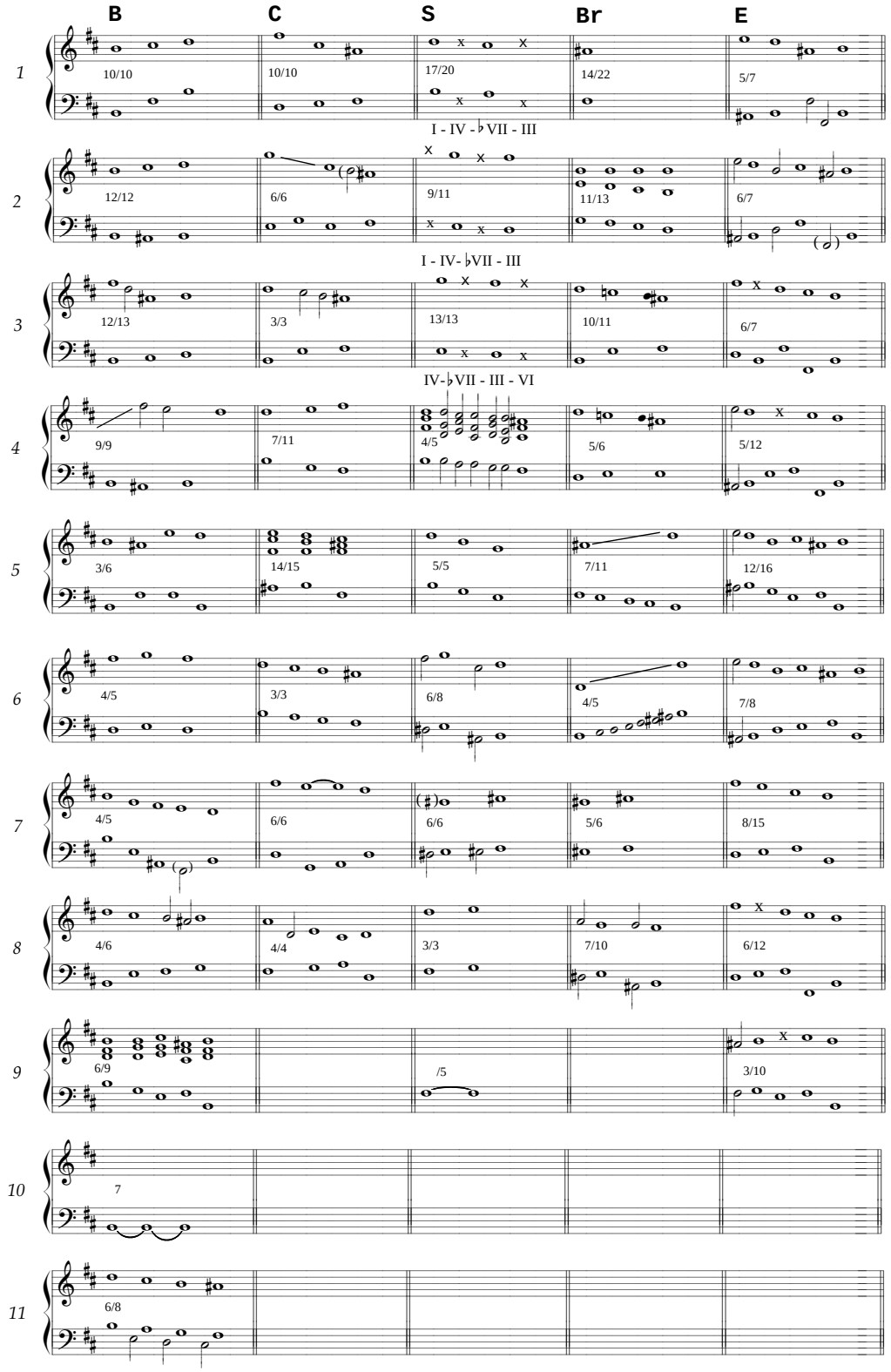
4.4.3 Scripts fulfilling the formal functions: level 3 description

The descriptions of the harmonic content of each formal function in Figures 7 and 9 don't contain any information about their melodic properties. Figure 10 presents, under paradigmatic headings B, C, S, Br, and E, all two-part scripts fulfilling the formal functions of the introductions. The scripts listed in each column display the most frequently occurring options for the melodic content of each function. A more detailed analysis of each script category is performed in chapter 5. In Figure 10 scripts are presented in the same order as in Chapter 5.

The opening schema is tonally relatively stable, usually ending on i, i6, or occasionally with a deceptive resolution to VI. The prolongations are weak, containing melodic movement either in bass or soprano. This motion, created by voice-leading within the tonic chord, initiates the formal process. The only strong prolongation among the opening schemata is based on a chord progression i-VI-ii°6-V-i (B/9, Figure 10). This strong cadence acts as a preparation for a modulation: in five out of six members of this category the following cadence is made in relative major. The tonic prolongation may also be carried out as a tonic pedal (B/10, Figure 10). The upper voice shows no recurrent patterning.

Tonic prolongation defined by either dominant or subdominant, may also be missing from the beginning. There is a script, presented on row 11, which is based on a strict or partial sequence starting from i and ending on V. This schema, with its strong sense of direction, represents mobility and resembles closely the cadence function (C/6). These ritornelli seem to begin with fusing the beginning and digression functions.

FIGURE 10 The two-part scripts fulfilling the formal functions. The scripts are presented paradigmatically under the functional headings. Thus, the rows should not be read from the left to the right. The two numbers between the staves refer to the frequencies of examples. The first number indicates the frequency of examples possessing both the bass and soprano patterns and the latter one indicates the frequency of examples possessing only the bass pattern.



The opening is based on an ascending upper-voice only in two schemata (B/1 and B/2, Figure 10). Both of them are based on functional progression TDT with upper voice melody 123. Although both scripts form quite large schema categories, they cover less than a quarter of the listed opening schemata. A descending contour, with various harmonic options, is in fact more frequent in the openings. Fischer regarded the harmonic progression I-I-IV-V-I as a frequently occurring structure underlying the first phrase. According to this study this schema is not very typical in cantata arias. In contrast, the opening motive 3-4-3 above the harmonic progression I-IV-I (TST), also mentioned by Fischer, was found in the present study to constitute a clear-cut but very small tonic prolongation category (B/6, Figure 10). Another opening motive, 1-#7-1, also discovered by Fischer, was found basically in all I-V-I patterns, most commonly in the bass. The notion of *ars combinatoria* helps to understand the relationship between various I-V-I schemata, in which the 1-#7-1 pattern may be found basically in any of the voices. The pattern 1-#7-1 is, however, avoided in the upper-voice, in which it is modified to start from the dominant: 5-3-#7-1 (see B/3, Figure 10).

The presentation phrase generally constitutes a clear-cut formal unit, which is separated from the following sequence by harmonic, melodic, textural, and/or motivic means. The most effective means of creating a sense of closure is naturally the cadential function. In most introductions, the ending of the presentation phrase is left tonally open. The most frequent cadences in this material are half cadence in the tonic key, authentic cadence in the relative major, and authentic cadence in the tonic key.

Of the half cadence scripts all but one script (C/4) are connected with a descending upper voice. The final root position V in the cadence presents harmonic tension, which the melody strengthens with a metrically strong leading tone (C/1, C/2, C/3, C/6). The leading tone is most frequently found either on the strongest or on the second strongest metrical beat of the measure. What is expected now, is both melodic and harmonic resolution to a root position tonic chord with the tonic pitch in the upper voice. The half cadence may be followed by another cadence directed to the relative major (C/8) (41/4, 58/3, 182/5, 201/5, 215/7).

Characteristic of the first chord of the sequence schemata (S) is that it does not present a full resolution of the final dominant of the presentation phrase. Thus, the need for a resolution is continued. Figure 10 shows that the first chord is either an incomplete i (i6 or i3) or a secondary dominant to iv. Six of the different sequence schema types are descending (S/1-6). The descent usually leads to the dominant, either directly or via the bridge function. Whereas the descending schemata represent subsiding intensity (Berry's *recession*), the ascending sequence schema (S/6) represents increasing intensity (Berry's *progression*), culminating to the dominant harmony.

In bridge scripts functional harmony returns. The return of the functional harmony serves as a *syntactical climax*. In contrast to all other functions, the bridge beginning and end is dependent on its neighboring scripts. This study showed that the bridge is more tightly connected to the sequence than to the epilog. The bridge has to take over from where the sequence ends. For example the melodic descent of the upper voice and/or the whole texture of the bridge schema (Br/2) continues the descent of the preceding sequence

without any dramatic reversal. In schemata Br/3-4 and 7-8 the process reversal is signaled by altered chords, the Neapolitan chord or secondary dominants, respectively. The bridges end most commonly on the dominant preparing for the resolution to the tonic chord (Br 1, 3-4, 7), which begins the tonic prolongation of the epilog. Br/2 presents an exceptional solution for bridging between S and E without an articulated dominant harmony. The bridges on row 5 and 6 (Figure 10) are not quite comparable with other bridges. The bridge script on row 5 presents a resolution of the dominant and the bridge script on row 6 is presents a tonic prolongation, which does not act in a mediating function, but rather as a structurally superfluous added group, probably in order to present an effective statistical climax with ascending melody reaching a relatively high pitch.

It is characteristic of most of the epilog scripts (E/1-2, 4-6) that a dominant harmony functioning as an upbeat precedes the first structural chord (T) of the epilog script. The “link dominant” appears most frequently as an diminished fifth (#7-4) between the outer voices. As expected, the epilog scripts are melodically descending, either from 3 (E/1-2, 4-6) or from 5 (E/3, 7-8) to the tonic. Compared to Fischer's and Lee's notion of the epilog, the epilogs in Figure 10 are quite short. Fischer preferred extensive epilogs, and included developmental (sequential) material in them, and considered the contrastiveness of melodic motivic material to be one of the critical features of the epilog. The recurrence of the same epilog types in cantata aria introductions suggests their independence as units of Bach's musical "vocabulary". The results in Figure 10 show that there are nine different two-part scripts, which are used frequently, and which cover 94 examples of the whole material (N = 125). Were the previous bridge material included in the epilog, no epilog schema categories would have emerged since there seem to be no correlation between specific bridge schemata and specific epilog schemata. The most likely location for a caesura in the continuation phrase is between the bridge and the epilog, not between the sequence and the bridge.

The epilog function can be differentiated from the bridge function by its clear tonal structure of tonic prolongation. There are a few introductions, which "miss" their first opportunity for a final cadence and end up with an deceptive resolution. The final epilog starts from the tonic parallel chord (Figure 10, E/9).

A parallel linear motion of voices is naturally encountered in the sequences but it can also be found in some schemata at the end of the presentation phrase, just before the cadence (C/6 and C/8, Figure 10). As mobile passages they represent the "developing" or "unstable" middle part of the form. The linear passage represents a path, which is directed to a subgoal of the middle cadence. The directed motion gives emphasis to the tonal digression of the cadence. The goal path is set but, instead of leading to a stable situation, it leads to a digression. In examples, in which there is no tonal digression and in which the presentation phrase ends on the tonic chord, the cadence is never preceded by a bilinear descent of voices. The digression function with its parallel motion of the outer voices may thus be interpreted as a failed attempt to achieve a resolution. Another goal path, i. e. that of the sequence, is needed to bring about the resolution.

The creativity of Bach's musical art is shown in the constant variation of the structural units and in the ways these structural units are combined.

4.5 Historical relevance of the schema analysis

The schemata presented in Figure 10 were obtained through an analysis, which combined conceptual tools from cognitive schema theory and music analytical methods stemming from musical applications of this theory. It is now appropriate to relate the cognitively grounded methodology to what is known about the musical practices of the Baroque period, especially to those practices, which Bach is known to be familiar with.

The stock patterns in Bach's music may originate from many different sources. The stereotypical voice-leading solutions presented in the *règle* (see section 3.4.4.2) gave composers and continuo players ready-made patterns, which could be used on scalar basses. There were also other methods based on thorough-bass, which argue for the importance of low-level schemata in Bach's texture. These include Friederich Erhardt Niedt's (1674-1708) method of composing and the *partimento* tradition[14] intended foremost to the training of continuo players.

It is known that J. S. Bach, unlike many other Baroque composers, did not show interest in publishing music-theoretical treatises. There are two texts, one of which is a traditional thorough-bass treatise and the other a collection of basso continuo exercises, which are connected with Bach's name. The thorough-bass treatise originates from the year 1738 and bears the title: *Precepts and Principles for Playing the Thorough-bass or Accompanying in Four Parts*. This quite elementary thorough-bass treatise contains a lot of musical examples and exercises, some of which were probably written by Bach himself. The other document mentioning J. S. Bach as the author, is called the *Langloz manuscript.* However, it is doubtful that any of these exercises in this manuscript were written by Bach (Renwick 2001, 9). The content of the manuscript is likely to stem from the Bach circle, from Bach himself, from his cousin Johann Nicolaus Bach, or from Friederich Erhardt Niedt (Renwick 2001, 28). Although the degree of Bach's contribution to these two texts is uncertain, they both shed light on the principles according to which musical textures were constructed.

4.5.1 The partimento tradition

The *partimento* tradition was was developed and practiced especially in Italian conservatories. Gradually it became known throughout Europe (Christensen 1992, 112). *Partimenti* were intended mostly for the instruction of continuo players. Their approach was practical, containing exercises usually without any theoretical discussions of harmony or counterpoint (Christensen 1992, 112, Borgir 1987, 141).

The exercises started with practicing the *Regola dell'ottava (Règle de l'octave*) and progressed to more complicated harmonic textures involving chromatic

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[14] The Italian term *partimento* means literally a small score (Renwick 2001, 2). According to Borgir (1987, 141) the term *partimento* is synonymous to *basso continuo*. *Partimento* refers to a bass note or a bass part, which is to be realized in the treble. The teaching manuals, which consisted of practical exercises for continuo players were called *partimenti.*

bass motions, dissonant chords, transpositions, and imitative textures. (Christensen 1992, 110, 112). The *partimenti* exercises were to be played in all familiar keys. Through these *partimenti* exercises students were able to memorize standard voice-leading patterns and recognize appropriate contexts for using them.

Although in Germany the thorough bass instruction was in general more theory-oriented than in Italy (Christensen 1992, 112-113), it has been assumed that Bach used the practical method of *partimenti* exercises in his teaching. *Precepts and Principles* contain *partimenti* exercises, which were intended to be played in various keys. Through these exercises the students would learn the voice-leading patterns and adopt them in their musical vocabulary. (Renwick 2001, 3-4.)

Partimenti exercises also acted as a preparation for compositional tasks. The exercises, which demanded quick responses to the thorough bass figuring, were especially useful for those composers who had to compose their works on a short notice, such as the Neapolitan opera composers. (Borgir 1987, 147.) Similarly, a composer holding a post in the church had to produce music according to a strict schedule. According to Marshall (1989, 10) during the first three years in Leipzig Bach had to produce at least one cantata per week. Thus, he had to invent the ideas very quickly; there was no time to wait for inspiration. (Marshall 1989, 10.) In such situations the stock patterns, which had been learned from the exercises of the *règle* and *partimenti*, may have been useful.

It has been suggested that in his compositions Bach used techniques similar to those introduced in the thorough-bass exercises. Renwick (1995, 13-14) has pointed out similarities between the voice-leading of Bach's Preludes C major and C minor (Well-tempered Clavier I) and Example 3 in Bach's *Precepts and Principles*. Such resemblances may indicate the influence of thorough bass patterns to compositions.

4.5.2 Niedt's compositional method

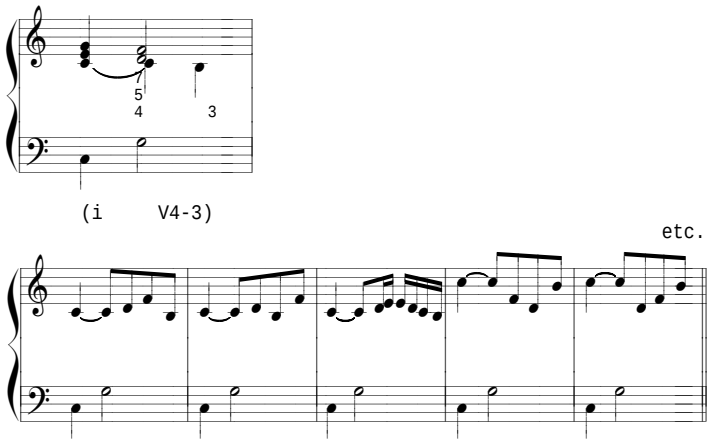
It is known from the statements given by both Carl Philipp Emanuel Bach and Johann Sebastian's pupil Johann Kirnberger that Bach's teaching started with four-part thorough-bass writing, from which it proceeded to the writing of two-part fugues (Poulin 1994, xii). A similar method of composing, based on four-part thorough-bass texture, was also presented in Niedt's *Musicalische Handleitung* (Niedt 1989), which Bach was familiar with. In fact, the second of the four parts of Bach's thorough-bass treatise is a paraphrase of Chapters I-IX of Niedt's first volume of the *Musicalische Handleitung* (Poulin 1989, xii-xiii).

In the second part, *On the Variation of the Thorough Bass*, Niedt presents a pedagogical system based on the technique of embellishing a harmonic four-part skeleton. These pedagogical similarities between Niedt and Johann Sebastian may be due to the simple fact that Bach was acquainted with Niedt's treatise but it may also be, as Poulin suggests, that Niedt's treatise is based on the pedagogical ideas of Johann Nicolaus Bach (1669-1753), the cousin of Johann Sebastian, under whom Niedt studied from 1695. That being the case *Musicalische Handleitung* would have been an important text to Johann Sebastian because it contained in a clearly articulated form the pedagogical

ideas he already followed in his teaching. (Poulin 1989, xiii.)

Niedt's method shows, more completely than any other of his contemporaries, the path from the writing of thorough bass to writing compositions (Lester 1992, 66). He displays extensive lists of various kinds of elaborations for simple bass patterns and upper-voice patterns (Niedt 1989, part II, pp. 57-178). The following example shows five alternative ways of elaborating the upper part in a i V4-3 progression (Niedt 1989, 114):

EXAMPLE 14 Potential upper-voice elaborations of chord progression i-V4/3 by Niedt (1989, 114).



The basic four-part skeleton acts as a chordal schema, which is varied by the divisions of both soprano and bass parts (see also Niedt's variants of the interval c-g in bass, shown in ibid., 79). Niedt's examples are in their simplicity pedagogically illustrative. In actual compositions the four-part skeleton is likely to be varied in more various ways. The analysis showed that individual instances of a script category could contain, for example, inserted chords and pitches (mostly on weak beats), metric displacements, pitch substitutions, as well partial voice-exchange (*ars combinatoria*)[15].

Bach is known to have rejected Johann Joseph Fux's (1660-1741) ideas of counterpoint as a point of departure in teaching composition. The approaches of Niedt and Fux represent two clearly distinctive, in many respects contrasting, conceptions of counterpoint prevailing throughout the eighteenth century. Niedt represented a harmonic view on counterpoint, while Fux kept to the more traditional linear view. Whereas Niedt's point of departure was four-part texture with full chords, Fux started with two parts controlled by the intervals between the simultaneously sounding pitches of the two voices. (Lester 1992, 67.) Therefore, it is obvious that Bach's two-part texture should be understood as an "arrangement" of a full four-part harmonic texture, not as two-part counterpoint controlled by the intervals between the parts.

As Poulin (1989, xxiii) has suggested, Niedt's treatise offers insights for studying the works of Johann Sebastian Bach. For example, she has found resemblances between Niedt's examples of melodic figuring and the modes of figuring in several preludes of the Well-tempered Clavier I (Poulin 1989, xiv).

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15 About the use of *ars combinatoria* techniques in the 18th-century see Ratner 1979.

The idea that Bach has been aware of the multiplicity of choices in elaborating the soprano and bass parts of thorough bass skeletons, justifies the search for harmonic schemata and two-part scripts in the structure. The importance of Niedt's approach lies in the fact that it unites harmonic and contrapuntal aspects: structure is viewed both as vertical categories (chords) and horizontal categories (bass and soprano patterns).

4.5.3 Concluding remarks

The documents concerning the thorough-bass practices imply that the art of writing four-part thorough-bass texture was closely connected to the art of composing. It can be assumed that the surface features of the texture may have emerged as the product of embellishing the thorough-bass skeletons in the manner proposed by Niedt. The scripts in Figure 10 show the hypothetical frequently occurred voice-leading skeletons, which in individual compositions are likely to receive different embellishments. One should remember, however, that four-part exercises displayed in a thorough bass treatise, as for instance in the *Precepts and Principles,* are not equivalent with cognitive schemata. A figured bass pattern realized with proper voice-leading procedures becomes a cognitive schema only after rehearsal. The numerous repetitions of individual exercises required of a student of thorough-bass playing guaranteed the emergence of schema representations in the memory. The cognitive structures stored in memory are, by definition, abstractions of the individual realizations. However, one cannot rule out the possibility of the influence of individual musical works.

Since there was variation in harmonizing specific bass pitches in some schemata, the concept of harmonic function was needed in order to explain harmonic variation within schemata. It is not certain how Bach conceptualized the harmonic events in his compositions, for instance, we don't know whether he considered some vertical pitch complexes as being able to substitute each other. However, from the analysis presented above we can conclude that he actually used certain vertical chord complexes interchangeably in the same function in individual schemata. For the historical relevance of the harmonic functions speaks the fact that the functional categories were effective as super-ordinate concepts in the analysis. It is safe to say that the analytical method grounded on cognitive schema theory gets support from what is known about the musical conventions and practices of the Bach circle.

5 PROTOTYPICAL FEATURES OF THE *FORTSPINNUNGSTYPUS* SCHEMA

This chapter deals in more detail with the scripts presented in Figure 10. The objective is to specify further the description of the scripts by discovering the features, which typically belong to the instances of scripts.

5.1 Prototype theory of concepts

The categorization of musical structures into schema categories meets some theoretical and empirical problems. The most fundamental questions are how should a schema category be defined, and how to decide, which cases belong to a specific schema category?

The terms concept and category are closely tied with each other. According to Mervis & Rosch (1981, 89) "A category exists whenever two or more distinguishable objects or events are treated equivalently." By equivalent treatment they refer to labeling objects or events with the same name, or performing the same action on different objects. The relationship between concept and category can be stated simply: "concept is an idea that characterizes a set, or category, of objects" (Sloman et al. 1998, 192). The term *concept* refers to the definition, or summary description of category. The term *category* refers to the extension of the concept, which is the set of objects belonging to the category and satisfying the definition or summary description of the concept. (see Mervis & Rosch 1981, 90; Markman 1989, 5.) In the present study, the term schema category is used to refer to the set of examples, which represent the same schema.

The issue of what constitutes an apt mode of describing or defining a category/concept is discussed here in the context of two theories of concepts: the *classical theory*, and the *prototype theory*, the latter of which was formulated in the 1970's as a critique to the classical theory.[1]

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[1] The so-called *exemplar theory* of concepts proposes that instead of a summary description a category can be described by its representative member (see e.g. Smith and Medin 1981).

5.1.1 Problems with the classical view

According to the classical view all concepts can be defined by *singly necessary* and *jointly sufficient* features (Lakoff 1987, 161). The term singly necessary feature means that every instance in the category must have that feature. If an item possesses a set of features which is regarded as sufficient for the concept, the item must be an instance of the concept. Necessary and sufficient features constitute the defining features of the category (Smith & Medin 1981, 23-24; Hampton 1995, 687).

According to classical theory, every item in a category shares the same set of features. From this it follows that every member of the category is an equally good example of the category. Since for every entity the membership is all-or-none, the category has clear-cut boundaries. (see e.g. Mervis 1980, 282.)

In his study of the changing-note schema instances across time Gjerdingen (1988, 59) also discusses the problems of categorization. He discusses the possibility to give a (classical) definition for the changing-note schema category, in which case every member of the category would possess all of the defining features. He concludes that the three criteria (1) binary form aa1, (2) I-V V-I harmony, (3) S-like contour in the melody cannot act as necessary and sufficient features. There are two major reasons for this. Firstly, the definition would allow rare forms of the changing-note schema to be accepted into the schema category. Secondly, it would at the same time leave out common changing note forms based on the I-ii6-V-I progression and formal structures aba1[2] (Gjerdingen 1988, 55-57) since each of them would lack one of the defining features. If a musico-structural entity fulfils the definition of a schema concept only partly, the structural entity should not, according to classical view, be considered as belonging to the schema category. A commonly cited weaknesses of classical theory is, indeed, its inability to deal with *unclear cases* (Smith and Medin 1981, 29).

According to Lakoff essentialism and classical categorization are part of an objectivist view of the world, where entities are thought to have fixed properties and relations. (Lakoff 1987, 160-161).[3] Schemata, which as cognitive knowledge structures tend to change over time (accommodation), lack obviously fixed properties and relations, which are the prerequisites of classical concepts.

It has also been argued that one of the defects of the classical view is that it is interested in structural features at the expense of functional features, which refer to the ways the object is used in its context (Smith and Medin 1981, 26). Functional features are important for the understanding of many musical concepts, such as ouverture (opening function), march (movement function), dominant chord (tonal function), development (formal function), of which the

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2 Gjerdingens' example 4-5 presents an aba1 changing -note structure. Unlike examples on p. 56, it is based on "triple" bass pattern 1-2-3. The results of my study show that there is a schema category based on bass pattern 1-2-3 to which this instance is more likely to belong. Gjerdingen's example 4-4 with chord progression I-ii6-V7-I would rather belong to a schema category based on functional progression TSDT with changing note melody 1-2-#7-1.

3 Scientific concepts have reflected, and still reflect, the objectivist stance (see Hempel 1970).

latter two are the concern of the present study. In the discussions of formal functions and the schemata fulfilling the formal functions one has to consider the structural context in which the schema appears.

5.1.2 Family resemblance relationships

One of the earliest critiques against the classical view of concepts was presented by philosopher Ludwig Wittgenstein, who demonstrated the difficulties to formulate a classical definition for certain concepts such as game or family (Wittgenstein 1953, 1: 66-71, see also Smith and Medin 1981, 30)[4]. In a family, children are likely to share common features with their parents, but parents, in contrast, are not likely to share common features with one another. Parents are related to each other only through their common children. This kind of chain of relations Wittgenstein called *family resemblances* (Wittgenstein 1953,1: 67).

With respect to musical schemata, Gjerdingen has suggested that the schema structure is actually "a complex network of associated schemata", which can be characterized by family resemblance relationships (Gjerdingen 1988, 59):

> In this network the schemata bear a family resemblance to each other based on their sharing of features, even though no single set of features defines each and every member of the family.

Gjerdingen concluded that a coordinated set of features describes best the schema category of the changing-note schema (Gjerdingen 1988, 64). Since the features are not defining (singly necessary and jointly sufficient), all the members don't necessarily possess the whole set of features. Single features are not decisive for schema identification. An instance lacking individual feature(s) can nevertheless be included in the changing note schema category.

5.1.3 Eleanor Rosch's prototype theory

In the field of cognitive psychology, a series of experimental studies in the 1970s focused on issues of categorization. Eleanor Rosch (Rosch 1973, Rosch & Mervis 1975) found strong evidence against the assumptions of classical theory, and together with her colleagues developed the so-called *prototype theory* of concepts. One of the central findings of Rosch was that people tend to view some members of categories as more representative than the other members (prototypicality effect). (see Lakoff 1987, 41; Smith & Medin 1981, 33-35).

According to the prototype theory, a category can be represented by a set of prototypical features (Rosch 1978, 36). The most important criteria for features' prototypicality are: (1) *salience* of features (or items), (2) *frequency* of features in the category (cue validity), and (3) *family resemblance.* From the first two criteria it follows that prototypical features are likely to be perceptually salient and encountered with high frequency among category members. Rosch and Mervis consider, however, the family resemblance to be the most central

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[4] One critical issue of the classical view is that it excludes *disjunctive concepts* (Smith and Medin 1981, 27), which are composed of two separate concepts, such as sonata-rondo in music.

factor affecting prototypicality. (Rosch & Mervis 1975, 599.)

Prototypical features need not be necessary for category membership (Rosch et al. 1976, 433) but they have a substantial probability of occurring in the members of the category. Since the description of the category does not need to involve necessary features, the members share common features in different degrees with each other and with the prototype. From this it follows that all instances of the concept are not equally good representatives of the concept (Rosch 1978, 36).

The goodness of an instance to represent the category can be judged in relation to prototypicality: "The more prototypical a category member, the more attributes it has in common with other members of the category and the less attributes in common with contrasting categories" (Rosch & Mervis 1975, 602). In other words, a prototypical member has strong family resemblance relationships with other category members. The best representatives of the concept are those members, in which the prototypical features are clustered.

A prototypical example possessing all prototypical features is both a perfect example and a typical example of the schema category (Gjerdingen 1988, 94). The typicality diminishes as the resemblance with the prototype diminishes. However, as Gjerdingen suggests, the typicality rarely reaches a zero point: examples possessing low typicality with respect to a specific category is likely to be understood as a member of some other category. (Gjerdingen 1988, 94-95.)

Unclear cases which only vaguely bear resemblance to the prototype tend to make the category fuzzy with no clear-cut boundaries. The issue of setting category boudaries is not, however, central to the concerns of prototype theory. Rosch (1978, 36) refers to Wittgenstein (1953), who considers categorization problematic only if exact boundaries are attempted to be drawn between categories. The present study is based on the assumption that a full intersubjective agreement about category boundaries cannot be achieved. The categorization of musical events depends on the analyst, as well as the listener, on their musical experience and their ways of perceiving music and the world. The idea that there exists one correct way of defining categories and their boundaries is rejected here. What one should aim at is a categorization procedure based on explicit and theoretically well-grounded principles.

How, then, can one find prototypical features of a concept? This question is by no means trivial. In order to be able to *search for* prototypical features of a category, we should have knowledge about the description or definition of the category in order to distinguish between members and nonmembers (see e. g. Way 1991, 213). But category description is exactly what we are trying to formulate by discovering the prototypical features. In music-analytical situations this problem of circular reasoning can be avoided by applying the prototype theory to such musical concepts (forms, chord progressions, schemata), of which there already is a commonly approved conception.[5] The observations have to be made according to the principle of hermeneutic circle, changing the focus between the analysis of individual examples and the

[5] In his study on the cadential six-four chord Meyer (1992) used both music-theoretical knowledge and empirical data in describing a typical structure and context for the cadential six-four chord.

assumptions concerning the shared features among category members.

Rosch makes distinction between three levels of categorical abstraction. These levels are, from the most abstract to the most concrete, (1) *superordinate* categories, (2) *basic level* categories, and (3) *subordinate* categories. On the basic level information is presented most efficiently. Rosch et al. found that on the basic level categories are most clearly differentiated from each other. Members of basic level categories share a significant number of common features. Compared to basic level categories, the members of super-ordinate level categories share fewer features with one another. Subordinate level categories share more features with constrasting subordinate categories than do the members of basic level categories. Basic level is the most inclusive level on which category members possess similar features. (Rosch & Mervis 1975, 602.) Rosch illustrates this with an example of the concept of 'furniture', which presents a superordinate level category including as members e.g. sofa, table, chair, which don't share many common structural features. A basic level concept 'chair' contains members as e.g. living-room chair and kitchen chair, which share several common features. A subordinate level concept 'kitchen chair' has many overlapping features with other types of chairs. Category prototypes are most effective on the basic level, since on the superordinate level there are not enough similarities within categories for prototype formation and on subordinate level, categories, and similarly prototypes, are not differentiated strongly enough from each other.

Rosch (1978, 31-35) presents four operational definitions for basic level categories. According to Rosch, the basic level categories are the most inclusive categories (see Rosch et al. 1976), which have (1) significant number of common attributes between category members, (2) similar motor movements in interaction with basic level objects, (3) similarity of perceptual shapes, and (4) recognizable average shape of objects. With respect to music from item (2) it follows that formal functions and possibly also harmonic functions are too abstract for representing the basic level of musical structure. They are not likely to invoke any motor programs.

5.1.4 Bridging the gap between classical and prototype theories

One of the critiques presented against the prototype theory concerns the notion of similarity. By criss-crossing similarity relationships anything and everything can be included in a category with some degree of membership, since anything and everything can be explained through family resemblance relationships as being similar to the prototype. It has been argued that similarity to the prototype is a problematic basis for the models of categorization (Way 1991, 213-214.) Concerning the analysis of musical schema categories one should include some principles which would constrain the number of category members.

Already Mervis and Rosch (1981, 99-100) observed that the family resemblance principle does not exclude necessary features. Higher-level features, for instance, "animate" for the concept of bird, may be necessary conditions for membership.

Some empirical studies have focused on combining the findings of the prototype theory, especially the typicality effect, and the classical definitions.

According to theory-based account of concepts (Murphy 1993, Murphy & Medin 1985), perceptual features don't provide sufficient basis for concept definition. Knowledge of the world makes conceptual representations richer. Concepts have an essence or core, which is the reason for perceptual features. It is the core that defines the concept, not the perceptual features. The existence of the core is essential to theoretical thinking and inductive reasoning. The core gives the concept coherence. (Hampton 1995, 689.)

Kalish (1995, 336) suggests that the essentialist view assumes two different kinds of features: (1) fundamental *essential features* which are defining and deep, and (2) *prototypical features* which are apparent and which are caused by the essential features. Membership judgments are based on essential features, judgments of typicality on prototypical features. Essential features are shared by all category members.

The so-called *binary model* (Smith, Shoeben & Rips 1974, cited in Hampton 1995, 688) suggests that, in addition to classical *defining features*, a category has *characteristic features*, which do not affect the categorization process but, instead, explain the graded typicality of members. Moreover, Smith & Medin (1981, 20), following Johnson-Laird (1976), distinguish between the *core* of the concept and the *identification* procedures. The former involves the abstract features, the latter the perceptual features. Abstract features define the nature of the perceptual features.

In their model Sloman and Rips (1998, 99) bring together characteristics from prototype and classical theories. They consider two modes of categorization, (1) *similarity based* and (2) *rule-based* categorization, both of which are exploited in the act of categorization. Both modes have their advantages: rule-based categorizing models "provide precision, expressiveness, and generativity", whereas similarity-based categorizing models provide "flexibility and the means to deal with uncertainty" (Sloman & Rips 1998, 94).

Combining characteristics from the classical theory and prototype theory seems to provide an apt point of departure for dealing with musical schemata – or music-theoretical concepts in general. Whereas the typicality of category members can be judged on perceptual similarities between musical objects, music-theoretical knowledge is needed for judging which features are accidental and which of them are fundamental. Were the concepts of similarity and family resemblance the sole criteria for categorization, any object could be accounted to be similar to any other object. This open-texture problem can be avoided by accepting some features as necessary and sufficient for category membership.

Gjerdingen suggests that Meyer's changing-note archetype is a complex of associated schemata, which bear family resemblance to each other, but which do not share a common classical definition. (Gjerdingen 1988, 59). The different forms of the changing-note schema constitute an associative network (see Gjerdingen 1988, 62), the nodes of which may activate one another and thus produce instances with "mixed" schema properties.

This idea may well be congruent with the way associative memory works. However, it may lead to the open-texture problem, if all features are regarded as equally important. One can assume that the harmonic functions T-D D-T and the symmetrical structure aa1 are more fundamental than the melodic characteristics (S-shaped contour), which is the result of one of the many

possible voice-leading realizations. The changing-note script can be considered to represent a subcategory of T-D D-T/aa1 category.

5.2 Research questions and methods

According to prototype theory, schema categories can be represented by the prototypical features of their members and their most prototypical examples. The questions for the analysis of prototypicality are:

(1) Which are the prototypical features of each script category?
(2) Which are the prototypical examples of each script category?
(3) Which are the prototypical features of the *Fortspinnungstypus* schema?

The quantitative criteria for a feature's prototypicality is that it is found at least in half of the instances of the category.

In defining the prototypical harmonic-contrapuntal features, the description of scripts was performed on four levels of abstraction (see Table 7). Since, according to Rosch, prototypicality is characteristic of the basic level, it was not considered until on level 3. The harmonic functional progression and chord-degree progression were taken to comprise the necessary feature for the membership of a cadence and sequence category, respectively. Since the number of members is reduced at each stage of the analytical procedure, level 4 applies only to the largest categories.

The first stage of the analysis was to represent the findings in the form of tables in order to examine the findings quantitatively. These tables are presented in Appendix 3. In the tables presenting prototypical features, the columns contain as variables the *structural* features of 1. harmonic functions, 2. bass patterns, 3. upper-voice patterns, and in larger (or more coherent) categories 4. melodic-rhythmic surface embellishments of the upper-voice and/or the bass. An example is considered to be prototypical, if it shares all of the structural prototypical features. Moreover, *additional* features, such as the number of voices and surface motives were considered whenever they appeared to be significant for the category. However, these additional features were not considered as criteria for prototypicality, which was defined solely on the criteria 1, 2, and 3. In each table, also the *contextual* prototypical features were included. Contextual features refer to the structural features of the units preceding and following the schema under examination.

The structural, additional, and contextual dimensions were given three values (here called features):

1. the feature is fully present = +
2. the feature is partly present = (+)
3. the feature is missing = –

The symbol + in the column of a specific feature indicates that the example is prototypical with respect to that feature. The mediating value (+) does not indicate in what respect and in what grade the feature is present/varied. The symbols +, (+), and - were converted into numerical values 1, 0,5, and 0, respectively. The numerical value of each column was calculated by adding up all values in the column.

The tables were used as a device for discovering the prototypical features for the category: if the sum of the values in a column is ≥ 0,5 x N (N = number of members in the category) for the feature, it was regarded as a prototypical feature for the schema category. The 0,5 x N criteria is not sufficient if there are only two possible values for the variable. However, almost all features had more than two values. For example, the contextual feature 'middle cadence' has theoretically six possible values (different cadence types). If a category of 12 members have, say, six members with a half cadence, three members with an authentic cadence on i, two members with a cadence on III and one ending on V/iv, the half cadence is considered to be a prototypical feature of the category since it is found in half of the category members. A more detailed quantitative analysis was not considered to be necessary since the analytical procedure described above succeeded sufficiently in exposing the prototypical features and examples.

5.3 Analysis

In this section the script categories presented in Figure 10 are analyzed in detail in order to find the most prototypical representatives for each of the categories. The distribution of prototypical features of each example is presented in the tables of Appendix 3.

5.3.1 Beginning

5.3.1.1 Functional progression TDT

In functional progression TDT the pattern of metrical accents shows remarkable consistency. In most examples the metrical beat pattern has a metrically weaker dominant function harmony between metrically stronger tonic function harmonies

T D T
: . :

This pattern of metrically specified functions can be realized on several metrical levels. The most common chord rhythms are (1) one harmonic function per measure, (2) two harmonic functions per measure, and (3) three harmonic functions per measure, as shown in Table 13.

TABLE 13 The most frequent metrical locations for harmonic functions in the TDT schema.

	metric-functional schema	meter	frequency of examples
(1)	| T | D | T : . :		24
(2a)	| T D | T : . :	C, 6/8 , 12/8, (2/4)	14
(2b)	| TT D | T : . . :	3/8, 3/4, (6/8)	8
(3a)	| TD T : . :	C, C|	7

The relative metrical accentuation of harmonies will be indicated later in the text with bold type. For instance, the relative metrical weight of the patterns presented in Table 13 will be written as **T**D**T**.

According to Schoenberg and Caplin, it is typical of the opening of the sentence form to present tonic and dominant versions of the initial motive (*basic idea, b. i.*). In the TDT category there are 13 examples[6] representing this typical mode of opening. In these cases, the bass pattern is either 1-#7-1 or 1-5-1, both with a counterpoint 1-2-3 in the soprano. Of the 13 examples, 10 were representatives of the | T | D | T | metrical-harmonic schema.[7]

The harmonic schema TDT can be carried out by two grouping structure alternatives, shown in Figure 11.

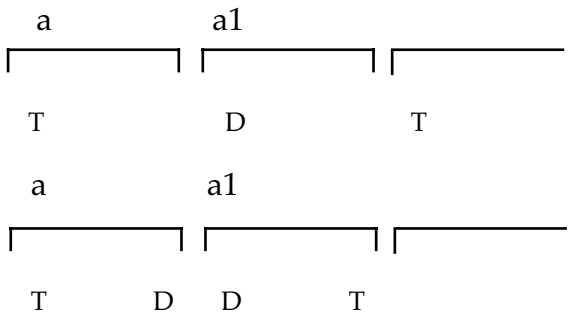


FIGURE 11 The most frequent grouping contexts for TDT/151 and TDT/1#71 schemata. The first group (a) indicates the basic idea (b.i.).

In the first context the schema appears as open-ended, implying that the following group starts with T rounding up the TDT cycle. In the latter context the schema appears as closed and constitutes in itself the entire beginning function.

---

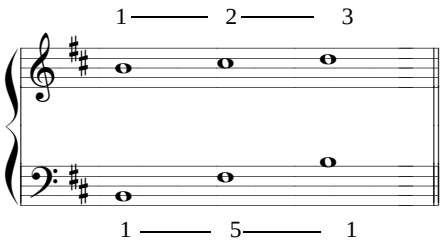
6 22/2(c); 45/5(f#); 47/2d); 49/2(c#); 58/3(d); 100/3(b); 101/2(g); 116/2(f#); 136/5(b); 144/5(b); 196/3(a); 198/3(b); 205/5(b).

7 22/2; 45/5; 47/2; 58/3; 100/3; 101/2; 116/2; 136/5; 144/5; 205/5.

TDT/151

Script category TDT/151 was described in Figure 10 (column B, row 1) as follows:

EXAMPLE 19 Script category TDT/151.

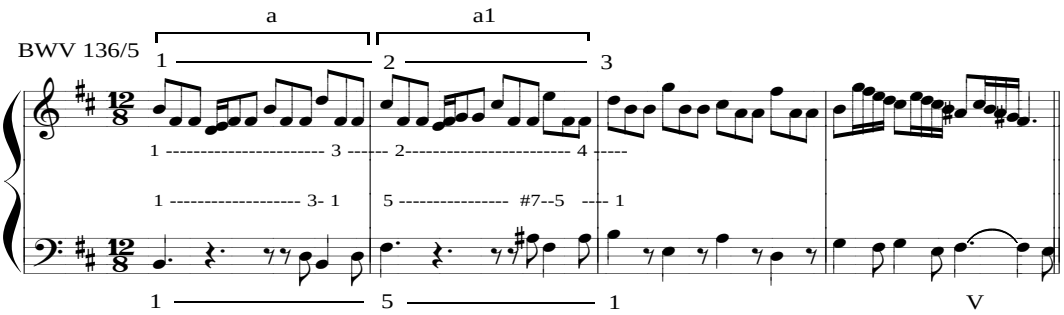


In all, there are 10 members[8] in the TDT/151 category. The prototypical structural features for the category are (see Table 1, Appendix 3): (1) **T**D**T**, (2) bass 1-5-1, (3) soprano 1-2-3. The additional features considered to be prototypical by their frequency (encountered in more than 5 examples) are (4) opening motives aa1 (basic idea followed by its dominant form), (5) two-part texture (à2). Contextual prototypical features (encountered in more than 5 examples) are (6) the presentation ends on half cadence (V), and (7) the presentation is followed by circle-of-fifths sequence (seq. fifths).

The three prototypical structural features are found in three examples BWV 58/3 (C, d), 100/3 (6/8,b) and 136/5 (12/8, b). The additional features and the contextual prototypical features are found in four examples 45/5 (C, f#), 100/3 (6/8,b), 136/5(12/8, b), and 144/5(C, b).

The most prototypical members of the category are 100/3 and 136/5, which share all seven prototypical features. Example 20 displays BWV 136/5.

EXAMPLE 20 Prototypical example of the *Adeste Fidelis* schema.



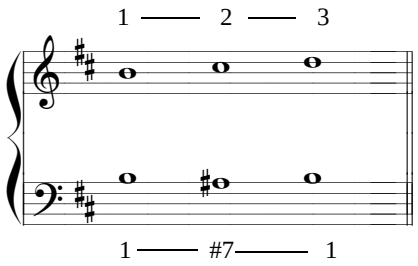
Both examples have similar surface patterning: **1**-3-1 | **5**-#7-5 | **1** in the bass, and **1**-3 | **2**--4 | **3** in the upper voice. BWV 100/3 and BWV 136/5 fulfill all Meyer's criteria for *Adeste Fidelis* schema and represent also Gjerdingen's *Do-Re-Mi* schema. Moreover, they share the same key, B minor.

8 32/1; 45/5; 58/3; 60/3; 100/3; 103/3; 136/5; 144/5; 196/3; 213/9.

TDT/1#71

The schema category TDT/1#71 was described (Figure 10, B/2) as having following structural features:

EXAMPLE 21 The schema TDT/1#71.



The schema category consists of 12 members[9] (see Table 2, Appendix 3). The prototypical features of this category are (1) **TDT** progression, (2) bass 1-#7-1, (3) upper-voice counterpoint 1-2-3. The additional features shared by at least half of the category members are (4) opening with motive structure aa1, (5) two-part texture (à2). The prototypical contextual features are (6) symmetrical structure (1:1) of the presentation phrase and (7) half cadence at the end of the presentation phrase (V). All three structural prototypical features are found without variation only in 47/2. None of the examples possesses all seven features. The Table 2 in Appendix 3 seems to present examples from two schema categories; from the *Adeste Fidelis* category, and from another category with suspended bass pattern 1-1-#7-1, called here the *suspension schema*.[10] (marked in Table 2 with asterisks after the BWV number). The members of the suspension schema category share features, which distinguish it from the *Adeste Fidelis* category: (1) bass 1-#7-1 with suspended 1, (2) tonicization of the relative major within the presentation phrase. Four instances 12/4, 102/5, 119/5, and 179/3 fulfill the criteria.

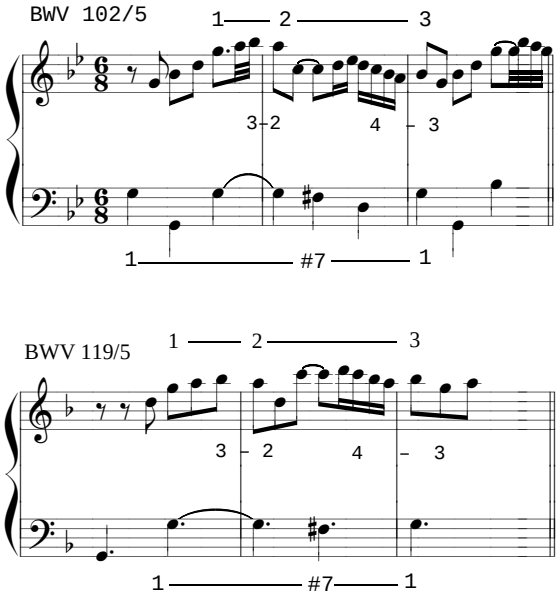
Within the *suspension* schema category, two prototypical examples BWV 102/5, and 119/5 (Example 22) gather together the features, which clearly distinguish the *suspension* category from the *Adeste Fidelis* category. BWV 102/5 and BWV 119/5 also share some additional features; The changing-note pattern 3-2; 4-3 underlines the harmony-based symmetricity of this schema in terms of melody. The opening forms a small-scale symmetrical period. The two most prototypical examples of the suspension schema are nearly identical. Once again, the similarities extend to concern the key (G minor), as well.

---

9 12/4; 22/2; 47/2; 49/2; 101/2; 102/5; 116/2; 119/5; 178/6; 179/3; 198/3; 205/5.

10 12/4, 102/5, 116/2, 119/5, 179/3, 198/3.

EXAMPLE 22 Two prototypical examples of the suspension schema TDT/1#71.



The earliest suspension schema in this material dates already from the 1710's (BWV 12/4), but it seems that it did not become a common schema in Bach's repertoire.

Some of the TDT/1#71 category members resemble closely the *Adeste Fidelis* examples 100/3 and 136/5 of the TDT/151 category. It seems that Bach used the bass patterns 1-#7-1 and 1-5-1 quite interchangeably, although 1-5-1 seems to be more typical of the *Adeste Fidelis* schema category.

The suspension schema category was categorized initially as belonging to the TDT category. However, the bass pattern 1-1-#7-1 allows two chordal-degree interpretations:

upper voice	1	2	2	3		1	2	2	3
bass	1	1*	7	1		1	1	7	1
	i	vii°7	vii°7	i		i	iiø2	vii°7	i

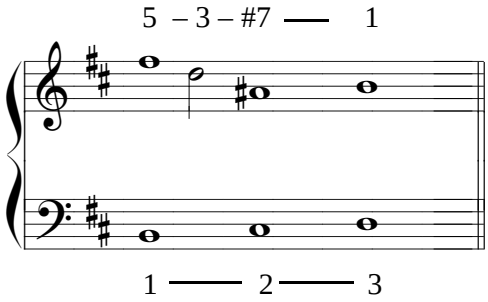
(*=suspended tone)

The formation of schema categories was based on three structural features: harmonic functions, bass patterns, and upper-voice patterns. However, it was discovered that category members shared, in addition to the defining features, several *other* features as well. The prototypical examples could be given an even more detailed description concerning the surface figuration (level 4 description, see Table 7). The presence of additional and contextual features, independently of the definition of the schema category, indicates that categories have inner coherence beyond the defining features.

