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Department of Music

Fonte and Monte in the Symphonies of Joseph Haydn

by

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Thesis for the degree of Doctor of Philosophy

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ABSTRACT

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Fonte and Monte were prominent harmonic-contrapuntal schemata frequently encountered in galant and classical compositions. This thesis examines the application and manipulation of these schemata in the symphonies of Joseph Haydn. It considers the historical roots of Fonte and Monte in the *partimenti* and *solfeggi* from the Italian pedagogical tradition of the eighteenth century, before proceeding to discuss how these schemata were interpreted and presented in the treatises of the German theorists, Joseph Riepel and Heinrich Christoph Koch. A close examination of schema theory in artificial intelligence and cognitive psychology leads to the construction of an analytical framework for the classification and description of the two galant schemata. This framework is then applied to an empirical study of Haydn's symphonies, revealing many interesting and significant results. Formal statistical testing is employed to identify salient trends in stylistic change across selected sub-groups of the symphonies. The thesis includes concise musical analyses of several musical passages from these works, and concludes with two extended case studies of Symphonies No.56 and No.104. These analyses reveal schematic manipulation of remarkable skill and sophistication, while also confirming the qualities of wit, humour and irony for which the composer is renowned. The study establishes that Haydn's employment of Fonte and Monte is far more extensive than previously realised, and moreover his inventive manipulations of them offer important insights into his strategies and methods of communication with his contemporary listeners.

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DECLARATION OF AUTHORSHIP

I, **David Gerald Jayasuriya**

declare that this thesis and the work presented in it are my own and has been generated by me as the result of my own original research.

FONTE AND MONTE IN THE SYMPHONIES OF JOSEPH HAYDN

I confirm that:

1. This work was done wholly or mainly while in candidature for a research degree at this University;

2. Where any part of this thesis has previously been submitted for a degree or any other qualification at this University or any other institution, this has been clearly stated;

3. Where I have consulted the published work of others, this is always clearly attributed;

4. Where I have quoted from the work of others, the source is always given. With the exception of such quotations, this thesis is entirely my own work;

5. I have acknowledged all main sources of help;

6. Where the thesis is based on work done by myself jointly with others, I have made clear exactly what was done by others and what I have contributed myself;

7. None of this work has been published before

Signed: ....

Date: ....

Acknowledgements

Abbreviations

The study adopts the following abbreviations, annotations and conventions:

MUSICAL WORK REFERENCES

All references to Haydn's symphonies use the conventional Hoboken numbers, regardless of any re-ordering proposed by later chronological revisions. Where required, a specific movement is indicated using a roman numeral, followed by the title from the original score, eg. Haydn Symphony 102, iii *Menuet: Allegro.* Bars are designated b. or bb.

LITERATURE REFERENCES

Music in the Galant = Music in the Galant Style: Being an Essay on Various Schemata
   Characteristic of Eighteenth-Century Music […]
Anfangsgründe = Anfangsgründe zur musicalischen Setzkunst
Anleitung = Versuch einer Anleitung zur Composition

KEY

It is always clarified in the text whether reference is to the prevailing tonic key, or the local key after modulation. In the annotations for musical examples, a local key which is not the main tonic key of the movement is placed in square brackets, eg. [E major]: V – I.

SCHEMA LABEL

Reference in the text to an instance of Fonte or Monte usually specifies the two chords in the progression, eg. Fonte vi-V; Monte IV-V. Fonte in the relative major key is named in relation to that key, with /III added, eg. Fonte [ii-I] / III.

SCHEMA COMPONENTS

The distinct components of a complete schema are named in text and annotations as:

S1 = first segment

S2 = second segment

C1 = first chord in each segment

C2 = second chord in each segment

P = (optional) chord of preparation for C1

SCALE DEGREES

In the text and annotated musical examples, melodic (upper) degrees are indicated as white numbers in a black circle, eg. ❺, ❹, ❸ etc. Bass (lower) degrees are indicated as black numbers in a white circle, eg. ⑤, ⑦, ① etc. These scale degrees refer to the *local* key of the relevant passage concerned: ❹ over the first segment of a Fonte ii-I in C major thus refers to D minor, indicating the note G rather than F. This method ensures symmetrical degree numbering between successive segments.

Footnote references

Anf   *Anfangsgründe zur musicalischen Setzkunst*. All references are to the original treatise, as reproduced in Emmerig (1996); thus *Anf* II:§38 refers to Volume II, section 38 of the *Anfangsgründe*. All translations are mine unless otherwise indicated.

Anl   *Versuch einer Anleitung zur Composition.* English translations are taken from Baker (1983); discussion in the text is referenced to location in the treatise, eg. *Anl* II:4, §31 refers to Volume II, Chapter 4, Section 31 of the *Anleitung*.

AP   The Art of Partimento

Em   Transcription in Emmerig (1996) of unpublished volumes from the *Anfangsgründe*

MGO   Music in the Galant Style (Online edition)

MGS   Music in the Galant Style (Print edition)

MP   *Monuments of Partimenti* (Online collection)

MS   *Monuments of Solfeggi* (Online collection)

Introduction

In her discussion of the intriguing *Finale* from Haydn's Symphony No.62, Gretchen Wheelock comments on the curious opening passage of the movement, and its later incarnations:

> The shifting diminished and minor harmonies of this oblique beginning, give the
> impression of a displaced passage more at home as a transition to the return of an
> opening theme than as the opening theme itself…the strange beginning increasingly
> takes on developmental characteristics [until] confirmation of its rightful function comes
> only at the end of the development section…ushering in the return of the opening
> material and disguising it as additional development.[1]

Writing in 1992, Wheelock could not have realised that the strange device which permeates this movement is actually the conventional galant musical formula known as Fonte. An eighteenth-century scholar today would immediately identify the opening bars from this movement (Figure 1) as a Fonte ii-I with non-normative construction and formal function, and might even provide appropriate analytical annotation for it.

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[1] Wheelock (1992:120, 123).

Introduction

Figure 1: Opening of the *Allegro* finale from Symphony No.62

This is an exaggeration of course: the description of classical music in terms of galant schemata, as these formulas are now named, has not yet become so standardised that every music analyst would detect Fonte here, let alone be able to explain its irregular construction, and the implications of its unusual formal location. Nevertheless, as Wheelock's book emphasises throughout, Haydn's manipulations of convention, and from it his 'ingenious jesting' with formal structure and listener expectation, are a central characteristic of his compositional style and aesthetic. It is therefore impossible to understand the full range of techniques he applies, and their effect on his listeners, without a good knowledge of the conventional phrase-level schemata which have only recently come to our attention. These considerations are most relevant to his instrumental music, and this study therefore focuses on schematic manipulation in Haydn's symphonies, achieved through the application and manipulation of two prominent galant schemata, Fonte and Monte. There is a solution to the puzzling passage from Symphony No.62,

but it requires more extensive knowledge than we have at this stage, so an explanation is deferred to the end of the study.

Of the many harmonic-contrapuntal schemata which have been identified, Fonte and Monte offer perhaps the richest opportunities for detailed study, since they encompass such a wide variety of factors: technical, historical, psychological and cultural; it is without doubt the main reason that they appear so frequently in Haydn's symphonies, and that they serve his communicative purposes so well. In order to do justice to these two schemata, they must be examined from multiple perspectives. This aim defines the methodological foundations for the study.

The concept and importance of galant schemata was first brought to wider attention in the seminal book of Robert Gjerdingen, *Music in the Galant Style*[2]. It identifies twelve distinct schemata, each with its own characteristic contrapuntal structure and typical formal function. The author's central claim is that the eighteenth-century composer absorbed these patterns thoroughly during training, and they continued to serve as building blocks for constructing small or large compositions throughout their careers. The idea is that these phrase-level schemata may be concatenated or overlapped more or less freely to create the entire piece or movement. Of course there are constraints too, since each schema tends to be suited to a particular formal location or function, making it possible to identify characteristic schematic successions or 'threads'. An important attribute of schemata is that they also operate as well-defined musical conventions, familiar to composers, performers and listeners alike, thus making them important agents of communication. Eighteenth-century listeners are typically divided into two broad categories, connoisseur (*Kenner*) and amateur (*Liebhaber*); while this study contains many examples from the symphonies of attractive and popular passages which would satisfy the requirements of amateurs, it is more closely concerned with Haydn's strategies of communication with the connoisseur, the class of listener more likely to identify and understand his schematic and other manipulations.

Gjerdingen was a student of Leonard Meyer, and many of his concepts found their earliest expression in Meyer's work (1956, 1989). Most relevant to the present study is the notion of the archetype or schema, which formed the basis of Gjerdingen's dissertation and many publications (1986, 1988, 1992, 2007). The main catalyst for the recent surge of interest in eighteenth-century compositional schemata, however, remains *Music in the Galant Style*. It is no coincidence that Gjerdingen was doing research on *partimenti* and *solfeggi* at around the same time, and indeed his book traces the origin of galant schemata, or at least their cultivation and dissemination, to this Italian pedagogical tradition.

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[2] Gjerdingen (2007), discussed in Chapter 1.

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If the earliest recorded formations of Fonte and Monte are to be found in the *partimenti* and *solfeggi*, then it is essential that we examine that repertory more closely. It is fortunate, therefore, that Giorgio Sanguinetti has recently provided a comprehensive survey of the history, theory and practice of *partimento*[3]. In conjunction with copious manuscript resources on Gjerdingen's website, it has made possible the detailed analytical and empirical research conducted in the study here. The search for Fonte and Monte in these manuscripts (no names or labels for schemata appear in them) reveals their prominence in this repertory, since a large number were identified. Just as interesting though is the observation that their formations are significantly different from those found in actual galant and classical works. These differences need to be accounted for if we are to understand schematic application and manipulation in the late-eighteenth century, and in the music of Haydn particularly. The *partimenti* manuals include little or no explanatory material, so we must look elsewhere for sources of information on the two schemata.

We are again fortunate that Fonte and Monte are discussed extensively in the influential composition treatise of the Regensburg theorist Joseph Riepel.[4] This is the only historical source which deals extensively with these schemata, making it an invaluable reference for any research on them. In fact, the second volume of his *Anfangsgründe zur musicalischen Setzkunst* (1755) contains the most famous ever description of these galant schemata, providing a wealth of information about their normative construction and formal application. It should be added that the resemblance of Riepel's examples to those found in actual music of this period is far closer than was the case with *partimenti* or *solfeggi*. The development of an analytical framework which forms a central element of the present study accordingly owes much to the illustration of normative and varied forms of Fonte and Monte across Riepel's several volumes.

The other historical treatise which informs this study is Heinrich Koch's *Versuch einer Anleitung zur Composition*.[5] On first view, it seems that this treatise will offer little of value to the study of Fonte and Monte: Koch restricts his technical discussion of these schemata (which he does not name) to a short paragraph explaining how they are created through a specific method of phrase extension. His only other remarks on them relate to their excessive use by many composers, and to their outmoded nature. Nevertheless, closer study reveals numerous musical examples of Fonte and Monte in his treatise, and it becomes clear that the two schemata can actually play a significant role in the construction of small and extended compositions. To overlook such manifold applications of Fonte and Monte simply because Koch apparently disapproves of the schemata would be an error, and this study examines his theories of melodic and formal construction is some considerable detail.

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[3] Sanguinetti (2012), discussed in Chapter 1.
[4] Riepel (1752-68), discussed in Chapter 2.
[5] Koch (1787, 1793), discussed in Chapter 3.

The concept of musical schemata is borrowed from cognitive theory in psychology. Influential research in this field has been performed by scholars of cognition or artifical intelligence, including Bartlett (1932), Rosch and Mervis (1975), Schank and Abelson (1977), Tversky (1977), Mandler (1984) Lakoff (1987), Johnson (1987), Minsky (1988), Saslaw (1996) and Krumhansl (2015).[6] Many of the ideas and models proposed by these writers are adapted into the present study. Although research on the application of schema theory to music is relatively limited, the congruencies between cognitive models for spatial and temporal phenomena, and those for the construction and unfolding of musical schemata are immediately apparent. This study attempts an informal and pragmatic mapping from concepts of psychological schema theory to galant musical schema theory. The exercise yields the threefold classification of categories, parameters and types, which provides the foundation of the analytical framework noted above.

The core activity for this study is the application of the analytical framework to an empirical and statistical investigation of Fonte and Monte in Haydn's symphonies. It is a corpus study performed by direct rather than computer-assisted analysis. Such studies have become more frequent and even normative in recent musicology, and scholars have given consideration to the many subtle and complex issues which arise in them. Galant schematic analysis presents its own unique problems, so a brief overview of important contributions to the field of corpus study is provided. It includes the directly relevant articles of Huron (2013), Albrecht and Shanahan (2013), VanHandel and Temperley (2014), and Gjerdingen (2014). In keeping with recommendations from these authors, questions of corpus scope, problems arising in data extraction, and strategies devised to deal with them, are all carefully defined before actual empirical analysis begins. Two types of statistical measure are derived from this exercise: indicative and inferential. It is strongly argued in the study that both types are of great value to support the formation of hypotheses, or to assess the validity of hypotheses already formed. The empirical research has certainly yielded many fascinating discoveries and insights about Haydn's schematic practice.

For all its advantages, empirical corpus study and its statistical outcomes can achieve only so much in helping to understand Haydn's schematic application and manipulation. A more subjective and hermeneutic music analysis informed by awareness of influencing cultural and aesthetic factors is also required, albeit supported and even guided by empirical observation. The number of excellent studies on Haydn's compositional techniques and their implications is considerable, and only a selection are directly relevant to the aims of the present study. In addition to standard texts by Landon (1955, 1970) and Rosen (1971), the more important works include those of Levy (1981), Webster (1991, 1998, 2005, 2012), Sisman (1982, 1993), Irving (1985), Wheelock (1992), Schroeder (1997), Riley (2004), Garratt (2005), Mirka (2009, 2012,

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[6] The work of these and other scholars is discussed in Chapter 4.

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2015) and Bonds (2011). Brown (2002) also serves as a general reference for the symphonies.[7] Although Haydn's manipulation of musical elements for formal or witty effect as an agent of communication with listeners (of particular interest to the present study) is addressed more in some of this literature than others, the music analyses and commentaries here are informed by the works of all these authors.

The principal aim of this study is thus to examine the application and manipulation of Fonte and Monte in Haydn's symphonies, in order to gain greater insight into his strategies and methods of communication with connoisseur listeners. In addition, it has several subsidiary aims: to explore the history of these schemata in the *partimenti* and *solfeggi*; to discover how the schemata were understood and presented by mid- to late-eighteenth-century German theorists, notably Riepel and Koch; to discuss the relationship between psychological and musical schema theory; to develop an analytical framework for Fonte and Monte, general and detailed enough for application to any analytical or empirical exercise involving these schemata; to derive indicative and inferential statistical results from the corpus study of the symphonies, including a special study of the minuets and trios; to demonstrate through close analysis of selected case studies Haydn's imaginative and sophisticated schematic manipulations in his symphonies, and to comment on their likely communicative impact. This set of principal and subsidiary aims is distributed across seven chapter as described below.

Chapter 1 describes the essential features of Fonte and Monte, and notes how they were brought to wider attention by Gjerdingen; their relationship to the *Satzmodelle* of German music theory is also discussed. Focus shifts then to the early historical roots of galant schemata in the p*artimenti* and s*olfeggi* traditions of the Italian conservatories. The principal 'rules' from them identified by Sanguinetti are examined in relation to Fonte and Monte, after which the study proceeds to an empirical assessment of their construction and application in the teaching manuscripts of representative *maestros*. The chapter concludes with remarks on conspicuous developments from *partimenti* to galant formations for the schemata.

Chapter 2 examines the terminology for schemata, and concludes that the nicknames Fonte and Monte were inventions of Riepel. A brief discussion follows on the intriguing etymologies of the Monte schema. The main body of the chapter is devoted to a comprehensive study of Fonte and Monte in the *Anfangsgründe*, with particular emphasis on Volume 2, since it is here that description and examples of the two schemata first appear. It is revealed that the classic schematic functions of continuation, preparation and tonal transition are all evident in Riepel's examples, within small and larger compositions. The survey also notes several types of schematic variation presented in the *Anfangsgründe*, including the controversial *Zwitter* construction. Contrary to the

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[7] Relevant contributions from these scholars are noted or discussed in Chapters 5 - 7.

common view, Riepel's concern with Fonte and Monte is not restricted to Volume 2, and their appearances elsewhere in the treatise include extended remarks on the current usage of Monte, and on complex and chromatic examples of Fonte and Monte. The chapter concludes with a summary of present knowledge about these schemata derived from recent and historical sources, and presents an initial framework for classification and description of their salient features.

Chapter 3 focuses on the employment of Fonte and Monte in Koch's *Versuch einer Anleitung zur Composition*, inferring that many of his musical examples make use of these schemata, but that he consciously avoids much discussion of them. Since they have potentially significant roles in matters of phrase construction, punctuation and formal archetypes described in the *Anleitung*, essential points of the theory are illustrated through variations on Riepel's minuet using Fonte and Monte. The chapter then examines Haydn's compositional practice in relation to Koch's theory; the close conformance discovered is noted and illustrated with many musical examples from Haydn's symphonies.

Chapter 4 examines the origins of the schema in psychological theory, including its essential function in perceptual cognition. The key concepts of spatial and temporal schemata are discussed, as is the distinction between top-down and bottom-up cognitive processing. The progression from unitary to event schemata produces the further important notions of scripts and stories. Through application of these psychological concepts to musical schemata and the listening process, the chapter develops a detailed analytical framework for the description of Fonte and Monte according to a hierarchy of categories, parameters and types. In particular, the categories of construction, completion and context are identified as comprising discrete parameters and their characteristic types. The chapter concludes with some comments on the iterative refinement of the theoretical framework through exploratory empirical study, in particular of the *Anfangsgründe* and Haydn's symphonic minuets.

Chapter 5 presents the results obtained from application of the analytical framework in an empirical study of the Haydn symphonies. Some introductory remarks on musicological corpus studies in general, and on the symphonic corpus for this study in particular, are followed by discussion of certain problematic issues that arise in analysis, and the policies adopted for dealing with them. The chapter then proceeds to a detailed description of the empirical results obtained, including frequency distributions for the schemata, and proportions of parametric types. Examples from Haydn's symphonies serve to illustrate several of the findings.

Chapter 6 extends the indicative empirical observations from the previous chapter to the application of inferential statistical methods. Its principal aim is to assess how effectively formal statistical testing of data produced by the analytical framework can identify significant stylistic

changes, in terms of schematic usage, across the entire set of symphonies, and across selected chronological groups of symphonies. The key insight is that trends chosen for investigation may be recorded in relation to their direction, strength and degree of confidence. The composite results are then displayed in a trend table, which informs the discussion of significant trends discovered in the corpus. Numerous illustrative examples from the symphonies are provided. The results from this chapter confirm the complementary merits of both indicative and inferential statistics derived from corpus study; they also confirm the success of the analytical framework, and its feasible application to other galant schemata. There is considerable potential too for adapting the framework for computer-based analysis.

Chapter 7 addresses the limitations of empirical and statistical study on its own, and argues that many schematic complexities require the intervention of direct musical analysis. Moreover, subjective and non-formalistic factors cannot be accounted for in data-based empirical analysis. The chapter shifts therefore to an examination of cultural and aesthetic influences in relation to Haydn's symphonies, and in particular the nature of his relationship with his audience. It notes the central importance of musical convention, including harmonic-contrapuntal schemata such as Fonte and Monte, in providing the basis for clever or witty manipulations, and emphasises how they characterise the dynamics of communication between Haydn and his listeners. Several smaller case studies provide examples of schematic manipulation within all three categories of construction, completion and context, while the two extended case studies which conclude the chapter demonstrate the complex and subtle manipulations that Haydn performs for his technically-skilled listeners.

Chapter 1: Fonte and Monte; Partimenti and Solfeggi

Introduction

Fonte and Monte are two important phrase-level harmonic-contrapuntal patterns, or schemata, which formed a central component of compositional pedagogy and practice in the eighteenth century. A schema refers in cognitive psychology and artificial intelligence to an experiential phenomenon that comprises multiple components; a musical schema may then be understood as a self-contained musical pattern, comprising some prototypical configuration of selected parameters, typically harmonic, melodic or rhythmic. The existence and significance of these schemata in eighteenth-century music only came to wider attention with the publication of Robert Gjerdingen's seminal book *Music in the Galant Style* (2007). He describes in all twelve principal schemata, including Fonte and Monte, asserting that they served as formulas, or building blocks, which composers could combine in succession, or in interlocking patterns, to construct an entire movement.[8]

An awareness of these conventional harmonic schemata, and an understanding of how composers employed them, is thus a critical component in the pursuit of the 'historical listener' in the eighteenth century[9]. In particular, owing to their sheer abundance in the music of this period, their continuous history throughout the century, and their prominent role in contemporary pedagogical exercises and manuals, Fonte and Monte offer a valuable insight into the dynamics of communication between the eighteenth-century composer and his audience. Since one of the central aims of this study is to develop a detailed analytical framework for the empirical study of Fonte and Monte in Haydn's symphonies, it is essential to understand as much as possible about the historical and theoretical treatment of these schemata, to supplement Gjerdingen's presentation of them. The principal sources of information on the construction and employment

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[8] Gjerdingen (2007) refers to the succession of schemata as *il filo* [string, thread], so that they become linked like "beads on a mental string or cognitive thread'' (MGO:375); he borrows the term from a letter by Leopold Mozart of 1778, where *il filo* is equated with *die Ordnung* (musical organisation or construction). Gjerdingen also provides a matrix showing the probability of a given schema following another (MGO:Fig. 27.1, 372). The technique corresponds to the literary device known as *parataxis*.

[9] Gjerdingen views the discovery of eighteenth-century schemata as part of the "archaeology of galant musical behaviours", to which topic he devotes a section of his introduction in *Music in the Galant Style*. It implies not only studying compositional pedagogy and practice of the age, but also seeking insights into the habits of contemporary listeners; schematic analysis thus provides "a method for developing a historically informed mode of listening to galant music" (MGO:19). It is one of a wide range of conventions informing the processes of communication between the galant composer and listener, as explored in Mirka and Agawu (2008).

of the two schemata are the Italian *Partimenti* and *Solfeggi* pedagogical manuscripts (discussed in this chapter), Riepel's *Anfangsgründe* (Chapter 2) and Koch's *Anleitung* (Chapter 3).

Gjerdingen's presentation of Fonte and Monte in *Music in the Galant Style* is discussed below in some detail. A preliminary caution must be made, however: it would be controversial to suggest here that he was the first to discover and describe all the harmonic-contrapuntal patterns in his book, even those for which he created his own names, such as the *Prinner* and *Fenaroli*. It has in fact been claimed that these schemata were already known, if understood somewhat differently, as *Satzmodelle* in German music theory. In a review of the book, Ludwig Holtmeier noted that Gjerdingen had chosen to ignore German music theory, in particular Kaiser's *Gehörbildung* (1998) and Budday's *Harmonielehre Wiener Klassik* (2002).[10] This point of contention between Anglo-American and German theory was in fact summed up well by Markus Neuwirth in an earlier review of *Music in the Galant Style*:

> In der nordamerikanischen Musiktheorie findet die Auseinandersetzung mit historischen Satzmodellen bislang relativ unabhängig von der deutschsprachigen Forschung statt. Vielfach haben ein und dieselben Modelle im deutschsprachigen Raum und in den USA divergierende Beschreibungen und begriffliche Prägungen erfahren.[11]

> In North American music theory, the engagement with historical *Satzmodelle* [phrase models] has proceeded relatively independently of German-language research. Often, the same model has been conceived and described differently in German and American musicology.