TDT/123

Schema TDT/123 is found in 13 examples, of which all but one have also the upper-voice pattern 5-3-#7-1[11]. Table 3 (Appendix 3) shows the distribution of prototypical features across category members. The schema category was described in the previous chapter as follows (Figure 10, B/3):

EXAMPLE 23 The structure of schema TDT/123.



The structural prototypical features of the schema are (1) **TDT** progression (2) bass 1-2-3, (3) upper-voice counterpoint 53-#7-1. The only additional prototypical feature is: (4) two-part texture (à2). The contextual prototypical features are: (5) the presentation phrase ends on a half cadence and (6) the bass continues to ascend in stepwise motion (at least) to the dominant (12345…). In table 3 (Appendix 1) the column aa1 refers to the structure displayed in Figure 12, which was not, however, a frequent feature in the category.

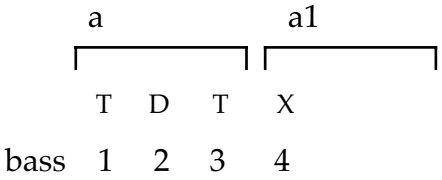
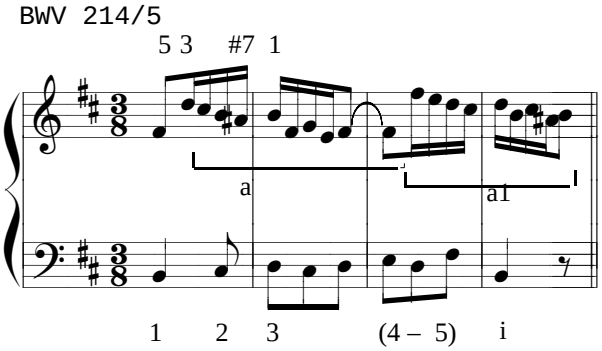


FIGURE 12 The most frequent grouping context for the TDT/123 schema. The first group indicates the basic idea (b.i.).

The three structural prototypical features are found in five examples; 63/3 (C; a), 84/1 (3/4; e), 172/4 (3/4, b), 182/5 (C; e), and 214/5 (3/8; b). Only two examples, 63/3 and 214/5 possess all additional and contextual prototypical features. Bach seems to have preferred simple triple meter in this category (found in seven instances), a feature, which further contributes to the typicality of 214/5 (Example 24).

[11] 6/5; 8/2; 63/3; 64/5; 84/1; 99/3; 110/4; 172/4; 182/5; 199/2; 201/5; 214/5; 248/51.

EXAMPLE 24 A prototypical instance of the TDT/123 opening schema.



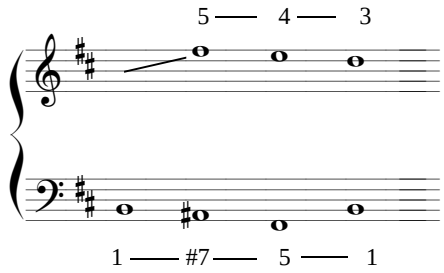
The considerable number of instances with varied upper voice pattern suggests that some other structural features may be more decisive for the family resemblance relationships between the category members. The *exclamatio* figures are characteristic to of this script category (see Example 20).

The TDT progression is carried out already within the basic idea, and the varied repetition of the *basic idea* can receive various harmonizations, which, however, are likely to begin with a subdominant harmony, as the bass continues its stepwise ascent (12345) (as demonstrated in the Example 24). The second motive may end on a dominant, tonic or subdominant harmony. This climax-driven opening needs to be rounded up by a cadence with a descending melody. The symmetrical pair of motives fulfills the criteria set for a typical sentence form opening by Caplin and Schoenberg. However, this opening is expressively far from the orderly world of the *Adeste Fidelis* examples. Bach seems to have preferred this schema during his first cantata period. At least four of the examples (63/3; 172/4; 182/5, and 199/2) were composed already in the 1710's.

TDT/1-#7-(5)-1

The TDT/1-#7-(5)-1 schema category includes nine examples[12]. The two-part schema was described (Figure 10, B/4) as having the following structural features:

EXAMPLE 25 The schema TDT/1-#7-(5)-1.



[12] 30/10 (9/8)(e); 37/5 (C)(b); 85/2(var)(C)(g); 94/4 (C)(e); 100/5; 135/5 (C|)(a); 136/3(C)(f#); 201/9 (12/8)(f#) and 205/7(C)(f#).

The upper voice displays a descending pattern 5-4-3 accompanied by a parallelly descending pattern 3-2-1, which in a two-part texture is found in the lower layer of the upper voice:

(5)	5	4	3
3	2		1
1	#7	5	1

The structural prototypical features of the TDT/1-#7-5-1 category are (see Table 4, Appendix 3): (1) **TDT** harmonic progression (2) bass 1-#7-5-1, (3) upper voice x-5-4-3. The bass and soprano are not synchronized in a fully consistent way. Yet, the pitch against bass's #7 is 5 in all instances (except for 85/2), and bass's final 1 is accompanied with soprano's 3 in all instances. As additional prototypical features are that (4) functional harmonies underlying the first and second motives are T-D"T-X (the first motive ends on the dominant) (5) the opening motives a and b are of equal length (*ab*), (6) two-part texture (à2). The contextual prototypical features are (7) the symmetrical structure of the presentation phrase 1:1, and (8) a half cadence at the end of presentation phrase.

The synchronization between the harmonic schema TDT and motives a and b is shown in Figure 13. The latter tonic acts as a starting point for motive b.

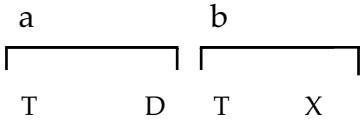
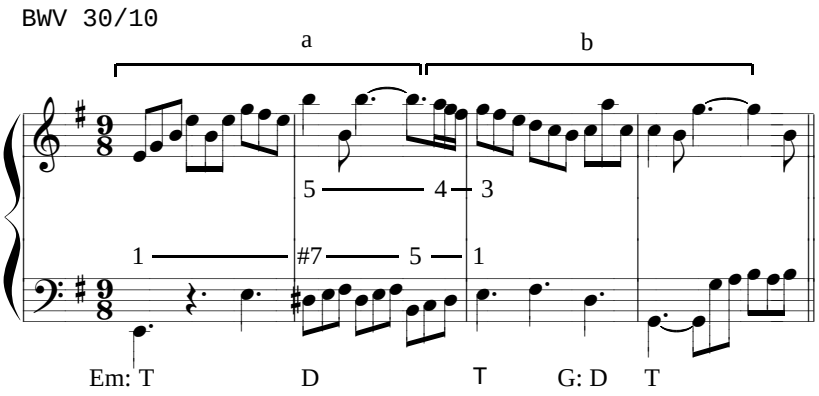


FIGURE 13 The most frequent grouping contexts for the TDT/1#7(5)1 schema.

The prototypical structural features are found only in 30/10 (e) and 205/7 (f#). The BWV 30/10 represents the category best since it possesses all but one (V) of the additional and contextual features. In Example 26, the prototypical features are illustrated with BWV 30/10.

EXAMPLE 26 A prototypical example of the TDT/1#751 category.



The melodic schema 5-4-3 is basically descending, but, as in Example 26, the ascending arpeggiated tonic chord may change the contour into an arch.

The changing note schema 1-#7 ...4-3 (CN)

Like the TDT/543 schema, the changing note schema (CN) leaves the first motive (a), i. e. the basic idea on the dominant. However, the symmetrical continuation of the changing note schema brings back to the tonic, whereas the TDT/543 schema avoids returning to the tonic. The synchronization of the schema TDT and motivic structure is displayed in Figure 14.

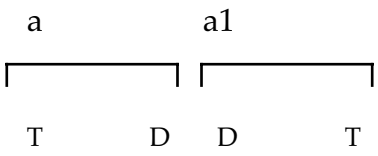
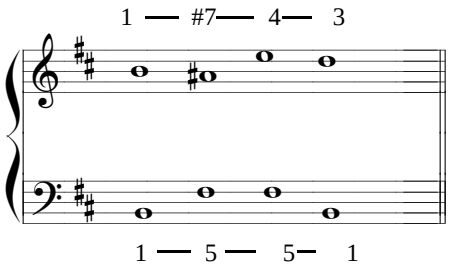


FIGURE 14 The most frequent grouping contexts for the changing-note schema 1-#7... 4-3.

The changing note schema 1-#7...4-3 is found in six examples[13] (Table 5, Appendix 3). In Figure 10 (B/5) the structure of the schema was described as follows:

EXAMPLE 27 The structure of the changing-note schema 1-#7...4-3.



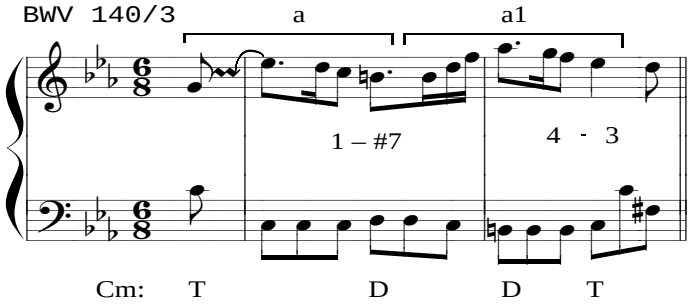
According to Gjerdingen (1988), the changing note schema was not yet common in the beginning of the 18th century. This finding can be confirmed in this study, as well. The number of members in the CN category is relatively small. Gjerdingen also found that in the 1-7...4-3 schema there may be several alternative patterns for the bass. The prototypical features of the 1-#7...4-3 category are (1) underlying harmonies T-D"D-T, (2) upper voice 1-#7... 4-3, and (3) bass pattern 1-5-5-1. Additional prototypical features are (4) motivic structure aa1 and (5) texture consists of more than two parts (à>2). The contextual prototypical features are (6) the presentation phrase consists of two groups of equal length and (7) the presentation phrase ends on the tonic.

Two instances, 92/3 and 140/3, possess features (1), (2), and (4), which were found to be fundamental for the changing-note category (see Chapter 4.2.3.3). According to Gjerdingen, the most common bass pattern is 1-2...7-1, which in the present study was found in the changing-note schema of BWV

[13] 81/1 (C)(e); 89/1 (C, c); 92/3(C)(b); 93/6(C)(g); 108/5(6/8, b); 140/3(6/8)(c).

140/3 (Example 28).

EXAMPLE 28 A prototypical example of the changing-note schema 1-#7...4-3.



There is a striking resemblance between this category and the 1-2-3 category. The *exclamatio* figures 3-5 and #7-6 associate with the expressive content of 1-2-3 category. However, it is the symmetry and closure of the harmonic-motivic structure of the changing-note schema that distinguishes between the two TDT-schema subcategories, both of which, however, have their own prototypes and prototypical examples.

5.3.1.2 Functional progressions TST and TSDT

There were two types of openings containing a subdominant chord: (1) a three-chord plagal TST progression acting as a relatively low level event, and (2) various kinds of TSDT-progressions. There are only 26 examples [14] in these two categories. Consequently, the size of the categories is limited to contain only a few examples per category. Defining prototypical features and prototypical examples is, however, possible if the category members share several features with one another.

There are similarities between some members of the TDT category and the members of the TST and TSDT categories[15]. However, the relatively weak subdominant gives reason to discuss these examples as belonging to the TDT category. In contrast with TDT schema, the scripts in both TST and TSDT categories are metrically vague. Consequently, the metrical position of schema pitches is not considered to be a defining feature of these schema categories. The subdominant function chord, with the subdominant tone in the bass, is found at the beginning of a metrical unit in 12 examples[16]. As for meters C, 6/8 and 12/16, the subdominant is found on the second strongest metric beat of the

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14 9/3(12/16); 11/4(C); 28/1(3/4)(var); 43/5(C); 43/9(var)46/5(C); 48/6 (3/4, g); 52/3(C); 55/3(C); 70/5(C); 78/4(6/8); 82/1 (3/8, c); 90/1 (3/8, d); 98/3(3/8); 107/5 (12/8, b); 117/3(6/8, e); 117/6(C); 128/4(6/8); 146/5(C); 166/2(C); 181/1(C); 183/2(C); 84/4(3/4)(fuzzy, possibly TDT); 202/5(C); 211/4 (3/8, b); 248/31(2/4); 248/62 (2/4, b).

15 Two examples (144/5 and 205/5) classified in the TDT-category, have a lower-level subdominant in an authentic cadence (144/5) or in a plagal cadence (205/5). It is remarkable that both are in duple meter, have a walking bass, and a symmetrical presentation phrase, which all are characteristics of TST category. Their motivic structure is, however typical of the *Adeste Fidelis* script.

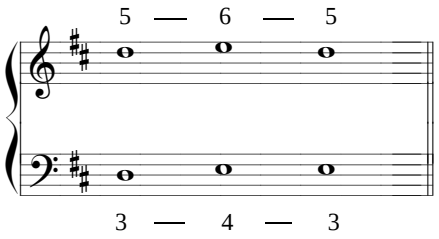
16 48/6 (3/4); 52/3(C); 90/1 (3/8); 117/6(C); 146/5(C); 166/2(C); 183/2(C); 202/5(C); 248/31(2/4); 9/3(12/16); 98/3(3/8); 128/4(6/8).

measure (except in 117/6), whereas in meters 3/8 and 2/4 it is found at the beginning of the measure.

TST/3-4-3

There were only 5 examples[17] in the TST/3-4-3 category. The two-part structure of the schema was describd in Figure 10 (B/6) as follows:

EXAMPLE 29 The structure of the TST/343 schema.

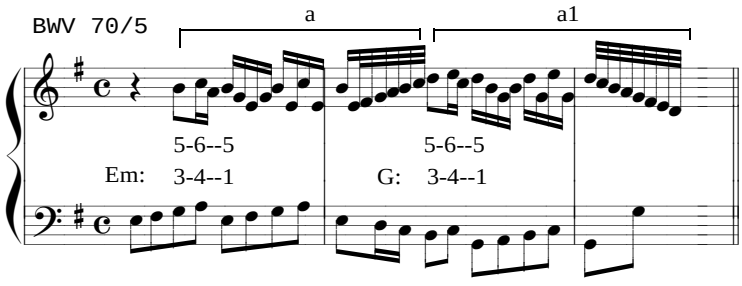


The TST-progression is a relatively low-level event, which may comprise only the beginning of the first motive, which also means that the harmonic rhythm is relatively fast.

The structural prototypical features (see Table 6, Appendix 3) for the TST openings are: (1) functional progression TST, (2) bass pattern (1)-3-4-3, (3) soprano pattern 5-6-5. Additional prototypical features are (4) transposed repetition of the opening motive *a* constituting a symmetrical *aa*^{1} beginning, (5) walking bass, and (6) two-part texture (à2). The contextual prototypical features are (7) the presentation phrase is constructed of two units of equal length (1:1), and (8) the presentation phrase ends with a half cadence (V).

None of the examples possess all of the structural prototypical features. BWV 70/5 (C, e) presents well the prototypical features of this category. It possesses two of the structural prototypical features and all other prototypical features except for the half cadence at the end of the presentation phrase. The prototypical features are demonstrated in Example 30.

EXAMPLE 30 A prototypical example of the TST/3-4-3 schema, not representing all of the prototypical features.

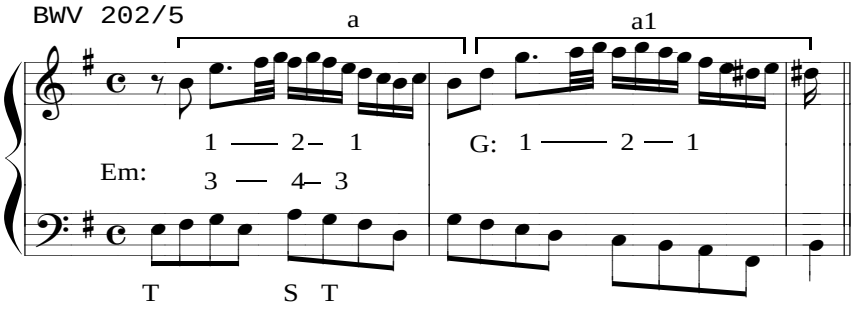


17 70/5(C, e); 181/1(C, e); 183/2(C, e); 202/5(C, e); 248/31(2/4, b).

The presentation phrase consists of motive *a* and its transposition by third to the context of the relative major.

The general aural image of BWV 202/5 (C, e)(Example 31) is quite similar to that of the previous example, although in the soprano there is, instead of the prototypical pattern 5-6-5, a pattern 1-2-1, which suggests a harmonic progression i6-ii°6-i6, instead of the more prototypical i6-iv-i6.

EXAMPLE 31 BWV 202/5 as a representative of the TST/3-4-3 schema, not representing all of the prototypical features.



The stepwise moving walking bass in eighth notes is present in both examples. The bass supports soprano's 5-6-5 pattern in parallel motion. In the core of TST/3-4-3 schema category there are four examples, which all share the same key, E minor, and the same meter signature C. Although the TST/3-4-3 schema category is small, it has a distinctive core of prototypical examples. Fischer (1915, 37, Fig. 33 c) considered TST to be one of the recurrent openings of the *Fortspinnungstypus*. Among the melodic motives connected with the TST progression he listed both the 5-6-5 and 3-4-3 patterns. In this material, the latter pattern was not found in the upper voice.

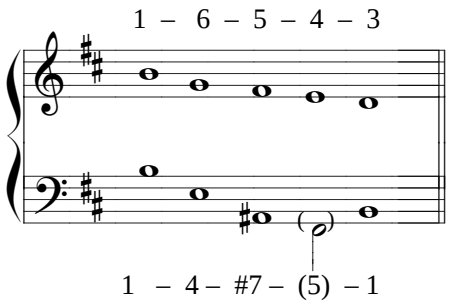
TSDT/1-4-#7-(5)-1

The second script with functional progression TSDT and bass pattern1-4-#7-5-1 was found in five examples[18]. BWV 183/2 was discussed already in connection with the 5-6-5 schema, which is embedded in the in the TSDT/1-4-#7-5-1 schema.

The two-part script for the TSDT/1-4-#7-(5)-1 schema category is as follows (Figure 10, B/7):

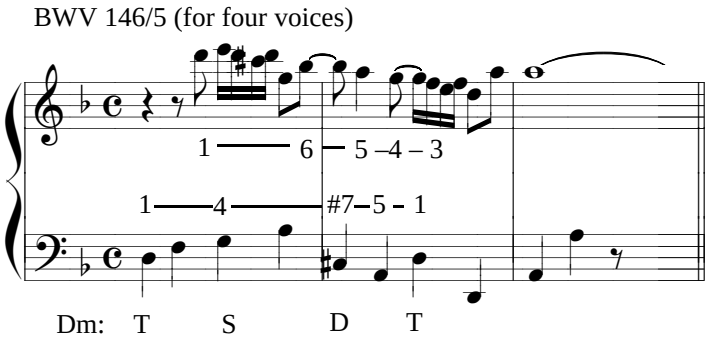
[18] 52/3(C, d); 121/2(3/4, b); 146/5(C, d); 166/2(C, g); 183/2(C, e).

EXAMPLE 32 The structure of TSDT/1-4-#7-(5)-1 schema.



The prototypical structural features of schema TSDT/1-4-#7-(5)-1 are (see Table 7, Appendix 3) (1) functional progression TSDT, (2) bass pattern 1-4-#7(5)-1, (3) soprano pattern 1-6-54-3[19]. An additional feature giving support to the existence of this category is (4) meter C, which is found in four examples. The similarities between the members of this category are not obvious on the surface. The general descending motion, the strong *catabasis* tendency, underlies the examples, but in each of them the motivic structure is different. The closest similarities can be found between examples 146/5 (C, d) and 52/3 (C, d), which are not only in the same meter but also in the same key. This key, D minor, is relatively rare in this material. Both of the examples end the presentation phrase with a half cadence. Example 33 shows the prototypical features of 146/5.

EXAMPLE 33 A prototypical example of the TSDT/1-4-#7(5)-1 schema.



Instead of a clear motivic structure, the example presents one continuous melody, which allows several alternative grouping interpretations.

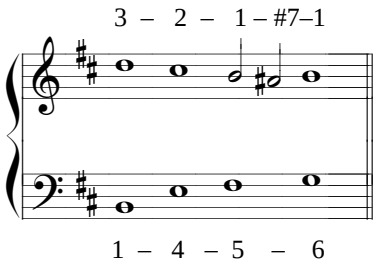
A TSDT beginning is tonally sufficiently complete to form the progression for the entire presentation phrase. This is the case with examples 166/2 and 183/2.

[19] Omitting the hyphen between scale-step numbers indicates that the pitches are accompanied by a single bass pitch.

TSDTp/1-4-5-6

The third category of the "subdominant" beginnings consists of six examples[20]. The two-part structure of the schema was described (see Figure 10, B/8) as follows:

EXAMPLE 34 The structure of the schema TSDTp/1-4-5-6.

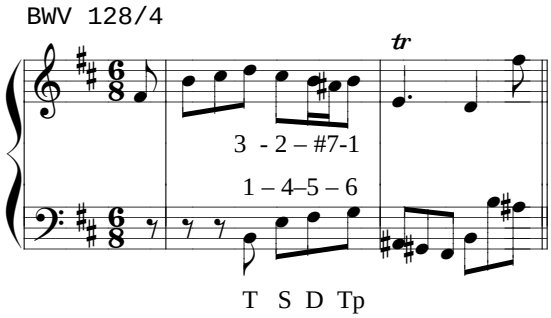


The schema is based on a deceptive cadential progression on bass pattern 1-4-5-6. In four examples (55/3; 98/3; 117/6; 128/4) the upper-voice counterpoint is 3-2-1-#7-1, which is synchronized to the bass 1-4-5-6 in a slightly different way in each example. However, in all bass patterns the subdominant is metrically stronger than the dominant.

The prototypical structural features of this category are (Table 8, Appendix 3): (1) functional progression TSDTp[21], (2) bass pattern 1-4-5-6, (3) soprano pattern 3-2-1#7-1. The additional prototypical features are (4) two-part texture and (5) the TSDT progression covering the first motive (TSDT"). The contextual prototypical features are (6) the presentation phrase ends on V, (7) the schema for metrical proportions of the presentation phrase is 1:1:2.

Only BWV 128/4 possesses all of the three structural prototypical features. Moreover, there are three instances (55/3, 98/3, and 117/6), each of which has a slight variation in one of the prototypical features, yet possessing all of the additional and contextual features. The following example demonstrates prototypical features in 128/4 and 117/6, the latter of which elaborates the bass pattern:

EXAMPLE 35 Two prototypical examples of the TSDTp/1-4-5-6 schema.

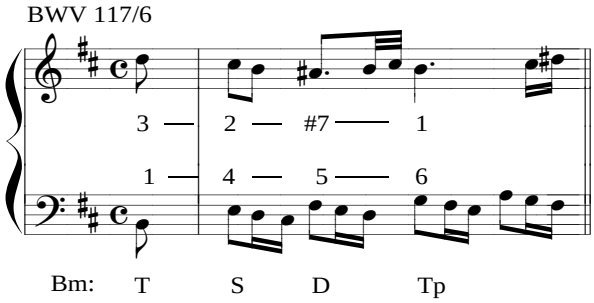


(continues)

20 9/3 (12/16, e); 43/5(C, e); 55/3(C, d); 98/3(3/8, c); 117/6(C, b); 128/4(6/8, b) .

21 The symbol Tp (= tonic parallel) refers here to VI or iv6. In contrast to more conventional labeling systems as presented for instance in de la Motte 1980, letter symbol p does not indicate necessarily a minor chord.

EXAMPLE 35 (continues)

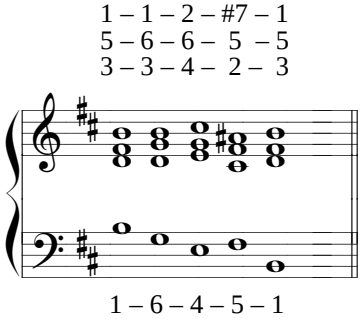


The deceptive resolution of the dominant harmony leaves the prolongation of the tonic function harmony incomplete. In all of the aria introductions, at least one resolution of the dominant harmony to the first-degree chord is heard later during the presentation phrase. This resolution is, however, also incomplete.

TSDT/1-6-4-5-1

In 9 examples[22] (Table 9, Appendix 3) the opening schema is based on bass pattern 1-6-4-5-1. A four-part voice-leading model for this schema described in Figure 10 (B/9) was as follows:

EXAMPLE 36 The structure of the schema TSDT/1-6-4-5-1.



In this chord progression there are two changing-note alternatives for the soprano part: 3-4-2-3 or 1-2-#7-1. Both of them have a S-contour, and are therefore considered to be interchangeable in the two-part script. The changing-note pattern can also be found as a low-level melodic motive above the first tonic harmony (marked with column heading 'mot. CN' in Table 9, Appendix 3).

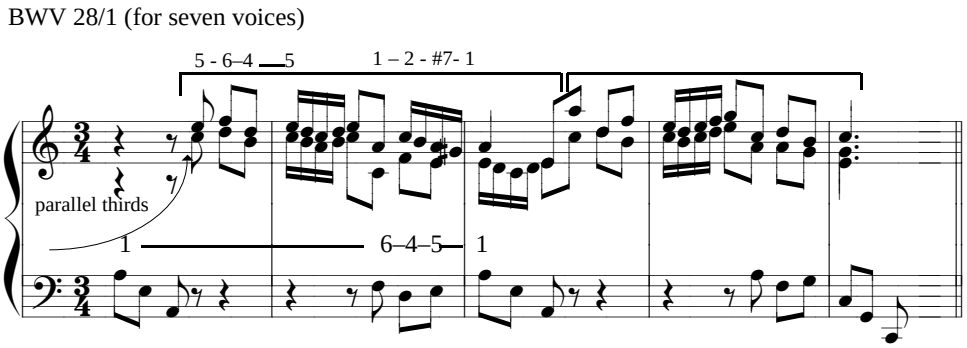
The prototypical structural features of this category are (see Table 9, Appendix 3) (1) functional progression TSDT, (2) bass pattern 1-6-4-5-1. Additional prototypical features are (3) the alto moves in parallel thirds or sixths with the soprano (parall.), (4) the texture has more than two voices (à>2), (5) in soprano a changing-note motive embellishes the first tonic harmony (mot. CN), and (6) motivic structure aa1 at the beginning. The contextual prototypical features are (7) symmetric structure of the presentation phrase

[22] 28/1(3/4)(a); 43/9(3/4)(a); 48/6(3/4)(g); 82/1 (3/8)(c); 90/1(3/8)(d); 107/5(12/8)(b); 117/3 (6/8, e); 211/4(3/8)(b); 248/62(2/4)(b).

(1:1), (8) modulation to the relative major in the presentation phrase (III).

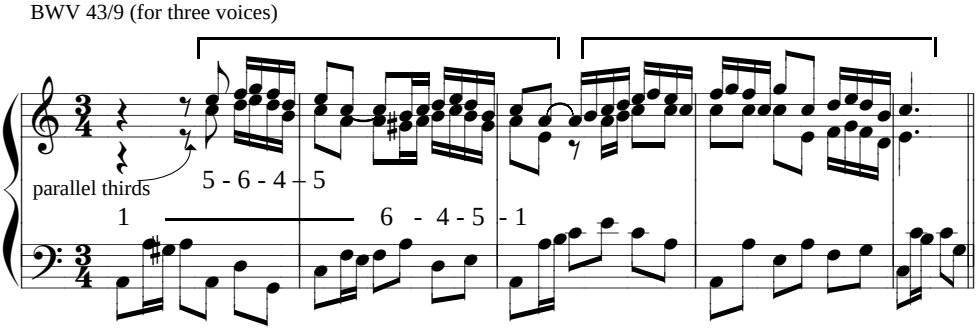
The prototypical features (structural, additional, and contextual) are distributed across the members of this category in such a way that none of the examples possesses all of them. The category has, however, a core of prototypical examples (28/1, 43/9, 107/5), the similarities of which are not in this case based on the consistent use of specific upper-voice counterpoint. Instead, specific textural and motivic features become central for category identification. The multi-voiced texture with two parts moving in parallel thirds or sixths create a soft setting for the aria introduction. Another characteristic is the changing-note motive found on two structural levels as a means to embellish the first tonic chord with a 5-6-4-5 pattern. In spite of the added chords at their beginnings, BWV 28/1 (3/4, a) and 43/9 (3/4, a) capture the central characteristics of the schema and can be chosen as representatives of the schema category. In the following example the prototypical features are displayed by BWV 28/1.

EXAMPLE 37 A prototypical example of the TSDT/1-6-4-5-1 category.



The first tonic prolongation is carried out with chord progression i-iv-VII-III-i, which, however, is not structurally significant, since it is not reflected in the bass pattern. The changing note pattern is found both as 5-6-4-5 and 1-2-#7-1. The schema is balanced with an equally long group in the relative major. BWV 43/9 (3/4, a) is a "sibling" example of 28/1 (Example 38) since it shares with it not only the prototypical features but also the key and meter.

EXAMPLE 38 A prototypical example of the TSDT/1-6-4-5-1 category.



BWV 43/9 differs from 28/1 mainly with respect to the grouping structure of the presentation phrase. The opening harmonic progression in both of them is a circle-of-fifth progression i-iv-VII-III, which is an unexceptional mode of opening, but which Bach seems to use especially in the key of A minor (see the opening schema 1-7-6-5).

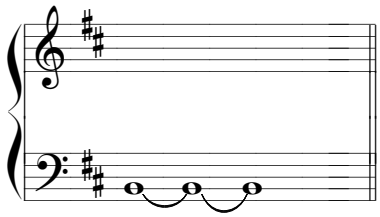
Simple triple meters are preferred in this category: in six out of nine instances, the meter signature is either 3/8 or 3/4, moreover, meters 6/8 and 12/8 are treated as if they consisted of two or four 3/8 measures, respectively. Meter signature C, which is the most frequent single meter signature in this material, is missing altogether from this category.

5.3.1.3 Other opening scripts

The tonic pedal

Seven introductions[23] begin with a tonic pedal point, which endures at least two metrical units and which continues in some cases to the end of the presentation phrase. The description of the schema category concern only its bass and harmonic characteristics, as was shown already in Figure 10 (B/10):

EXAMPLE 39 The pedal point schema.



1 – 1 – 1

The tonic pedal category resembles the schema category TSDT/16451 with the distinction that in the latter category tonic pedal accompanies the first metrical unit, at the most. A tonic pedal represents, naturally, the tonic function. The harmonies within the tonic pedal are subordinate to the tonic function and emerge as a result of voice-leading activity of the upper voices.

The only structural prototypical feature in this category is the tonic pedal. The other prototypical features are additional and concern the texture. The small number of structural prototypical features is not surprising since the pedal point is mainly a textural device. Additional prototypical features are (see Table 10, Appendix 3): (1) middle voices move in parallel (thirds and/or sixths) with the upper-voice, (2) the texture contains more than two voices (the second criteria follows from the first criteria). The only contextual prototypical feature is (3) the presentation phrase is structured according to metrical proportions 1:1:2.

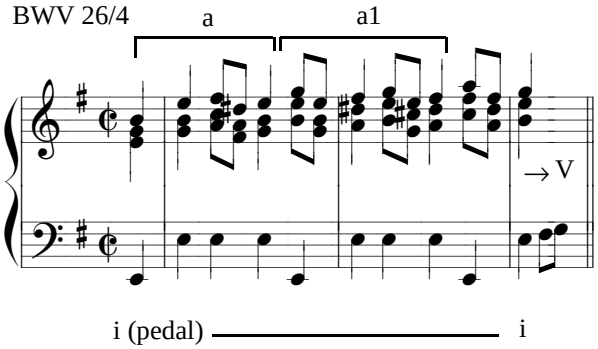
The instances of the tonic pedal category appear mainly in two keys, E minor and B minor. The most representative instances, possessing all prototypical features, are 26/4 (C|, e) and 175/2 (12/8, e). The similarity

[23] 26/4(C|, e); 114/2(3/4, d); 148/2(6/8, b); 169/5(12/8, b); 175/2(12/8, e); 204/2(3/8, g); 207/3(C|, b).

between the two instances is not, however, very striking, due to the lack of shared structural (harmonic and contrapuntal) features.

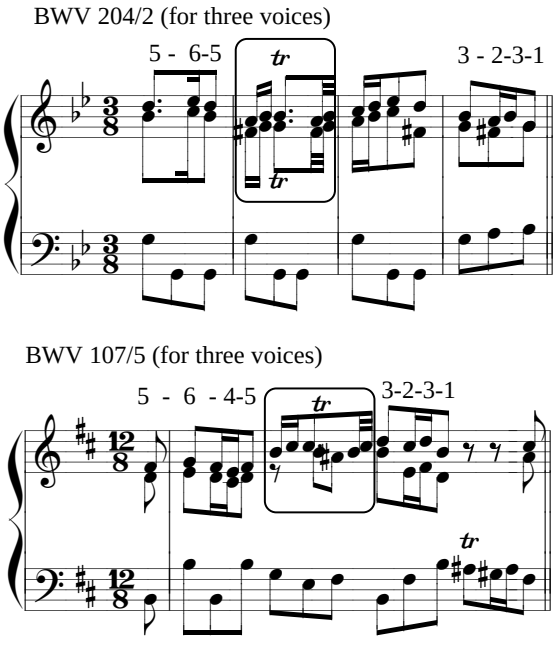
Example 40 demonstrates the parallel thirds and sixths moving above the pedal point. The grouping structure of the presentation phrase follows proportional schema 1:1:2. This presentation phrase forms a *Fortspinnungstypus* in itself.

EXAMPLE 40 An example of the tonic pedal category.



This category is connected to category TSDT/16451 by family resemblance relationships (Example 41). BWV 204/2, which is based on tonic pedal resembles example 107/5, which belongs to the TSDT/1-6-4-5-1 schema category. Both of them have, above the tonic pedal, a 5-6-5 motive, doubled in parallel thirds. Moreover, they share an identical rhythmic motive with identical melodic contour, and identical closing motives (3-2-3-1).

EXAMPLE 41 Shared features in members of the tonic pedal category (BWV 204/2) and the TSDT/1-6-4-5-1 category (107/5).



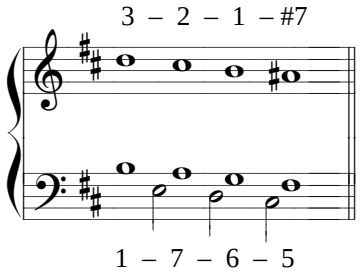
The similarities between the two categories suggest that they could be included to a common higher-level schema category.

The 1-7-6-5schema: descending Phrygian tetrachord

One specific mode of opening is the circle of fifths progression based on a descending bass 1-7-6-5, called here the *descending Phrygian tetrachord.* (Table 11, Appendix 3). In this category there are 8 instances[24]. Unlike other opening schemata, this schema does not constitute a functional cycle, which would return back to the tonic. Those examples beginning with a sequence do in fact lack a proper opening function, since the stable initial situation remains short (the first tonic chord). This schema ends with a half cadence, representing thus the digression function. The beginning and digression functions are fused together.

Since this schema is taken to be a progression of chord degrees, not of functions, it is not analyzed here on the level of harmonic functions. The two-part realization of this schema is based on stepwise parallel tenths between the outer voice, resembling the *Prinner* schema of Gjerdingen (see Figure 10, B/11):

EXAMPLE 42 The structure of the schema of descending Phrygian tetrachord.

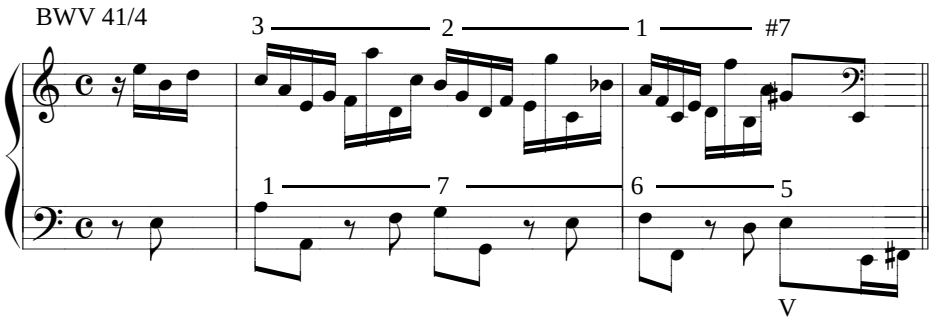


The prototypical structural features are (see Table 11, Appendix 3): (1) circle-of-fifths root movement, (2) bass pattern 1-7-6-5, (3) soprano pattern 3-2-1-#7, (4) sequential structure. The only additional feature is (5) the texture has more than two voices (à>2). The only contextual feature is (6) the descending Phrygian tetrachord schema ends the presentation with a half cadence.

In the members of this category there is considerable amount of variation, especially in the soprano pattern. Although the dominant chord is the harmonic goal in each instance, the stepwise descent in the upper voice may begin either from 3 or 5. The only instance, fully representing all of the structural prototypical features is BWV 41/4:

[24] 41/4 (C, a); 77/3 (C, a); 101/4 (C|, a); 112/2 (6/8, e); 153/6 (C, a); 168/1 (C, b); 186/8 (C,g), 198/8 (3/4, e)

EXAMPLE 43 A prototypical example of the sequential category.



BWV 41/4 does not, however, possess the contextual prototypical feature of ending the presentation phrase on the dominant. It also has, unlike the most of examples in this category, only two voices.

The descending Phrygian tetrachord script tends to appear in A minor (4 out of 8 examples) and in duple meter C or C| (6 out of 8 examples).

5.3.1.4 Atypical openings

There are 14 introductions[25], which open up with such harmonic-functional progressions or bass patterns, which could not be categorized. Among these were openings, which had unique structural solutions, or a chromatic and/or unclear harmonic structure. Among uncategorized openings, the number of instances with triple meter is relatively high; 11 introductions out of 14 are in meters 3/8, 3/4, 6/8, or 12/8. Another striking feature was the relatively high number of flat keys, of which there were 9 examples (out of 14). Moreover, significant is the low rate of the "prototypical" keys E minor and B minor (2 altogether), and the prototypical meter signature C (3 examples) in the atypical openings. This finding suggests that the choice of key and meter depends to some degree on the structural features of the opening schemata.

5.3.2 Digression

The discussion of the prototypicality of cadential scripts performing tonal digression concerns only the most frequent digressions, which are directed to the dominant of the tonic key and to the tonic of relative major.

5.3.2.1 Half cadence

TSD/3-4-5

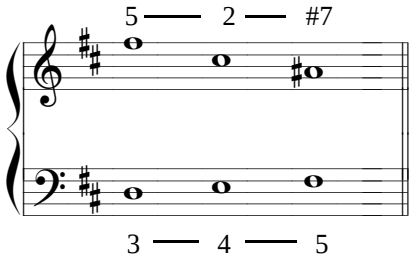
The schema category TSD/3-4-5 has 10 members[26]. The normative structure of the script is as follows (see Figure 10, C/1):

---

[25] 13/5(C)(g); 21/3(12/8)(c); 21/5(C)(f); 35/2(6/8)(a:>e:); 40/4(3/8)(d); 44/3(3/4)(c); 45/3(3/8)(c#); 55/1(6/8)(g); 57/3(3/4)(c); 57/7(3/8)(g); 91/5(C)(e)]; 167/3(3/4)(a); 201/13(3/4)(e); 204/6(12/8)(d).

[26] 22/2(9/8, c); 26/4(C|, e); 49/2(3/8, c#);55/3(C, d); 58/3(C, d); 78/4(6/8, g); 157/1(C, b); 157/2(3/8, f#), 201/5(3/8, b); 201/9(12/8, f#).

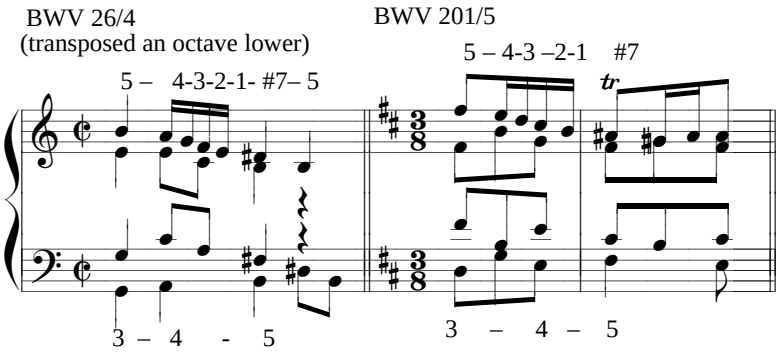
EXAMPLE 44 The structure of the schema TSD/3-4-5.



The prototypical structural features of the schema are (see Table 12, Appendix 3) (1) functional progression |TS| D, (2) bass pattern 3-4-5 and (3) soprano pattern 5-2-#7, which can be carried out either by a scalar pattern 54321#7 or by pattern 51-2#-7. The only additional prototypical features is (4) the continuation of the cadence melody from #7 to 5 (#7->5). The only contextual prototypical feature is (5) two-part texture (à2).

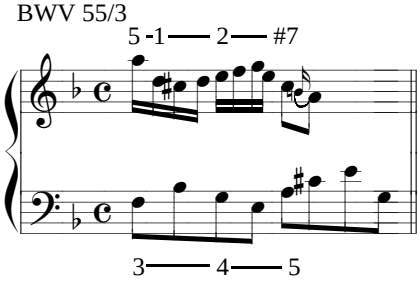
The prototypical examples of the melodic script 5-4-3-2-1-#7 are 26/4 (C|, e), 201/5 (3/8, b) and 201/9 (12/8, f#). Example 45 exhibits two prototypical instances of the schema.

EXAMPLE 45 Two prototypical examples of the TSD/3-4-5 schema with counterpoint 5-4-3-2-1-#7.



The other melodic alternative for the cadence schema, the pattern 5-1-2-#7, is best represented by 55/3 (Example 46).

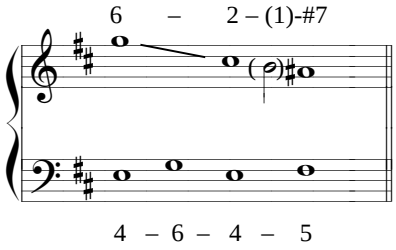
EXAMPLE 46 Two prototypical examples of the TSD/3-4-5 schema with counterpoint 5-1-2-#7.



TSD/4-6-4-5

The TSD/4-6-4-5 category contains six members[27]. In Figure 10, C/2 it was described as follows:

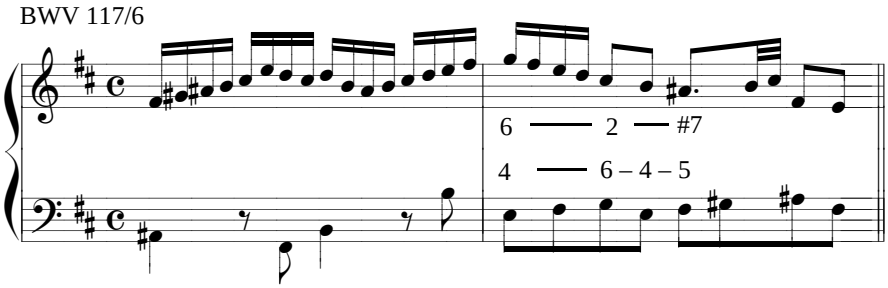
EXAMPLE 47 The structure of the TSD/4645 schema.



The prototypical structural features are (1) |SS|D, (2) bass 4-6-4-5, (3) soprano 6-x-2-#7 (see Table 13, Appendix 3). Additional features are: (4) surface motive 4321#7 in the upper voice, and (5) two-part texture.

The number of B-minor examples is quite prominent: 5 out of 7 examples are in B minor. A good representative of the category is 117/6 (C, b)(Example 48). The synchronization of the schema tones differs, however, from the normative schema.

EXAMPLE 48 A representative of the TSDT/4-6-4-5 schema.



TSD/1-6-5

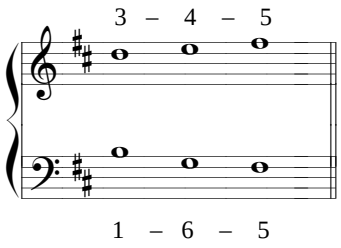
The TSD/1-6-5 half cadence category contains 11 members[28]. The basic two-part structure of the schema (see Figure 10, C/4) is presented in Example 49.

---

27 45/5(C, f#); 63/3(C, a); 108/5b(6/8, b); 117/6(C, b); 136/5(12/8, b); 184/4(3/4, b); 215/7(2/4, b).

28 32/1(C, e); 35/2(6/8, a); 40/4(3/8, d); 47/2(3/8, d); 60/3(3/4, b); 84/1(3/4, e); 103/3(6/8,f#); 126/2(C, e); 136/3(C, f#); 139/4(C, f#); 205/7(C, f#).

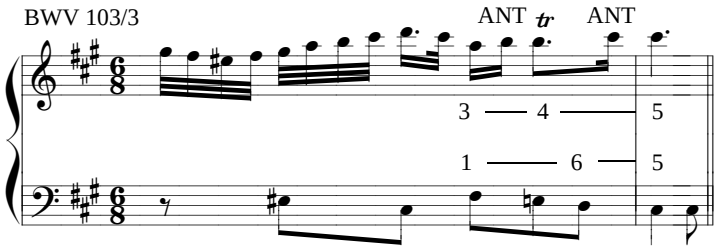
EXAMPLE 49 The structure of the schema TSD/1-6-5.



The structural prototypical features of the schema are (see Table 14, Appendix 3) (1) |TS|D, (2) bass 1-6-5, (3) soprano 3-4-5. An additional prototypical feature is (4) two-part texture (à>2), and the only contextual feature is (5) the script is followed by the circle-of-fifths sequence.

The three structural prototypical features are found in three examples 103/3, 136/3, and 139/4. The clustering of all prototypical features is illustrated with BWV 103/3 in Example 50.

EXAMPLE 50 A prototypical example of the TSD/1-6-5- schema.



In addition to the prototypical features, BWV 103/3 also contain a feature shared only by the most prototypical instances 103/3, 139/4, and partly by 136/3: the dotted rhythm with melodic anticipations 4 and 5 in the upper voice:

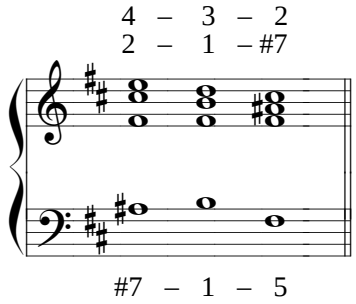
	ANT		ANT	
3	4	4	5	5
1		6		5

All of the prototypical examples share the same key, F# minor. Altogether, there are four examples in F# minor in this script category. Considering the low rate of F# minor introductions in the material (ten introductions in F# minor), the finding is significant. Moreover, in F# minor introductions, 103/3, 136/3, and 205/7, which all contain the TSTD/1-6-5 script, a deviation to the relative major has occurred before the cadence script.

DTD/#7-1-5

In the DTD schema category, exceedingly the most frequent bass pattern was #7-(5)-1-5, the counterpoint of which is the upper-voice melodic pattern 4-3-2. In Figure 10 (C/5) was shown the basic four-part voice-leading model for this schema (Example 51).

EXAMPLE 51 The structure of the schema DTD/#7-1-5.

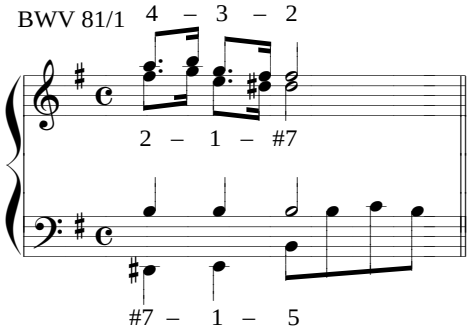


This basic voice-leading model displays the descending parallel thirds in the upper voices characteristic of this script. In two-part introductions the upper-voice pattern is 4-3-2. The metrical placement of the pitches of the bass pattern varies considerably, which is why it is not considered to be a critical feature of this schema category. Instead, the dissonant interval of diminished fifth #7-4 between the outer voices is taken to be in itself a salient feature, regardless of its metrical placement.

The category DTD/#7-1-5 contains 15 members[29]. The structural prototypical features of the DTD/#7-1-5 category, are (see Table 15, Appendix 3) (1) functional progression DTD, (2) bass pattern #7-1-5, (3) parallel movement of soprano pattern 4-3-2 and alto pattern 2-1-#7. The only additional prototypical feature is (4) more than two voices in the texture, and the only contextual feature is that (5) the script is followed by a circle-of-fifths sequence.

Bach seems to have favored E minor in connection of this schema: there are six examples in E minor. The best representative of the schema is BWV 81/1 (C, e), which possesses all prototypical structural features (Example 52).

EXAMPLE 52 A prototypical example of the DTD/#7-1-5 schema.

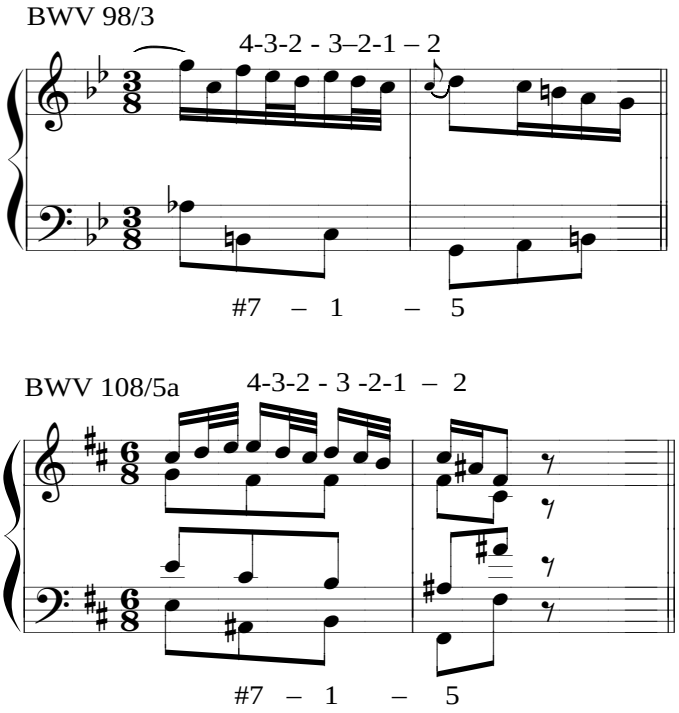


This example is prototypical also with respect to the key and the texture. The diminished fifth (d#-a) between the outer voices is resolved in this example to the minor third (e-g) with an *echappée* figure. A more typical melodic figure embellishing the resolution of the dominant harmony is, however, found in

[29] 46/5(C, g); 52/3(C, d); 81/1(C, e); 98/3(3/8, c); 101/4(C|, a); 108/5a(6/8, b); 117/3(6/8,e); 146/5(C, d); 151/3(C, e); 175/2(12/8, e); 178/6(C, e); 188/3(C, e); 207/3(C|, b); 213/9(3/8, a); 248/51(2/4, b).

those examples, which transform the parallel thirds into a single melodic line. This embellishing figure with two layers can be found in five examples 98/3 (3/8)(C); 108/5a(6/8)(b); 146/5 (C)(d); 178/6(C)(e); 213(9(3/8)(a), of which the first two are displayed in Example 53.

EXAMPLE 53 Two representatives of the DTD/#7-1-5 schema with a two-layered upper voice.



Characteristic of the upper-voice melody is dactylic rhythm, which may concern the entire cadence melody, as Example 53 shows. Most commonly, however, only the resolution of the dominant harmony is embellished with the dactylic figure (4-3-2-3).

5.3.2.2 Authentic cadence in relative major

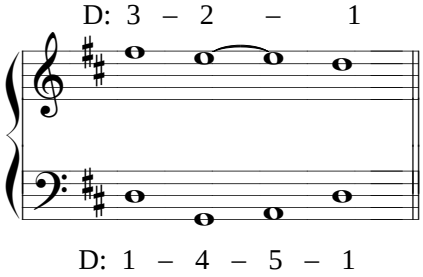
In 22 introductions[30], a change to relative major occurs at the end of the presentation phrase. In seven introductions (103/3; 117/3; 136/3; 157/2; 179/3; 205/7; 213/9) the deviation to the relative major occurs within the presentation phrase, in which case the tonic key is restored at the end of the presentation phrase. In each of the seven examples presentation phrase ends on a half cadence in tonic key.

[30] 12/4; 28/1; 30/10; 41/4; 43/9; 48/6; 57/7; 58/3; 70/5; 75/5; 92/3; 102/5; 107/5; 117/3; 119/5; 121/2; 182/5; 201/5; 201/13; 206/5; 211/4; 215/7.

TSDT/1-4-5-1 in the relative major

The TSDT/1-4-5-1 schema category contains 8 examples[31]. The digression into relative major is confirmed with an authentic cadence. The basic structural outline for the script was defined in Figure 10, C/7 as follows:

EXAMPLE 54 The structure of the schema TSDT/1-4-5-1 in relative major.



The soprano pattern may be, however, synchronized differently with the bass pattern. The mediant (3) may be accompanied by 1, 5, or 4:

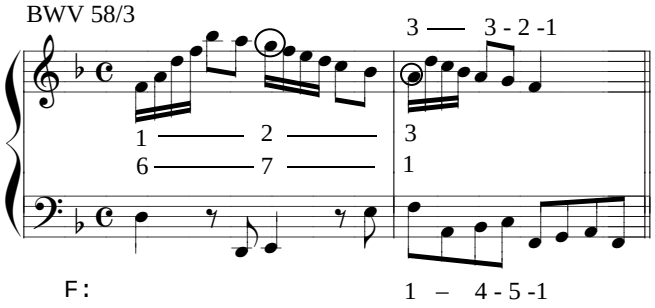
3	2	1		3	2	1		3	2	1
1	4	51		5	5	1		4	5	1

The synchronization is not considered here to be a prototypical feature.

The prototypical structural features are (see Table 16, Appendix 3): (1) functional progression TSDT, (2) bass pattern 1-4-5-1, (3) 3-2-1 pattern in the upper voice; (4) two-part texture (à2) being an additional prototypical feature. Contextual prototypical features are (5) bass pattern 6-7-1 in modulation preceding the cadence, (6) 1-2-3 pattern in upper voice, (7) presentation phrase ending with an authentic cadence in the relative major, (8) modulation preceded by a half cadence.

The most prototypical example is BWV 58/3 (Example 55), which contains all structural, additional and contextual features.

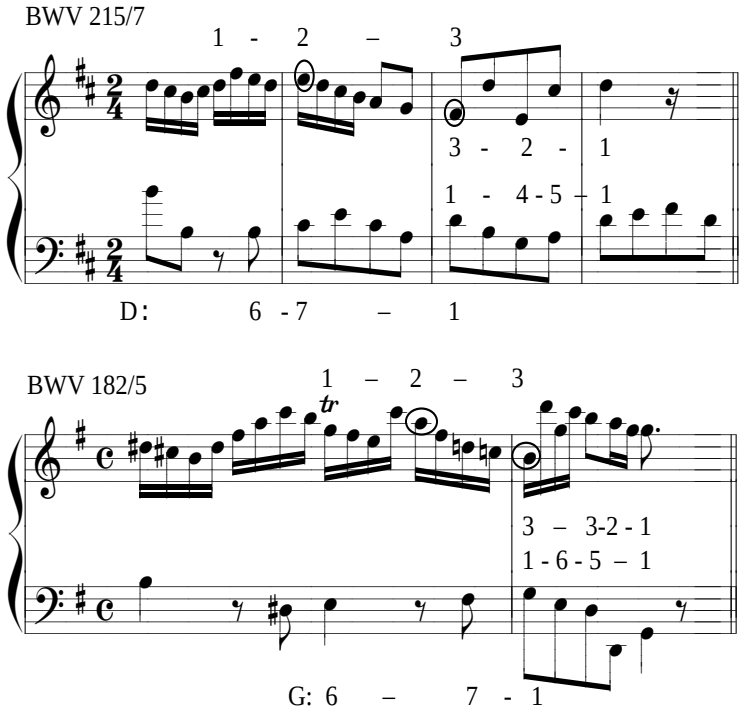
EXAMPLE 55 A prototypical example of the TSDT/1451 schema in the relative major.



[31] 12/4(C, c); 41/4(C, a); 57/7(3/8, g); 58/3(C, d); 75/5(3/8, a); 182/5(C, e); 201/5(3/8, b); 215/7(2/4, b).

In this schema category, an additional characteristic surface feature, also included in Table 16, is found in the upper voice. In three representatives of the modulation schema 6-7-1; 1-2-3 (58/3; 182/5; 215/7), scale degree 2 is one octave higher than 3. Consequently, there has to be a descent, either conjunct or disjunct, from 2 to 3. Both modes of descent are displayed in Example 56.

EXAMPLE 56 Octave transfer in two examples of the modulating TSDT/1451 schema.



These examples are instances of Gjerdingen's *High Re Drop* schema, which appears here, as Gjerdingen predicted, in the context of modulation and as a sign of a cadence. The *High Re Drop* schema strengthens the sense of mobility and goal-directedness, characteristic of the digression function.

TSDT/3-4-5-1 -schema in the relative major

In four instances[32], the modulation to the relative major occurs after an authentic cadence in the tonic key (Table 17, Appendix 3). The prototypical features of this cadence in the relative major are (1) TSD|T, (2) bass: 3-4-5-1, (3) soprano: 51-2-7-1. An additional prototypical feature is that (4) the number of voices is more than 2. A contextual prototypical feature is that (5) the preceding opening schema is TSDT/1-6-45-1 (see Examples 37 and 38). All of the schemata are in simple triple meter.

32 28/1(3/4, a); 43/9(3/4, a); 48/6(3/4, g); 211/4(3/8, b).

5.3.3 Sequence

Since the sequence and the bridge together constitute a continuous whole, references to bridges will be made in this chapter. Those sequences occurring within the presentation phrase are not included in this discussion.

5.3.3.1 Descent by second

The circle-of-fifths sequence

The circle-of-fifths sequences are found in more than half of the examples as the first sequence S1 (Table 14). In addition, there are 11 circle of fifths sequences as the second sequence (S2).

The circle-of-fifths progression has been executed in numerous ways in the introductions. Although the sequence is carried out almost exclusively with chord degrees i(I)-iv(IV)-♭VII-III, variation is created by changing metrical accentuation, using inversions, triads and seventh chords in different combinations. The progression has acted as a playground for *ars combinatoria* techniques.

TABLE 14 The frequencies of examples containing either exact or partial circle of fifths sequences.

	S1	S2	S3	S1+S2+S3
exact	49[33]	9[34]	1[35]	59
partial	16[36]	2[37]	–	18
	65	11	1	77

In the following discussion, some atypical examples, 16 altogether[38], are excluded. Among these are sequences, which instead of starting from the "normative" first-degree chord, start one or more fifths above the tonic, or which have an unclear motivic structure, or a different synchronization between motives and chord progression.

---

33 21/3a; 21/5; 26/4; 45/5; 46/5; 55/3; 63/3; 64/5; 82/5; 84/1a; 85/2; 89/1a; 100/3; 102/5; 108/2; 103/3a; 110/4; 112/2a; 126/2; 128/4; 129/3a; 132/5a; 133/4; 135/5; 136/3; 144/5; 146/5; 147/3a(var.); 147/5; 151/3; 152/2; 166/2; 178/6; 179/3(var.); 179/5; 182/5; 186/5(transp.); 186/8(subst.) 188/3a; 198/8a; 201/5; 201/9; 201/13; 204/6; 205/5; 206/5; 213/9; 248/31a; 248/51a.

34 12/4b; 21/3b; 58/3b; 78/4b; 103/3b; 129/3b; 132/5b; 148/2b; 198/3b.

35 140/3c (transposed).

36 8/2; 22/2; 32/1; 37/5; 44/3a; 60/3; 82/1; 85/1; 98/3; 107/5; 117/3; 121/2; 136/5; 148/2a; 157/1; 199/2 .

37 89/1b, 101/2b(transposed).

38 12/4a, 37/5, 44/3a, 47/2, 60/3, 82/1, 82/5, 89/1b, 102/5, 107/5, 140/3c, 144/5, 147/3a,148/2b, 157/1, 186/8.

The circle-of-fifths progression begins with first-degree chord (i or I) which may be either a triad or a seventh chord. The prototypical chord patterns underlying the melodic motives m and m^1 are the following (seventh chords not specified):

TABLE 15 Circle-of-fifths sequences with respect to transposing pattern (m), metrical accentuation (>), and frequencies.

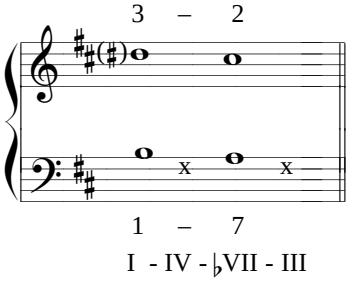
		m			m^1			frequence
		>			>			
	a1	**i (I)**	iv	(IV)	**VII**	III		29
a			>			>		
	a2	i (I)	**iv**	**(IV)**	VII	**III**		16
		>			>			
b	(i)-	**iv**	VII		**III**	VI		14
		>						
c		**i (I)**	IV	VII	**vii**	III	VI	1
d	V	i	IV		IV	VII	III	1

In subcategories a1 and a2 the chord degree patterns of the sequence are the same but relative metrical strength between i and iv varies. Within category (a), i (or I) is in most cases (29) metrically more accented than iv; however, there are as many as 16 instances, mostly in quadruple meter, in which motive m begins on the third beat of the measure and the iv comes in at the first beat of the next measure. The subdominant chord is thus more accented than the previous tonic. In category (b), i is always weaker than iv. In both groups (a) and (b), the motive m is transposed by a second down.

Sequence schema category I-IV-♭VII-III (a1)/1-7

Table 18 (Appendix 3) presents all the circle-of-fifths-sequence examples, in which the first tonic is metrically more accented than the following iv. This feature has thus acted as a sufficient condition for category membership. The general description given in Figure 10, S/1 was as follows:

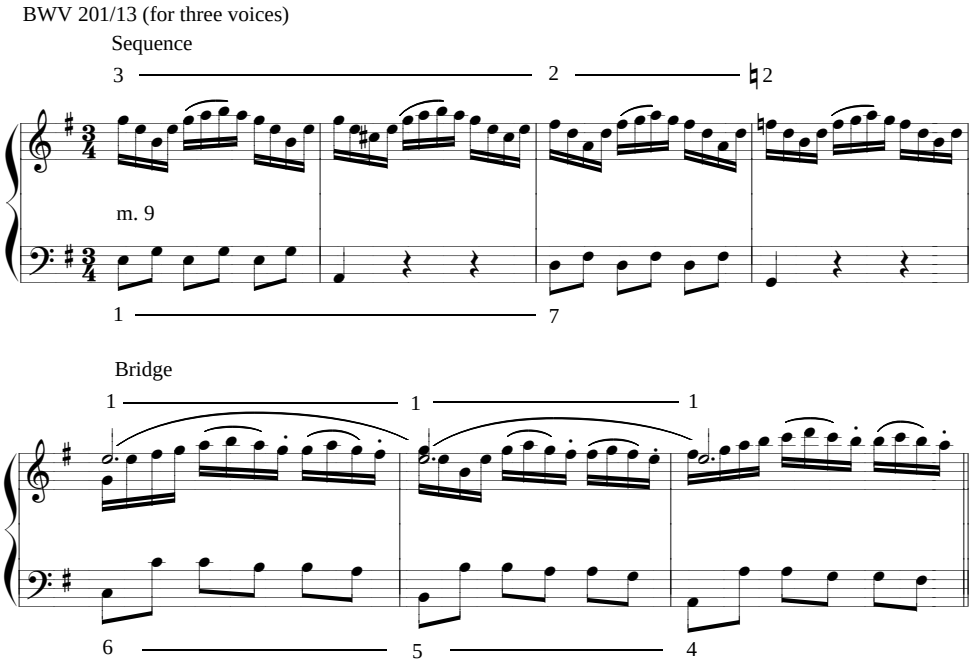
EXAMPLE 57 The sequence schema I-IV-♭VII-III/1-7.



The category includes 29 members[39]. Prototypical structural features in this category are (1) the chord progression underlying the first motive is i (or I)-iv, in which i/I is more accented (i(I)-iv), (2) bass pattern 1-7 and (3) soprano pattern 3-2. An additional prototypical feature is (4) the strict transposition of the sequential pattern. The only prototypical contextual feature is that (5) the sequence schema is preceded by a half cadence. There are thirteen examples 78/4b, 84/1, 98/3, 103/3b, 132/5a, 146/5, 147/5, 188/3, 198/3b, 201/13, 205/5, 213/9, 248/51 possessing the three structural prototypical features, and eight examples 84/1, 132/5a, 146/5, 147/5, 188/3, 205/5, 213/9, 248/51 possessing all of the five prototypical features. As many as eight of the half cadences, which precede this sequence, belong to the DTD/#7-1-5 half cadence category. This interdependence is quite significant since DTD/#7-1-5 category (containing 16 members) does not seem to correlate to any other sequence category, and conversely, there are no other half cadence categories associated with the sequence schema category I-IV-♭VII-III/1-7.

Example 58 displays all prototypical features, except the preceding half cadence. The example also shows the most frequent single bridge schema followed by (a1) sequence schema. This bridge schema has a stationary tonic pitch in the upper voice (see Table 29, Appendix 3, and Figure 10, Br/2). The bass descends stepwise from 6 to 4. The schema functions as a means of slowing gradually down the movement of the sequence.

EXAMPLE 58 A prototypical example of the I-IV-♭VII-III/1-7 schema. The bridge following the sequence is based on bass pattern 6-5-4 and a stationary tonic pitch in the highest voice.

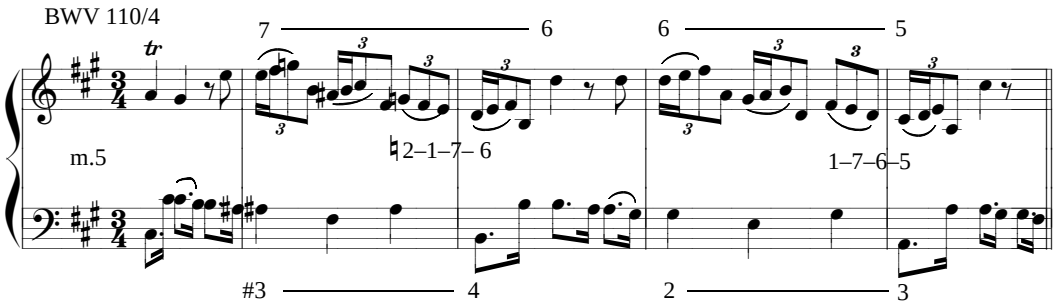


39 22/2; 26/4; 46/5; 55/3; 78/4b; 84/1; 98/3; 100/3; 103/3a; 103/3b; 110/4; 112/2; 117/3; 128/4a; 129/3b; 132/5a; 136/5; 146/5; 147/5; 148/2a; 188/3; 198/3b; 198/8; 201/5; 201/13; 205/5; 213/9; 248/31; 248/51.

The dominant is avoided until its appearance in the final cadence.

The sequence schema category (a1) contains also examples which begin with an accented i or I but which do not share other structural prototypical features. Within the (a1) category there emerges a subcategory containing examples based on chord progression V6/5/iv-iv-VII6/5-III. The progression is carried out with bass pattern #3-4 2-3 and upper-voice pattern 7-6 6-5. Characteristic of this sequence schema are surface motives ♭2-1-7-6 and 1-7-6-5 connected to upper voice patterns 7-6 and 6-5, respectively. Example 59 demonstrates the structural features of this subcategory of I-IV-VII-III (a1).

EXAMPLE 59 A prototypical example of the subcategory a1 of sequence category I-IV-♭VII-III.

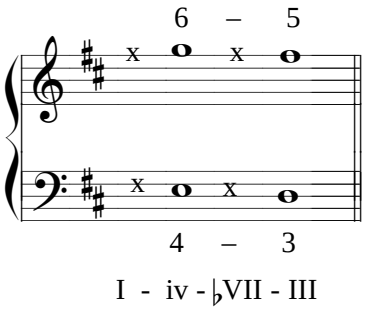


A surface motive with the lowered supertonic is a salient feature, which appears in many different locations in the texture of this script. By a strict reductional analysis based on the assumption of hierarchical structure one could not discover the recurring surface motive, the tones of which do not appear "on the same hierarchical level".

Sequence schema category I-IV-♭VII-III(a2)/4-3

The sequences in the category (a2) (see Table 19, Appendix 3) begin with the tonic chord, which is, however, metrically weaker than iv. The general outline for the schema is shown in Example 60 (see Figure 10, S/2).

EXAMPLE 60 The sequence schema I-IV-♭VII-III(a2)/4-3.



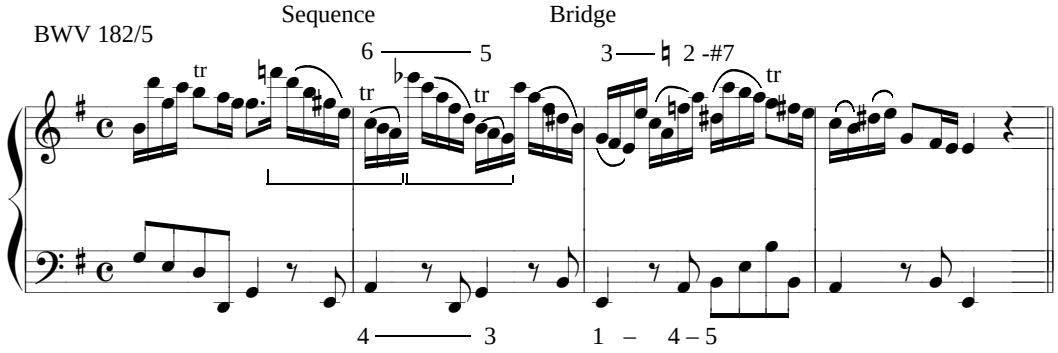
The category has 16 members[40], the prototypical structural features of which are: (1) chord progression i-iv, in which iv metrically more accented (i-**iv**), (2) bass line 4-3 and (3) soprano line 6-5. As an additional prototypical feature; (4) exact pattern transposition (Exact.). The only contextual feature is that (5) the preceding cadence is half cadence. Moreover, more than half of the examples possess harmonic rhythm of four chords per measure. Relatively rapid rate of chord change is typical for this category. The accentuation of the chord progression is tied with compound and quadruple meters, which is why simple duple and triple meters are missing in this category. Meter signature C is represented by as many as 12 examples.

The three prototypical structural features are shared by eight instances. All five prototypical features are found in BWV:s 21/3a (12/8, c) and 126/2 (C, e). Any specific preceding cadence (half cadence in 9 examples, and a tonic cadence (i, I) in 4 examples) doesn't seem to appear together with other prototypical features.

This sequence category contains a relatively vast amount of Bach's early works. BWV numbers 12, 21, 63, 182, and 199 were composed during the Weimar period in 1714, or earlier. All of the seven sequences in this sequence category have fast harmonic rhythm, typical of the early works in general.

BWV 182/5 contains all structural prototypical features, and moreover is in meter C (Example 61). The sequence is followed by the Neapolitan chord bridge schema (see Table 30 in Appendix 3 and Figure 10, Br/3). The Neapolitan sixth chord proceeds to the dominant.

EXAMPLE 61 A prototypical example of the sequence schema I-IV-♭VII-III(a2)/4-3.The bridge schema is based on bass 1-4-5, the upper-voice counterpoint of which is 3-♭2-#7.

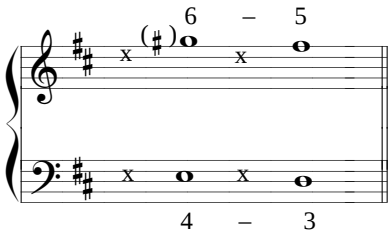


Sequence schema category I-IV-♭VII-III(b)/4-3

The sequences in category (b) begin with an accented iv. The structure of the schema is as follows (see Figure 10, S/3):

[1] 2/4a; 21/3a; 21/3b; 21/5; 32/1; 45/5; 63/3; 64/5; 89/1a; 126/2; 133/4; 166/2; 178/6; 179/3; 182/5; 199/2.

EXAMPLE 62 The sequence schema I-IV-♭VII-III(b)/4-3.



IV - ♭VII - III - VI

In all there are 15 members in the category[41] (see Table 20, Appendix 3). The structural prototypical features are (1) chord progression iv-VII, with accented iv (**iv**-VII), (2) bass line 4-3, (3) soprano line 6-5. The additional prototypical feature is (4) exact pattern transposition, and the contextual prototypical features are (5) the chord preceding the sequence is i or I and (6) the sequence is continued with ii-V-i progression.

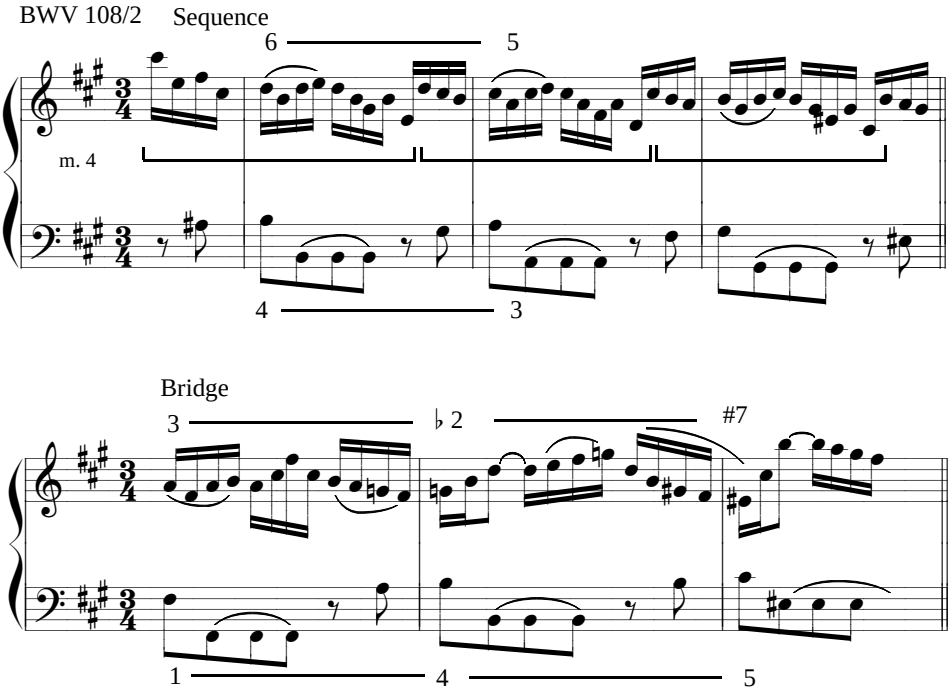
The rate for chord change is 2 or 4 chords/measure. Three examples in 3/4 meter have a triple chord-change pattern (2+1 or 1+2), which is a feature not encountered in the other circle-of-fifths sequence script categories.

The four prototypical features are found in nine examples (12/4b, 58/3b, 85/2, 108/2, 132/5b, 152/2, 201/9, 204/6, 206/5). The contextual prototypical feature – the preceding cadence ends on i or I – is found only in five prototypical examples: (85/2, 108/2, 152/2, 201/9, 204/6). The other contextual features, which are not frequent enough to be defined as contextual prototypical features are: the continuation of the circle of fifths with one more statement of the sequential pattern (ii-V-i), which is followed by a bridge based on a cadence with Neapolitan sixth chord (see Table 30 in Appendix 3 and Figure 10, Br/3). The structural soprano line for the bridge schema is 3-b2-1-#7.

The prototypical examples containing all prototypical features are 85/2 (C, g), 108/2 (f#, 3/4) and 204/6 (d, 12/8). Both the Neapolitan chord with the descending soprano line 4-3-♭2 and the preceding tonic (I or i) are found in 108/2 and 204/6, shown in Example 63. The sequence in Example 63 also fulfills the criteria Gjerdingen set for the *Prinner Riposte*.

41 8/2; 12/4b, 58/3b; 85/2; 101/2b; 108/2; 121/2; 129/3a; 135/5; 132/5b; 136/3; 152/2; 201/9; 204/6; 206/5.

EXAMPLE 63 A prototypical example of the subcategory (b) of the I-IV-♭VII-III/4-3 schema. The bridge following the sequence is based on bass 1-4-5 tied contrapuntally to upper-voice pattern 3-♭2-#7.



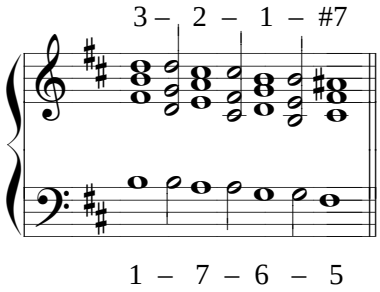
The sequence category (b) differs from sequence categories (a1) and (a2) with respect to the preceding cadence. Whereas sequence schemata (a1) and (a2) commonly follow after a harmonic digression, usually to the dominant, sequence schema b is typically preceded by an authentic cadence in tonic key. Consequently, the prototypical sequences in category (b) do not have a function of resolving the harmonic tension, but rather that of delaying the arrival of a stable tonic. The sequential progressions in sequence category (b) tend to be longer than in categories (a1) and (a2). The appearance of an extra sequential pattern, found in six examples (12/4b, 85/2, 108/2, 136/3, 204/6, 206/5), further intensifies expectancies concerning the ending of the sequence.

Sequence i-VI6-VII(7)-v6-VI(7)-iv6-V(7)

In this sequence schema category there are only six members[42] (see Table 21, Appendix 3). The four-part structure of the schema is displayed in the following example (see also Figure 10, S/4).

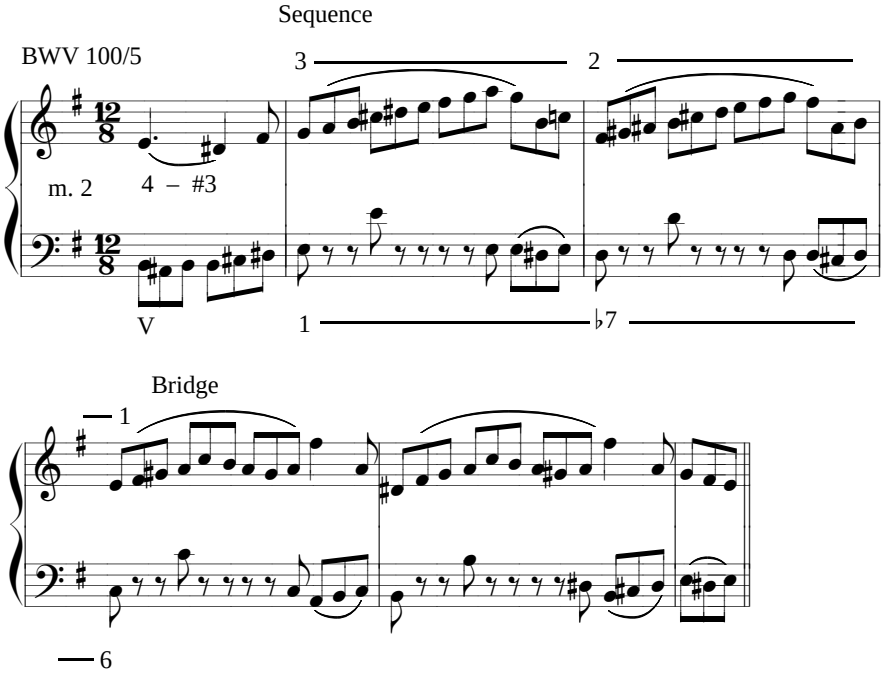
42 6/5b; 100/5; 114/2; 179/5; 198/8c; 248/51b.

EXAMPLE 64 The sequence schema i-VI6-VII(7)-v6-VI(7)-iv6-V(7).



The prototypical structural features are: (1) chord progression i-VI6-VII(7)-v6-VI(7)-iv6-V(7), (2) bass pattern 1-7-6 (on strong or weak beats), (3) soprano pattern 3-2-1 (contrapuntally attached to the bass). An additional prototypical feature is (4) the exactness of transposed repetition. The only contextual prototypical feature is: (5) the schema is succeeded by a dominant chord. The most prototypical example is BWV 100/5, the prototypical features of which are demonstrated in Example 65.

EXAMPLE 65 A prototypical example of the sequence schema i-VI6-VII(7)-v6-VI(7)-iv6-V(7)/1-7-6. The bridge following the sequence is built on a sustained dominant.



Example 65 also shows the typical continuation of this sequence to a dominant function chord, which acts as a bridge (Table 28, Appendix 3, see also Figure 10, Br/1) in the overall form. In spite of the small number of members, the category shows a graded structure with respect to the typicality of members.

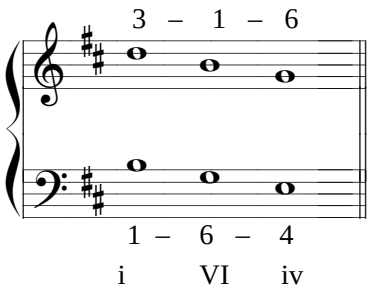
The sequence resembles quite strongly the circle-of-fifths sequence. The only differences are in the second and fourth chords of the sequences. On a higher structural level, this sequence becomes a member of the circle-of-fifths sequence category a1. Bach has ensured that it is not mistakenly regarded as

circle-of-fifths sequence by writing out the thorough bass figures: in four of the instances (6/5, 100/5, 114/2, 248/51) thorough-bass figures are written down, in BWV 198/8 figures are missing, but the chords can be unambiguously defined from the written-out six-part texture.

5.3.3.2 Descent by third

Another transposition interval commonly encountered in descending sequences is the third. Example 66 displays the basic structure of the schema (see also Figure 10, S/5).

EXAMPLE 66 The sequence schema I-VI-iv/1-6-4.

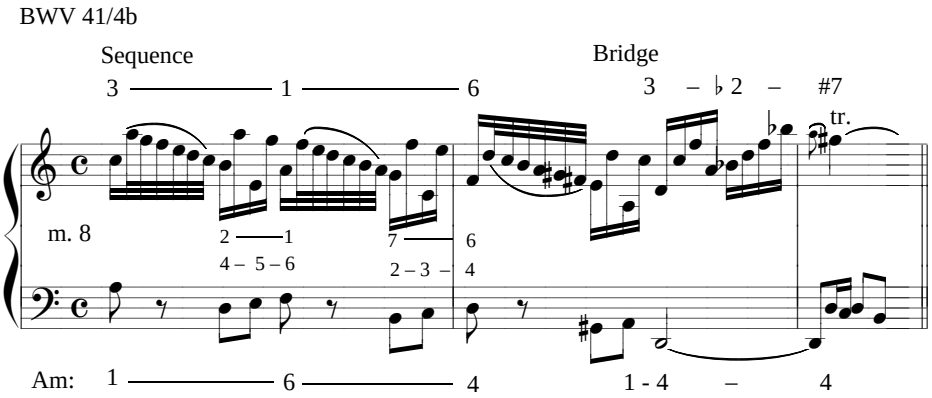


The sequence is based on bass pattern 1-6-4, in which the pitches are usually found either at the beginning of a metrical unit as in 41/4b(C) and 91/5(C), or at the beginning of a measure as in 93/6 (C); 78/4(6/8). In 168/1b the pace of the motivic flow is faster (due to the acceleration of motivic structure at the end of the ritornello) with the harmonic progression i-VI-iv on each beat of the measure.

There are five diatonic sequences in this category[43] (see Table 22, Appendix 3). Prototypical structural features are (1) i(...)-VI(...)-iv, (2) bass 1(..)-6(...)-4, (3) soprano 3(...)-1(...)-6. The only additional prototypical feature is (4) strict pattern transposition, and the only contextual prototypical feature is that (5) the preceding chord is dominant. The most prototypical examples possessing all of the prototypical features are 41/4b, 91/5 and 168/1b, which also share the same surface figuration. Example 67 displays the prototypical features clustered in BWV 41/4b, as well as the characteristic surface-level figuration shared by three prototypical examples. In Example 67, the sequence is followed by a bridge based on bass pattern 1-4-4 and containing the Neapolitan chord (see Table 30, Appendix 3, and Figure 10, Br/4).

[43] 41/4c; 78/4a; 91/5; 93/6; 168/1b.

EXAMPLE 67 A prototypical example of the i...-VI...-iv/1...-6...-4 schema. The bridge is based on bass pattern 1-4-4 tied contrapuntally with upper-voice pattern 3-♭2-#7.

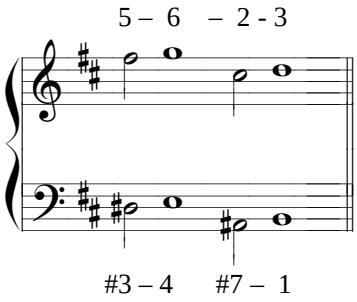


An interesting phenomenon, encountered in many other script categories as well, becomes evident in this schema category: The instances fulfilling the preset structural criteria for category membership tend to share one or more extra features with other prototypical members.

5.3.3.3 Descent by fourth

The sufficient criteria for the membership of this sequence schema category is the progression V/iv-iv V-i. The structure of the schema is shown in the following example (see also Figure 10, S/6):

EXAMPLE 68 The sequence schema V/iv-iv V-i.



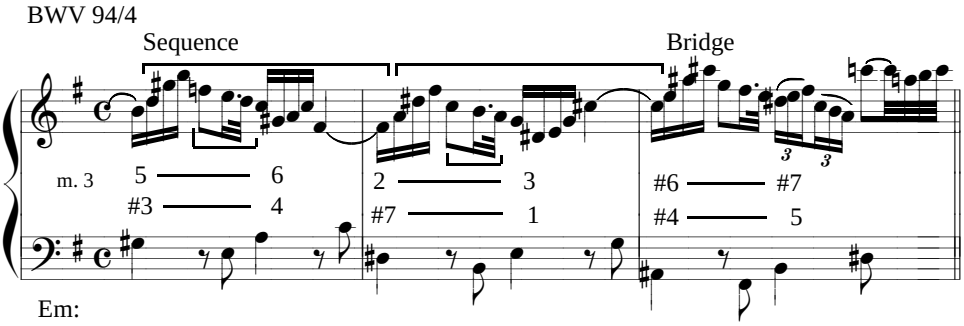
There are 11 sequences[44] following this progression (see Table 23, Appendix 3). The structural prototypical features are (1) harmonic progression |D/iv| iv | V| i| (one chord per metrical unit) (marked in table 23 with heading |D/iv| iv |), (2) bass #3-4; #7-1. The only additional prototypical feature is (3) the exactness of motive transposition, and the only contextual prototypical feature is that (4) the preceding cadence is half cadence (V). The upper-voice pattern 5-6; 2-3 is not frequent enough to be taken as a prototypical feature.

The most prototypical members possessing all four prototypical features are BWV 35/2 and BWV 94/4 (Example 69), both of which also share the same

[44] 11/4; 35/2; 43/9; 44/3b; 52/3; 94/4; 101/2; 112/2b; 116/2; 205/7; 248/62.

surface patterns ♭2-1-b7 and 6-5-4-and a preceding dominant cadence, as well. The sequence is followed by a bridge, the characteristic feature of which is the chord progression V/V-V, which is carried out with bass pattern #4-5 and soprano pattern #6-#7. In this example the bridge constitutes a varied statement of the sequential pattern. (see Table 34, Appendix 3 and Figure 10, Br/7).

EXAMPLE 69 A prototypical example of the V/iv-iv V-i sequence schema. The bridge following the sequence is based on bass pattern #4-5, which is accompanied contrapuntally by upper-voice pattern #6-#7.

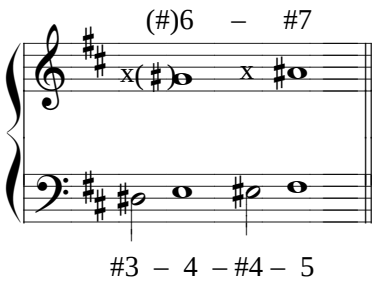


Due to the small amount of category members, different metrical placement of chords cannot be the basis for forming subcategories, as was the case with larger circle of fifths categories. Unlike other sequence categories, exact melodic transposition in soprano part is not a frequently occurring feature of this sequence. The soprano varies the melodic contour quite freely in 43/9, 52/3 and 101/2, though preserving the rhythmic pattern of the sequence motive.

5.3.3.4 Ascent by second

There are 12 sequences[45] based on progression D/iv-iv D/V-V (Table 24, Appendix 3). The basic two-part structure of the schema is shown in Example 70 (see also Figure 10, S/7).

EXAMPLE 70 The structure of the sequence schema D/iv-iv D/V-V.

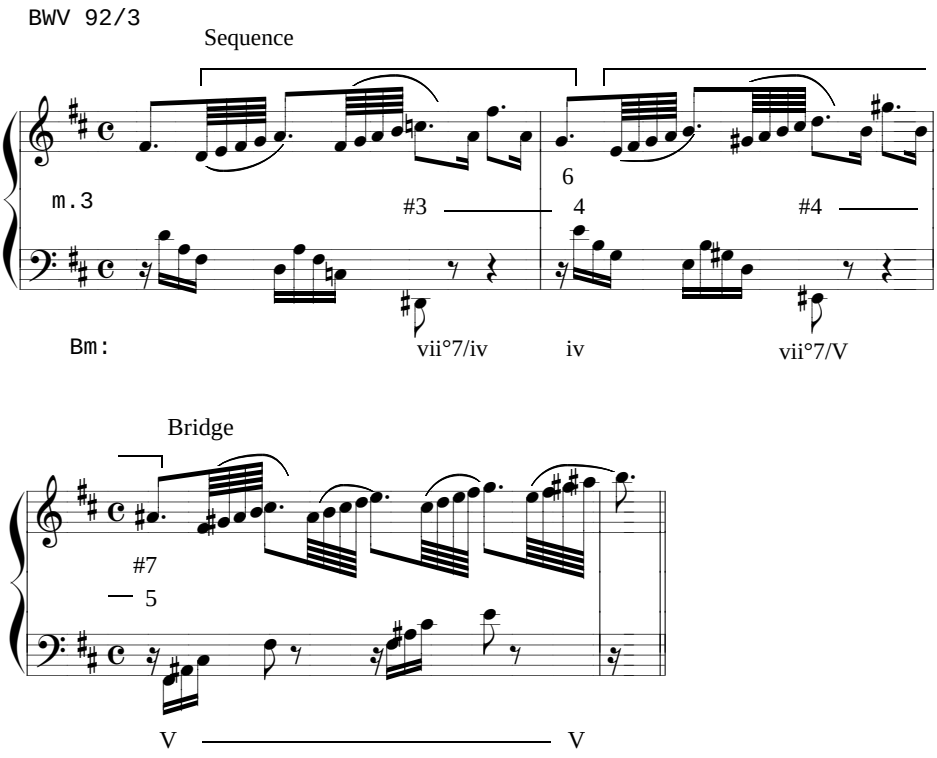


45 9/3; 41/4a; 49/2b; 75/5; 81/1; 92/3; 99/3; 139/4; 147/3b; 172/4; 198/3a; 199/2b.

The prototypical structural features are (1)|(...)V/iv | iv (...)V/V | V (motive structure mm1), (2) bass pattern #3-4 #4-5, (3) soprano patterns ending on ...6 and ...7. The only additional prototypical feature is (4) exact pattern transposition. The contextual feature is that (5) the sequence is followed by a dominant prolongation (see Figure 10, Br /1).

The most prototypical examples with all five features in minor are 41/4a(C, a), 92/3 (C, b), 99/3 (3/8, e), and 172/4 (3/4, b). All of them, except BWV 99/3, appear after an authentic cadence to III. Example 71 displays all of the structural and contextual prototypical features:

EXAMPLE 71 A prototypical example of the |(...)V/iv | iv (...)V/V | V/#3-4 #4-5. The following bridge is based on a sustained dominant.



The sequence script is actually Riepel's *Monte*. The bridge in Example 71 begins with a dominant harmony with 5 in bass and #7 in the soprano. (see Table 28, Appendix 3)

Another ascending sequence schema with only three examples[46] is based on the following chord progression:

m		m1	
III	♭VII	iv	i

In the Table 25 (Appendix 3) are shown the three examples with regard to their prototypical features (see Figure 10, S/8). The most prototypical example is 211/4. It possesses all four prototypical features (1) III-♭VII-iv-i, (2) bass: 5-6, (3) 3-4, and (4) the exact pattern transposition.

46 57/3; 184/4; 211/4

5.3.3.5 Uncategorized sequences

There are 25 sequences defying categorization according to the categorization procedures presented earlier in this study. The following eight descending sequences remained uncategorized:

TABLE 16 Descending uncategorized sequences.

BWV	meter	key/modulation
28/1	3/4	a
30/1	9/8	e
84/1b	3/4	e
117/6	C	b->D
153/6	C	a
167/3	3/4	a
110/4b	3/4	f#
214/5b	3/8	b-> f#

The following 17 ascending sequences were left uncategorized :

TABLE 17 Descending uncategorized sequences.

BWV	meter	key/modulation
13/5	C	g
45/3a	3/8	c#
45/3b		
48/6	3/4	g->d
49/2a	3/8	c#
58/3a	C	d
77/3	C	a
126/2	C	e
119/5	6/8	g
140/3a	6/8	c
157/2a	3/8	f#
157/2b		
166/2b	C	g
169/5	12/8	b
183/2	C	e
198/8b	3/4	e->b
204/2	3/4	g ->d

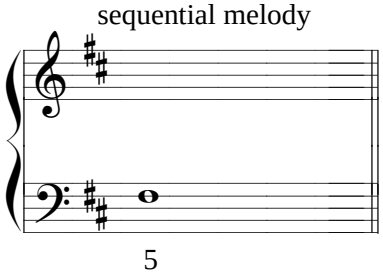
Sequences fall outside categories mainly due to two factors: (1) the structure of the sequence is unclear since the sequential pattern is varied considerably or (2) the structure of the sequence is clear but the structure appears in two examples at the most.

The high number of examples in simple triple meters and low number of examples in simple quadruple meter is quite striking. While in the whole material, examples with meter signature C cover approximately half of the examples and examples in meters 3/8 and 3/4 approximately one third of all the examples, in the group of uncategorized sequences the proportions are reversed: out of the 26 sequences 13 is in 3/4 or 3/8 meter, and 8 examples in meter C. The high proportion of simple triple meters was also found in the examples remaining outside the categories of the opening scripts. Moreover, the key of G minor seems to be quite well-represented in uncategorized ascending sequences as it was in the group uncategorized opening gestures. B minor, which was found to be the key of prototypical instances in several script categories, is represented only by four examples in the group of uncategorized sequences.

5.3.3.6 Melodic sequences on prolonged dominant function

There are seven examples[47], in which a proper sequence is substituted for a dominant prolongation (see Table 26, Appendix 3), within which melodic sequences are encountered in the bass and/or the soprano. The only structural feature of the schema is the dominant pitch, which begins the schema (see Figure 10, S/9), as shown in the following example:

EXAMPLE 72 The schema of dominant prolongation.



The structural prototypical feature of this schema is that (1) the bass begins with a dominant pitch, which is found at the beginning of the first measure of the script. An additional prototypical feature is that (2) the texture has at least four written-out voices. The contextual features are: (3) a preceding half cadence at the end of the presentation (-V), and (4) deceptive resolution of dominant function chord to D/S (dec.).

For the dominant prolongation schema, contextual and additional features seem to be more decisive than structural features; there is only one structural feature, and even that is given on a quite general level. The function of this schema is to prolong dominant harmony after a half cadence. The full texture

[47] 40/4; 43/5; 55/1; 90/1; 101/4; 181/1; 207/3.

increases the effect of prolonged harmony, just as it was discovered to do in examples of the pedal point opening category. This kind of a prolonged dominant after the middle cadence was called *Ponte* by Riepel.

BWV 207/3 (Example 73) contains all of the prototypical features.

EXAMPLE 73 A prototypical example of the prolonged dominant function acting in sequence function. The bridge following the prolonged dominant is based on bass pattern #3-4 #7-1 and upper-voice pattern 7-6 4-3.

The bridge schema connected to this sequence schema category is D/S-S D-T (see Table 33, Appendix 3, and Figure 10, Br/8). It is based on bass pattern #3-4-(2)-#7-1 and soprano pattern 7-6 4-3. In Example 73, the soprano pattern is varied and partly carried out in the middle voice.

Functionally, the sustained dominant merges together two functions, the sequence function and the sustained dominant function, which usually acts in bridge function. Consequently, this schema could be categorized as a bridge schema.

5.3.4 Epilog

The epilogs can be classified according to the schemata of harmonic functions into two superordinate epilog schema categories. The smaller of them contains chord progression D | TD | T, while the larger one contains epilogs with functional progression D | TSD | T. Since the texture of the final authentic cadences (epilogs) resemble each other considerably, the chord degree progressions need to be taken into account in the description of each epilog schema category. In all but one of the epilog categories more than half of the instances have a two-part texture. Therefore, the number of voices is not considered separately as a prototypical feature.