An article by Ullrich Kaiser, published just after *Music in the Galant Style*, also insists that the kind of patterns uncovered by Gjerdingen were by no means new to German musicologists.[12] His highly theoretical approach draws on concepts in object-oriented programming, including the notion of classes, class-hierarchies and instantiation. Citing his own previous work on *Modell-Klassen*, he claims in particular that he has already identified the pattern presented by Gjerdingen as the *Prinner*. Thus he writes:

> In meiner Arbeit *Die Notenbücher der Mozarts* habe ich die abgebildete Modell-Klasse als "IV-I-V-I-Pendelmodell" bezeichnet; Robert Gjerdingen subsumiert sie in seinem Buch *Music in the Galant Style* unter dem Namen "Prinner".[13]

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[10] Holtmeier (2011).

[11] Neuwirth (2008). Translation mine.

[12] Kaiser (2007).

[13] Kaiser (2007:178-9). Translation mine.

In my work *The Notebooks of Mozart*, I described the illustrative Model-Class as a "IV-I-V-I-Pendelmodell"; Robert Gjerdingen subsumes it in his book *Music in the Galant Style* under the name "Prinner".

Other German-language articles on *Satzmodelle*, such as those by Schwab-Felisch[14] and Folker Froebe[15], characteristically theoretical and systematic, also tend to be critical of some of Gjerdingen's methods and claims. Froebe interestingly draws on Schenkerian methods to argue for multi-level schematic analysis to complement the surface orientation of *Music in the Galant Style*: to bridge the "worm's eye view" and the "bird's eye view", as he expresses it.[16] Perhaps the most impartial account of the divergent perspectives between German and recent American formal theory is offered by Jan Philipp Sprick in a more recent article:

> [Hans Aerts (2007)] provides an overview of the key terms used in German publications over the last hundred years: *satztechnisches Modell*, *Satzmuster*, *Formel*, *Satztyp*, *Typus* and *Topos*. In 2014 we would certainly have to add the term "schema''…It is not easy to pin down the main differences between the concepts of *Satzmodell* and "schema," but it seems reasonable to suggest that *Satzmodelle* are tonally and semantically indifferent and, in principal [sic], are open to far-reaching transformation and combination, as well as being amenable to various contextualizations and functional ascriptions. A schema, on the other hand, appears to be a tonally-determined network of distinct structural components that constitute a field of flexible relations.[17]

It is not the intention here to pursue these disputes beyond merely pointing out that *Music in the Galant Style* is not acknowledged everywhere as the seminal or most comprehensive account of eighteenth-century musical conventions and their application. Nevertheless, Gjerdingen's book was certainly the first to identify the schemata as key elements in the training of countless German composers within the Neapolitan *partimento* tradition, and to offer a practical and dynamic guide to the interesting ways in which they were used and varied by these composers. His description of schemata such as Fonte and Monte arguably transcends the abstract and objective style characteristic of German theory, and imbues their formation and development with

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[14] Schwab-Felisch (2007, 2014).

[15] Froebe (2014).

[16] Froebe (2014:126).

[17] Sprick (2014:101-2).

a greater sense of 'historical agency'.[18] *Music in the Galant Style* therefore provides a perspective and cultural scope that has assured its pre-eminent place in recent music theory.

Music in the Galant Style

Since this publication is now so familiar to scholars with an interest in eighteenth-century compositional practice, this section will provide merely a synoptic account of Gjerdingen's presentation of the Fonte and Monte schemata, with supplementary observations as appropriate on specific aspects of their construction or usage. It should be pointed out that his descriptions of all the schemata are derived inductively, based on empirical examination of *partimenti* and works by mid-eighteenth century Italian and German composers, establishing a model for the approach adopted in the study here: the historical sources are rich in pedagogical demonstration but not theoretical definition. As will be evident later, even Riepel prefers exemplars to explanation. It follows that schemata such as Fonte and Monte remain for us abstracted concepts, or prototypes, acquired through exposure to normative and variant realisations in actual practice. The point is made in order to emphasise the exploratory nature of current research into eighteenth-century schemata (including Fonte and Monte) and their practical application.

Gjerdingen has a characteristic diagram format to describe the salient outer contrapuntal pairing and chord structure for each schema. His representation of the Fonte is shown in Figure 2. We note that he identifies a two-segment (or *dyadic*) sequential structure, with the second segment occurring one step below the first, and with the outer parts in each segment tracing the motion ❹-❸ over ⑦-①.

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[18] Taruskin is critical of the impersonal and objective presentation of 'facts' in historical or analytical musicology: he strongly advocates more dynamic accounts which emphasise 'motives or values…choices or responsibilities' (Taruskin 2010:xvi) to provide what he calls the 'human agency [in] historical thinking' (Taruskin 2010:xviii) which must underpin narratives in music historiography.
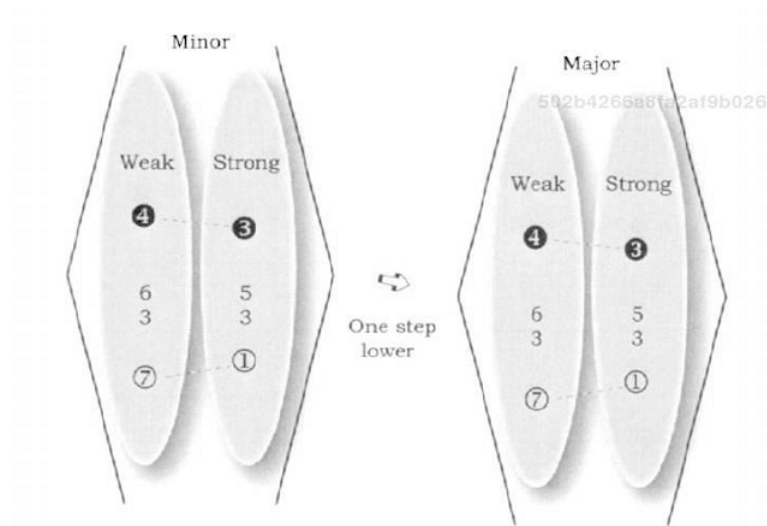
Figure 2: Gjerdingen's Fonte diagram[19]

While an abstracted representation like this assists with schematic classification and comparison, it may also be helpful to examine an actual musical example. Figure 3 shows a Fonte from Riepel's *Anfangsgründe zur musicalischen Setzkunst* (Foundations of Musical Composition). Note that this Fonte begins the second reprise, after the double bar, and so forms the third phrase of the four-phrase minuet; the first 2-bar segment is in D minor while the second is in the C major; Fonte is thus an embellishment of the tonic chord. The example also contains the characteristic, although not mandatory, ❻-❺ in the melody preceding the ❹-❸.
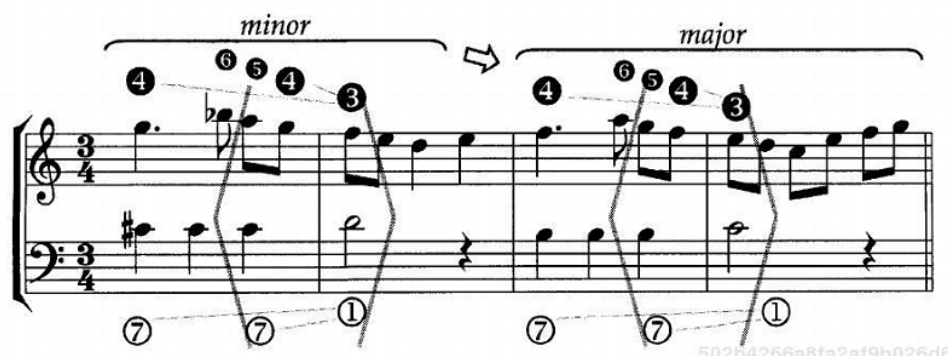
Figure 3: Riepel's Fonte from *Music in the Galant Style*[20]

Whereas Riepel is more interested in the tonal or formal placement of the schema, and normative or variant completions of it, Gjerdingen focuses mainly on matters of internal schema construction, in particular outer scale degree progressions within the two-part contrapuntal structures that characterise the various schemata. In fact, his selection of constructional features is

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[19] Reproduced from MGO, 63.

[20] Reproduced from MGO, 62. Gjerdingen's claim that this harmonised version appears in the 1765 volume of the *Anfangsgründe* was not confirmed by my study.

only partial, and many of his musical examples are quite atypical in respect of parameters other than contrapuntal progression: the only standard constructions for Fonte or Monte he cites are two passages by Wodiczka.[21] His non-standard Fonte examples include the passage by J. Stamitz shown in Figure 4, where the first part may be analysed as (vi-iv-vi-iv-vi-V^7) / vi progressing to vi, and an earlier example by Gasparini shown in Figure 5, analysed contrapuntally as ❻$^+$-❼$^+$-❼$^+$ over ④-②-⑤ progressing to ❽ over ①. It is notable that no fewer than six of Gjerdingen's eight Fonte examples contain the added ❻, thus implying a broader ❻-❺-❹-❸ over ⑦-① as the normative contrapuntal outline.
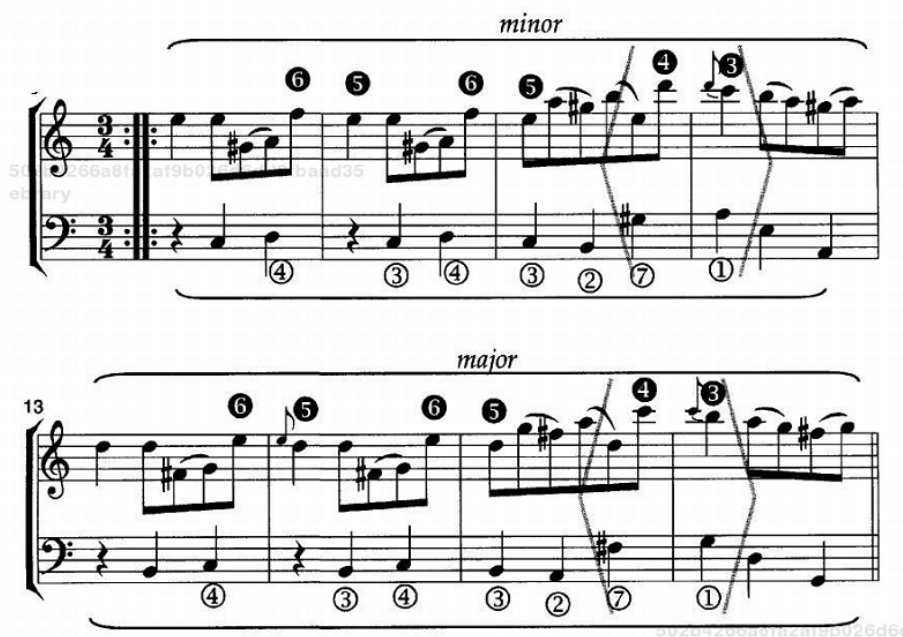
Figure 4: Example by J.Stamitz from *Music in the Galant Style*[22]

Figure 5: Example by Gasparini from *Music in the Galant Style*[23]

Gjerdingen's diagram and musical example for Monte are shown in Figures 6 and 7 respectively. We see that the schema is analogous to Fonte, but with the first segment in F major and the second in G major; Monte thus effects a move to the dominant chord. The added melodic 6th is not presented as typical however, so the normative contrapuntal outline is ❺-❹-❸ over ⑦-①.
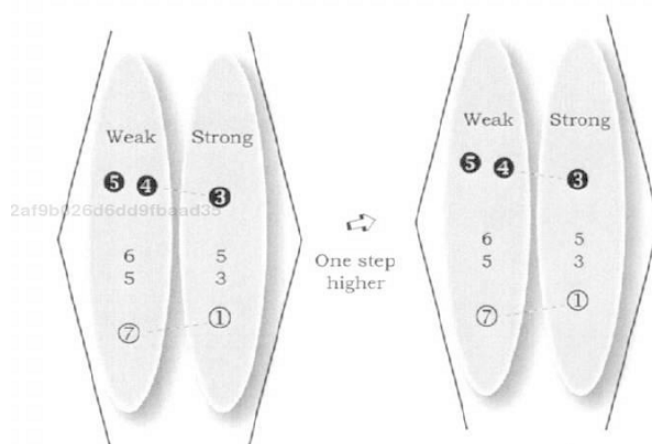
Figure 6: Gjerdingen's Monte diagram[24]

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[23] Reproduced from MGO, 64.