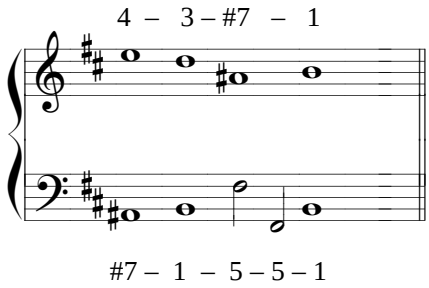
5.3.4.1 Functional progression D | TD | T

The epilog schema D | TD | T may be carried out with three bass patterns (1) #7|1-5-5|1, (2) #7|1-3-5-(5)|1, and #7|3-1-5-5-|1.

DTDT/#7-1-5-5-1

The epilog schema category #7-1-5-5-1 is a small but coherent category of seven members[48] with perceptually distinctive features (see Table 35, Appendix 3). Example 74 displays the basic two-part structure of the DTDT/#7-1-5-5-1 schema (see Figure 10, E/1).

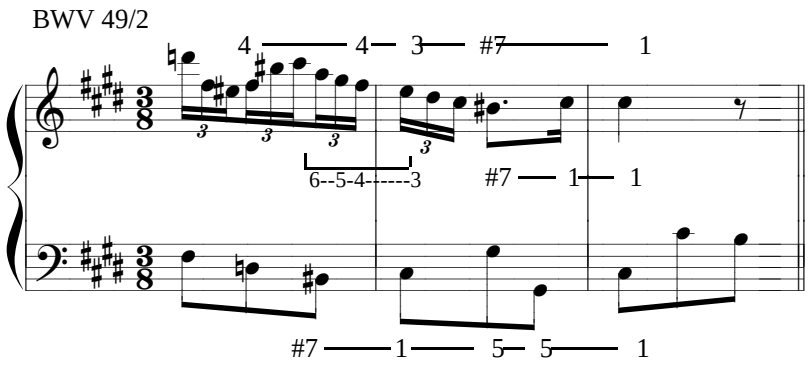
EXAMPLE 74 The epilog schema DTDT/#7-1-5-5-1.



The prototypical structural features are (1) D|TD|T, (2) chord progression vii°(7) or V6/(5)-i-V-i, (3) bass #7|1-5-5|1 (4) soprano 4-3-#7-1. The salient interval 3-#7 in soprano is occasionally smoothed by adding an intermediate pitch, most commonly 1, between 3 and #7. As an additional prototypical feature is (5) the dotted rhythm pattern #7-1- 1 in the upper voice at the arrival to the final tonic chord. There seems to be no specific bridge context for this epilog schema.

The most prototypical examples possessing all of the prototypical features are 49/2 and 103/3. Both of them possess the additional prototypical feature of dotted rhythm #7-1-1. Example 75 demonstrates the prototypical features appearing in 49/2 (3/8, c#).

EXAMPLE 75 A prototypical example of the epilog schema DTDT/#7-1-5-5-1.



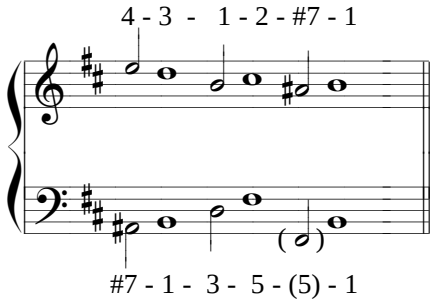
The example above shows also a surface motive 6-5-4-3, which is commonly found as the melodic elaboration of the resolution of the *link dominant*. The motive #7-1-1 is prototypical of the 1-5-5-1 category but was not found to be prototypical of any other epilog schema category.

[48] 47/2; 49/2; 55/3; 90/1; 101/4; 103/3; 179/3.

DTDT/#7-1-3-5-(5)-1

The 1-3-5-(5)-1 epilog script category has seven members[49]. The basic two-part structure of the schema (see Figure 10, E/2) is displayed in the following example:

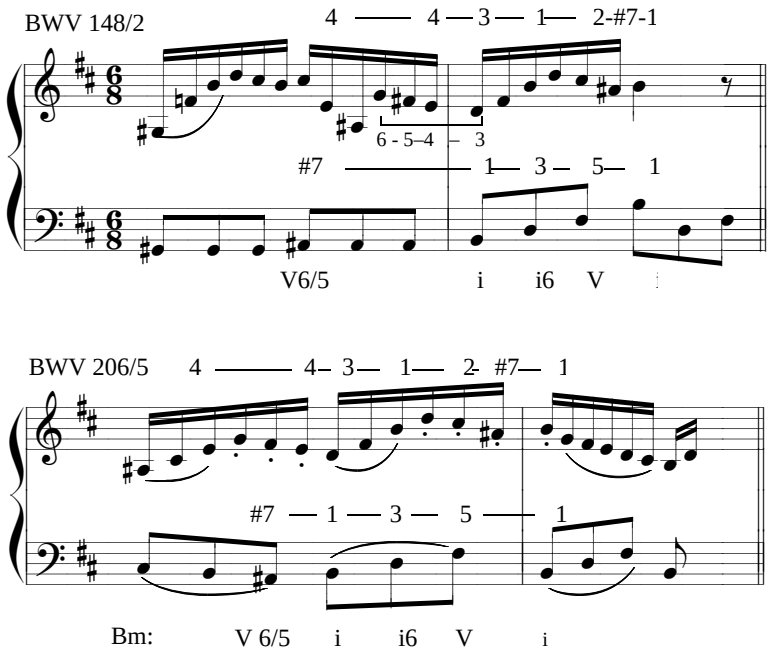
EXAMPLE 76 The epilog schema DTDT/#7-1-3-5-(5)-1.



The structural prototypical features are (Table 36, Appendix 3): (1) functional progression D|TD|T, (2) chord degree progression V6/(5)-i-i6-V-i, (3) bass pattern #7|1-3-5-(5) | 1, (4) soprano pattern 4-3-1-2-#7-1.

The prototypical examples are BWV 148/2 (6/8, b) and BWV 206/5 (6/8, b), both of which possess all of the four prototypical features (Example 77).

EXAMPLE 77 Prototypical examples of the epilog schema DTDT/#7-1-3-5-(5)-1.



The instances resemble each other significantly with respect to meter, key and the melodic-harmonic structure. The key of B minor is, again, the context for structurally nearly identical instances.

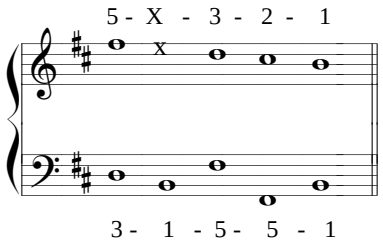
---

49 30/10; 85/2; 92/3; 100/5; 102/5; 148/2; 206/5.

DTDT/|3-1-5-5|1

The two-part structure of the epilog schema category |3-1-5-(5)|1 is displayed in Example 78 (see also Figure 10, C/3).

EXAMPLE 78 The epilog schema DTDT/3-1-5-5-1.



The category contains seven members[50] (see Table 37, Appendix 3). The structural prototypical features are: (1) D|TD|T, (2) chord progression i6-i-i6/4-V-i, (3) bass pattern 3-|1-5-5-|1, and (4) the upper-voice counterpoint 5-x-3-2-1. The symbol x indicates different pitch alternatives in the upper voice.

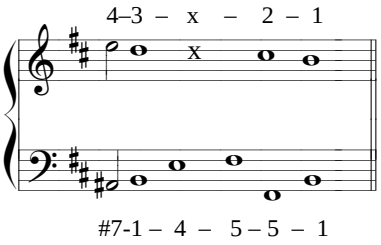
5.3.4.2 Functional progression D | T S D | T

Schema category D | TSD | T is divided into subcategories according to bass patterns, which are: (1) #7|1-4-5|1, (2) #7|1-6-4-5|1, (3) #7|1-3-4-5|1, (4) |345|1, (5) |3455|1, and (6) 5|6-4-5|1.

DTSDT/#7|1-4-5-5|1

The two-part structure of the epilog schema DTSDT/#7|1-4-5-5|1 is shown in the following example (see also Figure 10, E/4):

EXAMPLE 79 The epilog schema DTSDT/#7-1-4-5-5-1.



The category has 12 members[51]. The structural prototypical features are (see Table 38, Appendix 3) (1) functional progression D | TSD | T, (2) V6/(5) or vii°(7) - i - ii6/(5) or iv(7) - V - i (3) bass pattern #7 |**1**-4-**5**-5 |**1**. Although the bass pattern 1-4-5-1 is melodically and metrically quite similar in most of the examples, the upper voice varies leaving the category without a core of prototypical instances.

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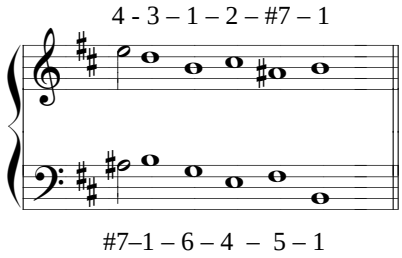
50 43/5; 70/5; 77/3; 93/6; 110/4; 133/4; 248/51.

51 21/5; 22/2; 37/5; 44/3; 60/3; 121/2; 129/3; 167/3; 168/1; 183/2; 198/8; 201/9.

DTSDT/#7 | 1-6-4-5|1

The structure of the epilog schema based on bass pattern #7-1-6-4-5-1 was described in Figure 10 (E/5) as follows:

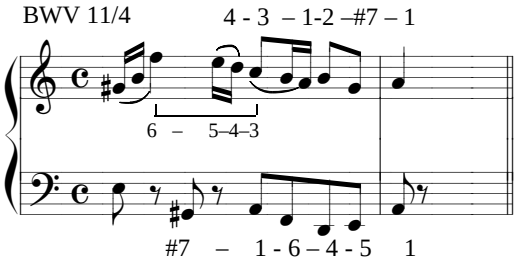
EXAMPLE 80 The structure of the epilog schema DTSDT/ /#7 | 1-6-4-5|1.



The category contains 16 instances[52]. The prototypical structural features (Table 39, Appendix 3) are (1) functional progression D | TSD | T, (2) chord progression V6/(5) or vii°(7) - i - VI - iiø6/5 - V - i, (3) bass pattern #7|**1**-6-**4**-5|**1,** (4) counterpoint 4-3-1-2-#7-1. The surface motive 6-5-4-**3** in soprano connecting the link dominant to the first chord of the epilog is a nearly prototypical feature of this epilog category. Again, there are no contextual prototypical features.

All of the structural prototypical features are shared by four examples: 11/4 (C, a), 45/5 (C, f#), 117/6 (6/8, b), and 207/3 (C|, b). Of these, only 11/4 and 207/3 share the surface motive 6-5-4-3, which embellishes the resolution of the link dominant to the tonic. In both of them the syncopated rhythm is quite constantly present in the entire introduction Example 81 shows BWV 11/4 and BWV 207/3, the latter of which is untypical with respect to the number of voices in the texture.

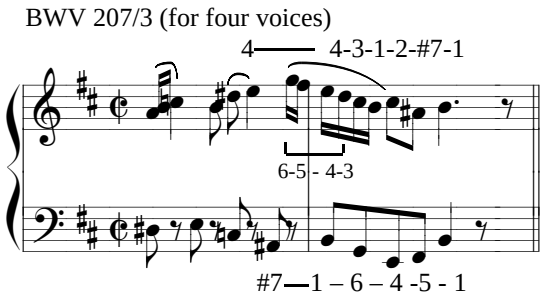
EXAMPLE 81 Prototypical examples of the epilog schema DTSDT/#7-1-6-4-5-1.



(continues)

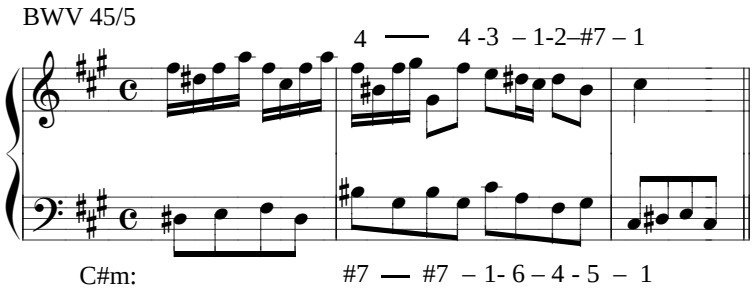
52 8/2; 11/4; 40/4; 45/5; 52/3; 55/1; 58/3; 82/1; 94/4; 117/6; 128/4; 135/5; 199/2; 202/5; 204/6; 207/3

EXAMPLE 81 (continues)



Example 82 presents category members BWV 45/5 (C, f#->c#), which lacks the surface motive 6-5-4-3.

EXAMPLE 82 Prototypical example of the epilog schema DTSDT/#7-1-6-4-5-1.

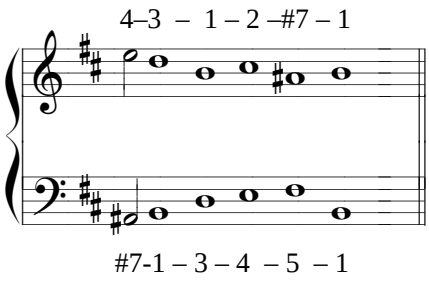


This instance bears remarkable similarities with the instances presented in Example 81. This category is not only quite large but also rich in prototypical examples.

DTSDT/#7 | 1-3-4-5 |1

The two-part structure of this schema category described already in Figure 10 (E/6) is as follows:

EXAMPLE 83 The structure of the epilog schema DTSDT/#7 -1-3-4-5-1.

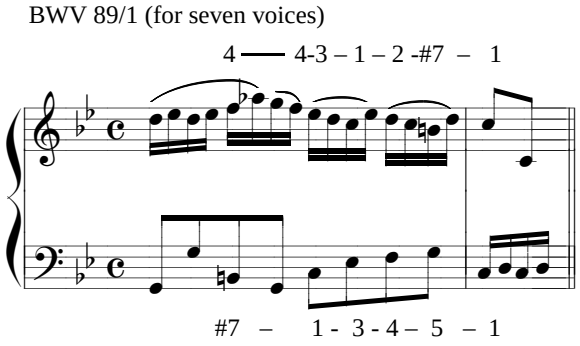


The #7-1-3-4-5-1 category has 8 members[53]. The structural prototypical features are (see Table 40, Appendix 3) (1) D | TSD | T, (2) chord degree progression V6/(5) - i - i6 - ii6/(5) - V(7) - i, (3) bass pattern #7 | **1**-3-**4**-5 | 1, and (4) soprano

[53] 26/4; 89/1; 119/5; 144/5; 152/2; 205/7; 215/7; 248/62

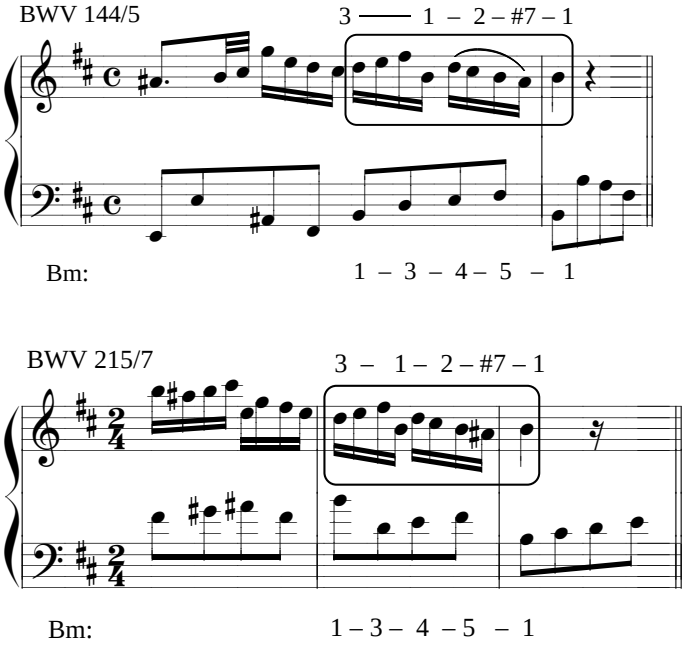
pattern 4-3-1-2-#7-1. The soprano pattern is identical with the counterpoint in DTSDT/#7-1-6-4-5-1 category. The only example meeting all four criteria set for prototypicality is BWV 89/1, shown in the following example:

EXAMPLE 84 A prototypical example of the epilog schema DTSDT/#7-1-3-4-5-1.



Two instances, 144/5 and 215/7, resemble each other with respect to melodic-rhythmic figures:

EXAMPLE 85 Two examples of the epilog schema DTSDT/#7-1-3-4-5-1.

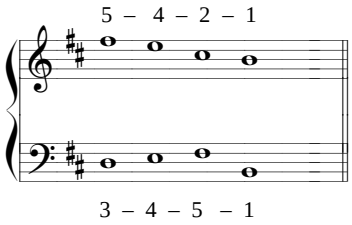


The close resemblance is encountered again in examples, which are in B minor (compare with the B minor examples of the opening formula TDT/151 and the half-cadence formula TDT/345).

TSDT/ 3-4-5-1

The epilog schema TSDT/ 3-4-5-1 forms a relatively extensive category of 15 members[54]. The two-part structure of this schema is as follows (see also Figure 10, E/7):

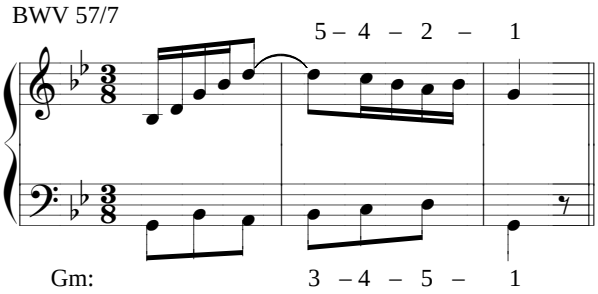
EXAMPLE 86 The structure of the epilog schema TSDT/3-4-5-1.



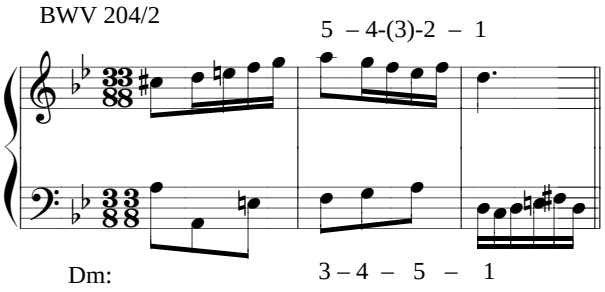
The prototypical structural features of this category are (1) | TSD | T, (2) chord-degree progression i6 - ii6/(5) or iv(7) - V - i, (3) bass pattern |345|1 and (4) soprano counterpoint |542|1. An additional feature is (5) meter signature 3/8 category (see Table 41, Appendix 3).

The four prototypical structural features are found in five examples, 57/7(3/8, g), 112/2 (6/8, e), 140/3 (6/8, c), 201/5 (3/8, b) and 204/2 (3/8, d) which are nearly identical. Each of them carries out the upper-voice counterpoint 5-4-2 with surface motive 5-4-3-2-3-1 (see Table 41). Moreover, in all of them the harmonic rhythm is one chord/eighth note. The previous chord presents dominant function with usually either 2 or 4 in the bass. Example 87 presents the most prototypical instances of this epilog schema category:

EXAMPLE 87 Prototypical examples of the TSDT/3451 epilog schema.



[54] 35/2; 43/9; 45/3; 57/7; 75/5; 78/4; 98/3; 100/3; 112/2; 140/3; 201/5; 204/2; 211/4; 213/9; 214/5.



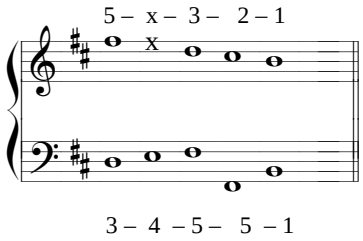
All of the five prototypical examples but 201/5 exhibit the initial dominant pitch in the upper voice as a local melodic peak, which reverses the direction of ascending melodic passage or ascending leap.

This epilog schema sounds like a separate unit, a tag, without any intrinsic connection with the material of the introduction. In this respect it resembles a conventional ending of fairy tales: "they lived happily ever after", which also is not dependent of the contents of the particular fairy tale. The detailed similarities of the cadences in this category imply that the motivic material is not likely to be intrinsically linked with the motivic material of the introduction.

The epilog schema TSDT | 3-4-5-5 | 1

The category with bass pattern 3-4-5-5-1 contains 12 instances[55]. The two-part structure of the schema, presented already in Figure 10 (E/8) is as follows:

EXAMPLE 88 The epilog schema TSDT/3-4-5-5-1.



The prototypical structural features (see Table 42, Appendix 3) are (1) harmonic functions | TSD | T, (2) chord degree progression i6-ii6/(5) or iv(7)-i64-V-i, and (3) bass pattern | 3455 | 1. The soprano pattern, even when the definition is given with one open element |5x32|1, was found in less than half of the instances.

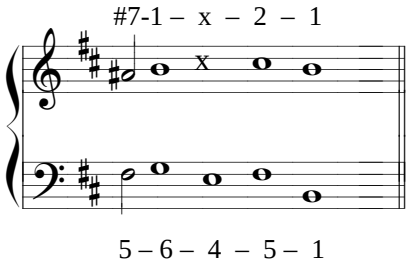
The epilog schema 5 | 6-4-5 | 1

In the previous chapter (Figure 10, E/9), the two-part structure for epilog schema TpSDT/5-6-4-5-1 was described as follows:

---

55 41/4; 48/6; 84/1; 91/5; 107/5; 110/4; 136/3; 136/5; 151/3; 175/2; 196/3; 201/13.

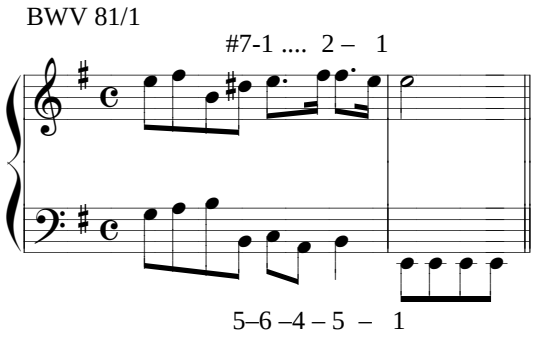
EXAMPLE 89 The epilog schema TpSDT/5-6-4-5-1.



The prototypical features of this schema are (see Table 43, Appendix 3) (1) harmonic functions D | **TpSD** | **T** (Tp referring to tonic parallel (usually VI)) (2) chord degrees V(7) - VI - ii6/(5) - V - i, (3) bass pattern 5 | 6 4-5 | 1. There is no prototypical soprano pattern for this schema category. If the soprano pattern is defined loosely as #7|1x2|1 (2 in a dominant chord), only four examples possess the feature either wholly or partially. As an additional prototypical feature is that (4) the texture has more than two voices.

The most prototypical member of the category is 81/1 (Example 90), which has all of the structural prototypical structural features, and which as an introduction of six written voices, possesses also the additional prototypical feature.

EXAMPLE 90 A prototypical example of the epilog schema DTpSDT/5-6-4-5-1.



The category 5-6-4-5-1 is the only epilog category, in which most members have a texture with more than two voices.

5.3.4.3 Epilogs in retrospect

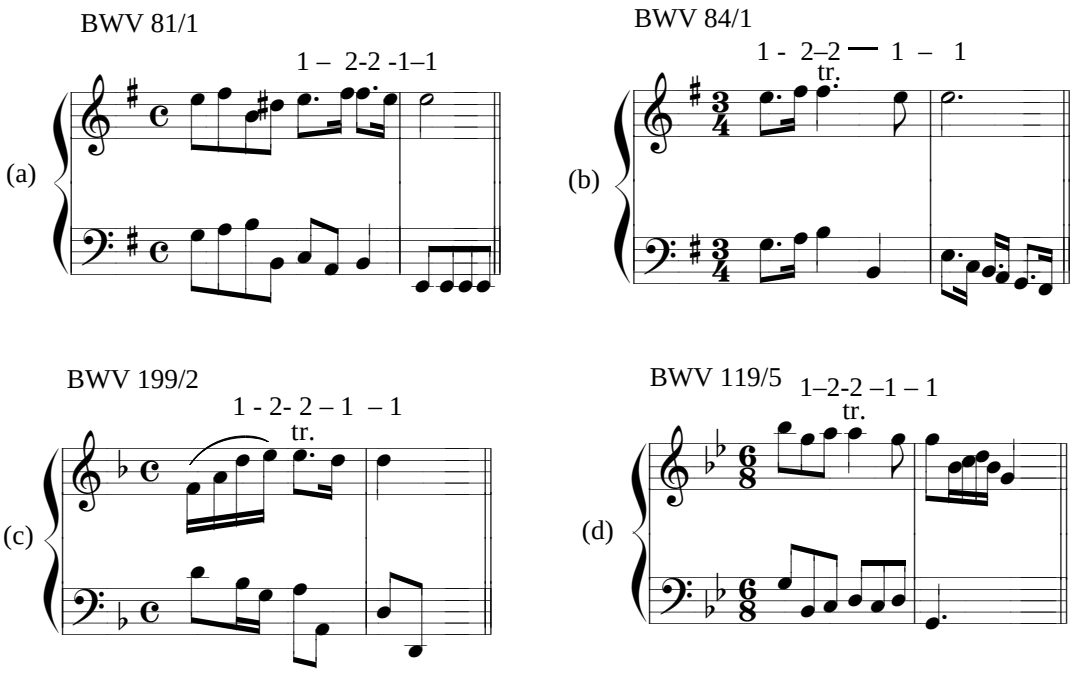
Cadences are commonly regarded as the most cliché-like patterns in any stylistic idiom. In the present study the final cadences were surprisingly resistent to the categorzation procedures. There were several categories for which no prototypical upper-voice pattern could be identified. Moreover, different epilog categories shared the same upper-voice pattern. A common prototypical upper-voice counterpoint 4-3-1-2-#7-1 was found in schema categories DTSDT/#7-1-3-4-5-1, DTSDT/#7-1-6-4-5-1, and DTDT/#7-1-3-5-5-1. It would be reasonable to redefine the first two categories as one category

DTSDT/1-3/6-4-5-1. The third category differs from the other two with respect to the functional progression (DTDT).

In cadences, the upper-voice melody seems to take a more independent role than in other schema categories. The same melodic surface motive can be found in different epilog schema categories. These surface motives bear not only identical pitch content, but they may also share the same rhythmic patterns. These identical melodic-rhythmic patterns may be synchronized with more than one bass pattern, as demonstrated in Example 91.

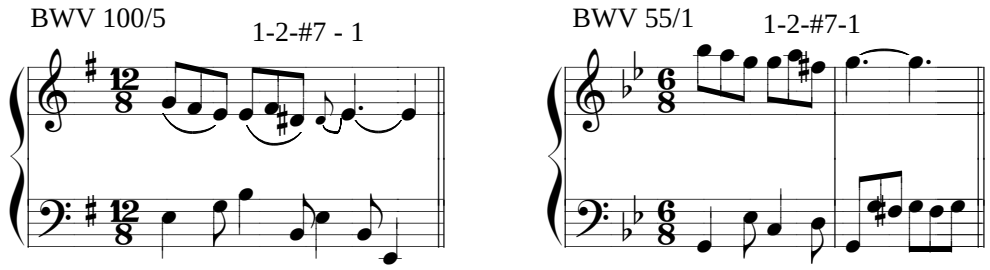
In each of the examples representing four different epilog categories, the dominant pitch in bass is accompanied with an anticipation figure 2-1, usually presented with dotted rhythm. In the upper-voice, the first tonic pitch may be accompanied by pitches 3, 4, or 6 in the bass. In these cases soprano voice may be a more significant cue for categorizing the cadences than the harmonic-contrapuntal features.

EXAMPLE 91 Pattern 1-2-2-1 appearing in four different epilog schema categories: (a) DTpSDT/56451, (b) TSDT/34551, (c) TSDT/16451, and (d) TSDT/13451.



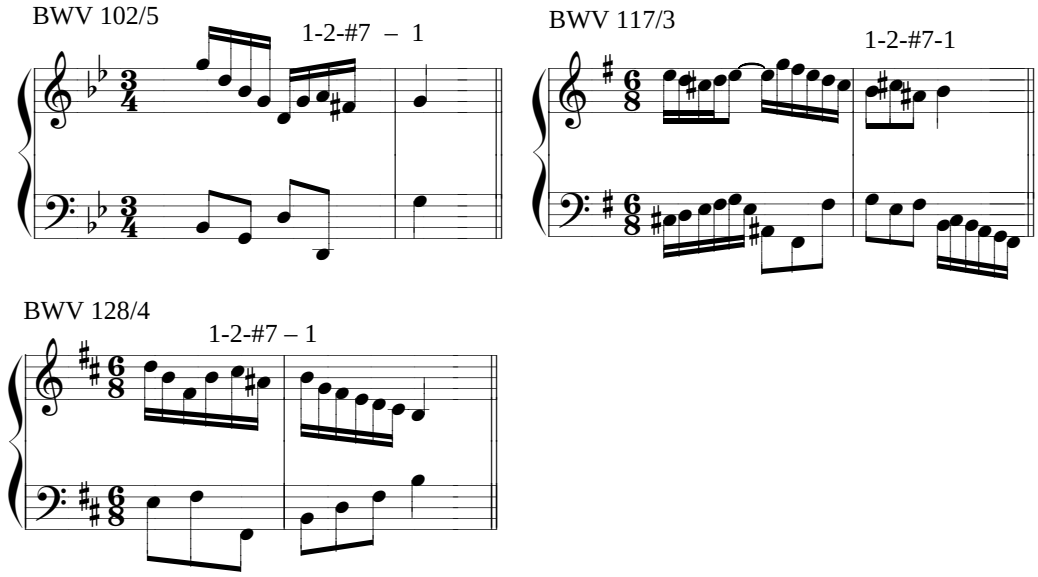
Moreover, there are other upper-voice melodies (Example 92), which are harmonized differently, which is why they were categorized previously into different epilog schema categories.

EXAMPLE 92 Nearly identical epilog melodies in instances representing different epilog categories.



The melodic pattern 1-2-#7 shown in Example 64 is a quite common figure preceding the final tonic. Different contexts for the 1-2-#7 pattern are shown in Example 93:

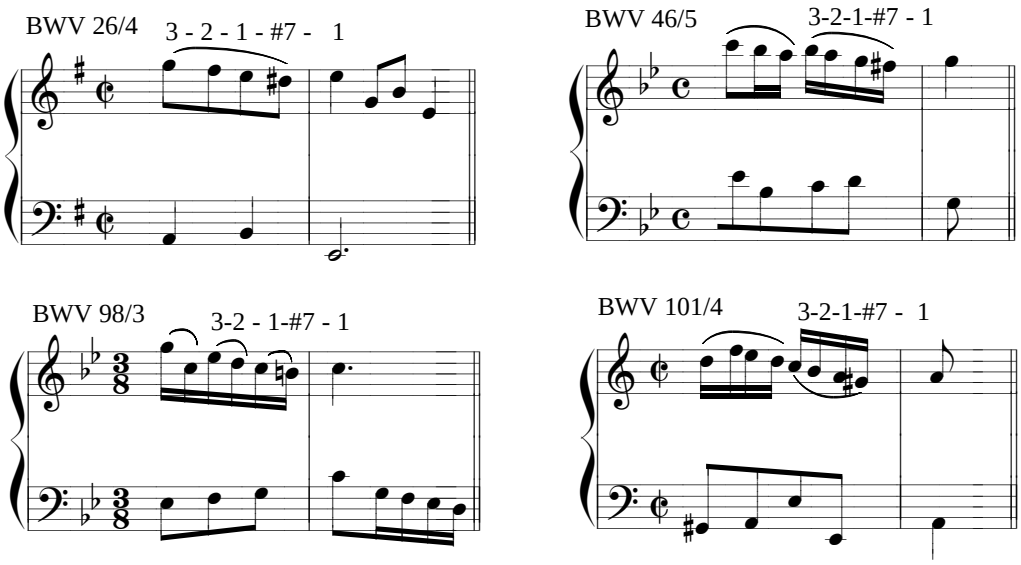
EXAMPLE 93 Pattern 1-2-#7 appearing in members of three different epilog schema categories.



All three epilogs were categorized to different epilog schema categories in the previous chapter. However, listeners are likely to perceive the cadences in Example 93 as similar.

Still another melodic surface motive, 3-2-1-#7-1, appears frequently in nearly identical form in different epilog schema categories (Example 94). It is accompanied by either bass pattern 4-5 or 5-5.

EXAMPLE 94 Pattern 3-2-1-#7-1 appearing in four different epilog schema categories.



The short surface motives shared by members of different epilog categories appear as independent melodic building blocks. This finding speaks for the fact that the same categorizing principles don't necessarily apply to all schemata. At least in epilogs, upper-voice melodic patterns proved to be an important factor affecting similarity. The similarities are, however, found on the very surface of the musical texture.

5.4 Summary

5.4.1 Presentation phrase

As shown in section 5.3.1, examples with short presentation phrases, beginning with the basic idea followed by its varied transposition, may share the same melodic-harmonic script. For instance, openings with tonic and dominant forms of the motive (aa^1) in examples 144/5 (b) and 205/5 (b) are based on the same script. Furthermore, presentation phrases consisting of motives *ab* (1+1), both ending on the dominant, share the same script in examples 37/5 (b) and 94/4 (e). Moreover, symmetrical presentation (2+2) ending on III, found in examples 102/5 (g) and 119/5 (g), represent the same script. In two examples, 77/3 (a) and 198/8 (e), the entire presentation phrase is based on the script of the descending Phrygian tetrachord (bass 1-7-6-5).

There are two prototypical scripts for the entire presentation phrase in the material: (1) the *Adeste Fidelis* script, which begins with scripts TDT/1-5-1 or TDT/1-#7-1 (the *Do-Re-Mi* script of Gjerdingen) and ends on a half cadence with the descending Phrygian tetrachord script (Gjerdingen's *Prinner Riposte*). and (2) a script, which begin with TSDT/1-6-4-5-1 and end with modulation to the relative major, called here the *i->III* script. The digression scripts of the

Adeste Fidelis with Prinner and *i->III* scripts don't appear without the opening scripts TDT/1-5 or #7-1 and TSDT/1-6-4-5-1, respectively.

The prototypical features of the scripts constituting the presentation phrase are displayed in Figure 15.

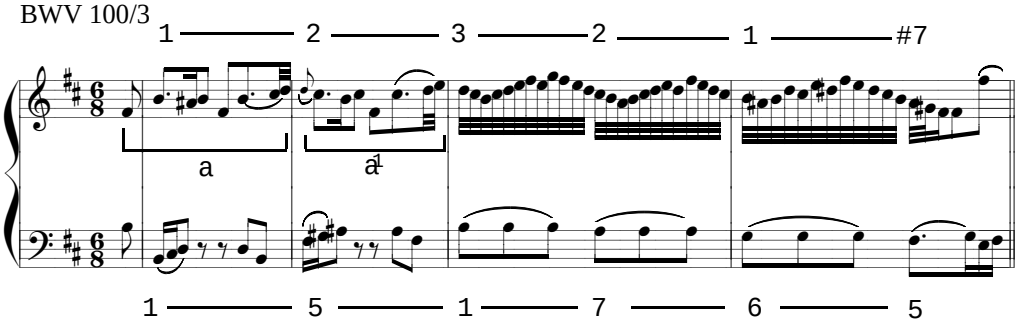
PROTOTYPICAL FEATURES

	Adeste Fidelis script		*i->III* script		
	Beginning	Digression	Beginning		Digression
Melody:	1-2-3	3-2-1-#7	5-6-4-5	4 321 ->	III: 51-2-7-1
Bass:	1-#7-1 or 1-5 - 1	1-7-6 -5	1- 6	45151 ->	III: 3-4-5-1

FIGURE 15 The prototypical features of the *Adeste Fidelis* script and i->III script.

The prototypical instances of *Adeste Fidelis* scripts are BWV100/3 and BWV 136/5, The prototypical example of the *i->III* script is BWV 211/4. Example 44 shows the prototypical *Adeste Fidelis* script in BWV 100/3 (see also Example 22 displaying BWV 136/5). The closure is reached within the presentation phrase with a short sequence. If the descent is sequential, as in BWV 100/3, the *Adeste Fidelis* constitutes a small-scale *Fortspinnungstypus*.

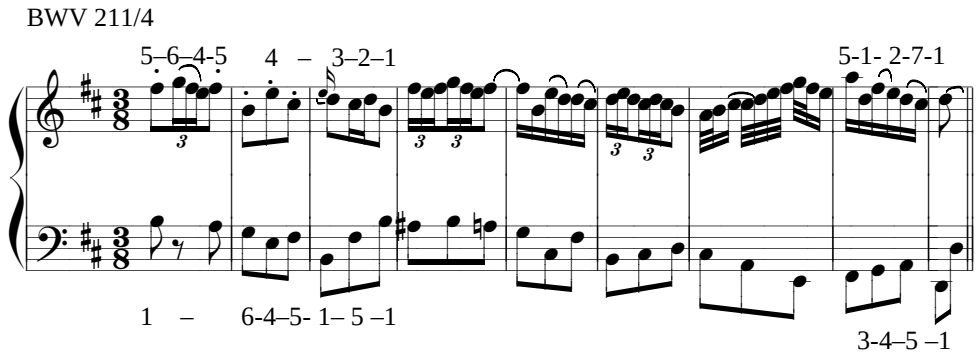
EXAMPLE 95 A prototypical example of the *Adeste Fidelis* script of the presentation phrase.



There are also five less typical instances, 22/2 (C), 45/5 (f#), 47/2 (d), 49/2 (c#), and 58/3 (d), of the script *Adeste Fidelis with Prinner*. In the first four of them the *Adeste Fidelis* script constitutes the entire presentation phrase, whereas BWV 58/3 (see Example 15) continues with a further digression into the relative major. In the less typical examples the half cadence differs from that of the prototype, but the final harmony in each of them is in the same position (leading tone in the upper voice, dominant in the bass) as the final harmony of the prototype.

In Example 96 the prototypical features of the i->III script are displayed by BWV 211/4, which, however, contains an ornamented repetition of the TSDT/1-6-4-5-1 script.

EXAMPLE 96 A prototypical example of the i-> III script of the presentation phrase.



The *i—>III* script is illustrated with Example 45. The less typical instances of the *i–>III* script are 28/1 (a)(see Example 37), 43/9 (a) (see Example 38), 48/6 (g), and 107/5 (b).

The members of the two script categories share also certain additional features. Whereas the proportions in the *Adeste Fidelis* script is 1:1:2, in *i-> III* script the opening schema and digression (modulation) are of equal length in all of the instances (1:1). Furthermore, the number of voices is two in the instances of the *Adeste Fidelis* script, while the instances in the i->III script category have more than two voices, except for BWV 211/4, which has two voices.

The two structural solutions for the presentation phrase also represent two distinctive modes of structuring time. Unlike the *Adeste Fidelis* schema, the TSDT/1-6-4-5-1 schema consists of closed units, both of them ending with an authentic cadence. The motive structure of the *Adeste Fidelis* script tends to support a higher-level linear melody, striving first for a culmination point, and then to the half cadence, while the i->III script attempts to build closed temporal units without such as strong linear tendency. The presentation phrases based on i->III scripts appear less goal-directed also because of their symmetrical structure. This kind of structuring is associated with nonlinear temporality, calling more easily for spatial metaphors. In the instances of i->III script, the spatial metaphor is further supported by setting the schema with 3-7 voices. A full orchestration creates a sense of a large imaginative space, whereas the two-part *Adeste Fidelis* script is more suitable for creating a sense of dynamic movement.

Bach seems to recognize the two tonally different ways to prolong the initial tonic, each of which leads to the use of different schemata later in the presentation and sequence. Progressions i-iv6/4-i and i-V6-i as realizations of scripts TST/3-4-3 and TDT/1-5-1, respectively, are mirror images of one another (Figure 16); the axis being tonic for the subdominant cadence, and dominant for the dominant cadence.

FIGURE 16 The mirror images of the voice-leading of i-iv64-i and i-V6-i.

5	6	5
3	4	3
1	**1**	**1**
5	**5**	**5**
3	2	3
1	#7	1

The "normative" voice-leading realization contains two pairs of neighbor-note patterns mirroring each other.

In his dualistic theory of harmonic functions, Riemann considered the tonality as having two "leading tones". In addition to (#)7, the sixth scale degree (♭6) functions as a leading tone, which has the tendency to resolve down to the dominant (see Harrison 1994, 26). The sixth degree with its half-step relationship with the dominant would represent, according to Riemann, the most natural form of the sixth degree (=the fifth in the root-position subdominant function chord iiø7: 2-4-♭6-1, which is based, according to Riemann, on the series of "undertones" and which therefore is the mirror of chord dominant seventh chord based on the overtone series).

5.4.2 Continuation phrase

In the continuation phrase of the *Fortspinnungstypus* Bach repeats some combinations of the sequence and the bridge schemata.

The discussion of sequences (Section 5.3.3) pointed out some preferred sequence-bridge combinations. However, the introductions belonging both to the same sequence category and to the same bridge category don't usually continue with the same epilog script. The most frequent sequence-bridge-epilog script combinations are presented in Table 18. The number of examples sharing membership in the same sequence and bridge categories is displayed after the category label. (Those examples not fulfilling the criteria set for bass and soprano patterns or having extra material added to the continuation, are not included in the table.)

TABLE 18 Scripts for the continuation phrase. The letter symbol A indicates that the sequence is based on the circle-of-fifths progression.

A1. (6)			S	Br.	E
			(#)3-2	1-1-1-1	5-4-2-1
			1-7	6-5-4-3	3-4-5-1
55/3	C	d	(+)	+	-
98/3	3/8	c	+	(+)	+
201/5	3/8	b	(+)	+	+
201/13	3/4	e	+	+	-
205/5	3/8	b	+	+	-

A2.(4)			S	Br	E
			(#)6-5-4	3-♭2-(1)-#7	3 -1-2-#7-1
			4-3-2	1-4 - 4	1–6–4–5–1
108/2	3/4	f#	+	+	-
135/5	C|	f#	(+)	+	+
204/6	12/8	d	+	+	+

B. (3)			S	Br	E
			56- 23	(#)6-#7	3 -1-2-#7-1
			#34-#71	#4-5	1–6–4–5–1
11/4	C	a	(+)	+	+
94/4	C	e	+	+	(+)

C.(5)			S	Br	E
				#7...	
			#34#45	5...	
92/3	C	b	+	+	-
172/4	3/4	b	+	+	-

D. (5)			"S"	Br	E
				7 6 4 3	3 -1-2-#7-1
			5	#34(2)#71	1–6–4–5–1
55/1	6/8	g	+	+	+
90/1	3/8	d	+	+	-
101/4	C|	a	+	(+)	-
207/3	C|	b	+	(+)	+

(23)

The number of introductions containing the same sequence, bridge and epilog scripts is for each category two at the most. It seems that the epilog scripts may quite freely be substituted for each other, providing that they start from the same soprano and bass pitches.

5.4.3 The prototype of the *Fortspinnungstypus* schema in J. S. Bach's minor-key cantata aria introductions

Among the sequence-bridge scripts, 23 in all, there are no examples from the most frequent scripts for the presentation phrase (*Adeste Fidelis with Prinner* or the *i->III* scripts, see section 5.3.3). Consequently, the prototype of the *Fortspinnungstypu*s cannot be described in terms of combinations of two-part

scripts. The description of a prototypical aria introduction representing the Fortspinnungstypus and covering at least 50% of the examples (N = 125) can be given only on a more general level (Figure 17):

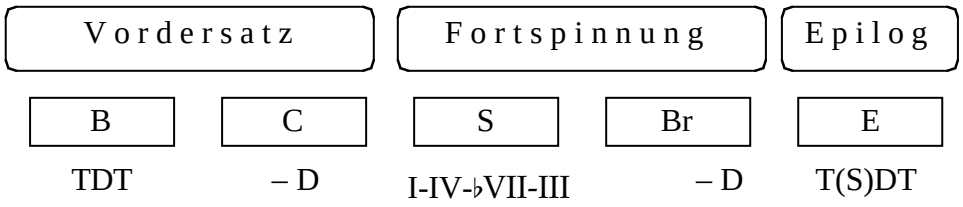


FIGURE 17 Prototype of the *Fortspinnungstypus*.

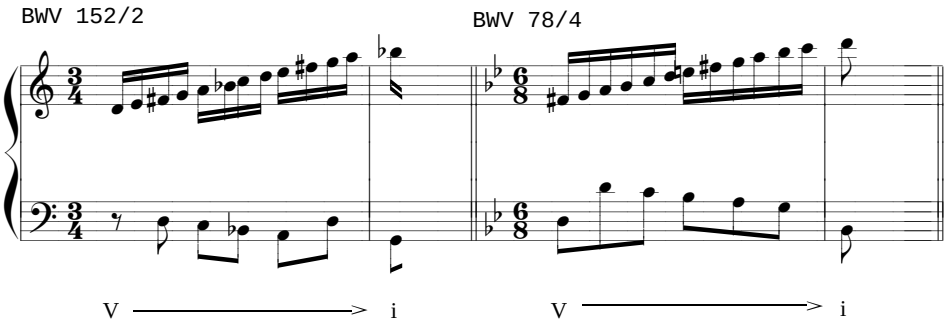
Although all of the harmonic events given in the above prototype description are found in some introductions as such, there are also introductions, which contain only some of the harmonic events. A prototype is abstract in the sense that there need not to exist any examples containing all of the prototypical features. Prototypicality is based on a network of relationships, which also connects instances belonging to different schema categories.

5.5 Discussion

5.5.1 Expressive vs. structural features in schema description

The schemata in Figure 10 were described by their structural features. In those schema categories, the descriptions of which leave the counterpoint between the outer voices undefined, as in B/10, S/9, Br/1, Br/5-6, the structural features may not be the most decisive ones for the schema concept. In B/10, the most characteristic feature is the tension between the tonic pedal and the upper voices. A similar expressive-tensional function is found in S/9 and Br/1. They occupy their place in the schema in order to maintain harmonic tension, not to present a specific voice-leading event. Both of the bridges (Br/5-6) have an expressive function based on the direction of movement of voices and on their harmonic functional role, V->i and i-i, respectively. Their structural description as two-part counterpoint remains vague, due to the great amount of variation in both of them. Example 97 presents the various forms of the Br/5:

EXAMPLE 97 Two instances of the Bridge schema Br/5.

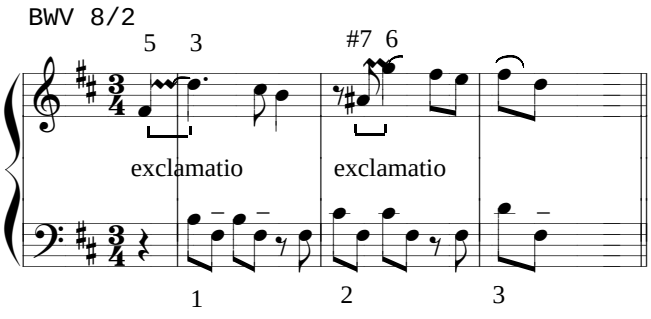


The voices are synchronized differently in each of the scripts. What is common to all of them is, besides the harmonic plan V->i, the idea of two voices moving in contrary motion. The rapid movement in sixteenth notes further increases the impression of an energetic striving towards the goal (i).

The schema B/3 contains two counterpoint alternatives for bass pattern 1-2-3. In the schema variant, which opens with an ascending leap of minor sixth, it is the surface motives that become salient features gaining more significance than the defining harmonic-contrapuntal features. Dissonant ascending leaps, such as the minor sixth and the diminished seventh were known in Baroque musical rhetoric as the *exclamatio* figure, which was associated with exclamation of sorrow or grief.

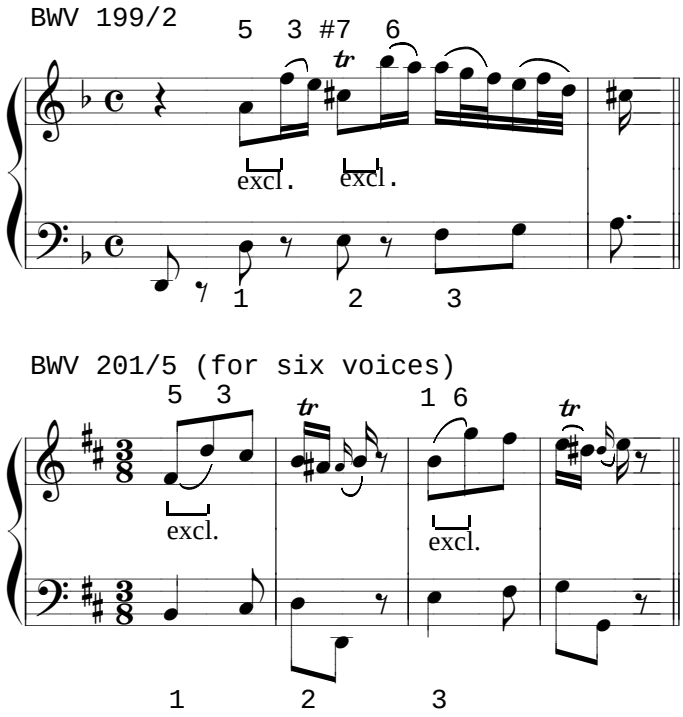
In schema B/3 the opening leap (*exclamatio*) is followed by another leap, which strengthens further the ascent. The first motive *a*, reaching the scale degree 3, is followed by its transposed variant *a1* reaching the scale degree 6. (Example 98).

EXAMPLE 98 *Exclamatio* figures in the opening script based on bass pattern 1-2-3 (B/3).



(continues)

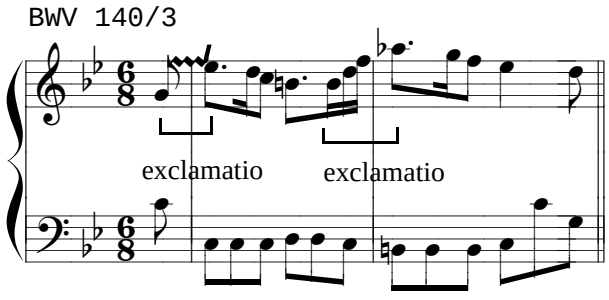
EXAMPLE 98 (continues)



The bass and the *exclamatio* figures are synchronized differently in each example. The *exclamatio* interval is a salient feature, which has no specific location in the contrapuntal structure. Thus, the *exclamatio* figure is connected by associative relationships within a network structure, not by subordinate relationships within a hierarchical tree structure (see Gjerdingen 1988, 11-38).

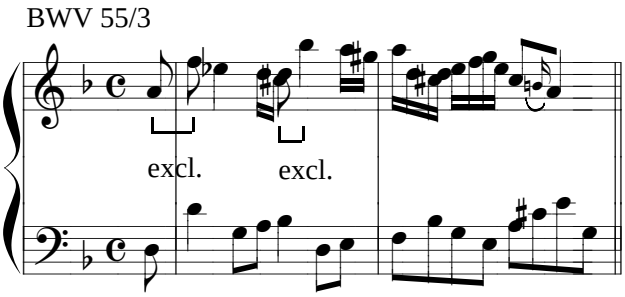
The associative relationships or family resemblance relationships may extend also to other opening schema categories. For example BWV 55/3 and 140/3 act as intermediating examples between B/3 and B/8 categories, as well as between the categories B/3 and B/5 shown in the following example:

EXAMPLE 99 *Exclamatio* figures in the opening script categories B/5 and B/8.



(continues)

EXAMPLE 99 (continues)



The *exclamatio* creates family resemblance relationships between members of distinct categories. This kind of overlapping between script categories was, however, rare in the material (see Examples 40 and 41).

5.5.2 The relevance of the analysis with respect to eighteenth-century musical schemata

The analysis showed that Bach used in his cantata aria introductions several of the schemata identified by Meyer and Gjerdingen. Among these schemata were *Prinner Riposte*, *Adeste Fidelis*, the changing-note schema, and Riepel's *Ponte* and *Monte*. These schemata have been discussed in earlier studies mainly in the context of somewhat later periods, namely in the context of the galant or the Classical style. The older version of the *Prinner Riposte,* i. e. the circle-of-fifths sequence, was relatively frequent in the material of the present study. The *Adeste Fidelis* schema seems to have been in use already in the late Baroque period, as Meyer has shown. Since all of the cantatas of this material were most probably composed before 1740, they cannot have been influenced by the hymn *Adeste Fideles*, which is assumed to have been composed only after 1740.

The changing-note schema was, according to Gjerdingen, quite rare in the Baroque period. In the present study a changing-note script category could, however, be identified. In this schema category the upper-voice pattern was a more important defining feature than the bass pattern. This, again, confirmed the earlier findings of Gjerdingen who labeled the different types of changing-note schemata by the structural features of their upper-voices. Bach seems to use Riepels *Monte* and *Ponte* patterns, even in the same function (continuation).

The results of the analysis indicated that a large number of scripts, which became popular only later in the 18th century, had already become part of Bach's vocabulary. This implies that, with respect to structural characteristics, the difference between Bach's style and the galant style was not so pronounced. In general, the composers of the late Baroque, including Bach, had to take a stand on the galant style, which emerged in the Italian opera in the 1720's and which spread throughout the Europe in the 1730's and 1740's. The galant features found gradually their way also to the works of many German Baroque composers. There has been some debate among scholars over the issue of whether Bach's style was affected by this new idiom. Frederick Neumann (1978, 41), a researcher of Baroque ornamentation argues strongly that Bach didn't adopt galant idiom in any degree. He describes the development of Bach's personal style in the following way: "The style he thus evolved at the age of

about thirty underwent no significant changes for the rest of his life and those that did occur, tended toward conservatism, not modernity." Marshall (1989, 33), in turn, argues that Bach was affected by the new influences, especially in the secular works of the 1730's and 1740's. This shift toward the modern style was, according to Marshall, presumably due to his position as the director of the *Collegium Musicum* in Leipzig or also to his urge to make a favorable impression on the royal family in Dresden.

Marshall maintains that galant influences appeared in Bach's works always in the context of his deeply-rooted Baroque idiom (Marshall 1989, 35). In favor of Marshall's argument speaks the fact that Bach used the devices of the older Baroque style also in his secular cantatas. He did not abandon the spun-out melodies of the *Fortspinnungstypus* in favor of symmetrical melodies appreciated by the galant aesthetics. The occurrence of the *Fortspinnungstypus* is relatively high in his secular cantatas: out of the total of 22 secular cantatas, as many as 11 are included in this study.

According to Marshall (1989, 33), this galant influence is seen in the "Coffee" cantata (BWV 211, c. 1734-35), in the "Peasant" cantata (BWV 212, 1742), and in cantata BWV 201 (1729 or 1730), which is thought to be the first example of the deliberate use of the galant idiom (Marshall 1989, 35). Of these BWV 201 and BWV 211 were included in the present study. The aria introductions BWV 201/5 and BWV 211/4 contained several commonly used scripts. For instance, all of the constituent schemata of the introduction 201/5 are found in Figure 10. With respect to the aria introduction 201/5, the structural units don't differ from those used in the church cantatas.

6 THE *FORTSPINNUNGSTYPUS* SCHEMA AS A PLOT STRUCTURE

In the previous chapters *Fortspinnungstypus* has been described solely in terms of music-theoretical concepts, notably those of harmony. In chapters 2 and 3 it was observed, however, that music-theorists tend to present literary parallels to those musical forms (processive forms), which don't follow conventional formal schemes. This chapter develops further the idea of literary parallels by exploring the metaphorical relationship between musical forms and forms of literary products. More specifically, the syntactical features of the *Fortspinnungstypus* schema are discussed in terms of literary plot structures. Borrowing terminology from literary theories does by no means imply that in comparison to musical forms literary forms should be considered to be primary in any ontological sense. Rather, both of them are taken to be manifestations of the same schema.

In literature, plot may be understood as an element, which provides the logic according to which scattered events are organized into a whole with appropriate magnitude and completeness (see Ricoeur 1984, 39-40). Musical plot can be understood to have a similar role. It describes the principles according to which parts of a musical work are combined to constitute a self-sufficient and complete musical form.

Although the previous chapters focused on the description of musical structures, the discussion contained such conceptualizations of musical structure that are not strictly musical in literal sense. For example, functionality, the key concept of the notion of form in the present study, cannot be understood literally. In fact, any functional explanation, whether it be tonal or formal, involve metaphorical interpretations of the part-whole relationship (Saslaw & Walsh 1996, 224).[1]

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[1] Recent studies have argued that the understanding of structural relationships in music involves metaphorical interpretations. For instance, hierarchical models used for describing musical structure, have been considered to be metaphoric (Zbikowski 1997, 200). Moreover, many music-theoretical concepts, for example, those of Schenker (Cook 1990, 4 and Zbikowski 1998) and Riemann (Saslaw, 1996) bear metaphorical connotations. Furthermore, descriptions understood traditionally as purely formalistic are not devoid of metaphoric language. As Scruton (1997, 341-342) observes, Hanslick's

6.1 Theoretical foundations

6.1.1 Metaphoricity

Metaphor has been traditionally understood as an essentially linguistic phenomenon, more specifically, as a figure of speech. In conventional terms, metaphor compares two things by saying that one is the other.

The understanding of metaphors has advanced significantly during the last two decades, most influentially by the work of Lakoff and Johnson. The revolutional claim presented by Lakoff and Johnson as early as 1980, was that our conceptual system is metaphorical in origin (Lakoff & Johnson 1980, 3-4). They define metaphors as the "understanding and experiencing one kind of thing in terms of another" (Lakoff and Johnson 1980, 5). Consequently, linguistic manifestations of metaphors as bare reflections of the deeper mappings (Lakoff 1990, 49).

In each metaphor there is a mapping between two separate domains, which are called the *source domain* and the *target domain*. For example a metaphor LOVE IS A JOURNEY, presents a mapping from source domain (journey) to the target domain (love) (Lakoff 1990, 48). The source domain is usually the domain of physical experience, the target domain involves more abstract understanding (Johnson 1987, xv). The abstract concept 'love' is explained with the more concrete concept 'journey', about which people are supposed to have a direct understanding through physical and perceptual experience of journeys. (Lakoff 1990, 72.) For instance the metaphor MUSIC IS SPEECH, which was common in German Baroque music theory (Mattheson's *Klang-Rede*), explains music with a more accessible source domain of rhetoric. This kind of metaphorical comparison doesn't imply that music should be understood as being subordinate to language or rhetoric. Apparently, the abstractness of musical concepts, such as musical form, forced Baroque theorists to look for conceptual tools in the theory of rhetoric, because the metaphor of rhetoric provided in semantical sense more tangible references to the real world, to the content of actual speeches. Similarly, literary metaphors can provide a more accessible tool for describing the structure of processive forms in music.

6.1.2 Image schemata

According to Lakoff and Johnson, the understanding of the conceptual system is largely based on the direct, kinesthetic experience of the world. Our perception, interaction with physical objects, and bodily movement through space are structured by abstract cognitive structures, which Lakoff and Johnson call *image schemata*[2]. Johnson defines image schemata as "a recurring, dynamic pattern of our perceptual interactions and motor programs that gives

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"sonorous forms in motion" (*tönend-bewegte Formen*) employ the metaphor of motion when describing the formal organization of music.

[2] The plural form *schemata* will be used here. Lakoff (e.g. 1990) uses the plural form *schemas*.

coherence and structure to our experience" (Johnson 1987, xiv). Image schemata are nonpropositional, analog, and imaginative in character (Johnson 1987, xx). Examples of image schemata include such schemata as *container*, *part-whole*, *link*, *source-path-goal*, *up-down*, *front-back*, *linear order* (Lakoff 1987, 271-75), *cycle*, *center-periphery*, and *scale* (Johnson 1987, 120-24).

All metaphorical mappings are partial. What is mapped preserves its image-schematic structure, but all image-schematic structure need not be mapped. (Lakoff 1990, 72.) The domains connected by the mapping are not arbitrary, instead, they have to have some internal correspondences. The so-called *invariance hypothesis* states that metaphorical mappings preserve the cognitive topology of the source domain. The term cognitive topology refers to the image schema structure. (Lakoff 1990, 54.) Abstract concepts, such as time, states, events, actions, purposes, means, causes, modalities, linear scales, and categories are understood metaphorically by image schemata, which structure their source domains. (Lakoff 1990, 39.)[3]

The role of preconceptual image schemata as the basis of thinking, even the abstract conceptual thinking, gives them a status of some kind of archforms or archschemas of cognition. In the analysis of musical structures, image schemata could provide an (unexplored) alternative to fundamental structural concepts, such as the Schenkerian *Ursatz*.

In cognitively oriented semantics image schemata are considered to act as important carriers of meaning (Gärdenfors 1999, 23). The basic assumption of the *cognitive semantics* is that meaning resides in the human mind, not in the outer world, as the traditional (realistic) semantics assumes (Gärdenfors 1999, 19-20). The so-called extramusical or referential meanings of a musical passage would not, then, be based on the objects or events it refers to. Instead, the "extramusical" meaning of the musical passage is based on the knowledge of the world, which is stored in the memory. Musical structures acquire "extramusical" meaning when they are mapped onto cognitive structures of other domains, such as literature. This kind of mapping is possible if there is a common image schema shared by the two domains.

6.1.2.1 Image schema SOURCE-PATH-GOAL

The physical basis for the source-path-goal schema is movement through space from location A to location B. Lakoff (1987, 275) distinguishes four structural elements in the schema: (1) a source (starting point), (2) a destination (end point), (3) a path (a sequence of contiguous locations connecting the source and the destination, and (4) a direction (toward the destination). Johnson specifies that the direction of the path is something which is imposed by human beings, and that the path may change its direction before the final goal. The source-path-goal schema has also temporal implications. Since every intermediate point in the path has to be passed in order to achieve the destination, the

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[3] The theory of embodied cognition has not received general approval. Murphy (1997, 99) states that the theory should be developed further before it can be used in argumentation. Murphy (1995, 176-177) makes distinction between strong and weak versions of metaphorical representations. According to him Lakoff and Johnson represent the strong view. The weak version claims that language has affected the emergence of concepts. Metaphors would thus be adjusted to language.

locations on the route "measure" the flow of time: the further the location on the path, the more time has passed. (Johnson 1987, 114.)

Temporal processes, either physical or imaginative, can be thought as source-path-goal schemata. The series of events in drama, story, or musical work can be interpreted as goal-oriented processes. In each of the domains the process can be divided into initial states, intermediate stages and a final state (Saslaw 1996, 220). The metaphorical relationship between musical form and the plot of drama/narrative is assumed here to be based on a shared source-path-goal image schema.

Since both narrative and drama have plot, they are discussed together as representatives of plot structure (section 6.1.4.1). In fact, drama can be characterized as a form of narrative, as Ricoeur has suggested (Ricoeur 1984, 36; see also Berger 1992). Maus (1997, 301) has suggested that in many studies drawn on the analogical relationship between music and narrative, the same claims could have been presented by drawing upon the analogy between music and drama. In fact, Maus (1997, 301) accounts that the analogy of drama works better in music since "drama can yield less misleading formulations".

6.1.2.2 Image schema CYCLE

Another image schema, which structures the experience of temporal processes, and which can be useful in the metaphorical interpretation of musical processes, is the *cycle* schema. According to Johnson (1987, 119) a cycle schema begins with an initial state, proceeds through a sequence of events, and returns back to the initial state. After this, the cyclical process starts anew. Cycles are commonly associated with a curve of build-up and release of tension.

In tonal music melodic and harmonic tension tend to proceed in cycles. For instance, harmonic progressions form cycles (Sadai's functional cycle), which consist of building up tension and releasing tension. Moreover, forms with refrains, such as the rondo form are cyclic with respect to their thematic-harmonic content: the initial state returns as the refrain returns. In processive forms, including the *Fortspinnungstypus*, such thematic-harmonic returns don't occur. However, in these forms cyclical structuring can be found in the level of harmony.

6.1.3 Jean Mandler's story schema

In section 4.2.2 musical structures were discussed in terms of schema theory. Similarly, stories, may have recurrent features, which imply a common schema. For example folk tales of various cultures share similar structural features, and can be understood as a specific case of event schemata. A *story schema* is a mental structure which reflects the regularities the perceiver has encountered when interacting with stories. Jean M. Mandler has made distinction between *story grammars* and *story schemas*. Story grammar is a rule system describing the regularities of a text type. The rules describe the units of the story and the order in which the parts occur in the story. (Mandler 1984, 17-18.)(Figure 18).

I setting
II episode(s), each having
- beginning (one or more events)
- development (several parts)
  - reaction from the protagonist
    - *simple reaction* (emotion, anger, fear etc.)->action performed (and)
    - *complex reaction* (more typical)(simple reaction causes the protagonist to do something about the beginning event(s) –>
    - setting the goal path to achieve the goal –>
    - either success or failure of the attempt –>

III ending
- commentary on the preceding events
- sometimes a statement of the long-range consequences of the episode
- reaction (protagonist/character) to the events that have taken place
- if the episode is the last one in the story, an emphatic statement may follow (they lived happily ever after)

FIGURE 18 The ground plan for the story structure according to Mandler1984.

The story schema consists of three functionally different phases, which also specify the general division into beginning-middle-end. First, there is a setting introducing the protagonist and other characters, sometimes referring to the time and place of the story. Second, there are one or more episodes, which form the overall plot structure of the story. Third, there is an ending. There may be deletions and other changes in the schema. What is significant in the schema is that the story progresses in cycles according to the tension-release process of the plot, a characteristic found also in the arc hierarchy of the classical drama.

The story schema contains the idea of repeating successive episodes in a chain-like manner. Adding an indefinite number of structural segments is characteristic of the forms of the Baroque period. In a *Fortspinnungstypus* several sequential developments may take place, and in a movement there may several segments each of them following the *Fortspinnungstypus*.

Empirical studies focusing on the recurrent features of stories, plays, or musical works may aim at exposing the grammatical rules of the corpus, without making any assumptions of the existence of cognitive schemata. However, the results of these studies can be taken to contribute to the understanding of schemata. Identifying the elements and the order of their appearance is, according to Mandler, the core of grammatical rules. The concept of story grammar does not presuppose the existence of memory representations of the story. A story grammar describes the way in which story schemas are structured, not what people know about story structures and whether they use that knowledge, for example, when listening to a story. (Mandler 1984, 31.) In his study of Russian folktales, Vladimir Propp found that folktales consist of a limited number (31) of functions (Propp 1958, 58). The functions, which are defined by action of characters, were found to appear in principally the same order in each folktale (Propp 1958, 19-20). Some of the functions could be omitted, however, but the order of functions was preserved

(Propp 1958, 98). The findings of Propp indicate the existence of grammatical rules, even the existence of a schema could be inferred from the findings.

6.1.4 Literary plot structure as the source domain for musical form

One plausible source domain for plot metaphors in music is the classical drama. Aristotle (Poetics, Part XVIII) considered a plot in a tragedy as consisting of two phases: rising action containing the process of complication (*desis*) and falling action containing the process of resolution (*lusis*). The respective terms in French being *nœud* and *dénouement*, and in English *intrigue* and *unraveling* (Hoyt 1996, 155-156). The point, in which the process reverses from good or bad or *vice versa*, was called *peripeteia* (reversal) by Aristotle.

6.1.4.1 The main arc of the plot

In his *Die Technik des Dramas* 1863 Gustav Freytag specified the constituent phases in rising and falling action of a drama and presented them in the form of a triangle (pyramid) (Figure 19): The five parts are (a) introduction (*Einleitung*), (b) rise (*Steigerun*g), (c) high-point (*Höhepunkt*), (d) fall or return (*Fall oder Umkehr*), (e) catastrophe (*Katastrophe*). Between the five parts Freytag specifies three effects: the beginning of accelerated treatment between (a) and (b), the beginning of countereffects between (c) and (d), and the last rise before the catastrophe between (d) and (e). (Freytag 1922, 102.)

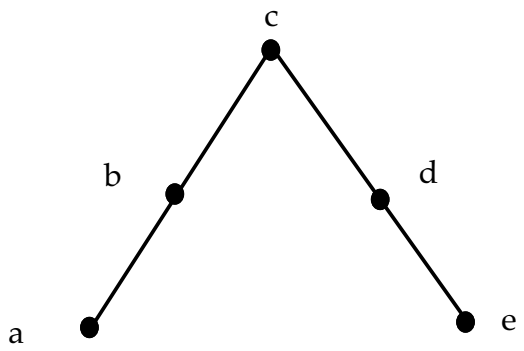

FIGURE 19 Freytag's triangle (Freytag 1922, 102).

According to Martin Esslin, the rising action in drama displays increasing uncertainty causing suspense in the audience. The main arc of drama consists of exposition (the objective of the drama), complication or development, climax, *peripeteia* (turning point), and dénoument (solution). (Esslin 1976, 48-49)(Figure 20). The main arc of the drama is supported by a conflict introduced in the beginning.

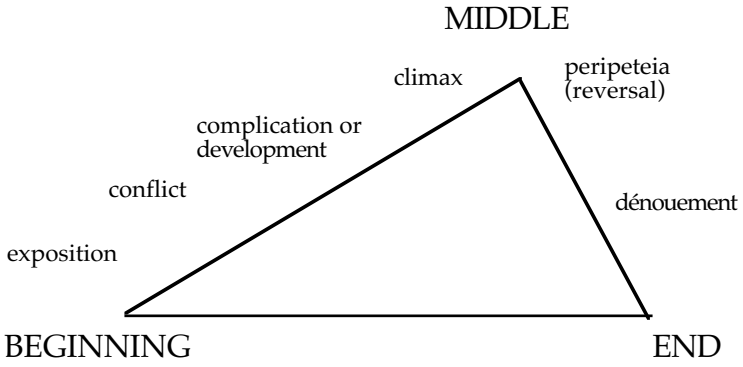

FIGURE 20 The constituent functions of classical drama.

It can be suggested that the main arc of the plot represents a specific kind of a source-path-goal image schema. Along the path, from the beginning to the end, there has to be something that initiates the movement from the stable state, and something, which gives impulse to the return to a stable state. Moreover, in drama there is a characteristic point of highest intensity, a culmination (climax, *peripeteia*). The arc may also be thought to create a sense of a complete cycle, during which tensions are built up and released. The final state is not, however, the same as the initial state.

Literary critic Tzvetan Todorov attempted to develop a "grammar" of narrative, analogical to the grammar of language. He proposed a concept, *ideal narrative* (Todorov 1977, 111), which describes the dynamic progression of plot in narratives:

> ... an "ideal" narrative begins with a stable situation which is disturbed by some power or force. There results a state of disequilibrium; by the action of a force directed in the opposite direction, the equilibrium is re-established; the second equilibrium is similar to the first, but the two are never identical.

As in drama, the path in narrative contains a point in which the equilibrium is disturbed and the movement along the path can begin. The return to the stable situation is not possible without some incident, which reverses the path.

What is significant in Todorov's conception is that the state of equilibrium restored at the end is not identical to the beginning. Sonata form, which has been suggested to represent an example of the ideal narrative (Maus 1988), demonstrates that the original situation and end are not identical.

According to Meyer (2001, 357), at the core of any plot there is a process from insecurity of ignorance to the security of knowing. A plot implies that there is a goal for the succession of events: uncertainty experienced in novel, drama, or musical work is expected to resolve to an imagined goal. Like Meyer semiotician Kofi Agawu (1991, 130) considers the structural features to be central for the musical plot. According to him the plot may be found on a purely musical (not on the expressive) level, namely in *structural rhythm*, by which he means simply the movement of music in time, for example a shift from instability to stability. Extramusical references are not, as Sivuoja - Gunaratnam (1997, 136-137) has argued, prerequisites of narrative interpretations of music.

In several occasions Meyer (1956, 93 f., 1973, 119ff., 1989, 304 ff.) has discussed the musical manifestations of Aristotelian *peripeteia*. Musically *peripeteia* is a process reversal, which consists either of a *syntactical climax* or a *statistical climax*. The former refers to a change in the process from relative mobility, ambiguity, uniformity, or irregularity, to relative stability, coherent process, and clear form. The latter includes gradual increase in the intensity of physical characteristics of the sound. Whereas the syntactic climax is accomplished by primary parameters melody, harmony, and rhythm, the statistical climax, or the apotheosis, as Meyer calls it, is based on a gradual increase in secondary parameters, such as dynamics, pitch frequency, rate of note succession, timbre, and tempo. (Meyer 1980, 189.) A typical context for a syntactical climax is the move from the development to the recapitulation in sonata form. A statistical climax is located usually later in the movement. One of the contexts, in which syntactical climax may occur is, according to Meyer, after the sequence (Meyer 1989, 305).

The idea of the source-path-goal schema as a ground plan in a tonal work, which in its end returns back to the tonic, raises questions. How could the tonic harmony act both as a point of departure and as a goal for the process? The question is even more valid in connection with musical forms, which restate literally their initial thematic-harmonic material. Literal repetitions have been considered to propose a problem for narrative and dramatic interpretations of music since literal repetitions usually don't occur in drama or narrative. Philosopher Peter Kivy rejects literary models exactly for this reason. He emphasizes the identicity between the original statement and its repetition. According to Kivy, the only difference between original statement and its repetition is that they appear in a different context. (Kivy 1993, 341.)[4] The very basic assumption of any functional explanation is, however, that one cannot observe constituent parts in isolation, but only in relation to the other parts and to the whole. The reappearance of an event is *functionally* different from its original appearance. They should not be considered to be identical in spite of their identical structure. As Edward Cone states "... there is no such thing as true redundancy in music." (Cone 1968, 46).

6.1.4.2 Subsidiary arcs of the plot

The main arc supporting the whole drama consists of subsidiary arcs of smaller time-spans (Figure 21). The lowest level of suspension, the smallest arcs, are found on the level of the dialog (Esslin 1976, 44-47).

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[4] As an alternative explanation Kivy offers the wall-paper model, which captures an important aspect of music, namely that of spatiality. In the present study the spatial aspect is considered to be more central for those musical forms striving for symmetrical relationships between their constituent parts and containing literal repetitions.

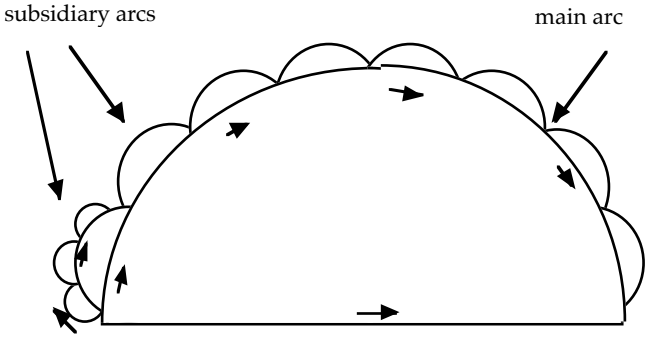

FIGURE 21 The subsidiary arcs on the main arc of the plot according to Esslin (1976, 45).

Instead of one tension-release process, each act and scene has its own exposition, intrigue, and *dénouement*. (see Hoyt 1996, 150.)

The recursiveness of the plot structure is also displayed in narratives.[5] According to Scholes (1979, 239):

> Every separable element in a narrative can be said to have its own plot, its own little system of tension and resolution which contributes its bit to the general system. Not only every episode or incident but every paragraph and every sentence has its beginning, middle, and end.

The arcs of tension-release can quite easily be transferred to the realm of tonal music. In fact Lester's idea of parallel periods speaks in favor of this kind of cyclical structuring in Bach's music. Brower (2000, 350), in turn, describes the internal dynamics of a musical phrase as follows:

> Each phrase is represented as having two distinct goals: the climax of the phrase–the turning point between tension and relaxation, and the cadence–the maximally stable event at the end of the phrase.

Brower (2000, 350) presents a graph of a prototype of musical phrase structure (Figure 22). Within the main arc are nested several smaller arcs of motion, which all can, according to Brower, be understood as mappings of Johnson's and Lakoff's CYCLE and SOURCE-PATH-GOAL image schemata.

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[5] Mandler's description of the story schema (see Section 6.1.3) reveals the cyclical structure characteristic of stories.

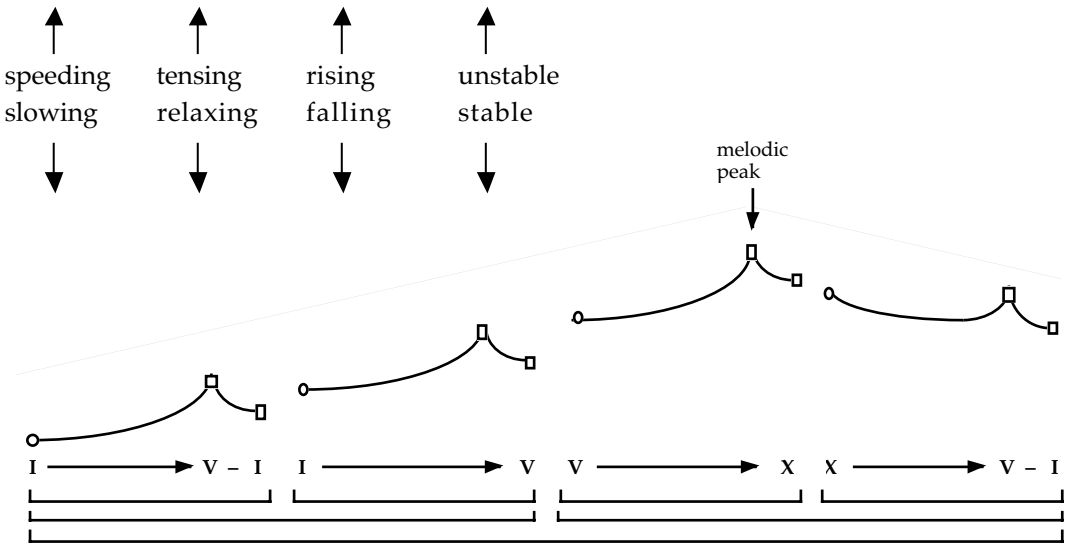

FIGURE 22 Schema for phrase structure according to Brower (2000, 350).

Phrases form arcs (cycles), each of which has its internal source-path-goal process with its own climax. Only the last phrase is brought to a complete state of rest and stability. Increased tension is marked with arrows pointing upwards (opposition to gravity), which refer to such characteristics as speeding, tensing, rising, or instability. The downward arrows refer to decreasing tension, slowing, relaxing, falling, stability. In reality it may be difficult to decide when a phrase should be interpreted as descending, when as ascending. Moreover, the oppositions speeding-slowing, tensing-relaxing, rising-falling, unstable-stable may work against each other in different parameters. For instance, melody may be descending and harmonically relaxing (descending fifths) but at the same time it may contain liquidation and thus a sense of speeding. The structure presented in Figure 22 is quite similar to the diagram presented in Figure 22. Brower herself observes the analogical relationship between the general outline of Figure 22 and Todorov's ideal narrative (Brower 2000, 352).

In musical works, recurring tension-release processes of smaller scale are crucial for the understanding the operation of formal functions, the 'plot' of the musical work. Instead of one tension-release process, pursued by the Schenkerian approach, analysis of the functional form has to emphasize the diversity of tension-release processes and the significance of each and every one of the functions, in their own right. As a constituent part of a larger form, the *Fortspinnungstypus* forms only one cycle of tension-release process. However, it can be considered as having its own plot with a process from instability to stability.

Plot metaphors are commonly applied to whole movements or works. Maus's analysis of the seventeen measures from the opening of Beethoven's Quartet in F minor, op. 95 has aroused critical comments. The problem with this partial plot analysis is, according to Karl (1997, 20, note 27) that dramatic events occurring later in the work would be crucial for understanding the events and their relationships in the opening. Moreover, he sees difficulties in relating the results of the analysis of a constituent part to the dramatic actions of the whole

movement. The present study challenges this critique by arguing that music is meaningful also on the level of smaller time spans, i. e. those of the phrases and periods. In real-time listening process, knowledge of the later dramatic events and actions is not available for the listener. She/he may interpret the first measures of a musical work as a dramatic process from a stable situation towards a climax, and finally to a stable goal. How to relate the dramatic content of the opening measures to the dramatic content of the whole movement may be a complex issue, but in practice no more complex than making sense of an entire speech from successive sentences.

6.1.4.3 Problems with plot interpretations in music

Some writers have challenged the narrative capacity of music. Carolyn Abbate, for example, does not believe in musical work's ability to narrate, at least not in the literal sense of the word. According to her, one of the obstacles of music's narrativity being that a musical work cannot tell a tale in the past tense. (Abbate 1989, 230.) She also presents reservations against plot interpretations of music. According to her, plot analysis ends up with "analogies without apodictic security" (Abbate 1991, 28). Jean-Jacques Nattiez (1991, 257), in turn, regards narrativity as a superfluous metaphor.[6] Plot is something listeners construct in their imagination; it is not in the music (Nattiez 1991, 249). It is impossible for music to tell a story, for example of specific people, since music lacks appropriate means, such as subject-predicate relationships (Nattiez 1991, 244). The present study shares Nattiez's view that music's narrativity is metaphorical in nature. But if it is superfluous, how is it possible that music-theorists constantly turn to literary metaphors when dealing with musical forms with processive character. It appears that literary metaphors are not superfluous but rather felt as necessary in discussions of processive forms. The metaphor of plot provides conceptual tools, which seem to succeed better than music-theoretical concepts in capturing the principles with which constituent parts are joined together. Karl points out, quite correctly, that the major advocates of musical narratology don't consider music as narrating in traditional sense, nor are they interested in naive extramusical references. The interest of many narrativists is to integrate structural and semantic-expressive domains by developing conceptual tools shared by both domains. (Karl 1997, 13-14.) As Eco (1971, 348) has observed, structural models may be used for methodological purposes.

6.1.5 The roles of form and thematic structure in musical plot

Several scholars (e.g. Newcomb 1987, Maus 1988, Berger 1992, Karl 1997) have discussed the analogical relationship between literary plot and the organization of musical work. Various views have been presented of the role musical form and thematic content have for the plot metaphor. Anthony Newcomb (1987, 164-166) proposed that musical form is in an analogical relationship with literary plot. He observes that it is characteristic of both literature and music that series of functional events are presented in a prescribed order. Newcomb

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[6] This view of music's narrativity has been criticized (see e.g. Sivuoja-Gunaratnam 1997, 140).

considers the form types of music to be *paradigmatic plots*.[7] Especially in the Classic-Romantic period musical forms contained functions which were determined by convention. According to him thematic similarity or dissimilarity is not crucial for the idea of a paradigmatic plot. Consequently, formal schemes (such as ABA), with their patterns of thematic-tonal recurrence, should not be taken, according to Newcomb, as paradigmatic plots. The reservations Newcomb presents against traditional formal types as the carriers of the musical plot structure are shared by the present study. The formal types don't specify the way plot is carried out. The same formal type can have, and most probably has, many different dramatic implementations.

If the metaphorical relationship between literary plot and musical form is accepted, structural units of music acting in specific functions can be understood to carry meaning derived from their function. This has been acknowledged also in music theory. For instance, Berry's theory of structural functions discussed in section 3.3.2 accounted the expressive characteristics of music as being based on structural elements, such as *progression*, *recession*, and *stasis*.

Some musical narratologists have based their views on the issue of musical plot on the close relationship between structure and content. Fred Maus regards musical structure and its emotional or other content as inseparable. The analogy between drama and music means that "the structure of music is its plot" (Maus 1988, 72). Musical structure is dramatic in itself. Gregory Karl (1997, 14-15), in turn, regards the plot as a concept through which structural and semantic-expressive elements can be integrated into a musical work. One of the aims of contemporary music theory should be, according to him, to reveal the fundamental musical plot structure, the "Ursatz" of musical narrative.

In the present study, it is assumed that the syntactical features concerning form and structure are crucial for the understanding musical plot. The schema of formal functions provides the structural basis for discussions of plot in the *Fortspinnungstypus* schema. Formal functions defined solely in terms of harmonic-contrapuntal events are, however, too abstract to raise images of a musical plot, which is articulated in tonal works also by the melodic-rhythmic motives (see Schoenberg 1993, 60). The thematic structure of the work is considered to be a crucial element of the plot, since the plot metaphor is usually carried out by interpreting the principal idea of the work as the *protagonist* and its subsequent development as the fate of the protagonist (Bonds 1991, 187).

Karl proposes an analytical model for the analysis of narrative structure in music based on the ideas of Propp[8]. He refers to the principal theme of the movement as its *protagonist*, and the musical material opposing it as the *antagonist*. Karl distinguishes ten functions, which he defines as the fundamental units of the plot, which are actions performed by agents with respect to other agents. The functions are *enclosure*, *disruption*, *subversion*, *counteraction*,

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7 Lévi-Strauss (1979, 50-51) considered myths to be at the origin of tonal forms. Musical forms share some structural features of myths. The fugue, like the myth, is based on the opposition of two elements (subject-answer in the fugue). The conflict is brought, as in a story, into a climax and is resolved at the end of the fugue.

8 In the studies of musical plot, one of the frequently cited studies is the study of Russianfolktales by Vladimir Propp (see e.g. Gjerdingen 1991, Karl 1997). According to Propp, the structural functions of the plot were carried out by *roles*, idealized *characters*, such as the villain. The villain is represented by human beings, such as stepmother, witch, dragon, evil sisters etc. (Propp 1958, 28).

interruption, *integration*, *divergence*, *withdrawal*, *realization*, and *transfiguration*. (Karl 1997, 19-20.) The play of agents and functions describe the plot of the movement

This is not, however, a necessary condition for all discussions of plot in music. Newcomb suggests that functions can be carried out without definite characters, i. e. thematic identities (Newcomb 1987, 165). Maus, in turn, discusses the problem of *action* and *agent*, which in music seem to collapse into one another: for instance, a motive may be understood both as an action of a recurrent character, or as a character or agent. He points out that just as tragedy was to Aristotle the imitation of action, not of men, in music action can be regarded as more important than the agents: music is drama without determinate characters. (Maus 1988, 70.) The role of motives, whether regarded as agents or actions, is significant for the process of plot since a motive preserves its identity in various developments of the plot making it easier to identify different phases of the plot.

In contrast to the analysis of the structural schemata (Chapter 4), the analysis in Section 6.3 will focus on the role of melodic-rhythmic motives in the aria introductions.

6.1.6 A hypothetical plot structure of the *Fortspinnungstypus* schema

In the *Fortspinnungstypus* schema the underlying ground plan stability-mobility-stability gives outlines for the musical plot structure (Figure 23). With respect to harmony the source state or the beginning of the plot structure is best represented by the tonic chord. Thus the tonic prolongation, which constitutes the beginning function (B) acts as a stable point of departure in the plot structure. In harmonic sense a departure from the tonic creates a conflict, which needs to be resolved. The digression function, especially its end which articulates the goal of the harmonic departure, is suitable for articulating the conflict. The sequence, which delays the resolution to the tonic, is analogical with the further complication or the development of the plot structure. The climax and process reversal (*peripeteia*) occurs, as Meyer suggested after the sequence. Thus, in the *Fortspinnungstypus* schema the bridge function (Br) is a probable location for the climax and *peripeteia*. The epilog (E), which consists of a tonic prolongation, represents harmonically the resolution.

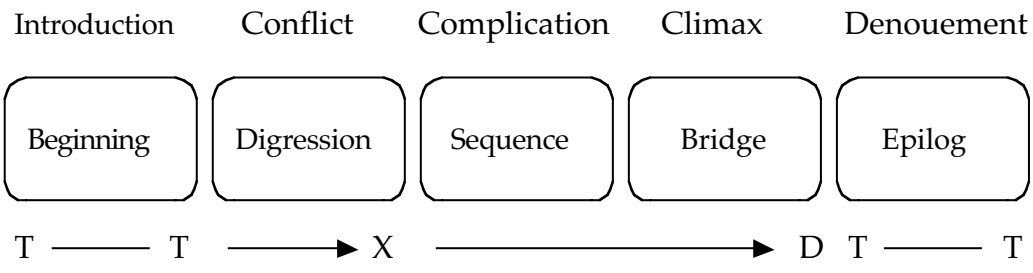


FIGURE 23 A hypothetical realization of the plot structure in the harmonic ground plan of the *Fortspinnungstypus* schema.

Harmonic functions are, however, too abstract to describe the plot structure. The process of building tension and resolving it, or, in Meyer's words, the process from instability to stability, is not articulated solely by harmonic functions. Some specifications to the plot structure of the *Fortspinnungstypus* can be made on the basis of the two-part scripts discussed in chapter 4 (level 3 description) and chapter 5. The list of scripts in column B in Figure 10 shows that already within the first tonic prolongation, i. e. within the beginning function (B), there is usually tonal motion (weak prolongation). The prolongation occurs mostly between chords i^8 and i^3 (B/1, B/2, B/5, B/7) or between chords i and i6 (B/3). Both of the prolongation types form incomplete cycles, which at their end don't return back to the initial situation. Thus, the initial stable situation has to be restricted to the very first tonic chord, comprising for instance the tonic form of the basic idea. A conflict is ready to emerge within the first tonic prolongation, for instance in the dominant harmony (e.g. the dominant form of the basic idea).

The scripts representing the cadence function (C) articulate a stronger tonal conflict, since they most commonly end on the dominant chord V with the leading tone in the upper voice (C/1-3, C/6, (C/5)).

Most of the sequence scripts (S) delay a return to the tonic (S/1-8). The climax and reversal (*peripeteia*) are likely to appear after the sequence, more specifically, in the bridge. The scripts presenting the Meyer's *syntactical climax* contain chromatic alterations in order to signal the moment of climax and the point of reversal. The bridge script may contain the following chromatic chords: N6 (Br/3-4), V/V (Br/7), and V/iv (Br/8). *Statistical climax* appears in the form of relatively rapid linear ascents in the upper-voice either with a descending bass (Br/5) or with a parallely ascending bass (Br/6). A statistical climax may also appear as an ascending melodic sequence on a dominant prolongation (some examples in Br/1 script category). Basically, any of the bridge scripts may contain liquidation, which serves as a technique of statistical climax. Thus, the borderline between syntactical and statistical climax is not always clear-cut.

In chapter 4 it was observed that the characteristics of the bridge scripts can't be explained on the basis of their structural-harmonic function (to reintroduce the dominant), for which a simple SD progression would be sufficient. The structural characteristics of the bridge scripts can rather be explained in terms of the plot metaphor: chromatic alterations function as a signal of a process reversal, and both the melodic ascent and liquidation are needed to accomplish an expressive culmination of the process.

The epilog (E) constitutes a weak tonic prolongation. As a rule it is carried out with scripts (see Figure 10), which have a descending upper-voice melody, most commonly from 3 to 1 with chords i^3-i^8 (E/1-2, 4-6) or from 5 to 1 with chords i6-i (E/3, 7-8). The epilog presents a denouement, in which the stable goal can be anticipated but in which the upper voice and sometimes also the bass still need to be brought to the tonic. Thus the final stable situation is reached only at the last tonic chord.

6.2 Method and research questions

In the following analysis the term plot refers to a musical process, the essential content of which is to proceed from a musical conflict (presented in a structural unit in any of the musical parameters) to its resolution (reappearance of the structural unit without the conflicting characteristics). The unstable and mobile middle part is assumed to provide the setting for those motive forms, which contain unresolved harmonic or melodic tensions.

The motivic content of the introductions is difficult to study by statistical methods due to the individuality of motivic construction in each example. The interpretations represented below are intended for the demonstration of the goal directed process of the melodic-harmonic content, which is conceptualized with concepts borrowed from the theory of classical drama. It should be remembered, however, that each of the interpretations concerning the musical plot structure of the introductions represent only one of the many possible interpretations.

The following analysis is qualitative in orientation and it aims at describing the formal functions of the aria introductions in terms of their metaphorical relationship with the plot structure of drama/narrative. Interpretations concerning the correspondences between plot structure and the functional parts of musical form are presented by eight examples selected from the research material. Specific attention is directed to the following questions: to what extent the examples representing the *Fortspinnungstypus* contain a structural developmental process introducing

(1) tensional element(s) of *conflict*,
(2) complication of events culminating in *climax*,
(3) process reversal (*peripeteia*), and
(4) resolution of tensional elements (*denouement*)?

The major concern is to investigate the role of melodic-rhythmic motives in conveying the narrative curve of the musical plot.

6.3 Analysis

The analytical examples of this section demonstrate various ways of presenting harmonic, motivic and/or rhythmic conflicts as well as various ways of resolving them. The examples are grouped according to the final cadences of the presentation phrase (digression function), which in section 6.4 was assumed to be a probable location for presenting the conflict.

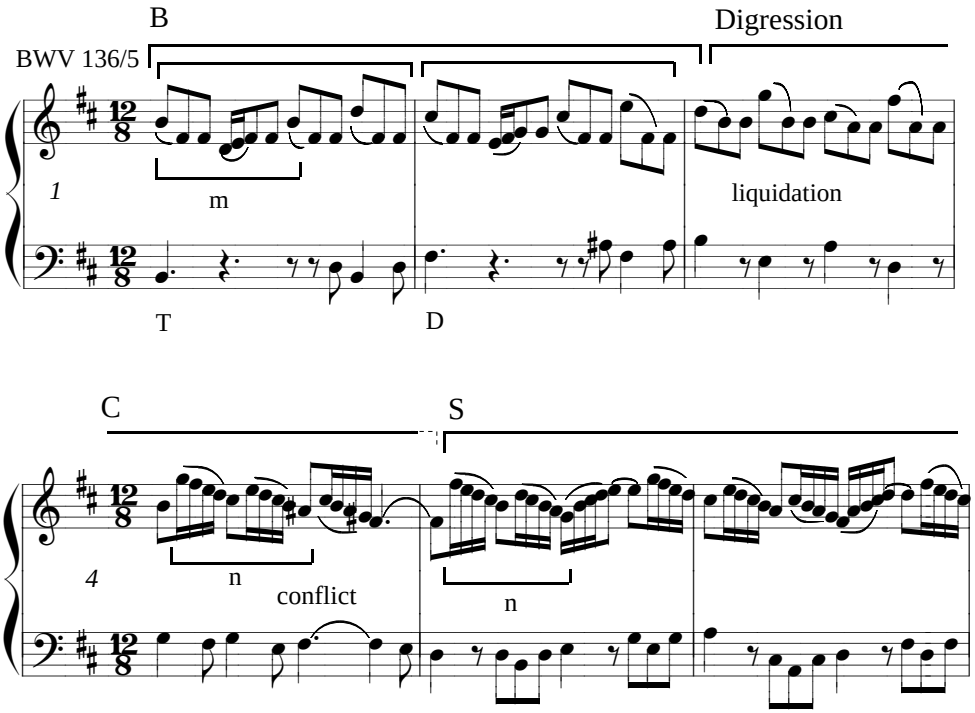
6.3.1 Examples with presentation phrases ending on a half cadence

The examples of this section illustrates a musical plot in which the motivic conflicts appear in the half cadence of the presentation phrase and/or on a dominant harmony appearing within the first tonic prolongation.

6.3.1.1 BWV 136/5

The presentation phrase of BWV 136/5 is based on the *Adeste Fidelis* schema. The initial motive (b.i.) (m.1) accompanied by the tonic chord, acts as a stable point of departure, which is followed immediately by its dominant form. The dominant form of the motive is not resolved satisfactorily to the tonic since in measure 3 the upper voice has progressed to the mediant and the "middle voice" is left on the dominant. From measure 3 begins a short sequence based on the liquidation of the initial motive (Example 100). This short sequence is followed by a half cadence, which ends the presentation phrase in m. 4. The sequential progression in mm. 3-4 strengthens a sense of accelerated movement as well as a sense of tonal digression. Consequently the dominant appears as a strong sub-goal, which is characterized by a harmonic tension and motivic fragmentation. In dramatic sense the situation in m. 4 represents a conflict, which needs a resolution.

EXAMPLE 100 The plot structure in BWV 136/5.



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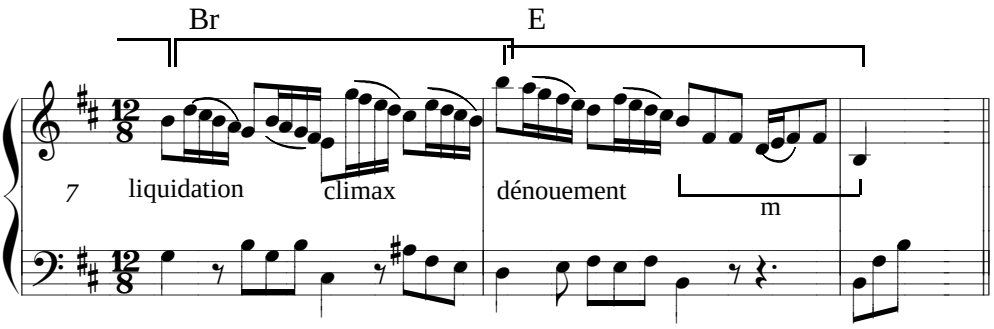
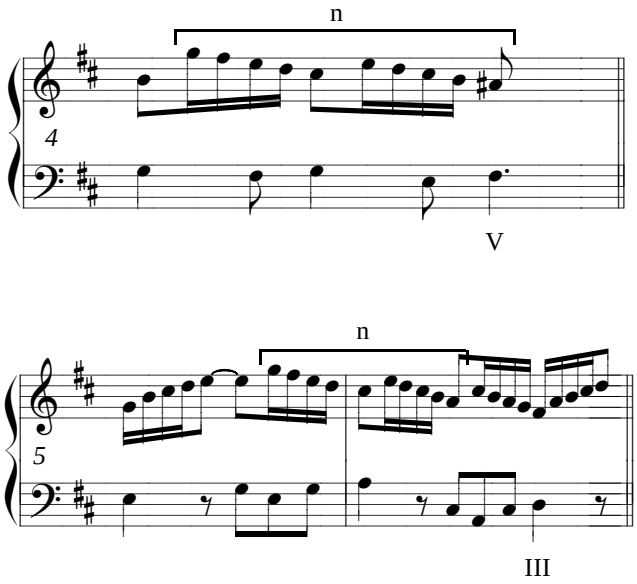
EXAMPLE 100 (continues)



The sequence, which is based on the circle-of-fifths chord progression, begins from m. 5. The transposing melodic pattern of the sequence is motive n, which was introduced in m.4. The sequence leads to the submediant chord in m. 7, which acts structurally as a bridge between the sequence and the epilog, and which melodically is based on a liquidation of the sequence motive. The bridge (m.7) contains the most intensive moment of the development, and acts as a climax leading to the resolution (dénouement), which occurs in the epilog.