[24] Reproduced from MGO, 90.
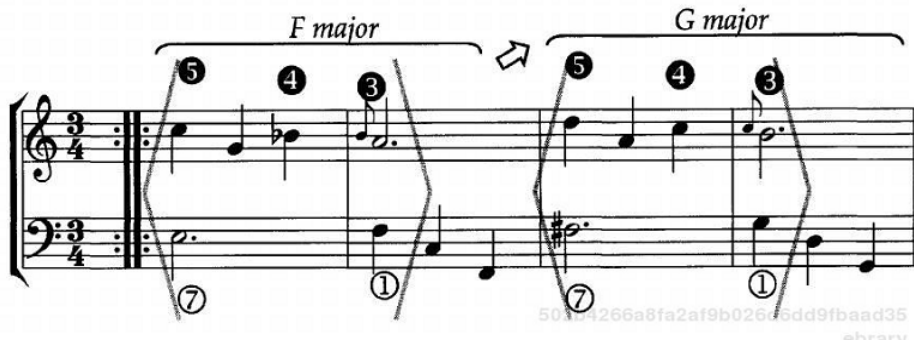
Figure 7: Riepel's Monte from *Music in the Galant Style*[25]

As with Fonte, Gjerdingen presents examples of Monte which the findings later in this chapter would cast as non-normative in terms of tonal placement. He thus implies that the definition of Fonte and Monte may be widened to include any downward or upward stepwise progression, regardless of the scale degrees on which they are constructed; whether such generalisation is justified remains a moot point, particularly since the evidence from both the *Anfangsgründe* and preliminary empirical studies suggests that the two schemata typically show regular harmonic placement starting on the second and fourth degrees respectively. One of the examples in *Music in the Galant Style* is shown in Figure 8. We not only see here highly remote keys traced out by the sequence, but the inclusion of the three-part form is also open to question: indeed, although the discussion on Riepel later in this chapter will reveal that he regards this construction as a schematic deception rather than a genuine Monte, no fewer than four examples of the 'triple Monte' appear in Gjerdingen's book. It should be noted that the hybrid schemata which he calls 'Monte Principale' and 'Monte Romanesca', and describes as 'older types of Monte',[26] are not mentioned by Riepel, and thus not included in this study.

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[25] Reproduced from MGO, 91.
[26] MGO, 98.

Figure 8: Example by D.Scarlatti from *Music in the Galant Style*[27]

Although Gjerdingen's descriptions of schemata are not primarily concerned with metre, it is interesting that in both Fonte and Monte he represents the relative metrical strengths of the first and second segments as 'Weak' to 'Strong' (see Figures 2 and 6). Again, this metrical relationship does not appear to be normative in the varied sources examined for this study. By contrast, the schema lengths of 2 or 4 bars in all but one of his examples do reflect typical practice. Gjerdingen does not specify particular location(s) within a movement where Fonte and Monte are usually applied, but his examples imply that Fonte typically follows a double bar, while Monte frequently occurs within a section. Finally, Gjerdingen contests that Riepel's imperative for varied completion of Monte was actually followed in practice, observing that 'there are many, many Montes with identically notated halves';[28] the empirical results from other corpora in this study, including Haydn's symphonies, will shed further light on this matter.

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[27] Reproduced from MGO, 97.

[28] MGO, 106.

Partimenti and Solfeggi

An important recent development in our understanding of eighteenth-century compositional pedagogy and practice has been the rediscovery of the *partimenti* and *solfeggi* training methods followed by the Neapolitan conservatories throughout the eighteenth and nineteenth centuries. Sanguinetti provides a comprehensive survey of the *partimenti* tradition in his book *The Art of Partimento*, while research into the *solfeggio* tradition is also gaining momentum. These studies of previously little-known traditions help to fill crucial gaps in our understanding of how particular harmonic and contrapuntal conventions in musical composition evolved across the eighteenth century, and of the pedagogical methods by which composers acquired them.

Partimenti and *Solfeggi* are related but distinct forms of teaching material. The *partimento* is perhaps the more severe in appearance; typically comprising an unaccompanied bass line, occasionally interrupted by a passage in a higher clef, it may be understood as "a sketch, written on a single staff, whose main purpose is to be a guide for improvisation of a composition at the keyboard".[29] Through long training under the guidance of a maestro at the conservatory, the student learned how to harmonise the exercise appropriately, even incorporating imitation based on motivic cues that may be present. The student's training essentially combined theoretical rules transmitted verbally with the absorption of fixed harmonic-contrapuntal formulas through exposure to countless examples. Sanguinetti attributes the relative neglect of the *partimento* by historians of compositional style in the eighteenth century to its essentially practical rather than theoretical orientation, rendering the historical trace sketchy in itself: "this tradition has thus far eluded the attention of musicologists and theorists, most likely because *partimento* theory was transmitted orally, and the surviving sources are mainly manuscript collections of exercises and fragmentary rules".[30] An example of a typical late eighteenth-century *partimento* appears in Figure 9.

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[29] AP, 14.

[30] AP, vii.

Figure 9: A typical *partimento*: Fenaroli Book 4, No.5 (Gj1335)[31]

The *solfeggio* is quite different in appearance from the *partimento*, since it is a complete two-part piece or exercise, with the melody and bass both provided by the maestro. A well-constructed *solfeggio* resembles a keyboard invention or early galant sonata, in so far as it is motivically constructed and requires no further harmonisation. It seems that the *solfeggio* was particularly favoured as a technical and improvisational exercise for singers, presumably with the support of an accompanist. It is significant that Haydn briefly served precisely this role for the renowned composer, singer and *partimenti* maestro Nicola Porpora, which thus provides a direct line of transmission from the Neapolitan tradition to the German composer. Haydn himself is reported by his early biographers to have benefitted greatly in his development as a composer from his work with Porpora.[32]. An example of a typical late eighteenth-century *solfeggi* appears in Figure 10.

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[31] Reproduced from MP.

[32] Diergarten (2011) provides a discussion of Haydn's association with Porpora, and his relationship in general to the Neapolitan *partimenti* and *solfeggi* tradition.

Figure 10: Page from a typical *solfeggio*: Aprile No.11 (Gj5411)[33]

Although Sanguinetti's book deals exclusively with *partimenti*, the theoretical rules and harmonic-contrapuntal formulas they teach underpin the *solfeggi* just as well. The two repertories therefore provide complementary and equally valuable sources for the historical study of eighteenth-century pedagogy and practice. No digitised manuscripts are yet available online, but edited transcriptions of a considerable number of collections are freely accessible on Robert Gjerdingen's website as *Monuments of Partimenti* and *Monuments of Solfeggi*. More pieces are certain to be added to the website, but all the examples available at the time of writing provided an excellent source for the empirical study discussed presently.

The three main components of *The Art of Partimento* deal in turn with the history, theory and practice of the tradition, and the first two have particular relevance to a historical study of Fonte and Monte. Tracing the development of *partimenti* from Rome to Naples, including a discussion of the Neapolitan conservatories and their teaching methods, Sanguinetti provides a useful 'genealogy of masters' spanning six generations of teaching maestros; they include celebrated composers such as Pasquini, A. Scarlatti, Leo, Porpora and Paisiello, as well as many others who gained fame more as contrapuntal teachers. The most influential and famous teacher of all was Fedele Fenaroli (1730-1818) at the Santa Maria di Loreto conservatory in Naples. A reproduction of Sanguinetti's genealogy appears in Figure 11.

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[33] Reproduced from MS.
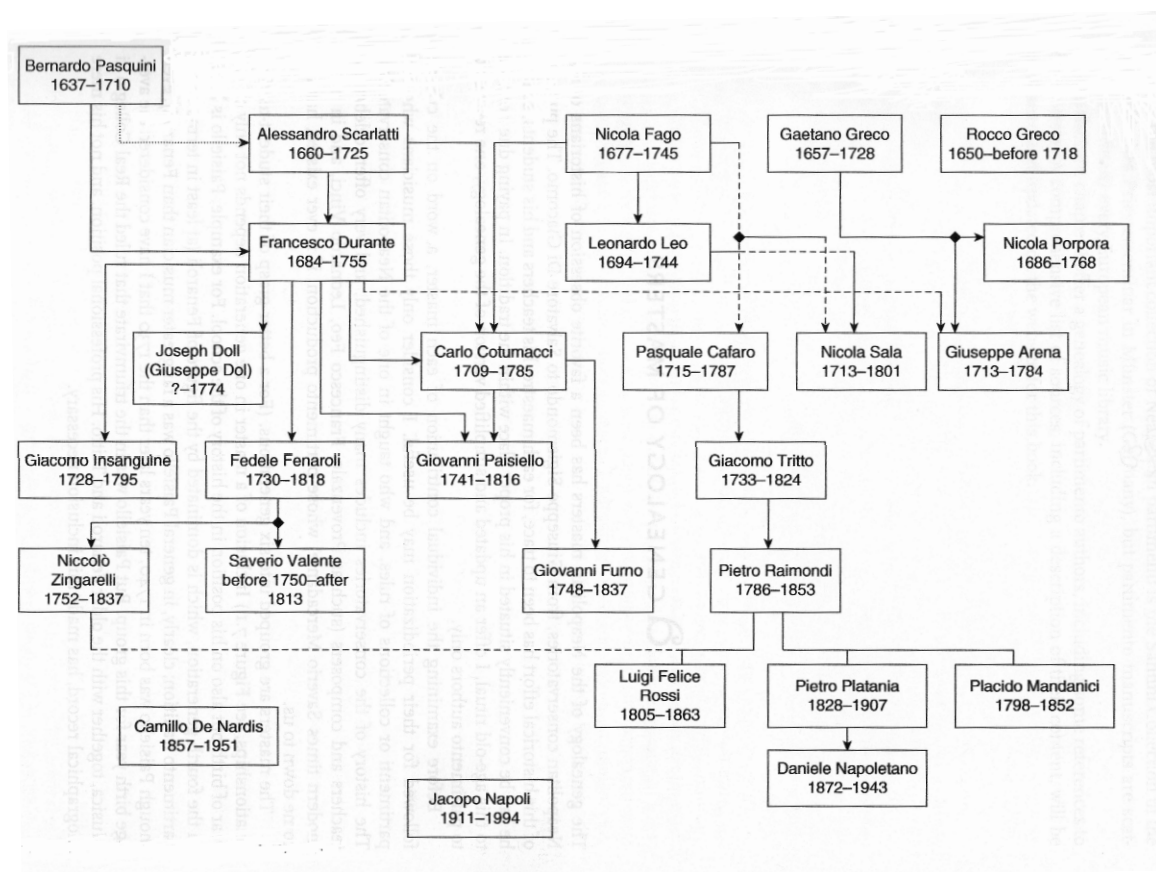
Figure 11: A Genealogy of *Partimento* Masters[34]

Since *partimento* instruction was conducted orally between teacher and pupil, and was essentially practical rather than theoretical, it was not typical for the masters to write down detailed rules for realisation. As Sanguinetti notes, our knowledge of the required theory survives only in a few sketchy summaries typically designated as *Regole* or *Principi*.[35] These are nevertheless sufficient to identify five categories into which all *partimenti* rules can be subsumed. Since the Fonte and Monte, as stock harmonic-contrapuntal patterns, must also be accounted for within one or more of these contexts, it is worth listing here the five categories, together with synopses of their contents from *The Art of Partimento*:

1. <u>Basic Axioms</u>. These relate to principles of tonal coherence, simple and elaborated cadences, essential dissonances, voice-leading, interval resolutions, and spacing of chords.