Motivic material stemming from the half cadence appears as transposed in the continuation phrase (Example 101). The development of the plot can be followed by comparing m. 4, mm. 5-6, and mm. 7-8 to each other. The motive n appearing originally in the half cadence (m. 4) is transposed to D major context in mm. 5-6, which increases further its harmonic distance from the tonic but which at the same time preserves the original pitches of the motive except for the final pitch. At the end of m. 7 the motive reappears again at the same pitch, only this time motive n finds a satisfactory resolution to the tonic pitch (b^3).

EXAMPLE 101 The development of plot structure in BWV 136/5.



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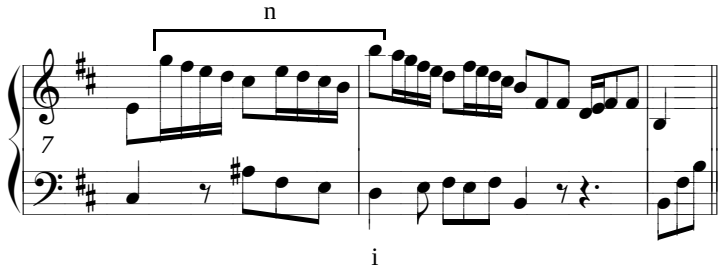
EXAMPLE 101 (continues)



This introduction demonstrates a rare incident of repeating the initial melodic motive at the end of the introduction exactly in its original form. However, the motive does not appear as a triumphant confirmation, but more like a whisper without any support (or resistance) from the other voices.

The introduction consists of two parallel sections since mm. 1-4 and mm. 5-8 correspond each other. The structure is congruent with Lester's idea of parallel sections, with the exception that while the first section builds up the tension and conflict, the second section not only intensifies it but also resolves it at the end.

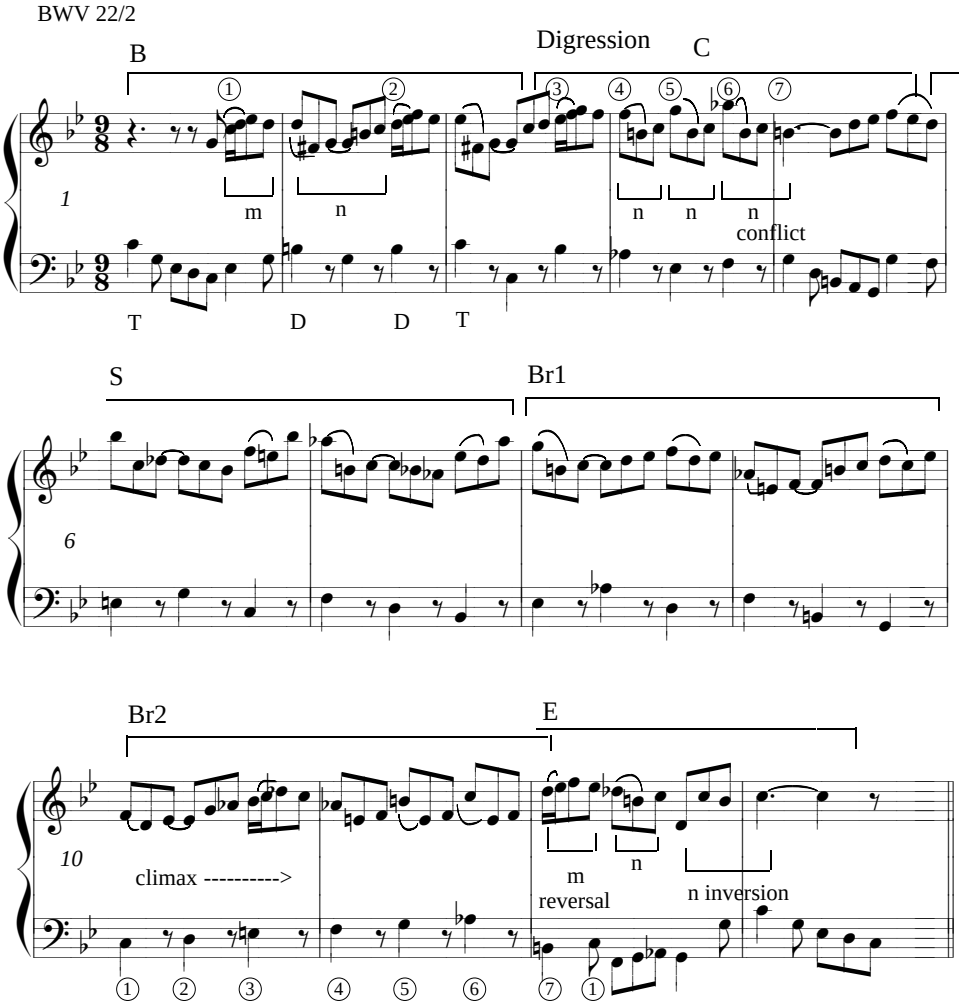
6.3.1.2 BWV 22/2

BWV 22/2 begins with the *Adeste Fidelis* schema. The basic idea is introduced in measures 1-2 containing motives m and n above chord progression T-D. The basic idea is followed by its transposed repetition accompanied by harmonies D-T (Example 102). The resolution to the tonic is not satisfactory since the upper-voice is left on the mediant and the "middle-voice" on the dominant. The presentation phrase itself constitutes a *Fortspinnungstypus* with a partial sequence based on the liquidation of the basic idea (motive n). The half cadence (C) representing the digression function is based on a linear ascending melody. The arrival to the dominant contains a dramatic surprise as the linear ascent (1-2-) 3-4-5-6 in the upper voice is, instead of the expected b^2, brought to b^1. This dramatic leap of a diminished seventh (a^2-b^1) to the leading tone constitutes a melodic-harmonic conflict that requires resolution.

A circle-of-fifths sequence takes over. Melodically it is based on a variant of motive n. The dramatic motive $a♭^2$-b^1-c^2 (n) from m. 4 is repeated in m. 7 in a melodically and harmonically identical form, but yet no resolution to the tonic occurs. After two statements of the sequence pattern, the sequence starts to move more freely ending on i in m. 10. With respect to harmonic and formal functions, the ritornello could end in measure 10.

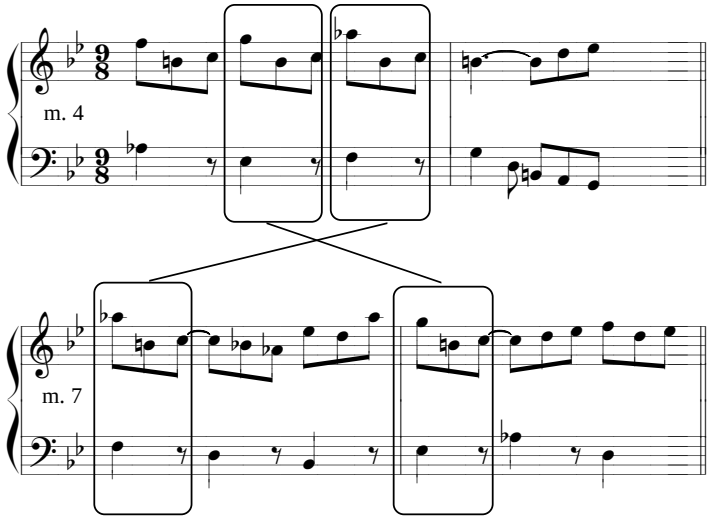
However, a second bridge (Br2) follows from m. 10. The beginning of m. 11 is identical with the beginning of m. 9, which gives the impression that a second attempt to achieve a resolution is made. The second bridge passage based on a stepwise ascending bass constitutes a statistical climax, which is followed by a reversal at the beginning m. 12 introducing the Neapolitan chord as a signal of process reversal.

EXAMPLE 102 The plot structure in BWV 22/2.



The development of the musical plot can be followed by comparing similar passages with each other. The motives (n) associated with the conflict in m. 4 are presented in reversed order in the sequence (mm. 7-8) (Example 103). Both of the bridges continue developing motive n. In m. 12 a Neapolitan version of motive n leads to an inversion of n, which succeeds to resolve the leading tone to the tonic in m. 13. The conflict of m. 4 is resolved also on another structural level. The bass melody c-d-e-f-g-a♭-B in mm. 10-12 is almost an exact repetition of the structural melody, on which the upper voice was grounded in mm. 1-5 (marked with circled Arabic numerals in Example 102). The most decisive difference between the two melodies is that whereas in m. 4 the ascent was stopped at the leading tone, in m. 12 there occurs a resolution to the tonic.

EXAMPLE 103 The development of plot structure in BWV 22/2.



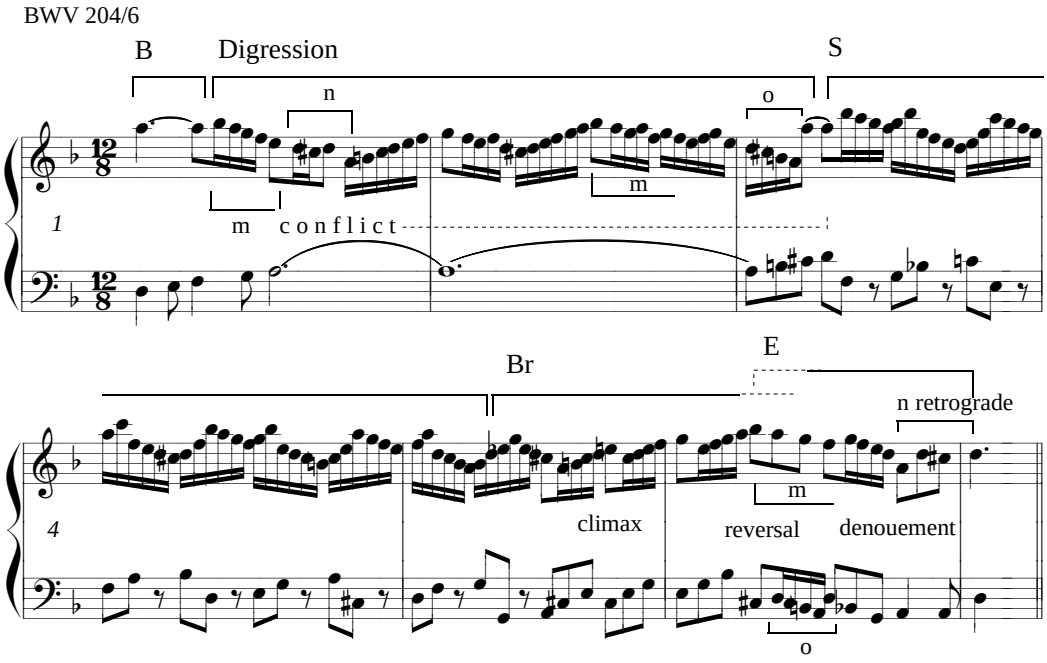
In the epilog the initial motivic ideas are heard as an emphatic conclusion: motive m is displaced metrically to the first beat of m. 12 and the motive n receives for the first time a harmonization in which all tones appear as chord tones.

6.3.1.3 BWV 204/6

In BWV 204/6 the initial tonic prolongation is relatively short. The presentation phrase is based on the solistic use of the flute, which plays an ascending sequence above an extended dominant pedal (Example 104). The dominant prolongation acts also as a prolongation of the conflict. The conflict is culminated at $b\flat^2$ (m. 2), from which the melody descends to the dominant (m.3).

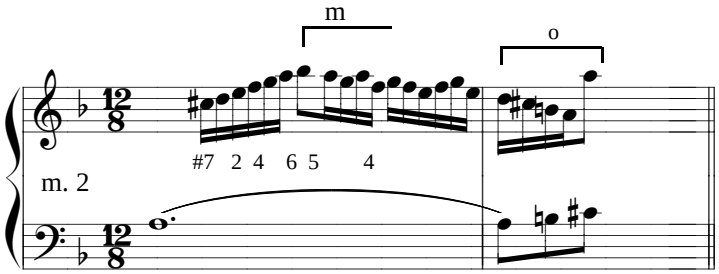
After the presentation phrase, a complete circle-of-fifths sequence follows progressing from i to i. Instead of a diatonic subdominant chord the sequence is followed by a Neapolitan sixth chord, which signals a change in the process. The Neapolitan chord leads straight to a bridge, which is based on a sustained dominant function chord. The ascending sequential melody in the bridge creates a sense of statistical climax. The melodic culmination point $b\flat^2$ acts as a point of reversal. The following epilog resolves melodic and harmonic tensions.

EXAMPLE 104 The plot structure in BWV 204/6.



The development of the plot can be demonstrated by comparing conflicting motive forms with their resolutions (Example 105). The melody in mm. 5-6 consisting of ascent #7-2-4-6 and descent 6-5-4 is a variant of the melody in m. 2 (conflict). Instead of leading to a half cadence it progresses in m. 6 to the third of the tonic triad. Furthermore, in m. 6 the motive o (d^2-$c\#^2$-b^1-a^1) stemming from the half cadence (m. 3) is transposed an octave lower in the bass. This time the motive is brought to the tonic pitch. Motive n (d^2-$c\#^2$-d^2-a^1), which appeared originally in m. 1, appears in the epilog as retroversion (a^1-d^2-$c\#^2$-d^2). The retroversion brings the melody to the tonic.

EXAMPLE 105 The development of plot structure in BWV 204/6.



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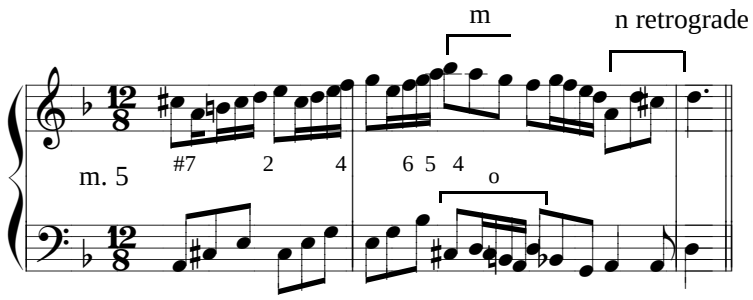
EXAMPLE 105 (continues)

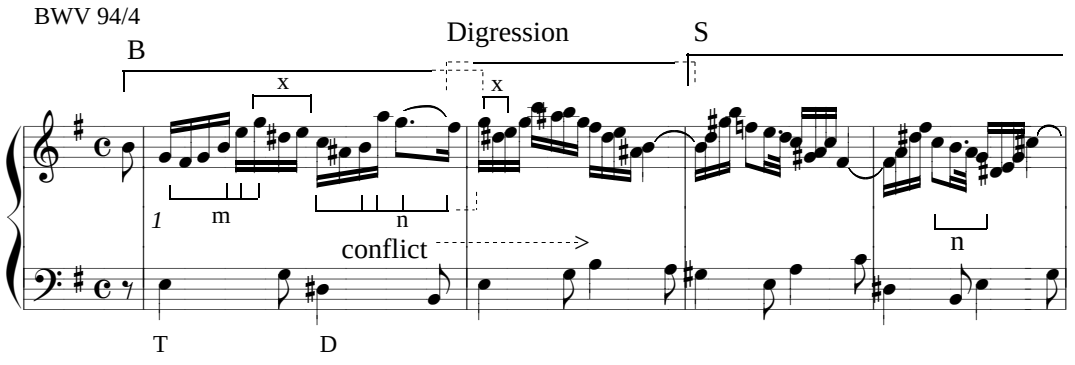


In BWV 204/6 several motivic conflicts are resolved the epilog. Motives m, n, and o reappear at their original pitch, with the distinction, however, that in the epilog each of them is brought to a resolution (tonic harmony/tonic pitch).

6.3.1.4 BWV 94/4

BWV 94/4 begins with the basic idea, which runs mostly in even sixteenth notes embellished with chromatic non-chord tones. The basic idea consists of two motives (m and n), which are accompanied by harmonic progression T-D (Example 106). The structural tones of motive m form an arpeggiated E minor triad. Motive n, in turn, can be reduced into a stepwise descent 6-5-4-3-2. It is followed by a motive, which rhythmically and partly with respect to melody bears similarities to the basic idea. Both of the motives end on the dominant and represent, thus, a melodic-harmonic conflict, which is left unresolved.

EXAMPLE 106 The plot structure in BWV 94/4.



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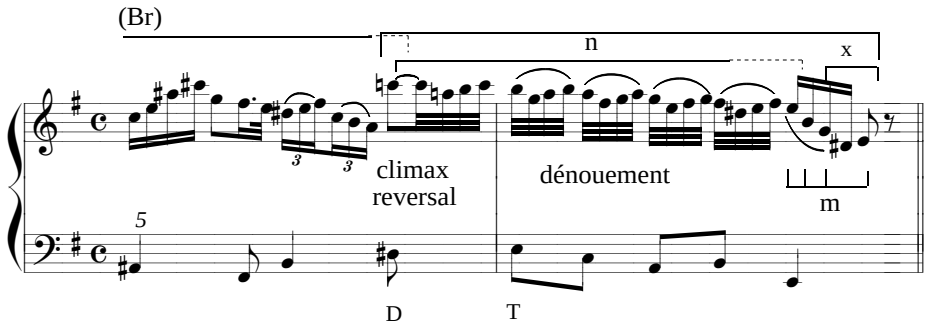
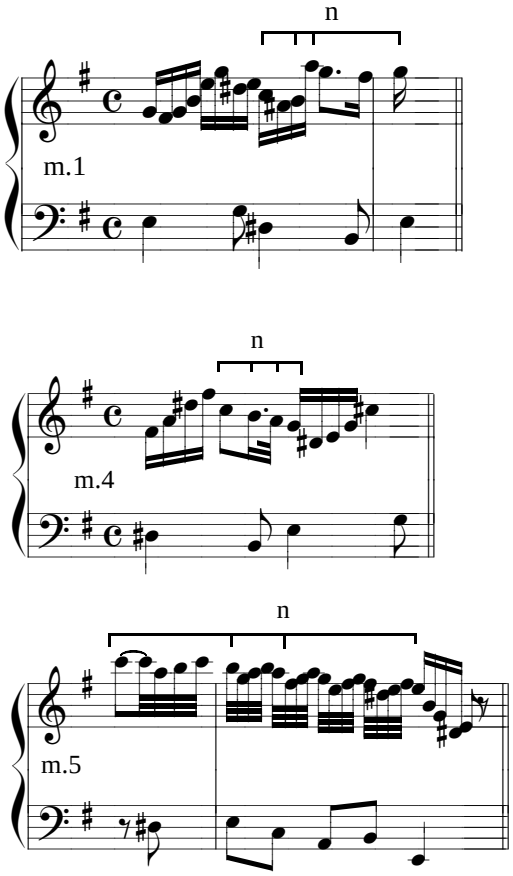
EXAMPLE 106 (continues)



Although the sequence (mm. 3-5) is tonally ascending (in the three statements of the motive, secondary dominants resolve to iv, i, and V), it does not show a strong sense of direction since the transposing interval between motives is inverted: a perfect fourth down becomes a perfect fifth up. In addition, the motive consists mostly of disjunct intervals with a saw-like contour, which diminishes the sense of directed movement. Moreover, the non-chord tones, melodic tritoni, and diminished fourths increase the sense of instability and unpredictability. The sequence ends on the dominant chord, which acts as an upbeat to the final cadence (epilog). Melodically c^3 functions as the point of reversal, which is brought in dramatically with an extended leap (a^1-c^3). Moreover, c^3 appears as a surprising event after the emphatic $c\#^2$ (m. 5) in V/V. The "link dominant" is a point of both climax and reversal. No separate group for the bridge can be found (harmonically, the third statement of the sequential pattern functions as the bridge). The dénouement (resolution) occurs in the epilog, which presents a diatonically descending melodic line with a clear sense of direction and determination.

The development of the plot can be followed by comparing similar motives in m. 1, m. 4, and mm. 5-6 (Example 107). The motive c^2-b^1-a^2-g^2-$f\#^2$ in m. 1 appears on the dominant chord, which is resolved unsatisfactorily, since the melody is left on the mediant in m.2. In the sequence (m. 4) the motive c^2-b^1-a^1-g^1 appears again, this time without the chromatic embellishments. The motive in measure 4 does not, despite the syntactically satisfying chord progression D-T, appear as a resolution due to the unexpected $c\#^1$. The resolution is found in the epilog, which presents motive n without chromatic embellishments, and extends the descent to the tonic (c^3-b^2-a^2-g^2-$f\#^2$-e^2). The resolution is emphatic since each of the pitches of motive n is given harmonic support. In the epilog, the opening motives m and n appear in reversed order, as the triadic motive m follows n in inversion. The reversal of the order of motives also means that the harmonic progression T-D of m. 1 is reversed into D-T in mm. 5-6. In m. 6 the motive m is embellished with submotive x, which ends the melody on the tonic.

EXAMPLE 107 The development of plot structure in BWV 94/4.

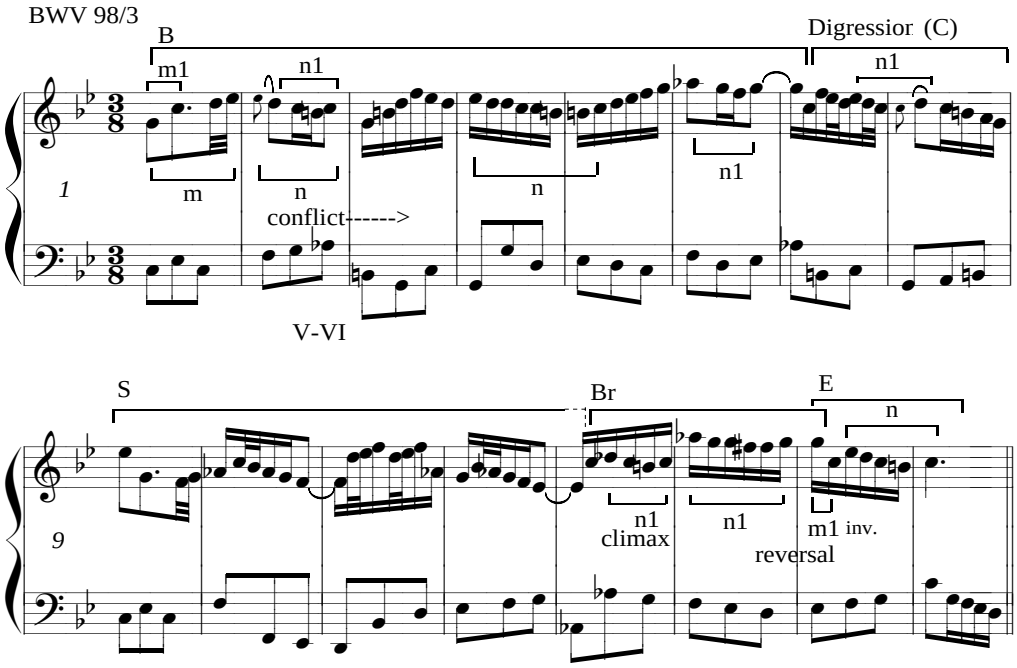


In this introduction the conflict occurs within the first tonic prolongation. The resolution is made emphatic by giving harmonic support (as in 22/2) to each of the tones of motive.

6.3.1.5 BWV 98/3

In BWV 98/3 the initial conflict is found in the deceptive cadence, which occurs within the first tonic prolongation in m. 2 (Example 108). Here the basic idea consists of motives m and n. The deceptive resolution of the dominant (V-VI) ending on a weak beat in m. 2 acts as a conflict and creates a need for finding a metrically stable authentic cadence. The presentation continues for six more measures ending on a half cadence (C). The presentation avoids a metrically strong root-position tonic chord and creates a sense of further complication, i. e. a move further away from a likely solution. After the quite freely executed sequence (S), a syntactic climax with chromatic alterations (b2 and #4) occurs (Br) (mm. 13-14). The alterations appear in variants of motive n. The chromatic non-chord tones give a signal that a process reversal, a move from instability to stability, is about to occur. The cadence in m. 15-16 (E) represents harmonically and metrically a satisfactory resolution.

EXAMPLE 108 The plot structure in BWV 98/3.



The development of the plot structure can be followed by comparing motivic similarities. The conflict of measure 2 is resolved in the final cadence (mm. 15-16), which motivically contains both motive n and the characteristic leap 5-1 (inversion of motive m1). This time a resolution to a metrically and tonally stable tonic chord occurs.

In the middle part of the form, motive n and its submotive n^1 appear in various transformations (mm. 4(-5), 6, 7-8, 13, 14, and 15). By comparing measures 6-8 and 14-16 (Example 108) one can observe that the latter melody is a variant of the former one. Thus, the epilog presents not only a resolution of the conflict in m. 2, but also a resolution of the complication occurring in the half cadence. Although the epilog schema, based on bass pattern 3-4-5-1, is found also in several other introductions, it is integrated into the structural-semantic content of this introduction.

6.3.2 Examples with presentation phrases ending on an authentic cadence in the relative major

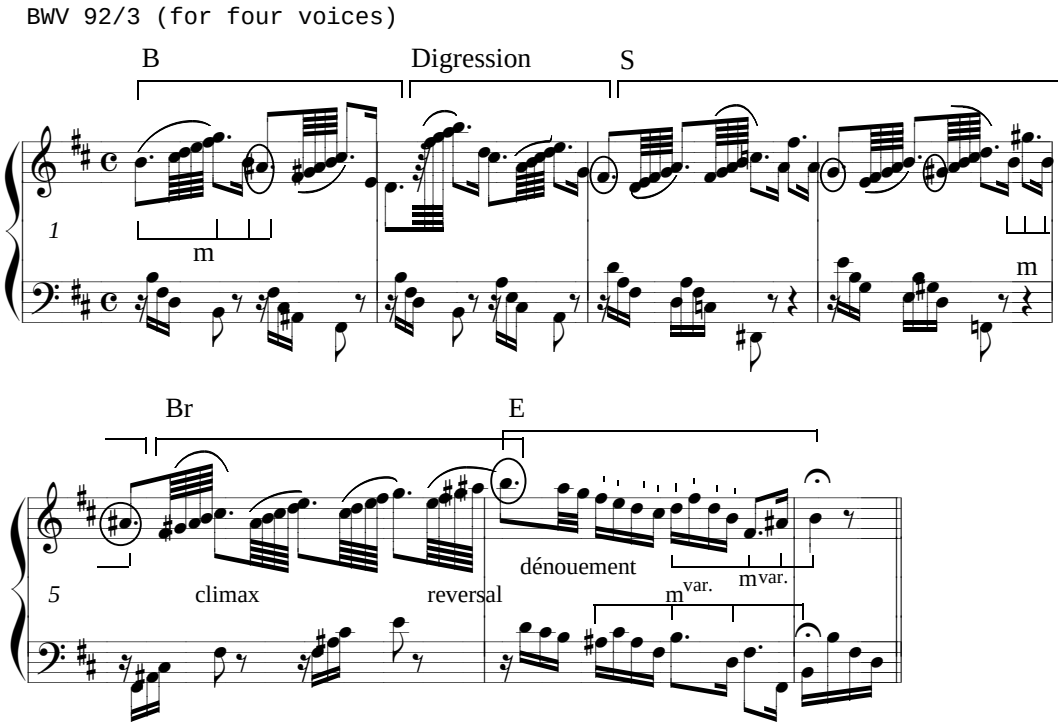
The examples of this section illustrate a musical plot structure, in which the conflict is introduced in the first dominant harmony. The deviation to the relative major appears as a further complication of situation, not as a conflict which would be resolved at the end of the introduction.

6.3.2.1 BWV 92/3

In BWV 92/3, the prolongation of the tonic extends to the first beat of the second measure introducing the motivic material as well as the functional progression T-D-D-T carried out with the changing-note schema (Example 109).

The conflicting element is found already in the motive m, as the leading tone ($a\#^1$) remains unresolved in the presentation phrase. The changing-note schema is transposed to the relative major (m. 3), which constitutes structurally a tonal digression, and in terms of plot structure, a further complication of the situation.

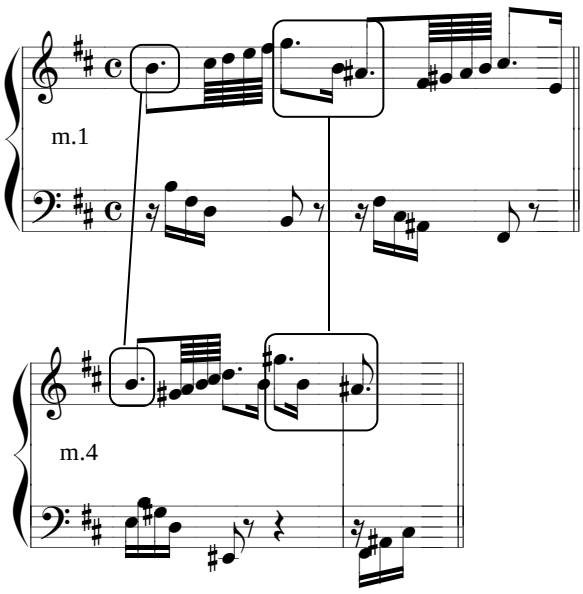
EXAMPLE 109 The plot structure in BWV 92/3.



The sequence, ascending by second, increases the tension and leads to a sustained dominant (Br), which continues the ascent both in the upper-voice and in the bass. The sustained dominant acts as a statistical climax of the process, culminating at the beginning of m. 6 in $b\flat^2$, which constitutes the point of process reversal. The descending epilog acts as a resolution (dénoumenet).

The process of conflict-complication-resolution can be followed by comparing measure 1 to measures 4-5 of the sequence (Example 110). The motive m b^1-g^2-b^1-$a\#^1$ in m. 1 is transformed into motive b^1-$g\#^2$-b^1-$a\#^1$, which appears in a more dissonant context of a secondary dominant (vii°7/V). The leading tone $a\#^1$ returns after the sequence at the beginning of m. 5. The emphatic resolution of the leading tone to the tonic occurs as a part of structural melodic ascent $f\#^2$-$g\#^2$-$a\#^2$-b^3 (circled pitches in Example 109). The reversal leads straight to the epilog, which presents two final statements of motive m in imitation, both variants of motive m containing a resolution of the leading tone to the tonic (Example 109). The upper-voice motive in m. 6 resolves the leading tone $a\#^1$ to b^1, thus presenting a resolution in the initial register.

EXAMPLE 110 The development of plot structure in BWV 92/3.

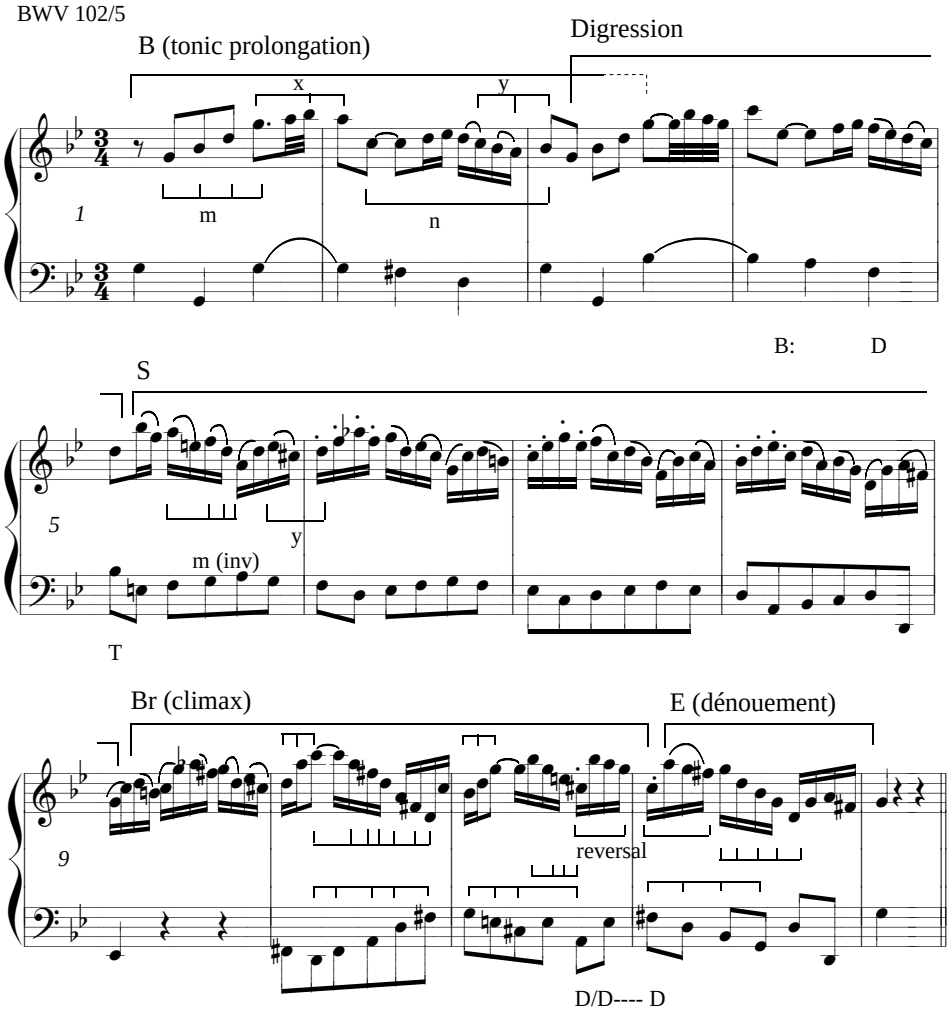


In this introduction there is no cadence function marking the tonal digression. Whereas in BWV:s 136/5, 22/2, and 204/6 the tonal digression (half cadence) provided a place for presenting a conflict, in BWV 92/3 the tonal digression to the relative major is used to presenting the conflicting motive in various harmonic contexts. The conflict and its resolution is, again, tied to a specific pitch content (a#^{1}).

6.3.2.2 BWV 102/5

In BWV 102/5 (Example 111) the initial motive m is followed by a contrasting motive n. Whereas the opening motive m presents a strong triadic ascent on the pitches of the tonic triad, n is based on structural stepwise descent c^2-b♭^{1}. The elements of conflict is found in the motive y, which is left without a satisfactory melodic resolution to the tonic. The digression from tonic, this time to the relative major, follows ending the presentation phrase on an authentic cadence (C) in B major. The deviation to the relative major represents a complication of the process since it moves the motivic material further away from the tonic.

EXAMPLE 111 The plot structure of BWV 102/5.

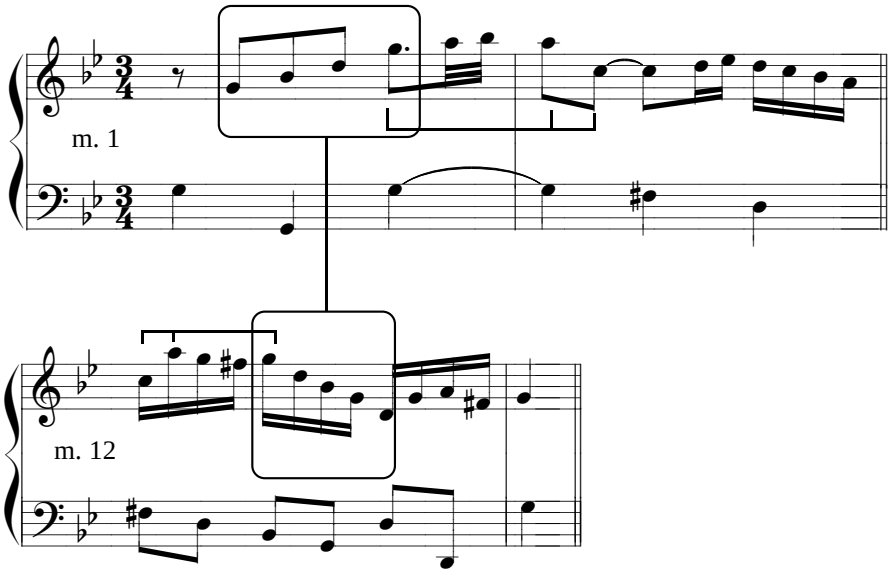


A descending sequence (S) begins in m. 5. The sequential pattern compresses motives m and n into a one-measure motive consisting of a descending arpeggiated triad (m inverted) followed by submotive y. Motive y, heard at the end of each sequential pattern is transposed down by step so that it in m. ends on the tonic pitch. However, a deceptive cadence in m. 9 frustrates the expectations of a harmonic resolution. The deceptive resolution is followed by a bridge function (Br) starting with a liquidation of the sequence motive (m. 9) and containing a syntactic climax with altered tones (#4, b2). In mm. 10-11 ascending and descending versions of the initial motive m. On the third beat of measure 11 the process is reversed, and in m. 12, the link dominant appears and is resolved to the tonic. A cadential motive y (a^2-g^2-$f\#^2$-g^2) follows in m. 12. The epilog (E) closes with motive y, which finally has found a proper resolution.

The development of the plot structure can be followed by examining similar motivic structures. Measure 2 resembles measure 12. The epilog presents a synopsis of measures 1-2: the upper-voice melody in m. 12 is a free retrograde of the melody in mm. 1-2 (Example 112), only this time without the bass suspension of mm. 1-2. In m.12 motives m and n are represented in reversed order, which also reverses the harmonic progression (T-D in mm. 1-2) into D-T in m. 12. The descending triadic motive ($m^{inv.}$) is more likely to be

associated with an ending function than the original ascending motive m. In the "battle" between m and its inversion, the latter seems to be the stronger one.

EXAMPLE 112 The development of plot structure in BWV 102/5.



BWV 102/5 ends with uncertainty: the motives are presented as retrogrades in fleeting sixteenth-notes. The resolution remains thus as weakly articulated. BWV 102/5 is an example of an introduction, which doesn't seem to present any emphatic resolution of the conflict. However, harmonically the stability and certainty are retrieved.

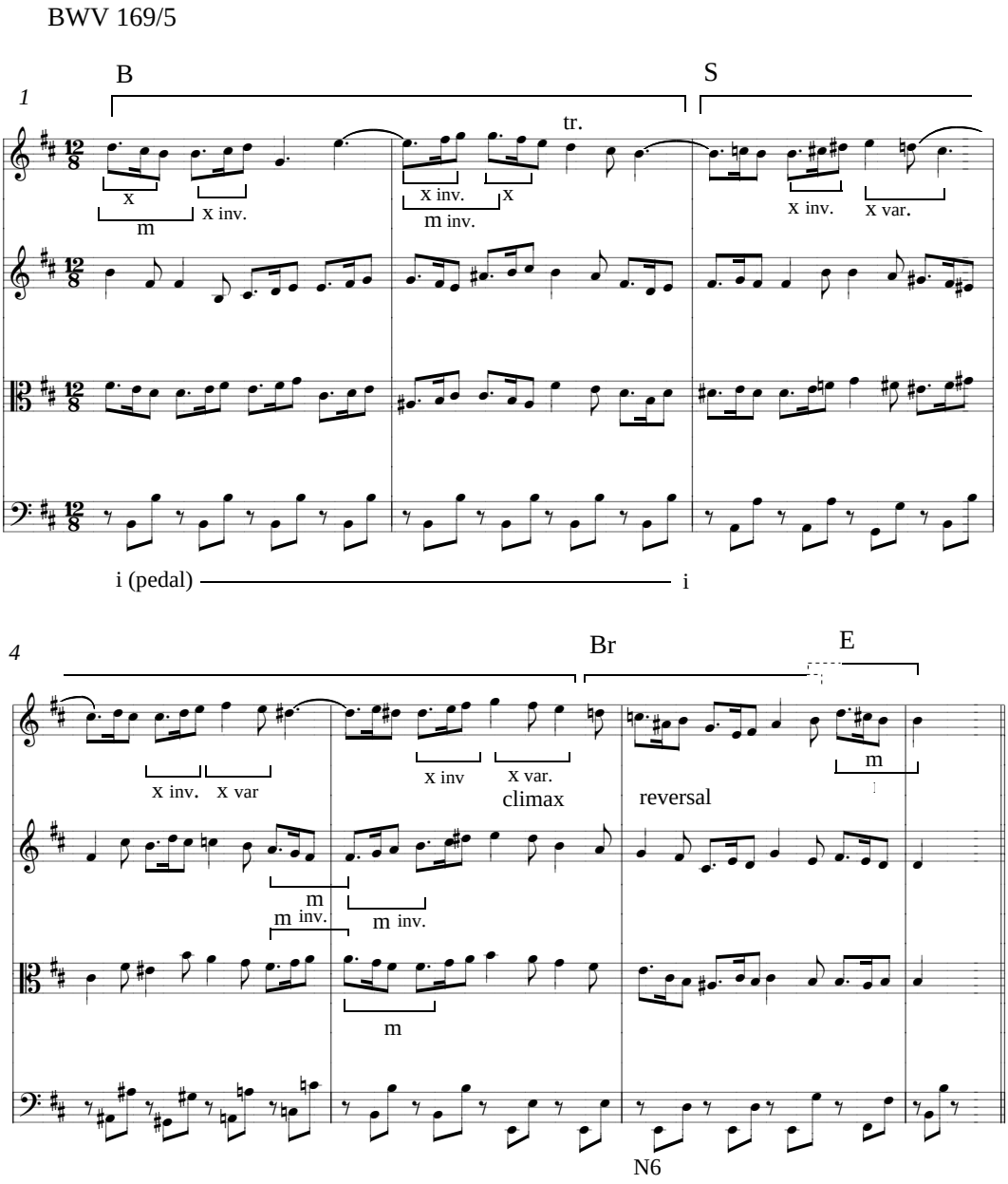
In BWV 92/3 and BWV 102/5 the digression in the relative major presents a further complication of the situation by transposing the initial motives further away from the tonic. However, the resolution doesn't concern these transposed motives but the original motives of the tonic key.

6.3.3 An example with presentation phrase ending on an authentic cadence in the tonic key: BWV 169/5

In all the previous examples unsatisfactory resolution of the dominant harmony acted as the initial conflict. From the point of view of the plot analysis examples which resolve all harmonic tensions at the end of the presentation phrase are of special interest. In BWV 169/5 the presentation phrase is built on a tonic pedal above which in appears motive m (m. 1) and in the inversion of m (m. 2) (Example 113). In m. 1 the submotive x (3-2-1) is followed immediately by its inversion (1-2-3). The transpositions of motive x and its inversion are found in reversed order in m. 2. The presentation phrase ends harmonically and melodically on the tonic, leaving no harmonic or melodic tensions to be resolved. However, the final tonic chord of the presentation phrase is metrically weak. The tension between descending and ascending motives, as well as between the tonic pedal and the other voices of the texture constitutes the conflicts in the presentation phrase. The building of harmonic tension is left for the ascending sequence, which is based on motive m, submotive x, and their

inversions. The highest point of the statistical climax is achieved in m. 5, in which the inverted submotive x (g^2-$f\#^2$-e^2) from m. 2 appears at its original pitch in a consonant harmony (iv) and without the tension of the tonic pedal. A reversal is signaled by the Neapolitan chord, which follows at the beginning of m. 6. The motive m from m. 1. returns in mm. 6-7, this time it is accompanied by an authentic cadence, which places the final tonic chord on the first beat of m. 7.

EXAMPLE 113 The plot structure in BWV 169/5.



This example demonstrates how the development of the plot structure can be carried out in the *Fortpinnungstypus*, in which the final chord of the presentation requires no continuation. The harmonic conflict emerges from the tension of tonic pedal point and from the tension between the original motive and its inversions.

6.4 Discussion

6.4.1 Summary

The analysis showed that one of the frequently occurred devices for creating by motivic means dramatic tension in the introductions was to leave the dominant harmony and the respective melodic motive without a satisfying resolution in the presentation phrase. This motive represents a conflict, which is expected to be resolved. The conflicting motive reappears at the end, after the sequence without the melodic-harmonic or rhythmic tensions found in the earlier forms of the motive. A significant factor contributing to the sense of resolution is the fact that the motives tend to reappear at their original pitch in the resolution. The resolution is thus more easily associated with the original form of the motive in the presentation phrase.

The following techniques of resolution appeared in the above aria introductions. First, the motive accompanying the dominant harmony, which was left unresolved in the presentation, reappears at the original pitch with a satisfactory resolution to the tonic (92/3, 94/4 (varied), 98/3, 204/6 (varied)). Second, the motive above the final dominant of the presentation phrase reappears in the bridge, after which it is resolved satisfactorily to the first tonic harmony of the epilog (136/5, 22/2, 204/6). Third, the order of tonic and dominant harmonies and the order of respective motives is reversed in the resolution. This occurred in BWV 102/5, in which also the motives were transformed into their retrogrades.

The sequence was thought to represent complication of the musical plot since it contains motivic material from the presentation phrase. The motives are usually varied melodically and rhythmically (e.g. BWV 102/5), moreover, they appear always in a harmonic context which is, compared to the presentation, even further away from a likely resolution. The sequence acts as a *locus* for the dramatic development, and constitutes an essential part of the plot. In this context, development should be understood in the sense it was commonly understood in the 18th century (see Hoyt 1996, 153), as the revelation of inherent qualities of objects, not as transformation from one nature to another.

The bridge contains usually the climax (achieved in some examples already in the ascending sequence) and process reversal, and prepares for a return to a stable situation. There are various structural techniques of building the climax and resolution. The climax may be, in Meyer's terms, a *statistical climax*, which is accomplished by the means of an ascending melody and bass in the bridge (22/2, 92/3, 204/6) or already in the sequence by the means of an ascending melodic-harmonic sequence (169/3). The upper voice usually reaches

a relatively high pitch in the context of the whole introduction. The climax leads to a resolution occurring either in the epilog or just before the epilog. A *statistical climax* is not, however, present in every introduction. The reversal may be accomplished with a *syntactical climax*, which prepares the move from instability to stability. Characteristic of the syntactical climax are altered pitches and chords (22/2, 98/3, 102/5, 169/3) and the process of liquidation (136/5, 102/5, 92/3, 22/2, 204/6), giving a signal that the resolution is about to occur. After the liquidation process with a sense of accelerated pace of movement, any stable closure is likely to appear as a solution. Bach seems to ensure the sense of solution by restating an originally conflicting motivic idea in a resolved form. The final resolution occurred in the examples in the epilog, which by definition does not contain any sequential or other kinds of development. The sense of resolution may be affirmed by presenting the final statement of the motive with an emphatic harmonization (22/2, 94/4): tones, appearing in the original form as non-chord tones receive harmonic support.

The metaphorical interpretation of the manifestations of a plot structure in the *Fortspinnungstypus* was successful, at least with respect to the above examples. However, in some instances, the plot structure is not articulated with motivic events. In these cases the plot structure is supported only by harmonic events.

Conflict and resolution, which were largely on the focus of the analysis in this chapter, are not sufficient in creating a sense of musical plot structure. As any linear process, a musical plot has to show the development, which leads from the conflict to the resolution. Thus, the sequence is crucial for the plot structure of the *Fortspinnungstypus*. It is the sequence that differentiates the *Fortspinnungstypus* from the symmetrical period. Although the period may contain conflict (the half cadence of the antecedent) and resolution (the authentic cadence of the consequent), it lacks formal functions for presenting a further complication and climax.

The analysis of the introductions (section 6.3) showed that the melodic and rhythmic surface features are crucial in articulating the different stages of the plot. The harmonic ground plan and the two-part scripts support the tension-release process of the plot but they alone can't give the conflict an individual identity, which would enable the recognition of the development and resolution of the conflict. Consequently, in music the metaphor of plot can be taken to concern also the agents and actions, the musical counterparts of which are melodic-rhythmic motives.

It is characteristic of the aria introductions (N=125) that the initial motive accompanied by a tonic chord is seldom repeated in its exact original form at the end of the introduction. The metaphor of rhetorical speech disposition with the idea of restating the *propositio* at the end does not seem to apply to such smaller-scale forms as the *Fortspinnungstypus*. However, rhetorical confirmation usually occurs in the *da capo* arias, which end with the opening ritornello[9]. The plot metaphor with its notion of conflict, development, *peripeteia* and resolution, seems to be a more appropriate tool for conceptualizing the source-path-goal schema in the *Fortspinnungstypus*.

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[9] See Mattheson's rhetorical analysis of Marcello's aria (Mattheson 1739, 237-239).

Schoenberg's term *basic idea*, which he used of the opening motive of the sentence form, may not necessarily contain any conflicts. It is the exposition from which the process progresses to more complicated situations, each of which is based on the material preceding it, as in the introductions BWV 136/5 and BWV 22/2.