2. <u>Rule of the Octave (RO).</u> This defines standard, formulaic harmonisations of the ascending and descending major and minor scales in the bass, and by implication fragments of them. Several versions existed, but Fenaroli's were the most influential. Each major or minor harmonisation has three different positions ascending and descending, according to whether the first melodic note is

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[34] Reproduced from AP, 58.

[35] A list of sources for these rules appears in AP, 100-101.

the root, 3rd or 5th. The major scale descending form contains ❹+ over ⑥ before ⑤, while the minor (melodic) scale descending contains an even more surprising ❹+ over ⑥˙ before ⑤.

3. <u>Suspensions</u>. These alone are treated as dissonances, and their use is constrained by principles of preparation, resolution and typical bass scale degrees for different suspensions.

4. <u>Bass Motions</u>. Standard harmonisations are applied to conjunct bass motions, such as ⑤-⑥, ⑥-⑤, ⑧-⑦-⑥, or ascending and descending chromatic motion. Sequential disjunct bass motions, e.g. up-4 down-3, also imply characteristic harmonic progressions.

5. <u>Scale Mutations</u>. This refers to local 'modulation' produced by specific intervallic bass motions; they always require chromatic note(s), and the new key and its mode must be correctly prepared.

If we now examine how Fonte and Monte derive from, or at least conform to, the above rules, we find that their principles of construction cut across several of these categories. Disregarding the basic axioms common to all schemata, normative Fonte and Monte are essentially repetitions of the same core two-chord progression ❹-❸ over ⑦-① in the bass. They may thus be interpreted as constructions upon the final two notes in the ascending RO: this is also the strongest key-defining progression. As noted earlier, there are three positions for the RO, and the relevant progression for Fonte and Monte is found in the second position; for Monte both progressions come from the major RO, while for Fonte, the first comes from the minor RO and the second from the major RO. The derivation of these core progressions from the two Fenaroli ROs is shown in Figure 12. In addition to category 2, Fonte also invokes category 5, in that the first progression is in a different key and so represents a scale mutation; it derives accordingly from the minor RO in the key of the second degree, and the major RO in the tonic key. Monte too may be considered to present non-tonic keys (on the subdominant and dominant), and therefore to represent scale mutation as well. However, it also conforms to category 4, as what Sanguinetti terms ascending chromatic motions:

> All chromatic ascending motions are based on an extension of the *mi-fa* principle; given two notes a half step apart, the lower one is considered a *mi* and therefore is accompanied with the sixth; the higher one is a *fa* and supports the fifth. In tonal theory, chromaticism is a hue, or a shade, of an underlying diatonic structure (hence the name, from the Greek *khrōma*, or color): consequently, of two notes a half step apart at least one must belong to the diatonic scale.

> The non-diatonic note will have a chord with the sixth; the diatonic note will have a chord with the fifth. Subordination of the chromatic to the diatonic scale also affects the range limitation of the chromatic motion. As an undifferentiated succession of half steps,

an ascending chromatic motion should alternate fifths and sixths regularly and without any limitation.[36]
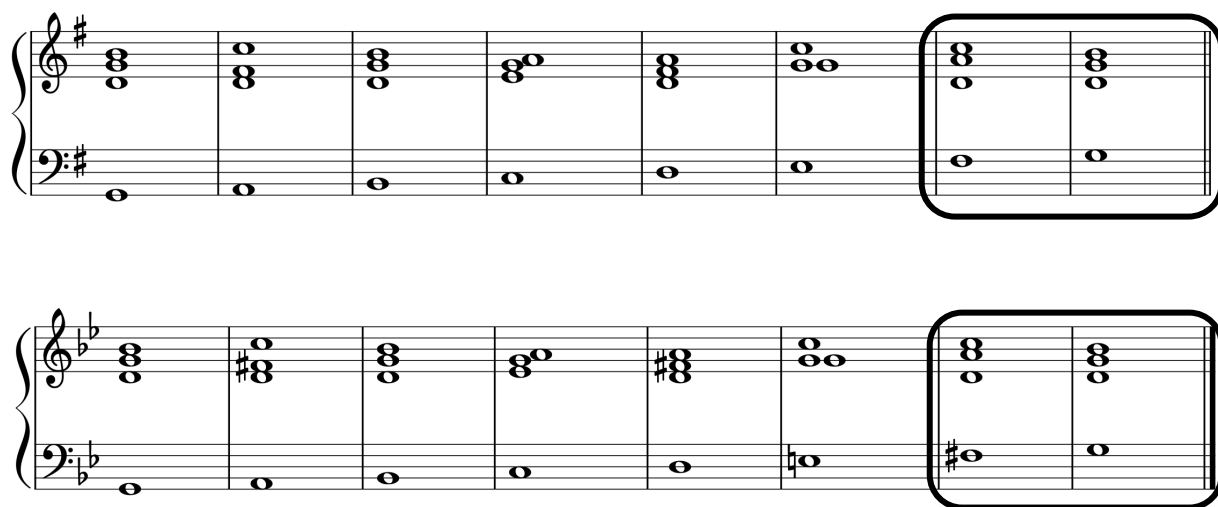
Figure 12:Rule of the Octave, major and minor scales ascending in second (*fa-mi*) position[37]

Figure 13 reproduces his example of a chromatically ascending bass line, and shows the succession of fifth and sixth chords that must be placed above it. From these two figures, we may therefore infer that Monte could be interpreted either as two successive 6-5 progressions above ⑦-①, implying scale mutation to IV and V, or as an elaboration of the four-note ascending chromatic segment from Figure 13, merely providing a 'chromatic hue' in I. Interestingly, it is often problematical in analysis to distinguish between a genuine dyadic Monte, settling on IV and V respectively, and this ubiquitous progression above an ascending bass segment ③-④-④⁺-⑤ as a characteristic route to the dominant chord. To sum up these observations on the relationship of Fonte and Monte to the *partimenti* rules, we may conclude that they are connected to all of Sanguinetti's rule categories with the exception of suspensions.

Figure 13: Alternation of 5 and 6 chords in the chromatic scale[38]

Solfeggi are the natural complement to *partimenti*, since they teach the characteristic melodic formulas which combine with a *partimenti* realisation to create actual music. In fact, according to *solfeggio* scholar Nicholas Baragwanath, an eighteenth-century Neapolitan student would have

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[36] AP, 141-142.

[37] Transcribed from AP, 121-122.

[38] Transcribed from AP, 142.

completely mastered *solfeggi* before beginning study of *partimenti*,[39] this is a further reminder of the primacy of melodic figuration over harmonisation in compositional pedagogy during this period. The implications of *solfeggio* theory and practice on Fonte and Monte are not significant, and relate mainly to nomenclature: because *solfeggio* was based on the ancient hexachord and mutation system, the key-defining ⑦-① mentioned above is more correctly described as *mi-fa* within the second overlapping hexachord. Baragwanath's outline also emphasises how G major and F major are directly connected to C major through their overlapping hexachords, while the D minor triad is actually embedded as *re-fa-la* within the C major hexachord, giving this key a more immediate relationship to the tonic key; these observations are relevant to keys used in both Fonte and Monte, reminding us that these two schemata outline tonal regions which strongly reinforce the main key.

The expanding collection of *partimenti* and *solfeggi* on Gjerdingen's website provides an excellent corpus for the preliminary empirical investigations to be discussed presently.[40] The *solfeggi* comprise collections by nine maestros with dates of birth ranging from 1685 to 1756, while the *partimenti* are represented by eight maestros from the 1650s to 1750. In addition to illustrating a variety of styles, therefore, their chronological range also enables us to make some tentative observations on the historical development of Fonte and Monte, or at least of their pedagogical formations. For the purposes of this study, the collections of *partimenti* by two prominent maestros and all the *solfeggi* currently on the website were analysed in relation to selected parameters; the only exclusions were the 'fugal' *partimenti* exercises, in which the galant schemata have no significant role.

Some brief biographical notes on the maestros represented in this study will provide a useful historical perspective.[41] They are discussed below in chronological order:

Carlo Venturini (fl.1720s), the earliest maestro in the study, is represented by six *Solfeggi in Soprano*. Nothing is known of his life or location.

Francesco Durante (1684-1755) was one of the most celebrated maestros from the second generation of partimentists. Famous more as a teacher than a composer, he was employed at the

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[39] Baragwanath's *The Solfeggio Tradition: A Forgotten Art of Melody in the Long Eighteenth Century* is forthcoming. His observations on *solfeggi* appear in his online introduction to *solfeggi* theory and pedagogy (accessed 24-09-2016) at:
https://www.nottingham.ac.uk/music/documents/2015/nick-baragwanath,-a-summary-guide-to-solfeggiare-the-eighteenth-century-way.pdf

[40] His *partimenti* and *solfeggi* collections are online (accessed 24-09-2016) at:
MP:http://faculty-web.at.northwestern.edu/music/gjerdingen/partimenti/
MS: http://faculty-web.at.northwestern.edu/music/gjerdingen/solfeggi/

[41] Gleaned from various sources including MP, MS, AP and Grove Music Online.

Santa Maria di Loreto conservatory in Naples, as were Alessandro Scarlatti and Nicola Porpora before him. According to Sanguinetti, he represents "the golden age of partimento … characterized by high musical interest, freedom of invention, and a perfect balance between artistic content and pedagogical function".[42] The present study examined his 57 *Partimenti numerati* and 103 *Partimenti diminuiti*.

Antonio Bernacchi (1685–1756) was trained in Bologna and gained fame as an opera singer in both Italy and London before setting up a teaching academy in Bologna. He is represented by 36 *Solfeggi a Soprano*.

Leonardo Leo (1694-1744) is often linked with Durante as the second great *partimento* maestro of the golden age. A student of Nicola Fago, he became renowned throughout Europe as a composer of opera and sacred music. He taught at the Santa Maria della Pietà dei Turchini conservatory in Naples, where his predecessors included Nicola Sala and Giacomo Tritto. Although best known as a partimentist, he is represented in the present study by 24 *Solfeggi*.

Johann Adolph Hasse (1699-1784) left his native Germany as a young man for Naples, where he studied under Alessandro Scarlatti. He went on to become one of the most successful opera composers of the galant era. Although not a conservatory maestro, he left some teaching material, including the 6 *Solfeggi a voce sola di Soprano* examined in the present study.

Fedele Fenaroli (1730-1818) was the most influential of all *partimento* maestros, whose work continued to be published after his death as an exemplar of the Neapolitan tradition. After study at the Santa Maria di Loreto conservatory, where he was a pupil of Durante, he went on to compose mostly contrapuntal sacred music. He was also a leading figure in the reorganisation of the Neapolitan conservatories at the end of the eighteenth century. Although he wrote an important volume on *Regole*, he is represented in this study by his six books of *partimenti*.

Carlo Broschi "Farinelli" (1705-82) was the most celebrated male opera singer of the eighteenth century. A student of Porpora, he is represented in this study by 16 *solfeggi* for which only the melodies have survived.

Giuseppe Aprile (1732–1813) was a famous operatic singer noted for his close collaboration with the composer Jomelli. Although not associated with any particular conservatory, he became a successful teacher after retirement, and published an influential singing method in London (1791), which contains the 35 *solfeggi* examined in this study.

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[42] AP, 67.

Niccolò Jommelli (1714–1774) was celebrated as one of the great composers of the mid-eighteenth century. He is an outstanding example of the Neapolitan training system, studying at two of its conservatories, in particular under Nicola Fago, and influenced by Hasse and Leo. A prodigious composer of both opera and sacred music, Jommelli had little time for teaching, but nevertheless left the 6 *solfeggi* in this study.

Giovanni Paisiello (1740-1816) is best known as a famous operatic composer of the later eighteenth century, and notable too for his association with Napoleon. His principal pedagogical works include teaching materials for the Russian royal family, such as the volume of *Regole [e] partimenti* and the 42 *solfeggi* examined in this study. Gjerdingen considers his *partimenti* and *solfeggi* to be examples of the "'brilliant,' modern style".[43]

W. A. Mozart (1756-91) is relevant to the study of eighteenth-century pedagogy as he wrote some teaching materials for his pupils. These include the *Exercise book for Barbara Ployer*, the *Attwood Studies* and the 4 *solfeggi* examined for this study.