There are some differences between the results of structural and metaphorical analysis of introductions. Whereas the schema of formal functions, which was by definition based solely on the harmonic structure, has the first tonic prolongation as its first constituent part, the plot structure has only the first tonic chord and the corresponding motivic idea as its first constituent part (exposition or introduction). Thus, the exposition function of the plot structure is not equivalent to the beginning function of the *Fortspinnungstypus* schema. Moreover, the digression function is not in all cases equivalent to the conflict of the plot structure. The digression may also represent the dramatic complication, as in examples modulating to the relative major. The formal functions, which seem to act in a specific narrative role, are the sequence (complication), the bridge (process reversal), and the epilog (denouement). Of these, the first two can be regarded as formal functions the existence of which can be better explained in terms of plot metaphor than in terms of harmonic-contrapuntal structure. For several bridge scripts an over-all contour or direction of movement was found to be a more important defining feature than the pitch events.

The analytical results of this chapter show that the *Fortspinnungstypus* may be understood, at least in the aria introductions of Bach, as a unified whole also in motivic sense. As a subpart of a larger form *Fortspinnungstypus* can possess structural-semantic wholeness, and it can be analyzed in terms of plot metaphor. In the same way as the plot of drama is constructed on the lowest structural level of small arcs of tension and release, the musical plot can be thought to be constructed of relatively independent small-scale narrative arcs.

6.4.2 The relationship between the metaphor of rhetorical oration and the metaphor of plot

Narrative and rhetoric are clearly different areas of linguistic expression. Unlike narratives, rhetoric oration aims at persuasion by logically and affectively convincing argumentation[10]. From the point of view of music, metaphors of narrative and rhetoric are perhaps not as strongly contrasted. Bonds (1991, 191) considers the metaphor of drama or novel to be related to the metaphor of rhetoric. Both describe musical form as a temporal process with specific functions in a specific order. The functions in both of them can be given general headings: introduction, exposition, development, contradiction, conclusion.

There are a few studies, in which the rhetorical disposition has acted as a model for the analysis of Bach's works. In the following are presented two musico-rhetorical analyses that come to describe the plot structure of the music. In the 1940's German musicologist Hans-Heinrich Unger analyzed the first movement from Bach's third Brandenburg concerto applying the six-part

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[10] Musical passages can neither present arguments nor be used for reasoning, since musical passages cannot be judged as being true or false (see e.g. Sharpe 2000, 67).

disposition presented by Mattheson (Unger 1941, 53-54). According to Unger's interpretation the rhetoric tension arises between two themes, the earlier of them representing the *propositio*, the latter the opposing argument to the *propositio*. The *confutatio* begins with the coming in of the opposing theme. The relatively extended *confutatio* (mm. 47-119) is based largely on the alternation of the *propositio* and the opposing theme. *Confutatio* leads to *confirmatio*, which is followed by *peroratio* (from m. 132). Unger's analysis shows elegantly how the *conifrmatio* and *confutatio* may appear in alteration in the composition. They act as opposite forces both aiming at strengthening the *propositio*; on one hand by confirming the argument and on the other hand by refuting the opposition toward the argument (Bartel 1997, 81). Unger's analysis set tension between two themes, which could be understood as the *protagonist* and *antagonist* of the plot structure. In spite of his rhetorical-historical terminology, the musical struggle he describes could be easily understood as occurring between the protagonist and the antagonist. The struggle ends with the defeat of the antagonist and the triumphant victory of the protagonist.

Daniel Harrison emphasizes the importance of persuasion as the aim of rhetoric speech[11]. He considers studies, such as Butler 1977, which only aim at the identification of figures or other technical rhetoric terms, to be inadequate[12]. He argues that structural features should be discussed in terms of their effect on the listener. Harrison presents a rhetorical analysis of Bach's fugue from Toccata S 915. He emphasizes the importance of the issue of the speech, the *status* (Quintilian's term for a conceptualized conflict, which raises the need for a persuasive speech and determines its character). The material conflicts, such as structural disunity and irregularity in the fugue subject, are resolved in the subsequent development of the fugue. The musical arguments used in this process appear as harmonic and contrapuntal devices, thematic transformations, or manipulations of structure. (Harrison 1980, 10.) He identifies four phases in the resolution of the conflict: *narratio*, *divisio*, *confirmatio*, and *conclusio*. *Narratio* consists of an exposition and counterexposition, *divisio* consists of developing the material presented in the exposition. *Divisio* starts from the first episode and ends with an *incrementum* figure containing the climax and a turning point in the process of gradually resolving the conflict (*status*). *Confirmation* prepares for the *conclusio*, which ends the fugue successfully, since all conflicts have been explored and resolved. (Harrison 1980, 15-39.) Harrison's rhetorical interpretation of the fugue can be seen as an attempt to describe the plot structure of the fugue: a conflict (*status*) is presented, developed, and resolved. The *incrementum* contains the climax, and can be interpreted as constituting the *peripeteia*, the reversal of the plot.

The analytical studies of the analogical relationship between rhetorical disposition and musical form deal commonly with whole musical works or movements, in which cases complete dispositions can be found. In the analysis of forms of smaller scale, such as the *Fortspinnungstypus*, all rhetorical functions

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11 Harrison refers to the distinction into primary and secondary rhetoric made by GeorgeKennedy, a contemporary theorist of classical rhetoric. The primary aim of rhetorical speech is to persuade the audience. The "technical" devices, such as figures of speech, tropes, or commonplaces belong to the secondary rhetoric, which promotes the purpose of persuasion, but only indirectly. (Kennedy 1980, 4-5.)

12 About the critique against "figure finding" see also Sisman (1993, 21-22).

may not be present, or some other adjustment to the dispositional scheme may have to be performed.

Harrison's critique against analyses, which aim only at finding correspondences between rhetorical figures and musical figures, is justified. Identifying musico-rhetorical figures in a Baroque work yields only a list of figures, which lacks the coherence required of a plot (see Agawu 1991, 131 about the classical topics).

6.4.3 Concluding remarks

The rhetorical disposition and the dramatic/narrative plot yield three models for the specification of the three phases of the source-path-goal image schema. The path between the source state and goal state is not a simple bridge, a short-cut between the two points. Instead, it consists of several phases with their own functional and semantic meanings. Literary models suggest that the path, i. e. the events between a relatively stable source state and goal state, contains a *conflict*(drama), a *disturbance*(narrative) or a *status*(rhetoric), which is explored and further developed. Moreover, in contrast to the structural descriptions of musical form, dramatic, narrative, and rhetoric descriptions contain a specific function for the moment of process reversal just before entering the final part. The reversal occurs through '*peripeteia*' in drama, 'a force directed in the opposite direction' in narrative, and '*confutatio*' in rhetoric. These salient events seem to be important to the artful realization of the source-path-goal image schema, which is also mapped onto music. The purely musical descriptions given by Ratz and Berry don't say anything about what motivates or triggers the departure from or the return to the stable situation. They imply that a return to tonic or a final cadence has to occur, but, paradoxically, the experientially important point of reversal is taken more or less as a self-evident fact. The common image schema implies that dramatic, narrative, and rhetoric terminology can be treated as quite interchangeable systems of conceptualizing musical structures.

7 CONCLUSION

The main objective of the present study was to explore whether the *Fortspinnungstypus* described by Wilhelm Fischer (1915) constitutes a self-contained formal type. This objective was accomplished by identifying the recurring features on the levels of formal functions (the schema of formal functions), harmonic schemata, and two-part contrapuntal scripts. Moreover, the wholeness of the form was demonstrated with the analysis of the musical plot structure of individual examples.

Within the three parts *Vordersatz*, *Fortspinnung*, and *Epilog* identified by Fischer, the form of the *Fortspinnungstypus* was found to follow a schema of five formal functions, of which the first two appear usually within the *Vordersatz*, the following two within the *Fortspinnung*, and the last function corresponds with the *Epilog*. The schema of formal functions was found to follow the *Urform* of tonal forms described by Erwin Ratz (1973/1968). The first formal function, the beginning (B) consists of tonic prolongation, and the second function of a harmonic digression, appearing usually in the form of a cadential function (C), which ends the *Vordersatz*. The third function represented by sequence (S), avoids an arrival to a functionally stable tonic. The following bridge function (Br) ends usually on the dominant, the resolution of which occurs to a functionally stable tonic at the beginning of the epilog (E), the last formal function in the schema. The epilog was found to consist of the final authentic cadence, the last tonic prolongation. The functional schema is followed most clearly in those examples in which there is specific group(s) for each function. The bridge function has not been identified by previous studies since Fischer, as well as Schoenberg (1990/1967) and Caplin (1998) have left unspecified what occurs after the sequence.

Each of the formal functions was carried out with characteristic harmonic-functional or sequential schemata, each of which was executed, in turn, with specific harmonic-contrapuntal scripts. The number of script categories for each function was relatively high, 7-11 categories per function. The structurally most problematic function was the bridge, in which prototypical features of certain script categories could not be identified. The results of the schema analysis suggest that *Fortspinnungstypus* can be understood as a hierarchically organized cognitive schema, in which a low-level event can be substituted for

another low-level event if they both fulfill the restrictions set for a higher-level slot, which in this case is the harmonic-functional progression/sequential progression, and eventually the formal function.

The *Fortspinnungstypus* can be understood as a formal type, yet not in the traditional music-theoretical sense of the term. The structural identity of the *Fortspinnungstypus* allows, as the structure of a cognitive schema, the omission as well as the repetition of some of its functions. One should not conclude that this kind of flexibility implies that a formal type is absent. On the contrary, it seems that the specification of melodic-harmonic content of formal functions can yield enough critical features to differentiate the *Fortspinnungstypus* from other formal types, despite the fact that on the highest level the schema of formal functions applies to many different types of tonal forms, as Ratz suggested.

For nearly all script categories, prototypical examples possessing all of the prototypical features could be identified. The prototypical two-part scripts were combined into larger-scale units at times. This was the case for example with the *Do-Re-Mi + Prinner* script combination in the presentation phrase and with the specific pairs of sequence and bridge scripts in the continuation phrase. However, the attempt to define a prototype for the entire introduction on the level of two-part scripts failed. Bach seems to have combined the prototypical scripts quite freely, in the spirit of *ars combinatoria.* Especially, the cadence scripts are used interchangeably. In order to describe a *Fortspinnungstypus* prototype, which would cover about half of the examples, a more abstract level of description was needed. The prototypical aria introduction representing the *Fortspinnungstypus* begins with TDT progression, the *Vordersatz* ends on the dominant, the sequence is based on the circle-of-fifth progression (I-IV-♭VII-III) and the final cadence progression is based on functional progression T(S)DT in the tonic key. In contrast, those introductions in which the initial tonic was followed by a subdominant harmony (progressions TST and TSDT) showed both a tendency to modulate to the relative major at the end of the presentation phrase and the avoidance of circle-of-fifths sequence. It seems that in the opening schemata subdominant and dominant harmonies served different structural and expressive purposes for Bach. Functional theory of harmony, which acknowledges, unlike Schenkerian theory, the independence of subdominant function, proved to be well-suited to the harmonic analysis of this material.

The script categories were formed by using necessary conditions for category membership, which helped to avoid the open-texture problem, associated with family resemblance relationships. If categories are formed by family resemblance relationship only, any concept can be explained as related to any other concept. Using necessary conditions makes the categorization process more accessible, however, at the expense of identifying all family resemblance relationships *between* categories. Finding a typical representative for a script category did not meet any problems, although the method used was relatively simple. In addition to the necessary features (harmonic functions and bass patterns), those structural, additional, and contextual features affecting solely to the prototypicality of the instance were also taken into account. Some of the categories seem to be quite tightly clustered: the category members may

share with each other, in addition to the necessary features, several other features not included in the original definition of the category. These shared extra features strengthen further the family resemblance relationships between category members. For instance specific key and meter proved to be prototypical features for certain script categories.

In the second part of the analysis, which was qualitative in orientation, it was demonstrated how a complete plot structure can be carried out within the *Fortspinnungstypus*. In the examples being analyzed, the conflict was introduced in the presentation phrase (*Vordersatz*), developed in the sequence, cumulated into climax at the end of the sequence or in the bridge, and resolved at the beginning of the epilog. A sense of conflict was accomplished by leaving dominant harmony and the respective melodic motive without a satisfying resolution. The conflicting motive reappeared at the end, after the sequence without the melodic-harmonic or rhythmic tensions found in the earlier forms of the motive. Returning to the motives at the original pitch, proved to be a recurrent feature typical of the resolution. The motives are not usually restated literally, which is why they are not always easy to recognize. The concepts of drama theories were found to provide a promising mode of describing formal functions. The present study made explicit Meyer's idea of applying Aristotle's concept *peripeteia* (reversal) to the analysis of musical process and form. It was discovered that a process reversal is bound to occur, and it is only after this reversal that a stable conclusion can be reached. The sequence is usually followed by a process reversal containing a statistical and/or syntactical climax. This occurs commonly in the bridge, which as the location of the climax, has a strong expressive content. In semantic-expressive terms the epilog can begin only after the conflicts and tensions have been resolved. Fischer, as well as Lee (1993), seem to locate the beginning of the epilog at a point where the sequence ends, and a statistical or a syntactical climax begins. In the light of the results of this study such an interpretation should be revised. The last tonic prolongation, which systematically appear only after the conflicts have been solved, was found to constitute, as a rule, the epilog. In fact, both of the terms *Epilog* and *Schlußsatz* refer strongly to a concluding *function.* An explicit distinction between grouping structure and formal functions produced a definition for the epilog, which proved to be more successful in the schema analysis of the aria introductions.

Bach seems to have exploited fully the narrative possibilities of the form. Melodic motives and their development participate in articulating the plot. However, such motivic component of the plot structure was not found in every introduction representing the *Fortspinnungstypus*. In those examples the narrative curve is carried by the harmonic background only.

The relationship between musical form and plot is metaphorical. From the hypothesis of a common image schema it does not follow that one of the domains – drama or music – should be considered to be primary in ontological sense. The common image schema only implies that drama, as well as narrative and rhetoric, with their references to objects and events of the physical world, provide more accessible and concrete tools for conceptualizing the phases of musical form. According to Lakoff's and Johnson's theory of metaphors, image schematic mappings are used to increase understanding of an abstract domain (such as music) with the help of more concrete domains (such as drama,

narrative, and rhetoric). This may be the reason why theorists of musical form seem to frequently refer to literary forms, when dealing with processive musical forms. Baroque forms, such as the *Fortspinnungstypus*, still continue to cause puzzlement among music theorists. The processive character, i.e. the lack of conformant relationships on the highest level of the form, as well as the excessive use of sequences, has made it diffucult to absorb them into the taxonomy of musical forms. This study showed that musical form has been understood, can be understood, and even should be understood in terms of such "extra-musical" factors as literary models.

The material of this study was restricted in many respects. Therefore, it is uncertain to which extent the results of this study apply to aria introductions in major keys, to other genres of Bach's music or to the music of other composers of the late Baroque. Baroque theorists did not define genres in terms of abstract schematic forms, as we do today (see Dreyfus 1996, 135). Genres, not external formal types, were thought as primary factors for categorization of musical works. What the present study suggests is that it is quite possible that Bach had developed for composing cantata aria introductions a convention, a schema prototype, which guided the selection of scripts and the way these scripts were combined.

This study has concentrated on structural features, which were considered to be responsible not only for definition of form, but also for conveying dramatic content to the music. Although in the present study structures were found to have generality over particular examples, the universality of structures, in the sense that structures would be the same to all people, in all times, and in all places, was not suggested. Structures were assumed to be based on learning from perceptions and bodily experiences of the physical world. Although structuralism has certain affinities with schema theory, and although it has been the explicit background for several studies dealing with musical plot, this study does not share all of its assumptions.

Since the approach chosen for this study represents systematic musicology, historical considerations were beyond the scope of the study. However, the relevance of the theoretical background was discussed in the light of certain historical factors. The assumptions of schema theory got support from two historical practices. First, the practical methods of the *règle de l'octave* and *partimenti* associated with the teaching of thorough-bass playing support the hypothesis of the importance of stereotypical schemata as building blocks of musical texture. This does not rule out the possibility that a composer such as Bach could also develop his own schemata not encountered in the continuo exercises or in the works of other composers. Second, the method of composition described in Niedt's thorough-bass treatise together with its known links with Bach suggest that also Bach may have thought musical texture as the melodic elaboration of a basic thorough-bass texture.

The assumption of an analogical relationship between musical forms and literary forms gets historical support from the musical rhetoric of the Baroque period. Although the metaphor of rhetoric is authentic in the context of Baroque music, in this study it was, however, replaced with the metaphor of drama. The analogical relationship between dramatic actions and musical actions was considered to be less problematic than the analogical relationship between rhetorical argumentation and musical events.

The structural explorations have made it possible to differentiate between typical and atypical structural solutions. One rewarding line for future studies would be to discuss the instrumental introductions in relation to the texts of arias. Atypical solutions in the introduction may be due to composer's intention to reflect the content of the text to the music.

The most important endeavor of this study has been setting up new paths to explore musical form. Understanding musical form as a succession of formal functions is by no means a new invention, in fact, interest in the theory of formal functions has been revived recently. However, the present study has raised the issue that the notion of functionality cannot be understood literarily since it involves interpretation of elements acting in specific roles. A functional notion of musical form is closely associated with metaphoricity, as are all narrative and rhetoric interpretations of musical form. Instead of focusing on one theoretical approach o the *Fortspinnungstypus*, I have attempted to shed light on the object of study from various points of view. Not only has the aim been to give a detailed structural description for the *Fortspinnungstypus*, but also to raise ideas of what kind of semantic content it may convey as a formal type.

YHTEENVETO

Tutkimuksen kohteena oli itävaltalaisen Wilhelm Fischerin vuonna 1915 kuvaama muototyyppi *Fortspinnungstypus* (suom. kehitysmuoto), joka on erityisen luonteenomainen barokkimusiikille. Kehitysmuoto voidaan Fischerin mukaan jakaa kolmeen osaan: *Vordersatz* (esittelyosa), *Fortspinnung* (kehitysosa) ja *Epilog* (kadenssiosa). Sille on ominaista paitsi kehitysosassa sekvenssin avulla tapahtuva materiaalin työstäminen myös symmetrisyyden ja kertauksen välttäminen. Vaikka *Fortspinnung* (engl. *spinning out*) on tekniikkaa kuvaavana terminä vakiintunut myös englanninkieliseen musiikkiteoreettiseen termistöön, se ei esiinny yleisesti muototyyppikategoriana musiikkiteorettisessa muototaksonomiassa, jossa barokin musiikillisia muotoja on pyritty sovittamaan lähinnä klassisromanttisen musiikin muotojen kuvaamiseen kehitettyjen muototyypitysten avulla. Useiden teoreetikkojen (Kurth, Rothgeb, Lester) mukaan barokin ja klassismin muotoperiaatteet eroavat kuitenkin olennaisesti toisistaan, mistä johtuen barokin muotoperiaatteiden erityisluonteeseen ei ole vieläkään riittävästi kiinnitetty huomiota (ks. Lester 2001). Tämän tutkimuksen lähtöoletuksena oli että juuri kehitysmuoto tarjoaa käsitteellisen pohjan tarkastella barokin muotoja.

Kehitysmuotoa tarkasteltiin neljässä teoreettisessa viitekehyksessä. Ensimmäisenä näkökulmana toimi musiikinteoriassa vähemmälle huomiolle jäänyt funktionaalinen muotokäsitys (Ratz, Caplin), joka mahdollistaa kehitysmuodon kaltaisen prosessiivisen muodon tarkastelun ilman perinteiseen muoto-opilliseen taksonomiaan liittyviä temaattis-tonaalisia kaavoja. Tämän jälkeen muodon funktioista koostuvaksi tulkittua kehitysmuotoa tarkasteltiin kognitiivisen psykologian alueella muodostetun skeemateorian (Rumelhart, Schank & Abelson), sen musiikillisten sovellusten (Meyer ja Gjerdingen) ja skeemateoriaan läheisesti liittyvän prototyyppiteorian (Rosch) puitteissa. Oletuksena oli että muototyyppejä, kuten kehitysmuotoa koskeva tieto muodostaa muistissa tietorakenteita (skeemoja). Neljänneksi pyrittiin hahmottamaan kehitysmuotoa juonellisena rakenteena. Kehitysmuodon ja juonirakenteen analogisen suhteen oletettiin perustuvan yhteiselle esikäsitteelliselle mielikuvaskeemalle (*image schema*)(Lakoff & Johnson).

Tutkimuksessa pyrittiin selvittämään ensinnäkin voidaanko Fischerin kehitysmuodolle antamaa kuvausta tarkentaa rajatussa aineistossa siten, että kehitysmuodolle voitaisiin määrällisen analyysin avulla abstrahoida skeema ja määrittää sen prototyyppiset piirteet eri rakennetasoilla. Toiseksi yksittäisten tapausten laadullisen analyysin avulla tarkasteltiin miten juonirakenteen eri vaiheet (esittely, konflikti, komplikaatio, kliimaksi, peripetia, toiminnan laantuminen) toteutuvat kehitysmuodossa. Aineistona oli J. S. Bachin kantaattien molliaarioiden alkusoitot (N = 125), joista analyysin kohteeksi valittiin ne jotka täyttivät Fischerin kehitysmuodolle antamat kriteerit.

Musiikillisen rakenteen analyysissa käytettiin reduktiomenetelmää, jonka avulla paljastettiin alkusoitoissa toistuvasti esiintyvät rakenteet (skeemat, skriptit). Muotofunktioiden rakenne oletettiin kerrostuneeksi abstraktioasteen mukaan siten että kaikkein abstrakteimman kuvaustason muodostivat muotofunktiot, seuraavalla tasolla sointufunktioille perustuvat skeemat, sitä seuraa-

valla tasolla sointuasteskeemat ja alimmalla tasolla kaksiääniset harmonis-kontrapunktiset skriptit. Kunkin skriptin edustavuutta aineistossa tutkittiin määrällisen piireanalyysin avulla, jonka perusteella voitiin määrittää kunkin skriptin prototyyppisimmät esimerkit.

Kehitysmuodon todettiin noudattavan tonaalisille muodoille ominaista viisiosaista funktiorakennetta, johon kuuluvat toonikasoinnulla pysyvä aloitus, poistuminen toonikalta, toonikasoinnun välttäminen, toonikalle paluu ja toonikalla pysyttelevä lopetus. Kullekin muotofunktiolle löydettiin 7-11 erilaista skriptiä. Yleisemmällä kuvaustasolla (sointufunktiot, sointuasteet) koko alkusoitolle voitiin konstruoida prototyyppi, jonka kuvaus sopii noin puoleen aineiston alkusoitoista. Tämän lisäksi rakenteellisten piirteiden määrällisen analyysin tuloksena voitiin tarkentaa Fischerin epilogille antamaa kuvausta. Bachin alkusoitoissa epilogi alkaa tavallisimmin kohotahdilla esiintyvästä dominanttisoinnusta, jonka purkaussointu seuraavan tahdin alussa aloittaa lopetuskadenssin. Näin määriteltynä epilogi jää lyhyemmäksi kuin monissa Fischerin omissa analyyseissä. Niin ikään Fischerin tutkimuksesta poiketen voitiin määrittää siltana toimiva toonikalle palauttava funktio sekvenssin ja epilogin väliltä.

Löydetyt skriptit edustavat 1700-luvulla käytössä olleita skeemoja. Aloittavista skripteistä yleisin, i-V-i –kulkuun liittyvä rakenteellinen melodia 1-2-3, on varsin yleinen 1700-luvulla. Tässä aineistossa 1-2-3 –skripti esiintyi usein alkusoiton aloituksena ns. *Adeste Fidelis* –skeemassa (Meyer), jota tavataan myös yleisemmin sekä barokin että klassismin musiikissa. Sekvenssiskriptien joukosta löytyivät Riepelin 1755 esittämät skeemat (*Monte* ja *Ponte*). Yksittäisistä sekvenssiskripteistä yleisin oli ns. *Prinner Riposte* –skeema, jota on todettu käytetyn myös galantissa tyylissä (Gjerdingen). Skeemojen identifioiminen barokkimusiikista todettiin perustelluksi myös historialliselta kannalta: barokkimuusikoiden koulutukseen kuului olennaisena osana tiettyjen basso continuo –kaavojen opettelu (*partimento*-traditio ja oktaavisääntö (*règle de l'octave*)).

Bachin kantaattialkusoittojen laadullisen analyysin perusteella näyttää ilmeiseltä, että kehitysmuotoiset aaria-alkusoitot voivat toteuttaa juoni-arkkityyppiä, johon kuuluu alkutilanteen esittely, konflikti, jännitteen kasvaminen, kumuloituminen kliimaksiin, prosessin kääntyminen (peripetia) ja jännityksen laantuminen. Tonaalisessa mielessä kukin viidestä muotofunktiosta sopii vastaamaan yhtä dramaattista funktiota lukuunottamatta siltafunktiota, joka usein toimii sekä kliimaksina että prosessin käännepisteenä. Juonirakennetta tarkasteltiin myös motiivisella tasolla valituissa kahdeksassa alkusoitossa. Niille oli ominaista esittelyosan aikana esitetty motiivis-harmoninen konflikti, jota kehiteltiin sekvenssiosassa. Kehitys kumuloitui huippuunsa useimissa tapauksissa sekvenssin jälkeen siltafunktion aikana ja ratkesi epilogin alussa. Konflikti voi olla esimerkiksi esittelyosassa esiintyvään dominanttisointuun liittyvä melodis-rytminen aihe, joka sisältää jonkin melodisen, harmonisen, metrisen tai rytmisen jännitteen. Olennaista konfliktin ratkaisulle analysoiduissa esimerkeissä oli paluu konfliktiaiheeseen, joka esiintyi lopussa alkuperäisellä sävelkorkeudella mutta ilman jännitteistä piirrettä. Prosessin käännepistettä saatettiin tehostaa likvidaatiolla (Schönberg), nousevalla kululla ja/tai muunnesoinnuilla (välidominantit ja napolilainen sekstisointu). Tutkimuksessa esille tullut musiikkiteoreetikkojen (Berry, Caplin, Meyer) pyrkimys turvautua prosessiivisten muotojen kuvauksessa ”ulko-

musiikillisiin", erityisesti kirjallisiin metaforiin voidaan ymmärtää mielikuvaskeeman kautta: juonirakenne toimii hyvin kehitysmuodon kaltaisissa muodoissa siksi, että se edustaa samaa abstraktia kolmiosaista mielikuvaskeemaa (*source-path-goal*), mutta on musiikilliseen muotoon verrattuna helpommin käsitteellistettävissä. Tätä kautta musiikkiin liittyy "ulkomusiikillisia" merkityksiä. Kognitiivisen semantiikan (Lakoff, Johnson) mukaan juuri mielikuvaskeemat ovat keskeisiä merkitysten kantajia.

Tämän tutkimuksen nojalla vaikuttaa ilmeiseltä, että kehitysmuoto on toimiva työkalu suppeiden barokkimuotojen kuvauksessa. Kehitysmuodon ongelmana on ollut määrittelevien piirteiden yleisluontoisuus: selkeän melodisen toiston puuttumisen vuoksi keitysmuotoa ei voida mielekkäästi kuvata temaattis-tonaalisena kaavana. Kehitysmuodon määrittelyä oli mahdollista tarkentaa käsittämällä se koostuvaksi ensisijaisesti muodon funktioista. Lisäksi kehitysmuodon tulkitseminen muistiin tallentuneeksi tietorakenteeksi, mahdollisti joustavamman rakenteen kuvauksen, joka sallii myös osien lisäämisen ja poistamisen. Juonirakenteesta lainattujen käsitteiden avulla pystyttiin kuvaamaan muodon funktioiden ja skriptien roolia alkusoittojen kokonaisuudessa ja sitä logiikkaa, jolla rakenteelliset osat liittyvät toisiinsa.

Tutkimuksessa pyrittiin esittämään sekä puhtaasti musiikillinen rakenteen kuvaus että kuvaus, joka perustuu metaforiseen suhteeseen musiikillisen rakenteen ja kirjallisuuden juonirakenteiden välillä. Metaforisuuden kautta "puhtaisiin" rakenteisiin tulee vääjäämättä merkityksiä, jotka perinteisessä musiikkitieteellisessä terminologiassa on määritelty "ulkomusiikillisiksi". Toisaalta metaforisen suhteen hyväksyminen musiikillisen muodon ja juonirakenteiden välille myös häivyttää rajaa musiikillisen ja "ulkomusiikillisen" väliltä.

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APPENDIX 1

BWV	No.	meter	key
6	5	C|	Gm
8	2	3/4	Bm
9	3	12/16	Em
11	4	C	Am
12	4	C	Cm
13	5	C	Gm
21	3	12/8	Cm
21	5	C	Fm
22	2	9/8	Cm
26	4	C|	Em
28	1	3/4	Am
30	10	9/8	Em
32	1	C	Em
35	2	6/8	Am
37	5	C	Bm
40	4	3/8	Dm
41	4	C	Am
43	5	C	Em
43	9	3/4	Am
44	3	3/4	Cm
45	3	3/8	C#m
45	5	C	F#m
46	5	C	Gm
47	2	3/8	Dm
48	6	3/4	Gm
49	2	3/8	C#m
52	3	C	Dm
55	1	6/8	Gm
55	3	C	Dm
57	3	3/4	Cm
57	7	3/8	Gm
58	3	C	Dm
60	3	3/4	Bm
63	3	C	Am
64	5	C/	Bm
70	5	C	Em
75	5	3/8	Am
77	3	C	Am
78	4	6/8	Gm
81	1	C	Em
82	1	3/8	Cm
82	5	3/8	Cm
84	1	3/4	Em
85	2	C	Gm

BWV	No.	meter	key
89	1	C	Cm
90	1	3/8	Dm
91	5	C	Em
92	3	C	Bm
93	6	C	Gm
94	4	C	Em
98	3	3/8	Cm
99	3	3/8	Em
100	3	6/8	Bm
100	5	12/8	Em
101	2	3/4	Gm
101	4	C/	Am
102	5	3/4	Gm
103	3	6/8	F#m
107	5	12/8	Bm
108	2	3/4	F#m
108	5	6/8	Bm
110	4	3/4	F#m
112	2	6/8	Em
114	2	3/4	Dm
116	2	3/4	F#m
117	3	6/8	Em
117	6	C	Bm
119	5	6/8	Gm
121	2	3/4	Bm
126	2	C	Em
128	4	6/8	Bm
129	3	C/	Em
132	5	C	Bm
133	4	C/	Bm
135	5	C/	Am
136	3	C	F#m
136	5	12/8	Bm
139	4	C	F#m
140	3	6/8	Cm
144	5	C	Bm
146	5	C	Dm
147	3	3/4	Am
147	5	C	Dm
148	2	6/8	Bm
151	3	C	Em
152	2	3/4	Gm
153	6	C	Am
157	1	C	Bm
157	2	3/8	F#m
166	2	C	Gm

BWV	No.	meter	key
167	3	3/4	Am
168	1	C	Bm
169	5	12/8	Bm
172	4	3/4	Bm
175	2	12/8	Em
178	6	C	Em
179	3	C	Em
179	5	3/4	Em
181	1	C	Em
182	5	C	Em
183	2	C	Em
184	4	3/4	Bm
186	8	C	Gm
188	3	C	Em
196	3	C	Am
198	3	C	Bm
198	8	3/4	Em
199	2	C	Dm
201	5	3/8	Bm
201	9	12/8	F#m
201	13	3/4	Em
202	5	C	Em
204	2	3/8	Gm
204	6	12/8	Dm
205	5	3/8	Bm
205	7	C	F#m
206	5	6/8	Bm
207	3	C/	Bm
211	4	3/8	Bm
213	9	3/8	Am
214	5	3/8	Bm
215	7	2/4	Bm
248	31	2/4	Bm
248	51	2/4	Bm
248	62	2/4	Bm

APPENDIX 2

BWV	No.	meter	key
2	5	C	Gm
7	4	3/4 (9/8)	Am
13	1	12/8	Dm
14	4	C		Gm
19	5	6/8	Em
20	3	3/4	Cm
20	6	3/4	Dm
23	1	C	Cm
24	5	C	Am
27	5	3/4	Gm
29	5	6/8	Bm
30	8	2/4	Bm
33	5	3/4	Em
36	3	3/8	Bm
38	3	C	Am
56	1	3/4	Gm
57	1	3/4	Gm
65	4	C	Em
69	5	3/4	Bm
70	3	3/4	Am
75	10	3/8	Em
76	10	3/4	Am
77	5	3/4	Dm
78	6	C	Cm
81	5	C	Em
85	1	C	Cm
87	1	C	Dm
87	3	C	Gm
91	3	3/4	Am
94	2	C	Bm
97	6	C		Cm
96	5	Dm	3/4
99	5	C	Bm
101	6	12/8	Dm
102	3	C	Fm
104	3	C	Bm
110	2	C	Bm
113	7	3/4	Em
115	2	3/8	Em
115	4	C	Bm
123	3	3/4	F#m
124	3	3/4	F#m
125	2	3/4	Bm
137	3	3/4	Em

BWV	No.	meter	key
143	6	C	Gm
144	2	3/4	Em
149	2	C	Bm
152	6	6/4	Gm
154	1	3/4	Bm
155	2	C	Am
161	3	3/4	Am
162	1	C	Am
163	1	C	Bm
163	3	C	Em
164	1	9/8	Gm
164	3	C	Dm
164	5	C|	Gm
170	3	C	F#m
186	5	C	Dm
186	10	3/8	Cm
187	4	C|	Gm
206	7	C	F#m
210	6	C	Bm
210	8	3/4	C#m
213	7	C	Em

APPENDIX 3

Beginning

TABLE 1 The distribution of features across TDT/151 category.

BWV		key	TDT	bass 151	sopr 123	aa1	1:1:2	1:1	cadence V	III	A.F	à2	seq. fifth
32/1	C	e	+	+	(+)	-	-	-	+	-	-	-	+
45/5	C	f#->c#	(+)	+	(+)	+	+	-	+	-	(+)	+	+
58/3	C	d	+	+	+	+	(+)	-	+	+	+	+	-
60/3	3/4	b	+	(+)	(+)	-	-	-	+	-	-	-	(+)
100/3	6/8	b	+	+	+	+	+	-	+	-	+	+	+
103/3	6/8	f#	+	(+)	+	(+)	-	-	+	-	-	+	+
136/5	12/8	b	+	+	+	+	+	-	+	-	+	+	+
144/5	C	b	(+)	+	(+)	+	-	+	+	-	(+)	+	+
196/3	C	a	(+)	+	+	+	-	-	-	-	-	+	-
213/9	3/8	a	+	(+)	+	-	-	+	+	-	-	+	+
10			**8,5**	**8,5**	**8**	**6,5**	3,5	2	**9**	1	4	**8**	**7,5**

TDT: (+) = weaker D within the tonic (45/5) or inserted chords (144/5) or D more accented than the following T (196/2)
151: (+) = the last 1 on weak beat (60/3) or 351 (103/3) or the first 1 missing (213/9)
123: (+) = 3 on a weaker beat (60/3, 144/5) or 2 and 3 displaced due to appoggiaturas (45/5) or 1 and 2 metrically displaced (32/1)
A.F.: (+) = the sequence of the continuation phrase constitutes the descent
seq. fifths: (+) = harmonic, irregular sequence (60/3)

TABLE 2 The distribution of features across the memebers of TDT/1#71 category.

BWV		key	TDT	bass 1#71	sopr 123	aa1	1:1:2	1:1	V	III	A.F	à2	seq. fifths
12/4*	C	c	+	+	(+)	-	-	+	-	+	-	+	+
22/2	9/8	c	+	(+)	(+)	+	+	-	+	-	(+)	+	+
47/2	3/8	d->F	+	+	+	+	+	-	+	-	(+)	+	-
49/2	3/8	c#	(+)	(+)	(+)	+	+	-	+	-	+	+	-
101/2	3/4	g	+	(+)	(+)	+	-	-	+	-	-	+	-
102/5*	3/4	g	+	+	(+)	-	-	+	-	+	-	+	(+)
116/2*	3/4	f#	(+)	(+)	+	+	-	+	-	-	-	+	-
119/5*	6/8	g	+	+	(+)	-	-	+	-	+	-	+	-
178/6	C	e	+	(+)	+	-	-	-	+	-	-**)	-	+
179/3*	C	e	+	+	(+)	+	-	+	+	+	-	-	(+)
198/3*	C	b	(+)	+	+	+	+	-	-	-	(+)	-	-
205/5	3/8	b	(+)	(+)	+	+	-	+	-	-	-	-	+
12			**10**	**9**	**8,5**	**8**	4	**6**	**6**	4	2,5	**8**	5

*= suspension schema
**)=resembles A.F. schema (1+1+3)
TDT: (+) = inserted chords (116/2 and 205/5) or D more accented than the following T (49/2 and 198/3)
123: (+) = metrically displaced (101/2) or 1243 with weak 1 (102/5 and 119/5) or 1 missing (179/3) or 1 and 2 on weak beats (12/4) or 3 on weak beat (49/2) the first 1 on weak beat (22/2)

1#71: (+) = 171 (116/2) or both tonics on weak beats (178/6) or the first 1 before soprano (22/2) or 3-#7-1 metrically displaced (101/2)or the last 1 on weak beat (49/2)

TABLE 3 The distribution of features across members of TDT/123 category.

				bass	sopr.			presentation				
BWV	meter	key	TDT	123	53#71	TDT"	aa1	1:1:2	1:1	V	excl.	à2 12345..
6/5	C|	g->d	+	+	-	-	-	-	+	+	-	-	-
8/2*	3/4	b	+	+	(+)	-	-	-	+	-	+	+	-
63/3	C	a	+	+	+	-	-	+*	-	+	-	+	+
64/5	C|	b	(+)	(+)	(+)	-	-	+	-	-	-	-	+
84/1	3/4	e	+	+	+	+	-	-*	-	+	-	-	(+)
99/3	3/8	e	+	+	(+)	+	-	-	+	+	-	+	-
110/4	3/4	f#	(+)	(+)	-	+	+	+	-	+	+	+	-
172/4	3/4	b	+	+	+	-	-	-	+	-	-	+	+
182/5	C	e	+	+	+	+	(+)	-	-	(+)	+	+	+
199/2	C	d	(+)	(+)	(+)	-	-	-	-	+	+	+	+
201/5	3/8	b	+	+	(+)	+	+	(+)*	-	(+)	+	-	+
214/5	3/8	b->f#	+	+	+	+	+	+*	-	+	+	+	+
248/5	12/4	b	+	+	-	-	-	+	-	+	-	+	+
13			**11,5**	**11,5**	**7,5**	6	3,5	5,5	4	**9**	6	**9**	**8,5**

*) = sentence form (63/3; 84/1; 201/5; 214/5)

TDT: (+)= D more accented than the following T (64/5 and 199/2) or the latter T on weak beat (110/4)
123:(+): 3 on weak beat (64/5 and 199/2) or 2 and 3 relatively weak (110/4)
53-#7-1; (+)= 3 missing (64/5; 99/3) or 35 as an upbeat beat (8/2) or the last tone 5 instead of 1 (199/2 and 8/2) or 2 instead for #7 (201/5)
aa1: (+)=metrical displacement of motive (182/5)
1:1:2: (+)=constitutes only the beginning of the presentation, (201/5)
V: (+)= followed by a cadence to III, which ends the presentation phrase (182/5 and 201/5)
12345..: (+) = added figuration between 3 and 4 (84/1)

TABLE 4 The distribution of features across the members of TDT/1-#7-5-1 category.

				bass	soprano				presentation			
BWV	meter	key	TDT	1#751	x543	T-D"	T-X	ab	1:1	1:1:2	V	à2
30/10	9/8	e	+	+	+	+	+	+	+	-	-	+
37/5	C	b	+	(+)	+	+	+	+	+	-	+	-
85/2	C	g	+	(+)	+	-	-	-	-	+	-	+
94/4	C	e	+	+	(+)	+	+	+	+	-	+	+
100/5	12/8	e	(+)	(+)	+	+	+	+	+	-	+	+
135/5	C|	a	(+)	+	+	-	-	-	+	-	+*	-
136/3	C	f#	+	+	(+)	-	-	-	+	+	+	+
201/9	12/8	f#->c#	+	+	(+)	+	+	+	+	-	-	+
205/7	C	f#	+	+	+	-	-	-	+	-	+	+
9			**8**	**7,5**	**7,5**	**5**	**5**	**5**	3	**6**	**7**	

* = sentence form

TDT: (+) = inserted chords on weak beats (100/5) or D more accented than the last T (135/5)
1#751:(+) = 1#71 (37/5, 100/5) or suspension 1-#7 (85/2)
543: (+) = a weak subdominant tone (94/4 and 136/3) in 201/9 weak 4 and weak 3

TABLE 5 The distribution of features across memebers of the changing note schema.

BWV	meter	key	T-D"D-T	1551	1#743	aa1	1:1	1:1:2	i	à>2
81/1	C	e	(+)	-	+	+	-	(+)	-	+
89/1	C	c	+	-	(+)	+	+	-	+	+
92/3	C	b	+	+	+	+	+	-	-	+
93/6	C	g	(+)	(+)	+	-	+	-	+	-
108/5	6/8	b	(+)	(+)	(+)	(+)	-	+	-	+
140/3	6/8	c	+	-	+	+	+	-	+	-
6			**4,5**	2	**5**	**4,5**	**4**	1,5	**3**	**4**

TDT: (+) = inserted functions on weak beat (81/1, 93/6, 108/5)
1#743: (+) = 3243 (89/1, 108/5)
aa1: (+) = a1 a free variation (108/5)
1:1:2: (+) = overlap of units (81/1)

TABLE 6 The distribution of features among the memebers of the TST/565 schema category.

				bass	melody		presentation			walking	
BWV	meter	key	TST	3-4-3	5-6-5	aa1	.1:1	1:1:2	V	bass	à2
70/5	C	e	+	(+)	+	+	+	-	-	+	+
181/1	C	e	(+)	(+)	+	+	-	-	+	-	-
183/2	C	e	+	+	(+)	-	-	-	-	+	+
202/5	C	e	+	+	-*)	+	+	-	+	+	+
248/31	2/4	b	+	(+)	+	+	+	-	+	-	+
5			**4,5**	**3,5**	**3,5**	**4**	**3**	0	**3**	**3**	**4**

TST: (+) = inserted functions (181/1)
3-4-3: (+)= 3-4-1 (70/5) or 3#343 (181/1) or 1-4-1 (248/31)
565:(+)= partly in the middle voice (183/2)
*) = 1-2-1 (202/5)

TABLE 7 The distribution of features across the members of TSDT/1-4-#7-5-1 category.

				bass	sopr.				walking	
BWV	meter	key	TSDT	14#7(5)1	16543	aa1	V		bass	à>2
52/3	C	d	+	+	(+)	+	+		-	+
121/2	3/4	b	+	(+)	-	-	(+)		-	-
146/5	C	d	+	+	+	-	+		-	-
166/2	C	g	+	(+)	(+)	-	-		+	+
183/2	C	e	(+)	(+)	+	-	-		+	-
5			**4,5**	**3,5**	**3**	1	**2,5**		2	2

* = sentence form (46/5 and 52/3)
TSDT: (+) = metrically weak D (183/2)
14#7(5)1: (+) = 14[#7] 1 (121/2); 5 delayed (166/2); 2 instead of #7(183/2)
6543: (+)= 3 delayed (52/3); 6543 instead of 16543 (166/2)
V: (+)=after V follows an added modulation to the relative major (121/2)

TABLE 8 The distribution of features among examples of the TSDTp/1-4-5-6 schema category.

BWV	meter	key	TSDTp	bass 1456	sopr. 321#71	TSDT"ab		1:1	1:1:2	V	à2
9/3	12/16	e	+	(+)	-	-	-	-	-	+	+
43/5	C	e	+	+	-	-	-	+	-	-	-
55/3	C	d	+	+	(+)	+	-	-	+	+	+
98/3	3/8	c	+	(+)	+	+	+	-	+	+	+
117/6	C	b	+	(+)	+	+	+	-	+	+	+
128/4	6/8	b	+	+	+	-	-	(+)	-	(+)	+
6			**6**	**4,5**	**3,5**	**3**	2	1,5	**3**	**4,5**	**5**

1456: (+) = 13456 (9/3) or 131456 (98/3) or dactylic diminutions (117/6)
321#71: (+)= Neapolitan chord (55/3)
1:1: (+)=the beginning of the presentaton is symmetrical (128/4)
V: (+)= C1 directed toV, C2 to v (128/4)

TABLE 9 The distribution of features across theTSDT/16451 category.

BWV	meter	key	TSDT	bass 16451	sopr. CN	*aa1*	1:1	1:1:2	V	III	parall.	à>2	mot CN
28/1	3/4	a	(+)	(+)	(+)	+	+	-	-	+	+	+	+
43/9	3/4	a	(+)	(+)	(+)	+	-	+	-	+	+	+	+
48/6	3/4	g	+	(+)	(+)	-	+	-	-	+	-	+	-
82/1	3/8	c	(+)	(+)	-	-	+	-	-	-	-	+	-
90/1	3/8	d	(+)	(+)	-	+	-	(+)	+	-	-	+	-
107/5	12/8	b	+	+	(+)	-	+	-	-	+	+	+	+
117/3	6/8	e	(+)	(+)	-	+	-	+	+	(+)	+	+	+
211/4	3/8	b	+	(+)	(+)	-	-	-	-	+	-	-	+
248/62	2/4	b->f#	+	+	(+)	+	+	(+)	-	-	+	+	(+)
9			**6,5**	**5,5**	3	**5**	**5**	3	2	**5,5**	**5**	**8**	**5,5**

* = categorized as TDT, but has a higher-level 1-6-4-5-1 bass formula (not counted as a member)
TSDT: (+) = inserted functions (28/1, 43/9, 82/1) or deceptive cadence (90/1) or DT missing (117/3)
16451: (+) = inserted tones (28/1, 43/9, 82/1,), 176451 (48/6) or extension by added decpetive cadence (90/1), or interrupted after 164 (117/3) or 176451 (28/1 and 211/4)
CN: (+) = 512#71 instead of 12#71 (28/1) or added pitches 53423 (48/6 and 43/9) or partly distributed into the middle voice (107/5 and 248/62) or 51423 instead of 3423 (211/4)
1:1:2: (+) = 1:1:2 up to the deceptive cadence (90/1) or the 1:1:2 structure is repeated (248/62)
III: (+) = cadence weakened (117/3)
CNmot. (+) =132#71 instead of 12#71 (248/62)

TABLE 10 The distribution of features among the examples in pedal point category.

BWV	meter	key	CN	aa1	1:1	1:1:2	V	III	parall.	à>2
26/4	C|	e	+	+	-	+	+	-	+	+
114/2	3/4	d	-	-	-	+	-**)	-	-	-
148/2	6/8	b	-	-	-	-*)	+	-	-	-
169/5	12/8	b	-	-	+	-	-**)	-	+	+
175/2	12/8	e	-	+	-	+	+	-	+	+
204/2	3/8	g->d	-	-	-	-	-**)	-	+	+
207/3	C|	b	-	(+)	-	+	+	-	-	+
7			1	2,5	1	**4**	4	0	**4**	**5**

*) = sentence form (148/2)
**) = presentation phrase ends on i (i and V practically equally frequent)
ch-note melody: + = 5-6-4-5. and/or 3-4-2-3 and/or 1-2-#7-1
aa1: (+) = identical motives aa (207/3)

TABLE 11 The distribution of features across the schema the Phrygian tetrachord.