To keep the analytical task here within manageable limits, it was decided to examine the *partimenti* and *solfeggi* by the above-mentioned composers for specific features most relevant to Fonte and Monte. As noted previously, there are subtle differences in style and phrase-construction between *partimenti* and *solfeggi* which reflect their complementary pedagogical functions. Thus, *partimenti* tend to emphasise the correct harmonisation of characteristic bass motions, often extended as long sequences to aid thorough practice; the necessary successions in the *partimento* of such harmonic-contrapuntal formulas tends to produce an artificial, exercise-like quality to the piece. *Solfeggi*, on the other hand, are generally much more like real musical pieces, incorporating a comparably wide range of formulas but also having shorter and regular phrasing, with greater use of conventional melodic punctuations. We might infer that the presence of melody prevents this type of exercise from becoming too abstract or suggestive of *stilo antico* counterpoint. The characteristics of *partimenti* and *solfeggi* determined the particular features to examine for each type of exercise. For Fonte and Monte, therefore, the *partimenti* provide insights into such features as size, formal location, harmonic progression/alternation and typical bass-line motion; *solfeggi* of course illustrate typical melodic profile, but also such features as formal location/function, schema-phrase relationships and melodic punctuation. The following empirical results focus on these features.

The statistics obtained for *partimenti* are shown in Figure 14, in which 'schemata' denotes the combined number of Fonte and Monte instances. We notice that Durante retains a ratio of about 25-30% schema frequency across both collections, but that Fonte increasingly outnumbers Monte.

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[43] MS, notes on Paisiello.

The results for Fenaroli are less consistent: while his first two books have a very high incidence of Fonte and Monte schemata, the frequency is much lower in the next two books, before returning to about 50% in the *Libro sesto*. It is interesting that the *Libro primo* actually has more Montes than Fontes, though this is emphatically reversed in the remaining collections. These figures clearly confirm that Fonte and Monte were important enough schemata for both Durante and Fenaroli to include numerous examples of them in their *partimenti*.

Composer	Collection	pieces	schemata	schemata/piece	Fonte	Monte	% Fonte	% Monte
Durante	*Partimenti numerati*	57	15	0.26	9	6	60%	40%
	Partimenti diminuiti	103	30	0.29	22	8	73%	27%
Fenaroli	*Libro primo*	16	13	0.81	6	7	46%	54%
	Libro secondo	14	17	1.21	13	4	76%	24%
	Libro quatro	44	17	0.39	14	3	82%	18%
	Libro quinto	27	10	0.37	6	4	60%	40%
	Libro sesto	24	13	0.54	8	5	62%	38%

Figure 14: Table of results for *Partimenti*

Composer	Collection	pieces	schemata	schemata/piece	Fonte	Monte	% Fonte	% Monte
Venturini	*Solfeggi*	6	2	0.33	2	0	100%	0%
Bernacchi	*Solfeggi*	36	11	0.31	3	8	27%	73%
Leo	*Solfeggi*	24	9	0.38	5	4	56%	44%
Hasse	*Solfeggi*	6	2	0.33	2	0	100%	0%
Broschi	*Solfeggi*	16	6	0.38	3	3	50%	50%
Aprile	*Solfeggi*	35	16	0.46	10	6	63%	38%
Jommelli	*Solfeggi*	6	2	0.33	1	1	50%	50%
Paisiello	*Solfeggi*	42	32	0.76	26	6	81%	19%
Mozart	*Solfeggi*	4	2	0.50	1	1	50%	50%

Figure 15: Table of results for *Solfeggi*

A similar frequency of roughly 35% for both schemata combined is found in the *solfeggi*, as shown in Figure 15. We note, however, the remarkably high frequency of 75% for Paisiello, who also has a much higher ratio of Fonte to Monte; these figures may well provide a different source of support to Gjerdingen's observation of this composer's 'modern style'. The others in the table show somewhat variable proportions, though with Fonte generally predominating over Monte.

Bearing in mind that the composers in these tables are listed in chronological order, it will be interesting to see if a historical pattern might be inferred for the relative frequencies of Fonte and Monte. The chart in Figure 16 includes only collections with more than two schemata counts, and indeed allows us to infer tentatively that the two schemata were equally prominent until about 1735, after which Fonte became increasingly favoured. As will be evident from the discussion of Riepel in Chapter 2, this supports his repeated claim that Fonte is a current schema, while Monte is past its peak.
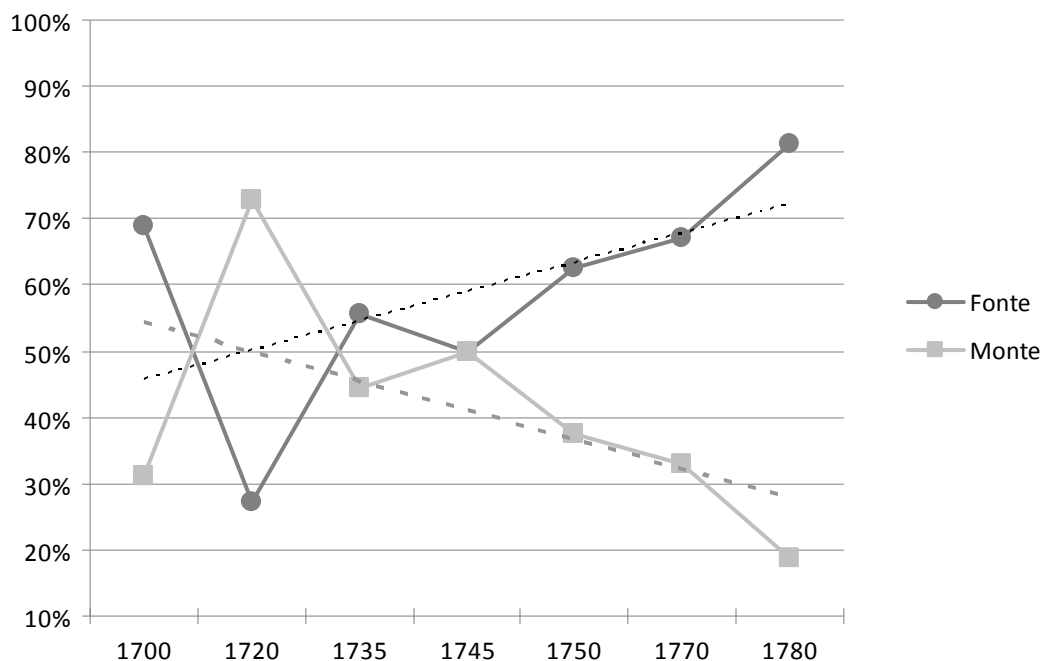
Figure 16: Relative frequencies of Fonte and Monte in the *Partimenti* and *Solfeggi*

The primary feature of interest in all these pieces is the contrapuntal pairing of the outer voices. We would expect that the great majority of Fonte and Monte schemata will have ⑦-① in the bass, almost always with ❹-❸ in the treble. The combined frequencies for the bass motions of *partimenti* and *solfeggi* show in fact that 64% have ⑦-①, 9% comprise or contain ④-③, and 27% are composite, i.e. typically two equally salient bass motions within an extended segment. These findings confirm, albeit not overwhelmingly, the normative ⑦-① bass motion emphasised by Gjerdingen.

We obtain further interesting results by separating *partimenti* from *solfeggi*. The table in Figure 17 shows the frequencies of bass motions for each type of piece. The first striking observation is that the simple ⑦-① bass motion is much more frequent in *partimenti* than *solfeggi*. This may be attributed partly to the greater sense of variety in *solfeggi* generally, and partly to the fact that *partimenti* give only the bass line, where ⑦-① may prompt Fonte or Monte in the student more

strongly than another bass motion; incidentally, a corresponding observation on treble motion arises in the later section on Riepel, whose examples present only the melody.

A second observation from Figure 17 concerns the 'composite' figure for *solfeggi*: more detailed analysis reveals that no fewer than 12% contain the bass motion ⑤-⑦-①, defying classification as essentially ⑤-① or essentially ⑦-①.[44] Since this bass formula is particularly favoured by the earlier solfeggists Bernacchi, Leo and Farinelli, the possibility of historical distillation to the core ⑦-① for Fonte and Monte must be considered. As the following discussion reveals, it seems the two schemata were not always as compact and consistent as the ❹-❸ over ⑦-① pattern in Gjerdingen might suggest.

	⑦-①	④-③	**composite**
Partimenti	73%	10%	17%
Solfeggi	51%	9%	40%

Figure 17: Bass motion frequencies for *Partimenti* and *Solfeggi*

One of the most striking observations in these pieces is the length of several Fontes and Montes, as illustrated in the *partimento* by Durante in Figure 18. We see here an 8 + 8 bar Fonte which provides almost a third of the exercise's total length. More significantly, it would be absurd to suggest that each segment in some way traces out a core ❹-❸ over ⑦-① contrapuntal outline; indeed this pattern does not even appear in the Fonte; one might rather identify a ❼-❶ over ④-③ as the core progression in the segment, moving to a half-way *Quintabsatz* and concluding with a *Grundabsatz* ❼-❶ over ②-①. In any event, this variety of punctuation type within each segment clearly marks out the Fonte as an extended passage in D minor followed by its response in C major. We might therefore posit that the early Fonte (and Monte) were considered as 'block' schemata, elaborating first one scale degree and then another; by this argument, the evolution of the later galant core schemata may be seen as a compaction or distillation of the larger form. In the *partimento* by Fenaroli shown in Figure 19, we may perhaps detect an intermediate form of the schema, where ❹-❸ over ⑦-① is clearly the core for the first half of the segment, but is followed by a well-prepared *Grundkadenz* in the same key: we could thus describe the larger contrapuntal pattern as ❹-❸-❷-❶ over ⑦-①-⑤-①. Durante's partimento in Figure 20 shows a similar structure, and this particular pattern as an elaboration of each key has significant implications for galant phrase construction, as will be discussed in more detail in subsequent chapters.

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[44] The frequencies for ④-③ include the extended motion ⑥-⑤-④-③; the 'composite' frequencies include motions such as ⑤-⑦-①, ②-③-⑦-①, ④-③-⑦-① and ⑦-①-⑤-①.

Figure 18: Durante *Partimenti numerati*, No.4 (Gj204), 24-39[45]
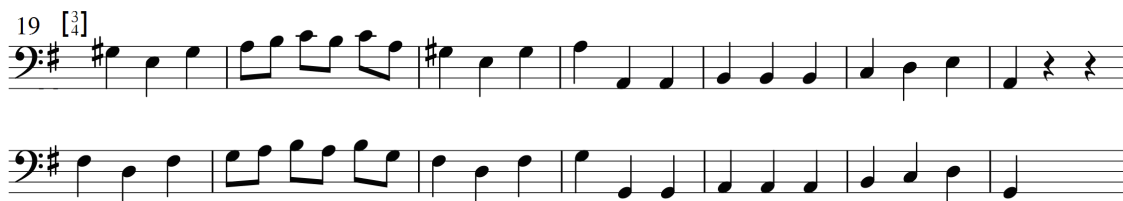
Figure 19: Fenaroli *Libro secondo*, No.12 (Gj1328), 19-32

Figure 20: Durante *Partimenti diminuiti*, No.92 (Gj92), 8-14

It is worth noting that block schemata always have a 'composite' bass pattern, some examples of which are listed in footnote 44; they normally contain 'progression pairs' described in functional theory as local dominant-tonic progressions. Alternation of the local 'dominant' and 'tonic' within each segment is therefore typical of the longer schema, as is the presence of a preparatory chord to create for example 'iv-V-i' (see the Fonte in Figure 18). Another type of extended schema is the so-called 'Triple Monte', typically on degrees IV, V and vi in a major key. As will be discussed later, Riepel does not consider this pattern a true Monte, yet in many cases it is clearly derived from it and justifies inclusion as a Monte variant. The example in Figure 21 is typical of numerous triple Montes found in the *partimenti* and *solfeggi*.