BWV	meter	key	circle of 5ths	bass 1765	sopr. 321#7	seq. struct.	1:1	1:1:2	V	III	à>2
41/4	C	a	+	+	+	+	-	-	(+)	+	-
77/3	C	a	+	+	(+)	(+)	-	+	+	-	+
101/4	C|	a	-	(+)	(+)	(+)	-	+	+	-	+
112/2	6/8	e	-	+	(+)	-	+	-	+	-	-
153/6	C	a	+	+	-	(+)	-	-	+	-	+
168/1	C	b	+	(+)	(+)	+	+	-	(+)	-	+
186/8	C	g	(+)	(+)	-	+	-	-	+	-	-
198/8	3/4	e	-	+	+	(+)	-	+	+	-	+
8			**4,5**	**6,5**	**4**	**5**	2	3	**7**	1	**5**

circle of fifths: (+) = chord substitutions-> not root movement by descending fifth (186/8)
1765:(+) = an added #7-1 between 6 and 5 (101/4); pattern found at the second strongest beat of the measure (168/1); from weak beats: 1-#7-#6-5 (186/8)
321#7: (+) = descent in parallel thirds starting from (5 in the upper voice) and 3 (in the middle voice) (77/3, and 168/1, which stops on 1, not #7); dominant delayed and #7 found in the middle voice (101/4); 5 instead of 2 (112/2)
sequential structure: (+) = the sequential motive developed (varied)(77/3); seq. structure not in the half cadence (101/4); only in bass (153/6 and 198/8)
V:(+) =first cadence on V, second on III (41/4); weak and delayed half cadence (168/1)

Digression

TABLE 12 The distribution of features among the members of the subcategories a1 and a2 of the TSD category.

				bass	soprano	melodic types		contin.	circle of	
BWV	meter	key	|TS|D	3-4-5	5...2..#7	a*)	b**)	#7->5	5ths	á2
22/2	9/8	c	(+)	(+)	(+)	-	-	-	+	+
26/4	C|	e	+	+	+	+	-	+	+	-
49/2	3/8	c#	(+)	(+)	(+)	(+)	-	+	-	+
55/3	C	d	+	+	+	-	+	+	+	+
58/3	C	d	+	+	(+)	(+)	-	+	-	+
78/4	6/8	g	+	+	(+)	-	(+)	-	-	+
157/1	C	b	+	+	(+)	-	+	(+)	+	-
157/2	3/8	f#	+	+	+	-	(+)	-	-	+
201/5	3/8	b	+	+	+	+	-	+	(+)	-
201/9	12/8	f#	+	+	+	+	-	-	(+)	-
10			**9**	**9**	**7,5**	4	3	**5,5**	5	**6**

*) = melodic type a:54321#7
**) = melodic type b: 512#7
|TS|D : (+) = T on the second beat of triple meter measure (22/2, 49/2)
3-4-5: (+) = 6-3-4 (22/2 and 49/2)
5...2...#7: (+) = 5 displaced and weak (58/3) or #7 delayed (78/4) or sopr. and alto crossed (157/1); 5-6-#7 (22/2) or 5 on the second beat of the measure (49/2)
54321#7: (+) = 543234#7 (49/2) or 5 on a weak beat (58/3)
512#7: (+) = #7 delayed (78/4) or melodic embellishments (157/2)
#7->5:soprano and alto crossed(157/1)
circle of 5ths sequence: (+) = after half cadence follows a modulation to the relative major (201/5) or an authentic cadence in tonic key follows (201/9)

TABLE 13 The distribution of features among the members of the 6(x)2#7 TSD category.

				bass >	soprano >				circle of	
BWV	meter	key	|SS|D	4 645	6 x 2#7	4321#7	#7->5	fifths	á2	
45/5	C	f#	+	+	(+)	-	-*	+	+	
63/3	C	a	+	(+)	+	-	-*	+	+	
108/5	b6/8	b	+	-	+	-	-*	-	-	
117/6	C	b	+	+	(+)	+	+	-	+	
136/5	12/8	b	+	(+)	(+)	+	+	+	+	
184/4	3/4	b	+	+	(+)	(+)	-	-	+	
215/7	2/4	b	+	(+)	(+)	+	-	-	+	
7			**7**	**4,5**	**4,5**	**3,5**	2	3	**6**	

4 645: (+) = 6 missing (63/3); 4 on second beat of the measure or 6-6-4-6 (136/5) or 4-4-...5: (215/7)
6 (x)2#7: (+) = two-layered melody (45/5) or #7 substituted for 3-2 (184/4) or 2-(4)-2(215/7) or 6 on the weak beat (136/5) or 2 is accompanied by 6 (not 4) in bass (117/6)
4321#7: 432132 (184/4)

TABLE 14 The distribution of features within the subcategory 1-6-5 of category TSD.

BWV	meter	key	|TS|	D1-6-5	3-4-5	ant 4-5-5	à>2	circle of fifths
32/1	C	e	+	(+)	(+)	+	+	(+)
35/2	6/8	a	(+)	(+)	-	-	+	-
40/4	3/8	d	+	+	-	-	+	-
47/2	3/8	d	(+)	+	-	-	-	(+)
60/3	3/4	b	(+)	+	(+)	-	+	(+)
84/1	3/4	e	+	(+)	-	-	+	+
103/3	6/8	f#	+	+	+	+	-	+
126/2	C	e	+	+	(+)	-	+	+
136/3	C	f#	+	+	+	(+)	-	+
139/4	C	f#	+	+	+	+	+	-
205/7	C	f#	+	(+)	+	+	-	
11			**9,5**	**9**	**5,5**	4,5	**7**	**5,5**

|TS| D: (+) = T metrically weak (35/2 60/3) or chromatic alteration in S (47/2) or
1-6-5: (+) = 3-6-5 (32/1, 84/1) or starting from a weak beat (35/2) or 1-3-6-5 (205/7)
3-4-5: (+) = 3 missing (32/1) or 3-4-#7 (60/3); in the middle voice (126/2)
4-5-5: dotted rhythm but 4-4-5 (136/3)

TABLE 15 The distribution of typical features within the DTD category.

BWV	meter	key	DTD	bass #7-1-5	upper voices 4-3-2 2-1-#7	à>2	circle of fifths
46/5	C	g	+	+	(+)	+	+
52/3	C	d	+	(+)	+	+	-
81/1	C	e	+	+	+	+	-
98/3	3/8	c	+	+	(+)	-	+
101/4	C|	a	+	+	(+)	+	-
108/5a	6/8	b	+	+	(+)	+	-
117/3	6/8	e	(+)	-	(+)	+	(+)
146/5	C	d	+	(+)	(+)	+	+
151/3	C	e	+	+	-	-	-
175/2	12/8	e	(+)	(+)	(+)	+	-
178/6	C	e	+	(+)	(+)	+	+
188/3	C	e	(+)	-	(+)	-	+
207/3	C|	b	+	+	(+)	+	-
213/9	3/8	a	+	+	(+)	-	+
248/51	2/4	b	+	+	(+)	-	+
15			**13,5**	**11**	**8**	**10**	**7,5**

DTD: (+) = inserted chord between T and D (usually subdominant function)
432/21#7: (+) = structural line ornamented (46/5, 117/3,146/5, 207/3); melodic thirds (98/3, 108/5a) or free parallel thirds ending with 2-#7(101/4) or instead of 2-#7->4-#7(175/2) or partly melodic thirds (178/6) or 43232 (213/9) or 4332 (248/51) or 432 structural line varied (188/3)
#7-1-5: (+) = #7-5-1-5 (52/3, 178/6) or 5-1-5 (146/5) or #7165 (175/2)

TABLE 16 The distribution of features among members of modulation schema/671+ cadential schema/1x51 in relative major.

BWV	meter	key	TSDT	1451	321	modulation bass 6-7-1	modulation sopr. 1-2-3	-III"	i->III	V->III	à2
12/4	C	c	(+)	-	+	-	-	+	+	-	+
41/4	C	a	-	(+)	(+)	+	+	+	-	+	+
57/7	3/8	g	+	+	(+)	+	(+)	+	+	-	+
58/3	C	d	+	+	+	+	+	+	-	+	+
75/5	3/8	a	(+)	-	+	-	-	-	-	+	+
182/5	C	e	+	(+)	(+)	(+)	+	+	-	+	+
201/5	3/8	b	+	+	(+)	(+)	(+)	+	-	+	-
215/7	2/4	b	+	+	(+)	+	+	+	-	+	+
8			**6**	**5**	**5,5**	**5**	**5**	**7**	2	**6**	**7**

TSDT: (+) = the first T vi (12/4, 75/5)
1x51 (x=pitch in a subdominant function harmony): (+)= subdominant missing (41/4)
1451: (+) = 13551 (41/4) or 16551 (182/5)
321: (+) = inserted pitches (41/4) or 1321 (57/7) or octave transfer 3..3 with added pitches (183/2) or melody 32#71 (201/5) or 31271 (215/7)
671: (+) = 7 metrically displaced/ weak (182/5) or 6 and 1 weak (201/5)
123: (+) = 1 and 3 weak (201/5) or metrically weak pitches (57/7)

TABLE 17 The distrubution of prototypical features across the modulatory category 3-4-5-1.

BWV	meter	key	TSD|T	3451	51271	TSDT/16451	>2
28/1	3/4	a	+	(+)	+	+	+
43/9	3/4	a	+	(+)	(+)	+	+
48/6	3/4	g	+	(+)	(+)	+	+
211/4	3/8	b	+	+	(+)	+	-
4			4	2,5	2,5	4	3

3451: (+)= 3 missing, 6 inserted (28/1), 6 inserted (43/9), 5-5 instead of 5 (48/6)
51271: (+)= 5123271 (43/9), 551711 (48/6), 5132171 (211/4)

Sequence

TABLE 18 The distribution of prototypical features in members of circle-of-fifths category (a1).

BWV	meter	key	**i(I)**-iv	m **1**-7	bass (#)**3**-2	sopr. exact	n-V(v)	cad. I	Br 654(3)
22/2	9/8	c	(+)	-	-	(+)	+	+	-
26/4	C|	e	(+)	+	+	+	+	(+)	-
46/5	C	g	+	-	-	+	+	-	-
55/3	C	d	+	(+)*	(+)*	+	+	+	+
78/4b	6/8	g	+	+	+	+	(+)	-	-
84/1	3/4	e	+	+	+	+	+	-	-
98/3	3/8	c	+	+	+	-	+	-	+
100/3	6/8	b	(+)	-	-	+	+	+	-
103/3a	6/8	f#	+	-	-	(+)	+	-	-
103/3b	6/8	f#	+	+	+	+	-	-	-
110/4	3/4	f#	+	-	-	+	+	+	-
112/2	6/8	e	(+)	+	+	+	+	(+)	-
117/3	6/8	e	+	+	(+)	-	+	-	-
128/4a	6/8	b	+	-	+	+	+	+	-
129/3b	C|	e	+	-	-	+	(+)	+	-
132/5a	C	b	+	+	+	+	+	-	-
136/5	12/8	b	+	(+)	(+)	+	+	-	-
146/5	C	d	+	+	+	+	+	+	-
147/5	C	d	+	+	+	+	+	-	-
148/2a	6/8	b	+	+	-	-	+	+	-
188/3	C	e	+	+	+	+	+	-	-
198/3b	C	b	+	+	+	+	-	-	-
198/8	3/4	e	+	+	-	+	+	(+)	-
201/5	3/8	b	+	+	-	+	-	-	+
201/13	3/4	e	+	+	+	+	-	-	+
205/5	3/8	b	+	+	+	+	+	-	+
213/9	3/8	a	+	+	+	+	+	+	+
248/31	2/4	b	(+)	-	-	+	+	+	-
248/51	2/4	b	+	+	+	+	+	-	(+)
29			**26,5**	**20**	**17,5**	**25**	**24**	11,5	6,5

i(I)-iv: (+) = added chords between structurally improtant sequential chords (26/4, 100/3, 112/2, 248/31) or irregular harmonic rhythm (22/2)
1-7 (+) = Stimmtausch (55/3) or 5-2 (136/5)
3-2 (+) = Stimmtausch (55/3) or 4-3 suspension (117/3) or 3-6 (136/5)
V(v): (+) = half cadence following the first sequence (78/4b and 129/3b)
I : (+) = diatonic i altered into I (26/4, 112/2, and 198/8)

TABLE 19 The distribution of prototypical features in members of circle-of-fifths category (a2).

BWV	meter	key	chords meas.	i-**iv**-VII	bass **4**-3	sopr **6**-5	exactn.	prec. cadV	4-3-2b	I
12/4a	C	c	4	+	-	(+)	+	-	-	-
21/3a	12/8	c	4	+	+	+	+	+	-	+
21/3b	12/8	c	4	+	+	+	+	-	-	+
21/5*)	C	f	4	+	*)	*)	+	+	-	-
32/1	C	e	2	+	+	+	(+)	+	-	+
45/5	C	f#	2	+	-	-	+	+	-	-
63/3	C	a	4	+	+	+	(+)	+	-	+
64/5	C|	b	2	+	*)	*)	+	-	-	-
89/1a	C	c	4	+	+	-	+	-	-	-
126/2	C	e	2	+	+	+	+	+	-	-
133/4	C|	b	2	+	*)	*)	+	-	-	-
166/2	C	g	4	+	+	+	+	-	-	-
178/6	C	e	2	+	+	-	+	+	-	+
179/3	C	e	4	(+)	+	+	+	+	-	-
182/5	C	e	4	+	+	+	+	-	-	+
199/2	C	d	4	+	+	+	(+)	+	-	-
16				**15,5**	**11**	**19,5**	**14,5**	**9**	0	6

*) = Voice-exchange
i-iv: (+) = added chords (179/3: begins with V-i-IV)
6-5: (+) = #6-5 not as a secondary dominant (12/4a) proceeds to vii° (not VII)

TABLE 20 The distribution of prototypical features in members of circle-of-fifths category (b).

			chords meas.	**iv**-VII	bass **4**-3	sopr. (#)**6**-5	excact	contin. cad ii-V-i	i(I)	4-3-b2
8/2	3/4	b	1	+	+	+	(+)	-	+	-
12/4b	C	c	8	+	+	+	+	+	-	+
58/3b	C	d	2	+	+	+	+	+	(+)	-
85/2	C	g	2	+	+	+	+	+	+	-
101/2b	3/4	g	2	(+)	+	+	(+)	-	?	-
108/2	3/4	f#	2	+	+	+	+	+	+	+
121/2	3/4	b	2	+	+	+	(+)	-	-	-
129/3a	C|	e	2	+	-	-	+	-	+	-
132/5b	C	b	4	+	+	+	+	-	-	-
135/5	C|	a	4	+	-	+	+	+	-	+
136/3	C	b	4	+	+	(+)	+	(+)	-	(+)
152/2	3/4	g	2	+	+	+	+	-	+	(+)
201/9	12/8	f#	2	+	+	+	+	-	+	-
204/6	12/8	d	4	+	+	+	+	+	+	+
206/5	6/8	b	4	+	+	+	+	+	-	-
15				**14,5**	**13**	**13,5**	**13,5**	**7,5**	**7,5**	5

iv | VII : (+) = altered chords (III+, vii°: 101/2b)
6-5: (+) = on weak beats (136/3; structural line goes on from 6-5)
ii-V-i: (+) = accelerated continuation with part of the motive m (58/3), or with half measures longer V (136/3)
i(I): (+) = the preceding sequence ends on I (58/3b)
4-3-b2: (+)=b2 delayed: 136/3, 152/2

TABLE 21 The distribution of features among members of i-VII-VI-V-(III) category.

BWV	meter	key		i-VI6-VII(7)-v6-VI7 -iv6-V	bass 176	sopr 321	exact	prec. V	succ. V
6/5b	C|	g->d	8	(+)	+	+	+	(+)	-
100/5	12/8	e	2!	(+)	+	+	+	+	+
114/2	3/4	d	2!	(+)	+	+	+	-	(+)
179/5	3/4	a	3	(+)	+	-	+	-	+
198/8c	3/4	e->b	2	+	+	+	(+)	+	+
248/51b	2/4	b	1	(+)	-	-	+	-	+
6				**3,5**	**5**	**4**	**5,5**	2,5	**4,5**

i-VI6-VII(7)-v6-VI(7): (+)= four chords/pattern (6/5) or inserted chords (100/5) or inserted chords functioning as bass suspensions between schema chords (114/2) or ... VI-VII-…-v-VI-...-iv instead of VI6-VII-v6-VI (179/5) or sequence starting from VI7 (248/51b)
bass: 117766 weak beats included (small category!)
V prec.: (+) = dominant chord on a weak beat (6/5)
V succ.: (+) = V delayed (interpolated material) (114/2)

TABLE 22 The distribution of prototypical features among members of sequence category i-VI-iv.

BWV	meter	key	i-VI-iv	bass 1-6-4	sopr. 3-1-6	exact	surf. mot.*	prec. V	succ. V prol.
41/4b	C	a	+	+	+	+	+	+	-
78/4a	6/8	g	(+)	+	+	+	-	+	+
91/5	C	e	+	+	+	+	-	+	+
93/6	C	g	+	+	+	+	(+)	-	+
168/1b	C	b	+	+	+	+	+	+	-
5			**4,5**	**5**	**5**	**5**	2,5	**4**	3

* = surface motive = soprano: (3)21 - 76, bass: (1)456 - 234
i-VI-iv: (+) = VI6 substituted for i, iv6 for VI, and bII6 for iv (78/4a)
surface motive: (+) = soprano: b21-76, bass: 56-#34 (93/6)

TABLE 23 The distribution of characteristic features among members of sequence category V/iv-iv V-i.

BWV	meter	key	D/iv|iv	bass #34-#71	sopr. 56-23	exact.	prec -V	succ V/V	surface 5b2...6
11/4	C	a	+	(+)	-	+	(+)	+	-
35/2***	6/8	a ->e	+	+	+	+	+	-	-
43/9	3/4	a	(+)	-	-	-	-	-	-
44/3b**	3/4	c	(+)	+	+	+	+	-	+
52/3	C	d	+	+	(+)	(+)	+	+	(+)
94/4	C	e	+	+	+	+	+	+	+
101/2**	3/4	g	+	+	(+)	(+)	+	-	(+)
112/2b	6/8	e->b	(+)	-	-	(+)	-	-	-
116/2**	3/4	f#	+	-	*)	(+)	-	-	-
205/7	C	f#	+	(+)	(+)	+	+	+	(+)
248/62***	2/4	b->f#	(+)	(+)	-	-	-	-	-
11			**9**	**6,5**	4,5	**7**	**6,5**	4	3,5

|D/iv|iv |: (+) = metrical units 1-2 in a measure (44/3b) or two chords in one 3/4 measure (43/9) or inserted chords and one schema chord metrically displaced (112/2b and 248/62)
#3-7 #7-1: (+) = #3 and #7 displaced (11/4) or 1 instead of #3 (205/7) or only #34 in bass (248/62)
56-23: (+) = 5 and 2 displaced to a weaker metrical position (52/3) or 5 in the previous half cadence (101/2, 205/7)
-V: (+) authentic cadence in dominant minor (11/4)
5b2...6: (+) = changed order: ♭2-1-7-6-5 – 6 (52/3) or ♭2 -1-7-6 varied (101/2; 6543 not varied) or both ♭2176 and 6543 varied (205/7)
*) = voice-exchange: in soprano #3-4 #7-1 (pitches displaced 116/2)
**=two beats in measure
***=interpreted in dominant minor context

TABLE 24 The distribution of prototypical features among members of V/iv-iv V/V-V sequence category (l/mu = length of motive / metrical unit),

BWV	meter	key	l/mu	D/iv|**iv**	bass #34	sopr #45 x6x	motive #7 ♭2176	exact	prec. -III"	succ. Vpr.
9/3	12/16	e	4	(+)	*)	*)	-	+	-	-
41/4a	C	a	2	+	+	+	-	+	+	+
49/2b	3/8	c#(E)	2	(+)	+	+	-	+	(+)	-
75/5	3/8	a	2	(+)	*)	-	-	-	+	+
81/1	C	e	2	+	*)	-	+	+	-	-
92/3	C	b	2	+	+	+	(+)	+	+	+
99/3	3/8	e	2	+	+	+	-	+	-	+
139/4	C	f#	2	+	-	*)	+	(+)	-	+
147/3b	3/4	a	1	+	+	+	+	(+)	+	-
172/4	3/4	b	2	+	+	+	(+)	+	-	+
198/3a	C	b	2	+	*)	*)	+	+	-	-
199/2b	C	d(F)	1	(+)	-	-	-	+	+	-
12				**10**	**6**	**6**	5	**10**	5,5	**6**

*) = voice-exchange

V/iv | **iv** : (+) = v instead of V (9/3) or iv and V displaced from strong beats (75/5) or in relative major (49/2 and 199/2)
b2176: (+) = b276 (92/3) or b2 metrically weak (172/4)
-III: (+) = half cadence in relative major (49/2b)

TABLE 25 The distribution of prototypical features among the members of III-♭VII-iv-i sequence category.

BWV	meter	key	III-♭VII> iv-i	bass 5-6	sopr 3-4	exact	prec. -V	succ. V
57/3	3/4	c	+	(+)**	(+)**	+	+	+
184/4	3/4	b	+	(+)	+	(+)	+	-
211/4	3/8	b	+	+	+	+	-	+
3			3	2	2,5	2,5	2	2

**= Voice-exchange

TABLE 26 Distribution of features across members of the sustained dominant "sequence".

BWV	meter	key	bass **5**	prec **-**V	succ. dec.	à≥4
40/4	3/8	d	+	+	+	+
43/5	C	e	-	-	-	+
55/1	6/8	g	+	+	-	+
90/1	3/8	d	-	+	-	+
101/4	C|	a	+	+	+	+
181/1	C	e	(+)	+	+	+
207/3	C|	b	+	+	+	+
7			**4,5**	**6**	**4**	**7**

bass 5: (+) = rest at the beginning of the measure (181/1)

Bridge

TABLE 27 The distribution of prototypical features among members of SD(T) category.

BWV	meter	key	SD(T)	bass 2-5-1	sopr. 4(4)3	circle of 5ths	i	E
46/5	C	g	+	-	-	+	+	-
58/3	C	d	+	+	+	+	+	+
60/3	3/4	b	+	(+)	-	(+)	+	+
85/2	C	g	+	+	+	+	+	+
102/5	3/4	g	+	-	-	(+)	+	-
110/4	3/4	f#	+	-	-	+	(+)	-
132/5	C	b	(+)	-	-	+	+	+
136/5	12/8	b	+	-	-	+	(+)	+
148/2	6/8	b	+	(+)	-	+	+	-
151/3	C	e	+	-	-	+	(+)	+
157/1	C	b	(+)	-	-	(+)	+	-
166/2	C	g	(+)	(+)	+	+	+	-
202/5	C	e	(+)	(+)	-	-	+	+
13			**11**	4	3	**10,5**	**11,5**	**7**

SDT: (+) = T not at the beginning of a metrical unit (132/5, 157/1, 166/2, 202/5)
i: (+) = i6 (110/4, 136/5, 151/3)
2-5-1: (+) = 2-#7-1 (60/3, 166/2) or 6-5-1 at the beginning of the measure (148/2) or 4-5-1, 1 weak (202/5)

TABLE 28 The bridges with sustained dominant or dominant prolongation. The length of the sustained dominant is shown in metrical units (one measure in C| = 2 metrical units).

BWV	meter	key	length m.u	circle of 5th	V/V-V	iv-iv 1765	#7; 5	E	i3
30/10	9/8	e	10	-	-	-	-	-	+
41/4a	C	a	2	-	+	-	-	-	+
43/9	3/4	a	3	-	-	-	+	+	(+)
52/3	C	d	4	-	-	-	+	-	+
57/3	3/4	c	3	-	(+)	-	+	-	-
75/5	3/8	a	2	-	(+)	-	-	+	(+)
78/4a	6/8	g	2 ||	-	-	-	-	-	+
84/1	3/4	e	3	+	-	+	+	-	-
89/1b	C	c	2 ||	(+)	-	-	-	+	+
92/3	C	b	2	-	+	-	+	-	(+)
93/6	C	g	3	-	-	-	-	-	-
99/3	3/8	e	2	-	+	-	-	-	+
100/5	12/8	e	4	-	-	+	+	-	+
103/3b	6/8	f#	4(6?)	+	-	+	+	-	(+)
133/4	C|	b	3	+	-	-	-	-	+
139/4	C	f#	2	-	+	-	+	-	+
146/5	C	d	7	+	-	+	(+)	-	(+)
167/3	3/4	a	1	-	-	-	+	+	+
172/4	3/4	b	5	-	+	-	+	-	-
198/3b	C	b	2	+	-	+	+	-	(+)
204/6	12/8	d	4 ||	+	-	-	+	+	+
248/51	2/4	b	2 ?	-	-	-	(+)	+	+
22				7	7	5	**13**	6	**15**

5: (+): #7 in soprano, in bass some other member of the dominant than 5 (146/5, 248/51)
i3: (+) = i6 (43/9, 75/5, 92/3, 198/3) or resolution V-> i3 through scale schema (103/3b) or temporary resolution to i6 (146/5)

TABLE 29 The distribution of prototypical features among members of the plagal progression schema.

BWV	meter	key	bass **6**-5-4-3	1-1-1-1	**4**3(b)2	1	3-2 1:2 1-7	E	à>2
13/5 (F:)	C	g	(+)	+	(+)	+	-	-	-
47/2 (F:)	3/8	d	(+)	+	(+)	(+)	-	+	-
55/3	C	d	+	(+)	+	+	+	-	-
64/5	C|	b	+	+	-	+	(+)	+	+
98/3	3/8	c	+	-	-	-	+	+	-
129/3b	C|	e	+	+	+	+	+	-	+
139/4	C	f#	(+)	+	(+)	+	-	+	+
178/6	C	e	(+)	(+)	-	+	(+)	-	+
201/5	3/8	b	+	+	-	+	+	-	+
201/13	3/4	e	+	+	(+)	+	+	+	+
205/5	3/8	b	(+)	+	-	+	+	+	+
206/5	6/8	b	+	(+)	(+)	-	-	-	-
213/9	3/8	a	+	-	-	-	+	-	-
13			**10,5**	**9,5**	4,5	**9,5**	**8**	6	**7**

prototyp. chord progression: (+)=all chords not on strong beats, or as in 129/3b the first chord is prolonged

6-5-4-3: (+)=in some other voice than bass (13/5, 139/4,) or interrupted on 4 (47/2, 178/6, 205/5) or starting from weak beat (47/2)
1-1-1-1: (+)= as pedal (not present all the time) (55/3, 178/6, 206/5)
4-3-(b)2-1: (+)= interrupted on 2 (47/2, 201/13, 206/5) or starting on weak beat (47/2,) or found in bass (13/5, 139/4)
seq 1-7: (+)=circle of fifths sequence with displaced 1-7 (64/5, 178/6) or displaced 7; (+)*= in the sequence voices are exchanged (not actually 1-7 in bass)
1:2 : (+) = 1:3 (47/2)

TABLE 30 The distribution of the prototypical features among the members of the Neapolitan schema.

BWV	meter	key	numb. voices	chord TN6D	bass1 1-4-5	bass2 1-4-4	sopr. 3-b2(1)#7	4-3* #7-1seq		E
12/4	C	c	2	+	+	-	(+)	+	+	+
13/5	C	g	2	(+)	-	+	+	+	-	+
22/2	9/8	c	2	(+)	+	-	+	+	-	+
30/10	9/8	e	2	+	-	+	+	+	-	+
32/1	C	e	5	(+)	-	-	(+)	-	-	+
41/4b	C	a	2	+	-	+	+	+	-	+
49/2	3/8	c#	2	+	-	-	-	-	-	+
57/3	3/4	c	4	(+)	(+)	-	+	-	-	+
63/3	C	a	2	(+)	(+)	-	(+)	-	-	(+)
90/1	3/8	d	4	(+)	(+)	-	(+)	-	-	+
108/2	3/4	f#	2	+	+	-	+	+	+	+
135/5	C|	a	4	(+)	(+)	-	+	+	+	+
136/3	C	f#	2	+	+	-	(+)	-	(+)	+
144/5	C	b	2	+	-	+	+	+	(+)	+
169/5	12/8	b	4	(+)	-	+	-	-	-	(+)
179/5	3/4	a	3	+	(+)	-	(+)	-	-	(+)
182/5	C	e	2	+	+	-	+	-	+	+
201/5	3/8	b	6	+	-	+	(+)	-	-	+
204/6	12/8	d	2	+	+	-	+	+	+	+
19				**15**	8,5	6	**13,5**	9	6	**17,5**

TN6D: (+) = the resolution of V2 belong to schema (13/5, 22/2) or VI instead of i (57/3,) or interpolated chords (32/1, 63/3; and 135/5) or T unclear (90/1) or V/iv instead of i (169/5) or V/iv substitutes for the first i.
1-4-5:(+) = 6 instead of 1 (57/3) or interpolated chords (63/3) or 1missing (90/1), inserted #4 (135/5) or 345 (179/5)
3-b2(1)#7: (+) = 5 instead of #7 (12/4) or inserted figuration (32/1) or accented 5 instead of #7 (63/3) or 3 missing (90/1) or 1 instead of 3 (136/3) or #7 in the bass (201/5) or weak #7 (179/5)
preceding circle of fifths seq.: (+) = added cadence between sequence and N1 (136/3) or untypical circle of fifths sequence (4 chords/motive)(144/5)
E (+) = schema constitutes the E (63/3, 169/5) or deceptive resolution of dominant (179/5)
179/5: the Neapolitan schema comes after the (only) sequence, but has added material and does not lead to the final cadence.

TABLE 31 The distribution of prototypical features among members of the scale-schema.

BWV	meter	key	à	> |D->T	bass 54321	sopr. #7->3	sopr. 1/16	prec. D	E
77/3	C	a	3	+	(+)**	(+)	+	-	+
78/4	6/8	g	2	+	+	+	+	-	+
82/5	3/8	c->g	6	+	+	+	+	+	+
91/5	C	e	2	+	(+)	-	-	-	+
101/2	3/4	g	2	+	+	-	(+)	+	-
103/3	6/8	f#	2	+	(+)	+	-	+	+
110/4	3/4	f#	2	+	+	-	-	-	+
121/2	3/4	b->D	2	+	(+)	+	+	-	+
146/5	C	d	4	+	(+)	-	(+)	-	+
147/3	3/4	a	2	+	(+)	+	+	-	+
152/2	3/4	g	2	+	(+)	(+)	+	+	+
11				**11**	**7,5**	**6**	**7**	4	**10**

**= even eighth notes lacking (two sixteenth notes)
|V->i: (x)=V not metrically strongest in the measure (32/1: V at half measure)
bass 54321: (x)= one pitch (1 replaced with 3) missing: 77/3 or 2 missing (147/3) or 1 missing (91/5) or interpolated pitch(es) (103/3, 121/2, 146/5, 152/2)
pitches: 103/3 or one interpolated pitch (121/2 and 152/2).
sopr. #7->3: (+)=#7 present, 3 replaced with 5: 77/3 or 5 on strong beat, #7 displaced (152/2)
1/16 scale: (x)=1/16 notes but not an ascending scale (101/2, 146/5)

TABLE 32 The distribution of prototypical features among the members of the Climax category.

BWV	meter	key		T->T	bass 12345671	sopr 3->3	seq.	circle of 5ths	E
13/5*	C	g	2	+	+	+	+	-	-
22/2*	9/8	c	2	+	+	(+)	(+)	+	-
26/4	C|	e	4	+	*)	-	(+)	+	-
114/2	3/4	d	2	+	*)	*)	+	-	-
128/4	6/8	b	2	+	(+)	(+)	+	+	+
147/3	3/4	a(C)	2	-	(+)	(+)	(+)	+	-
168/1	C	b	4	-	(+)	-	(+)	-	-
7				5	**3,5**	2,5	**5**	**4**	0,5

*) = voice exchange (114/2) or 3456#7(1) in bass (26/4)
seq: (+)=stasis in some voice (22/2, 147/3) or partly a sequence (26/4, 168/1),
bass 123456#71: (+)=1-2-3-4-5 (147/3) or parallel ascent only 4-5-6 (168/1) or the first 1 on weak beat or 3456#7(1)(128/4)
sopr. 3->3: (+) = 3...6#7123 (22/2) or 6#712(3) (128/4) or 34567 (147/3)

TABLE 33 The distribution of prototypical features among members of #3-4 #7-1 category.

BWV	meter	key	à	D/S D-T	S bass #34#71	sopr. 7643	dec.	E
8/2	3/4	b	2	+	+	-	-	-
9/3	12/16	e	2	+	(+)	(+)	(+)	-
21/5	C	f	4	+	-	-	-	+
40/4	3/8	d	6	(+)	-	-	+	+
52/3	C	d	3	+	(+)	+	+	+
55/1	6/8	g	5	+	+	+	(+)	+
82/1	3/8	c	6	+	+	(+)	-	+
90/1	3/8	d	4	(+)	(+)	+	+	+
93/6	C	g	2	+	-	(+)	+	+
101/4	C|	a	4	(+)	+	-	+	+
119/5	6/8	g	2	+	+	+	(+)	+
157/2	3/8	f#	2	+	(+)	-	(+)	+
207/3	C|	b	4	(+)	+	-	+	+
13				**11**	**8**	5,5	**8**	**11**

V/iv-iv -(ii°)-V-i:(+) = interpolated chord: (40/4) or an added V/iv-iv and N6 instead of ii° (90/1) or prolonged V/iv (101/4) or added V/iv-iv (207/3);
7643:(+) = in upper layer of the melody (9/3) or 43 missing (93/6) or 76 missing (82/1)
#34 #71:(+) = #3 substituted for 1 (9/3) or only #3-4 present (52/3) or added pitches (90/1) or #71 missing (157/2)
decept.(+) = V/iv comes after V-VI (9/3, 55/1, 157/2), or V-VI-v: 119/5

TABLE 34 The critical features of the D/D-D bridge schema.

BWV	meter	key	D/D-D	#4-5	bass (#)6-#7	sopr. mot.	surf. seq.	E	texture à=2
11/4	C	a	+	+	+	+	+	+	+
45/3	3/8	c#	+	-	-	-	-	+	-
52/3*	C	d	+	+	+	-	+	-	-
84/1	3/4	e	(+)	-	-	-	-	-	-
94/4	C	e	+	+	+	+	+	+	+
100/5	12/8	e	+	*)	*)	-	-	+	+
102/5	3/4	g	+	-	-	-	+	+	+
110/4	3/4	f#	+	*)	*)	-	-	+	+
135/5**	C|	a	+	+	+	+	-	-	-
146/5	C	d	+	(+)	+	(+)	-	-	-
148/2	6/8	b	+	*)	-	-	-	+	+
205/7	C	f#	+	(+)	-	(+)	+	+	+
12			**11,5**	5	5	4	5	**8**	7

V/V more accented than V in 52/3, 94/4, 100/5, 110/4, 148/2
*)=voice-exchange
* = schema is part of the sequence
**= within the Neapolitan schema
D/D-**D**:(+)= inserted chord and V not accented (84/1)
#4-5: (+) = #4 on weaker bet than soprano's #6 (146/5) or 2-5 instead of #4-5 (205/7)
surf. mot.: (+) = #6...21#7 (146/5) or ...21#7 (205/7)

Epilog

TABLE 35 The distribution of critical features in members of #71551 epilog schema category.

BWV	meter	key	D|TD|T	progr*)	bass #7|155|1	soprano 43#71	#71 1	à=2
47/2	3/8	d->F	+	(+)	(+)	+	+	+
49/2	3/8	c#	+	+	+	+	+	+
55/3	C	d	(+)	(+)	(+)	+	+	+
90/1	3/8	d	+	+	+	-	-	-
101/4	C|	a	(+)	(+)	(+)	-	-	-
103/3	6/8	f#	+	+	+	+	+	+
179/3	C	e	(+)	+	(+)	+	+	-
7			**5,5**	**5,5**	**5**	**5,5**	**5**	**4**

*) = vii°(7) or V6/(5)-i-V-i

DTDT: (+) = \|DTD\|T (55/3, 101/4, 179/3)
vii°(7) or V6/(5)-i-V-i: (+) = V7-I-V-I (47/2) or vii°6-i-V-i (55/3) or vii°7-i-i6/4-V-i (101/4)
#7\|15\|1: (+) = 5 instead of #7 (47/2) strong 2 instead of weak #7 (55/3) or #7 at the beginning of metrical unit (101/4 and 179/3)

TABLE 36 The distribution of critical features among the members of the subcategory (a) of the #7\|1355\|1 category.

BWV	meter	key	D|TD|T	chord progr. *)	bass #7|135(5)|1	soprano 4312#71	à=2
30/10	9/8	e	(+)	+	+	+	+
85/2	C	g	+	(+)	(+)	(+)	+
92/3	C	b	+	(+)	+	-	-
100/5	12/8	e	+	+	+	(+)	+
102/5	3/4	g	(+)	(+)	(+)	(+)	+
148/2	6/8	b	+	+	+	+	+
206/5	6/8	b	+	+	+	+	+
7			**6**	**5,5**	**6**	**4,5**	**6**

*) = V6/(5)-i-i6 -V-i

D\|TD\|T: (+) = T weaker than D (30/10) or \|DTD\|T (102/5) or inserted functions below beat level (108/2)
V6/(5)-i-i6 -V-i: (+) = V7-i-i6-V-i (85/2) or V6-i-i6-i6/4-V-i (92/3) or V6/5--i6-i-V-i (102/5)
#7\|135(5)\|1: (+)= 5**1**2**3**2**3**4**5**5**1** (85/2) or #**7**5**3**1**5**5**1** (102/5)
4312#71: (+) = 315#7 (85/2) or 2 weaker than #7 (100/5) or pitches displaced to weak beats (102/5)

TABLE 37 The distribution of features across members of the subcategory (b) of the #7|3155|1 category.

BWV	meter	key	D|TD|T	chord progr.*)	|3155|1	5X321	à=2
43/5	C	e->b	(+)	+	+	+	-
70/5	C	e	(+)	+	+	(+)	+
77/3	C	a	+	(+)	(+)	+	-
93/6	C	g	+	(+)	(+)	-	+
110/4	3/4	f#	+	(+)	(+)	+	+
133/4	C|	b	+	+	+	+	-
248/51	2/4	b	+	(+)	(+)	(+)	+
7			**6**	**5**	**5**	**5**	**4**

*) = i6 - i - i6/4 -V- i

D|TD|T : (+)= |D|TD|T (43/5) or the first D more accented than the following T (70/5)
i6 - i - i6/4 -V- i: (+) = i-i6-i6/4-V-i (93/6, 110/4, 248/51) or i6-VI-i64-V-i (77/3)
|1355|1 : (+) = 2|123455|1 (110/4) or 2|3655| 1 (77/3) or |1355|1 (93/6 and 248/51) or
5X321: (+) = 5x35#71 (70/5) or 35321 (248/51)

TABLE 38 The distribution of features in the #7 1-4-5-5-1 category based on chord progression V6/(5) or vii°6/(5)-i-ii6/(5) or iv(7)-(i64)-V-i.

BWV	meter	ke	D|TSD|T	chord progr*)	bass **)	sopr. 43X21	surface motive 5#7 1	à=2
21/5	C	f	+	(+)	+	-	+	+
22/2	9/8	c	(+)	(+)	(+)	+	-	+
37/5	C	b	+	(+)	+	-	-	-
44/3	3/4	c	+	+	+	-	+	+
60/3	3/4	b	+	+	+	+	-	-
121/2	3/4	b->D	(+)	(+)	(+)	(+)	-	+
129/3	C|	e	+	+	(+)	(+)	+	-
167/3	3/4	a	+	+	(+)	+	-	+
168/1	C	b	+	(+)	+	-	-	-
183/2	C	e	+	+	+	-	-	+
198/8	3/4	e->b	+	+	+	-	-	-
201/9	12/8	f#	+	(+)	+	-	-	+
12			**10**	**9**	**10**	4	3	**7**

*) = V6/(5) or vii°(7)-i-ii6/(5) or iv(7)-V-i
**) = #7|1455|1
D|TSD|D : (+) = | D T S D | T (22/2, 82/5) or inserted chords (121/2)
V6/(5) or vii°(7)-i-ii6/(5) or iv(7)-V-i: (+) = an added i6/4 (21/5, 37/5, 121/2, 168/1, 201/9) or added chords 22/2)
#7|145|1: (+) = #7 at the beginning of the measure (22/2) or added pitches (121/2) or 5 instead of #7 (129/3, 167/3)
432X1: (+) = 43321 (37/5, 44/3, 168/1) or 434X1 (129/3) or 431X1 (201/9)
1451: (+) = divisions in bass (22/2, 121/2)
5#71: (+) = 2-#7-1 (22/2) or #7-1 (167/3)

TABLE 39 The distribution of features across the members of D | TSD | T / #716451 category.

BWV	meter	key	D | TSD | T	chord progr.*)	bass**)	sopr. 4312#71	surface motive 6543	à=2
8/2	3/4	b	+	(+)	(+)	(+)	-	+
11/4	C	a	+	+	+	+	+	+
40/4	3/8	d	(+)	+	(+)	(+)	-	-
45/5	C	f#->c#	+	+	+	+	-	+
52/3	C	d	+	(+)	(+)	(+)	-	-
55/1	6/8	g	+	+	+	(+)	(+)	-
58/3	C	d	+	(+)	+	(+)	-	+
82/1	3/8	c	(+)	-	(+)	-	+	-
94/4	C	e	+	(+)	+	-	-	+
117/6	C	b->D	+	+	+	+	-	+
128/4	6/8	b	+	(+)	(+)	-	+	+
135/5	C	a	(+)	(+)	(+)	(+)	-	-
199/2	C	d	+	+	(+)	(+)	+	+
202/5	C	e	(+)	(+)	(+)	(+)	+	+
204/6	12/8	d	+	(+)	(+)	-	+	+
207/3	C|	b	+	+	+	+	+	-
16			**14**	**11**	**11,5**	**8**	7,5	**10**

*)= chord progression V6/(5) or vii°(7)-i-VI- iiø6/5-V- i
) = #7 | **164**5** | **1** _
D | TSD | T : | = borderline of metrical unit
D | TSD | T: (+) = | ...DT | Tp S D | T (40/4) or | D | D | TSD | D | T (82/1) or D | T..T | Tp S D | T (135/5) or | D T S D | T (202/5)
V6/(5) | i-VI- ii•6/5-V | i : (+)=added i6/4 before VI(8/2) or ...V2-i6-VI-ii°6-V-i (52/3) or V6/5-VI-iv7-V-i (58/3) or vii°7-i-ii•6/4-iv7-V-i (94/4) or V6/5...-i-i6-iv6-iv7-i6/4-V-i (128/4) or V6/5-i...VI-iv7-V-i (135/5) or ...V6-i-i6-VI-iv-V-i (202/5) or V6/5-i-iv6-iv-V-i (204/6)
#7 | **1**64**5** | **1**: (+) = #7 | **1**5**6**4**5**5 | 1 (8/2) or #71 | **6**45 | **1** (40/4) or 54 | **3**64**5** | **1** (52/3) or 5 | **1**64 | **5**45 | **1** (82/1) or #7... | **1**36**4**55 | **1** (128/4) or #7 | 1...1 | **6**455 | **1** (135/5) or #7 | **1**6[4]55 | **1** (199/2) or #713 | **6**455 | **1** (202/5) or #7... | 16455 | 1 (204/6)
4312#71: (+) = 431121 (8/2) or 4311#71 (55/1) 0r 5312#71 (40/4) or 4...31321 (58/3) or #7 | 132#7 | 1 (52/3) or 431221 (199/2) or 43115#71 (202/5)
6543: (+) = 65**3** (55/1)

TABLE 40 The distribution of critical features across memebers in the epilog schema category 13451.

		D | TSD | T	chord progr.*)	bass**)	soprano 4312#71	à=2
26/4*	C|	e	+	+	+	(+)	-
89/1	C	c	+	+	+	+	-
119/5	6/8	g	+	+	(+)	(+)	+
144/5	C	b	+	+	+	(+)	+
152/2	3/4	g	(+)	(+)	(+)	(+)	+
205/7	C	f#	+	+	+	(+)	+
215/7	2/4	b	+	+	+	(+)	+
248/62	2/4	b->f#	+	(+)	+	-	-
8		**7,5**	**7**	**7**	**4**	**5**	

*) V6/(5)-i-i6-ii6/(5)-V(7)-i
) = #7 | **134**5** | **1**

D | TSD | T , | = borderline of metrical unit
D|TSD|T: (+)=interpolated chords (152/2)
V6/(5)-i-i6-ii6/(5)-V(7)-i: (+) = V-i... i6-ii°6-V.i (152/2) or V6...i-i6-iv7-V-i (248/62)
#7|**1**34**5**|**1**: (+)= #7|**1**34**5**45|1 (119/5) or 5|**1**...**345**[4] 5|**1** (152/2)
4312#7: (+)= 5312#71 (26/4) or 431221 (119/5 and 205/7) or structural pitches embellished (144/5 and 215/7) or 23...125#71 (152/2)

TABLE 41 The distribution of critical features across members of 3451 epilog category.

BWV	meter	key	D|TSD|T	chord progr*)	bass |345|	sopr. |542|1	rhythm	sopr. 543231	à=2
35/2	6/8	e	+	+	+	(+)	-	-	-
43/9	3/4	a	(+)	(+)	(+)	+	-	-	-
45/3	3/8	c#	+	+	+	-	-	-	-
57/7	3/8	g	+	+	+	+	+	+	+
75/5	3/8	a	+	+	+	-	-	-	+
78/4	6/8	g	(+)	+	+	+	+	+	+
98/3	3/8	c	+	+	+	-	-	-	+
100/3	6/8	b	+	+	+	-	-	-	+
112/2	6/8	e	+	+	+	+	+	-	+
140/3	6/8	c	+	+	+	+	+	+	+
201/5	3/8	b	+	+	+	+	+	+	-
204/2	3/8	d	+	+	+	+	+	+	-
211/4	3/8	b	+	+	+	-	-	-	+
213/9	3/8	a	+	+	+	-	-	-	+
214/5	3/8	f#	(+)	+	+	-	-	-	+
15			**13,5**	**14,5**	**14,5**	**7,5**	6	5	**9**

*) = i6-ii6/(5) or iv(7)-V-i

|TSD|T: (+) = | DTSD | T (43/9) or T|TSD|T (78/4, 214/5)
i6-ii6/(5) or iv(7)-V-i: (+) = i6-VI-iv7-V-i (43/9) or i6-iv7-i64-V-i (136/5)
|345|1: (+) = 36451 (43/9) or 345451 (136/5)
542: (+) = ornamentation in 32nd notes (35/2)

TABLE 42 The distribution of critical features across members of 34551 epilog category.

BWV	meter	key	D|TSD|T	chord progr.*)	bass **)	5x32|1	soprano à=2
41/4	C	a	+	+	+	-	+
48/6	3/4	g	(+)	(+)	(+)	-	-
84/1	3/4	e	+	(+)	+	-	-
91/5	C	e	(+)	(+)	(+)	+	+
107/5	12/8	b	(+)	(+)	(+)	(+)	-
110/4	3/4	f#	(+)	(+)	(+)	+	+
136/3[1]	C	f#	(+)	(+)	(+)	+	+
136/5	12/8	b	+	+	+	-	+
151/3	C	e	+	(+)	+	-	+
175/2	12/8	e	+	+	+	-	-
196/3	C	a	(+)	+	(+)	+	+
201/13	3/4	e	+	+	+	+	-
12			**9**	**8,5**	**9**	5,5	**7**

*) = i6-ii6/(5) or iv(7)-i64-V-i
**) = |3455|1 _

[1] the preceding cadence listed also in 13451 category of epilogs

D|TSD|T: (+) = DT|SD|T (48/6) or non-chord complex instead of S (91/5, 107/5, 110/4) or |DTSD|T (196/3) or interpolated chords (136/3)
i6-ii6/(5) or iv(7)-i64-V-i: (+) = 6/4 missing (48/6, 84/1, 151/3) or metrically weak subdominant chord (91/5, 107/5, 110/4) or added chords (136/3)
|3455|1: (+) = 4 as a passing tone (91/5, 107/5) or |13[4]55|1 (110/4) or metrically displaced (weak) (136/3, 196/3) or 3 on weak beat 4 on strong beat (48/6)
5x321: (+) = 5x121(107/5)

TABLE 43 The distribution of critical features across the epilog category 56451.

BWV	meter	key	D|**Tp**S**D**|**T**	chord progr.*)	bass**)	sopr. #7**1**x21	oct.	à>2
21/3	2/8	c	(+)	+	(+)	-	+	-
46/5	C	g	(+)	(+)	(+)	-	-	+
81/1	C	e	+	+	+	+	-	+
99/3	3/8	e	(+)	(+)	(+)	-	-	-
117/3	6/8	e	+	+	+	-	-	+
146/5	C	d	(+)	+	(+)	+	+	+
166/2	C	g	+	(+)	+	-	-	(-)
179/5	3/4	a	+	(+)	+	+	+	+
181/1	C	e	+	(+)	(+)	-	+	+
198/3	C	b	(+)	(+)	(+)	-	-	+
10			**7,5**	**7**	**7**	3	4	**7**

*) = V(7)-VI-ii6/(5) or iv7-V-I
) = 5|645**|**1**

D|**Tp**S**D**|**T** : (+) = Tp and the latter D on weak beat (21/3) or Tp weak, S strong (99/3) or 6 on weak beat (146/5) or D|**Tp** T S**D**|**T** (46/5 and 198/3)
V(7)-VI-ii6/(5)-V-i: (+) V-iv6-i6-ii°6-V-i (46/5) or V-VI-iv-ii°-V-i (99/3) or III+-VI-ii°6/(5)-V-i (166/2)or V-VI-iv-V-i (179/5) or V-VI...iv6...i6/4-V-i (181/1) or cadence in octave unison (198/3).
5|645|1 : (+) = #**7**15**6**4**51**(21/3) or 5**6**42**51** (99/3) or 6 weak (146/5) or 6 (=iv6) instead of 4 (181/1) or 5**6**3**451** (46/5 and 198/3)
#7|1x2|1: (+)

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