Figure 21: Durante *Partimenti diminuiti*, No.25 (Gj25), 5-8

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[45] In all annotated musical examples, the brackets above indicate the segments of the Fonte or Monte.

Another feature appearing in these pieces is the occasional non-standard tonal construction of Fonte and Monte, through placement in a remote key, on atypical scale degrees or with unexpected modality. The example in Figure 22 offers a good example of the latter case: here, the long block Monte is constructed on iv and v in the main key of B minor; the A♯ required to produce the true dominant chord only appears immediately afterwards, in b.50. Aprile's *solfeggio*, in Figure 23, shows the identical progression in the main key of E minor, with the dominant major D♯ delayed until b.47. Varied modality may be seen in Paisiello's *solfeggio* of Figure 24: in bb.34-5, the first part of the Fonte, already unusual in being constructed in the subdominant key, is harmonised in the major key, rather than the expected minor, effectively creating a Fonte II-I progression. Interestingly, bb.36-7 in this coda-like passage may be heard both as the conclusion of a Fonte and the initiation of a Monte. Such play on modality is taken still further by Paisiello in his *solfeggio* of Figure 25, where he shifts from major to minor at the last moment in b.16 to create a Fonte II/ii-I.

Figure 22: Fenaroli *Libro secondo* No.6 (Gj1322), 28-49

Figure 23: Aprile *Solfeggio* No.27 (Gj5427), 39-46

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Figure 24: Paisiello *Solfeggio* No.27 (Gj5827), 20-1

Figure 25: Paisiello *Solfeggio* No.9 (Gj5809), 14-18

The Fonte variant just described is discussed also by Riepel, as is another type of variant where the schema moves to an unexpected harmonic degree. An example appears in a *solfeggio* by Hasse (Figure 26), in which not only does the entire Fonte effect a movement to the dominant rather than the tonic, but its construction is also manipulated: the second segment is not an exact sequential transposition of the first, and, more interestingly, the motive which opens the first segment is repeated as a closing transition, creating the impression of a shorter contiguous Fonte within the larger one.

Figure 26: Hasse *Solfeggio* No.2 (Gj5252), 52-8

A striking example of unusual key placement and degrees for a schema occurs in the *partimenti* by Fenaroli shown in Figure 27. This C major piece shifts to an extended passage in the subdominant at bb.14-25, after which it modulates in exercise-like fashion through successive flat keys up to A♭ major at b.41. Remarkably, a Monte vii-i (possibly VII-i) is then applied to return

the piece to the tonic minor, before a caesura on the dominant at b.47 to prepare for the thematic return in the tonic major. This example is a reminder that while normative key placement and scale degrees are well-established and applied, it was evidently acceptable on occasion to present a schema in a highly non-standard fashion.

Figure 27: Fenaroli *Selected Partimenti* No.32 (Gj1469), 41-47

We conclude this section on *partimenti* and *solfeggi* with examples of two variant practices also mentioned in Riepel. The first concerns proportions: although Fonte and Monte instances with first and second parts of different sizes occurred seldom in these pieces, several cases of unusual phrase lengths were observed. Representative passages may be drawn from three composers spanning the eighteenth century. We see in the Bernacchi *solfeggio* of Figure 28 a 5+5 bar Monte at b..28, while Jommelli has a long *adagio* 3+3 bar Monte in Figure 29. Mozart's 5+5 bar Fonte at b.35 in Figure 30 shows both irregular phrase length and a varied second segment, in which the A♭ in b.40 produces a minor 6th with the tonic, rather than the usual major 6th; this particular inflection, which Riepel calls *Zwitter*, was much-favoured by Mozart.

Figure 28: Bernacchi *Solfeggio* No.11 (Gj5611), 28-37

Figure 29: Jommelli *Solfeggio* No.5 (Gj5205), 29-34

Figure 30: Mozart *Solfeggio* No.1 (Gj5351), 35-44

A second type of variation or manipulation is produced by eliding the conclusion of the schema with the start of the following phrase; this characteristic galant device is found in several *partimenti*, especially by Fenaroli. The example in Figure 31 is representative: here, the main thematic motive is actually anticipated in the first part of the Fonte on ii, with the crucial added leading note serving as an extended upbeat; a similar technique of Fonte overlapped with the thematic return is shown in Figure 32.

Figure 31: Fenaroli *Libro quatro* No.33 (Gj1363), 1-2, 21-29

Figure 32: Fenaroli *Libro quatro* No.30 (Gj1360)

The Fenaroli example in Figure 32 is unusual for *partimenti* in presenting a *Zwitter* second segment, through the A♭s in bb.17-18. It is significant that it occurs in the bass, since analysis of numerous corpora for this study has revealed not a single example of **non**-*Zwitter* in the bass. The reason appears to be a quirk of counterpoint, in that an unprepared outer minor 7th interval sounds good, whereas its inversion, the (compound) major 2nd, is too harsh. As Figure 33 shows, converting this interval to a (compound) augmented 2nd makes the interval more acceptable, and indeed the *Zwitter* inflection is often found in an inner part.
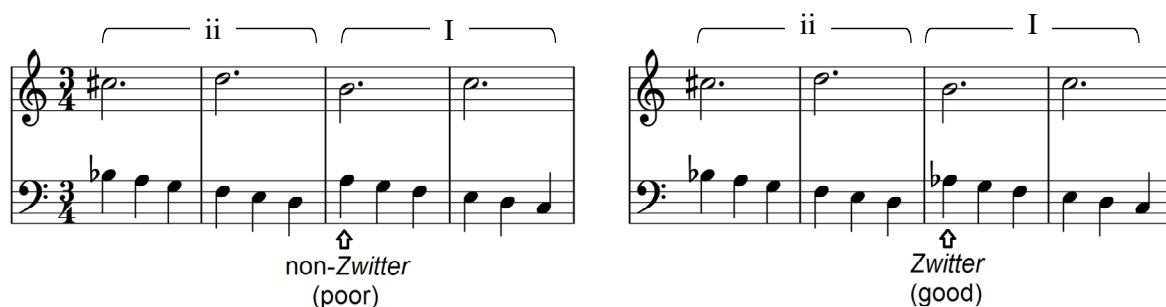
Figure 33: Non-*Zwitter* and *Zwitter* in the bass

This study of *partimenti* and *solfeggi* has revealed interesting insights into the historical context and development of Fonte and Monte. It has tentatively confirmed that the former schema became increasingly favoured over the latter through the eighteenth century, and that most features of construction and variation were well-consolidated early in the century. The empirical and

analytical results also reveal certain special techniques, such as irregular schema length, deviated schema, Fonte II-I and schematic-thematic elision, mentioned by Riepel around the middle of the century. An important finding was that the *partimenti* in particular often contained unusually long Fonte or Monte instances, with composite contrapuntal pairings in the bass, and that the core galant ❹-❸ over ⑦-① motion might well be a historical contraction. By contrast, the melodically-oriented *solfeggi* tend to favour more concise and regular phrase structure, with shorter schemata and more regular punctuation formulas associated with them; the 4-bar 'incomplete' phrase which both Riepel and Koch present as resulting from the normative Fonte or Monte, with core ❹-❸ over ⑦-①, arguably evolved as a specialised adaptation of the two schemata to suit the later galant ideals of economy and phrase logic.

Chapter 2: Fonte and Monte: Riepel

Terminology

Some of the terminology used in this chapter will seem novel and strange to the modern reader, who might well inquire as to its historical authenticity. Genres such as *partimento* and *solfeggio* are of course well documented, while music theoretical terms such as *Kadenz* and *Absatz* were universally understood, at least within the German tradition. The notion of a schema and its related concepts are much more recent, as will become evident in Chapter 4, while labels such as *Meyer*, *Prinner* and *Fenaroli* were inventions of Gjerdingen. The historical validation and provenance of many terms in Riepel's *Anfangsgründe* is problematical, however, and those related to his 'models/patterns' (*Muster)*, such as *Fonte*, *Monte and Schusterfleck*, are particularly relevant to this chapter. While it is beyond the scope of the present study to attempt to resolve the issue, it is one which must nevertheless be acknowledged and outlined here.

In *Music in the Galant Style*, Gjerdingen notes "I know of no direct evidence explaining how Riepel learned the term *fonte*",[46] implying that the term had some provenance before Riepel. Yet earlier in the book, while justifying his own coinage of new names, Gjerdingen seems to suggest the opposite:

> I follow in the footsteps of Joseph Riepel, the eighteenth-century writer and chapel
> master at Regensburg who gave names to several important musical schemata. I will use
> Riepel's names and other names known in the eighteenth century where possible, but I
> do not hesitate to add new names to the canon. For some schemata I will choose a word,
> often an Italian word, that captures an aspect of their function. That was Riepel's practice
> in the 1750s".[47]

Although he traces their origin, or consolidation, in the Neapolitan *partimenti* tradition, names for schemata do not appear in those manuscripts, nor are they mentioned in the *Regole*: we search there in vain for *Fonte* or *Monte*. Preliminary searches through old music dictionaries and contemporary theory treatises similarly yield no results, and indeed no later theorist seems to have continued using these terms either.[48] The most revealing insight into his terminology actually

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[46] MGO, 63.

[47] MGO, 20.

[48] The dictionaries of Walther (1732), Sulzer (1770-) and Rousseau (1779) contain no entries for Fonte, Monte or any of the nicknames for them. Marpurg has a Fonte example in his *Kritische Briefe über die Tonkunst* (1763), but does not refer to the device by any name. Koch (1782-93) has examples of Fonte and Monte but does not use these names.

comes from Riepel himself, in the course of the section in which he first presents the schemata to his pupil; he is specifically asked about their names:

> Disc[antista]. …Allein da wir unsre leibliche Muttersprache rechtswegen höher schätzen sollen, als alle andere; warum hast du denn die 3. lateinische oder wälsche Namen dazu gesetzt?

> Praec[eptor]. Es ist in der Uebereilung ja just kein Schade damit geschehen**[footnote:]**Monte, Berg zum hinaufsteigen. **Fonte**, Brunn zum hinabsteigen. **Ponte**, Brücke zum hinübergehen. Ich habe ja noch mehr unnütze Wörter.

> Pupil. …Ideally, we ought to value our natural mother tongue higher than any other; so why have you given Latin or Italian names to them?

> Teacher. It was through haste, yet no great omission all the same…**Monte**, a hill to climb. **Fonte**, a well to descend. **Ponte**, a bridge to cross. I have even more useless words.[49]

Given his remarks, the absence of corroboration from other sources, and Gjerdingen's observations, the time has perhaps come therefore to assert that the names *Fonte*, *Monte* and *Ponte* were simply inventions of Riepel.

The case of Monte is particularly interesting. As noted in the following section, Riepel often refers to this melodic formula in the *Anfangsgründe* as a *Schusterfleck*, while Koch names an example of it in his *Versuch einer Anleitung zur Composition* (1793) as *rosalia*.[50] In fact, Koch has a separate entry for *Schusterfleck* in his *Musikalisches Lexikon* (1802), where he describes the basic features of a Monte, and includes a musical example. Although he does not specify this, it is now generally assumed that *rosalia* derives from an old Italian popular song *Rosalia, mia cara*,[51] whose melody comprises an ascending sequential pattern. It seems then that the Italian term defines the musical pattern itself, while the German description is more a colloquial reference to it. This distinction is not conveyed when German music dictionaries present the entry as "Rosalia (Ger. Schusterfleck)", implying that the terms are completely synonymous.

Explanations for the origin of *Schusterfleck* vary: a typical and literal modern definition is *Lederfleck zur Schuhreparatur* (cobbler's patch). Applied to Monte, this implies its function as a quick, simple, and perhaps crude means to fill up a phrase. By contrast, Koch's humorous entry for the term in his *Musikalishes Lexicon*, which includes a 4-bar example, emphasises the musical

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[49] *Anf* II:44.

[50] *Anl* 4:§31.

[51] Baker (1983:101 fn.23).

effect of the Monte: "Schusterfleck, because one phrase follows another stepwise, like a stuck-on heel of a shoe" (…*Schusterfleck, weil der Satz eben so stufenweis auf einander folgt, wie ein zusammengepapter Absatz eines Schuhes*). A variation appears in the *Encyclopädie* of Oskar Wolff (1832), which states that the term arose "from the habit of cobblers to stick patches one on top of the other" (*von der Gewohnheit der Schuster, Flecke aufeinander zu kleben…*). An intriguing etymology is found the Grimm Brothers' *Deutsches Wörterbuch* (1838), where *Schusterfleck* is defined as a "coarse expression for *schuhröschen* in music" (*…derberer ausdruck für schuhröschen in der musik*), and they elsewhere define *Schuhrose* as "a rose-shaped decoration on a shoe" (*rosenförmige verzierung am schuh*). This latter entry in the dictionary also includes a quotation from the Leyer-Matz *lustiger correspondenzgeist* (1668), which appears to conflate the German and Italian origins: "in music, schuhröschen (rosalien) is a technical term for the unsatisfactory repetition of a melodic phrase one step higher or lower" (*in der musik begegnet schuhröschen (rosalien) als technischer ausdruck für die ungern gehörte wiederholung eines melodiesatzes auf einer höheren oder tieferen tonstufe*). These definitions confirm the *Schusterfleck* as a decorative and somewhat tasteless trifle. Moreover, the Leyer-Matz quotation presents a challenge to the accepted view of *rosalia* as originating from an Italian folk song (see footnote 51), and interestingly supports Riepel's implicit view of both Monte and Fonte as *Schusterfleck*: in the list of contents to Volume 3, he includes the item: "Variation of the two old *[Schuster]flecke*" (*Die zweierlei alten Flecke werden abgeändert*). All the same, it will be seen in the discussion of Volume 4 below that Riepel does not consider Fonte as prominent a *Schusterfleck* as Monte.

Riepel

Joseph Riepel's *Anfangsgründe zur musicalischen Setzkunst* is indispensible to the study of Fonte and Monte for three main reasons: firstly, it is the only historical music theory treatise which describes these schemata and their deployment extensively and in detail; second, its principal volumes were published just after the middle of the eighteenth century, so are contemporary with the consolidation of galant practice; and third, its aim is expressly pedagogic, so that the examples and accompanying descriptions offer an unparalleled insight into the simple and advanced applications of these schemata expected in a prospective galant composer.

The remark is frequently made that Koch rather than Riepel established the foundation for modern *Formenlehre*, because his treatise is the more comprehensive and systematic. In fact, many of his formal concepts are anticipated by Riepel, and Koch indeed acknowledges his debt to the older theorist. It is worth summarising the several reasons which contribute to the tendency to overlook the importance of the *Anfangsgründe*: the organisation of material and method of presentation can be haphazard, with sections which are inadequately structured and separated; the

dialogue format between teacher and pupil, together with a colloquial writing style, makes translation and interpretation more difficult;[52] Riepel typically prefers illustration over explanation, so we are often forced to draw inferences from his musical examples alone; he often describes a procedure as a *Rule* rather than a *Law*;[53] making it less clear how critical a point of theory might be.

The *Anfangsgründe* comprises ten volumes, of which the first five were completed and published during Riepel's lifetime, between 1752 and 1768. The seventh and eighth volumes, also completed in 1768, were published as a single volume in 1786, a few years after his death. The remaining three volumes of *Anfangsgründe* remained unpublished. The most extensive discussions of Fonte and Monte occur in Volumes 2 and 4, although further references appear in other volumes. A brief summary of the scope and content of each volume is given in Appendix B, which also indicates where references to Fonte or Monte appear in the text or musical examples.

The 'dialogue' format common in teaching manuals of the period is used in all the volumes of the *Anfangsgründe*. The following discussion disregards the distinction between master and pupil, since it is seldom relevant to the point under discussion. It is also important to point out that Riepel does not use the term schema for Fonte and Monte, and typically chooses *Muster* (model) or *Gattung* (pattern) instead; his term *Glied* (limb) for each half of a schema is translated here as 'segment'.

Volume 1

As early as the second page, a Monte appears in a minuet to demonstrate aspects of phrase construction and proportion (Figure 34). Recommending a balance of segment lengths, Riepel presents examples of 2+2 bar, 3+3 bar and 4+4 bar Montes after the double bar, as corrections of a previously shown 3+2 bar Monte. A rhythmically varied second segment of Monte appears already in I:6. This schema continues to appear in the minuets from this section (I:2-I:10), in each case with B♭ and F♯ as the altered notes in C major. Two Fontes are found in the musical examples of I:7, and more Montes appear in I:17-I:19, within a discussion on *Absätze* (*beweglich/unbeweglich, endlich/unendlich*),[54] Riepel notes how successive sub-phrase endings may be matching or non-matching, and he illustrates the use of varied (non-sequential) repeats. An interesting case of a 'triple Monte' (Riepel's 'deceptive' Monte) over a rising fourth bass motion (*Quartsprünge*) is given in I:20. An example of a 4+4 bar Monte, then substituted with a

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[52] This chapter was already completed before publication of Hill (2014).

[53] It is likely that Riepel takes this distinction from Johann David Heinichen (1728) *Der General-Bass in der Composition.* Dresden, 19.

[54] According to Riepel, an *Absatz*, (melodic ending of a phrase), may be *unbeweglich* or *beweglich* (static or moving, roughly equivalent to our masculine or feminine), and further the *beweglich* form may be either *endlich* (proceeding to the root of the triad) or *undendlich* (proceeding to the 3rd or 5th of the triad).

Fonte as an alternative, appears within a 32-bar "Tutti" in I:24. A Monte also appears in the discussion of metre (I:25), as 4+4 bars in $\frac{2}{4}$ and 2+2 bars in $\frac{4}{4}$, while in I:26, Riepel uses a Monte to illustrate construction of a 12-bar compound phrase (4+4+4 bars); see Figure 35. An interesting example of Fonte appears in section I:55-6 within an extended *Allegro* theme in $\frac{4}{4}$, where it serves to prepare for the thematic return in the main key.

Figure 34: Monte in *Anfangsgründe* I:2

Figure 35: 4-bar Monte in *Anfangsgründe* I:26

Volume 1 of the *Anfangsgründe* thus presents several examples of Fonte and Monte in a variety of constructions to illustrate general points of phrase theory, even though they have not yet been named or described. Their potential formal function too is hinted at by his example of a Fonte which prepares for the thematic return. This early appearance of the schemata without naming strongly suggests that these were patterns already so familiar to his pupil that Riepel considered it unnecessary to draw attention to them. Indeed, it is the pupil who comments to the master, on hearing the 12-bar phrase in Figure 35, "it seems to me that the first 2. *Vierer* [standard 4-bar phrases] form a *Schusterfleck*".[55] So the contemporary reader or listener would certainly have heard these schemata countless times, but without necessarily being aware of their employment in phrase construction or formal function: Riepel leaves it until Volume 2 to expound on these points.

Volume 2

Riepel's famous minuet theme in C major is first presented in II:42 within a discussion of *Absatz* succession, and it contains a Fonte as its third phrase.[56] To distinguish it as a smaller segment (*Einschnitt*) rather than an *Absatz*, Riepel alters the Fonte later on the page to form a complete 4-bar phrase. He points out that the 2-bar segment within a Fonte is merely a sub-phrase, which

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[55] "*mir scheinen die ersten 2. Vierer ein Schusterfleck zu sein*" (*Anf* I:26). Riepel often uses this term to refer to a hackneyed or trivial melodic device.

[56] See Figure 65.

cannot comprise a full phrase (*Absatz*). A varied, i.e. not exactly sequential, Monte features in the examples on I:43. This section also contains the first appearance, with accompanying musical examples, of the terms *Monte*, *Fonte* and *Ponte*; all are 2+2 bar forms, following a cadence in the dominant (*Quintkadenz*). The Monte again is non-sequential, the Fonte sequential, and the Ponte an elaboration of the dominant chord. It is worth presenting here the full paragraph in which Riepel first describes the musical examples illustrating the three schemata; it is without doubt the best-known passage from the *Anfangsgründe*:

> Nun **diese dreierlei Exempel mußt du dir merken, so lang du lebst und gesund bißt**.
> Das erste, wobei *Monte* steht, fängt nach der □ Kadenz in G, mit einem Schusterfleck an,
> welcher aber doch ein wenig variiert ist. Das zweite (*Fonte*) macht nach besagter Kadenz
> einen Einschnitt in D Terz minor, um hierdurch eine Stufe tiefer wieder einen
> Grundabsatz, nämlich in C als dem Haupttone, zu formieren, und glücklich wieder nach
> Hause zur ■ Kadenz zu kommen. Das dritte (*Ponte*) hebt nach mehrbemeldeter Kadenz
> glatterdings wieder in G an, um ■ Kadenz zurück zu kehren.[57]

> Now **remember these three examples for as long as you are alive and healthy**. The
> first, containing *Monte*, begins after the □ Kadenz with a *Schusterfleck*, which is
> nevertheless varied slightly. The second (*Fonte*) creates an *Einschnitt* in D minor after
> the aforementioned cadence, in order to produce, one step lower, a *Grundabsatz* in the
> key of C major, and happily returning home to the ■ Kadenz. The third (*Ponte*) rises
> again smoothly in G, after the oft-mentioned cadence, in order to return to the
> ■ Kadenz.[58]

This quotation is of special interest for three main reasons: firstly, it illustrates well the informal and often eccentric writing style which is so characteristic of Riepel throughout the *Anfangsgründe*; it is almost a deliberate counter against an excessively systematic approach to the process and problems of composition, and the importance of subjective judgement through listening and good taste is emphasised at numerous places in the text; second, it invites us to reflect on the different presentations of the schemata in the *partimenti* and *Anfangsgründe*: the former has essentially no text, of course, so the question of theoretical description does not apply; nevertheless, it is clear that the intended readership of the two pedagogical sources is different, with *partimenti* catering for young conservatory students hoping to make a living later as

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[57] *Anf* I:44.

[58] Riepel freely mixes symbols and terms in this paragraph: a □ Kadenz is the same as a *Quintkadenz*, i.e. a full cadence in the dominant, while ■ Kadenz refers to a *Grundkadenz*, i.e. a full cadence in the tonic; the distinction between a *Kadenz* and an *Absatz* is rigorously applied in eighteenth-century music theory. Riepel points out in the text that the punctuation before the start of a schema may be a *Quintabsatz* instead of a *Quintkadenz*; in fact, the empirical results in Chapter 5 show that it may also be a *Grundabsatz* or *Grundkadenz*.

composers, and the *Anfangsgründe* suitable for adult amateurs seeking a non-professional accomplishment. Moreover, the *partimenti* are oriented towards the absorption of compositional technique through long and repeated exposure to conventional patterns, whereas the treatise relies primarily on an explanation of principles, albeit supported by many musical examples. It is therefore questionable that the verbal interaction between *partimenti* maestro and pupil would have resembled in any way Riepel's dialogues.

The third reason for interest in this passage is technical. A modern reader is immediately struck by the informal harmonic analysis for the three schemata. Successive phrases are attached to D minor and C major rather than scale degree, so clearly for musicians of this period the concept of key is quite local and does not imply re-tonicisation; there is no functional analysis either, and Riepel would never refer to a 'local dominant progression in the supertonic of C major', for example. Still more significant is the detailed specification of tonal function of the three schemata, and of their adaptation to galant phrase construction. The long 'block' Fonte or Monte schemata of the *partimenti* are now distilled down to smaller incises combined to create an incomplete phrase within a larger 8-bar compound phrase.

More examples of Fonte, Monte and Ponte appear in the following pages (II:45-50). The Montes include sequential, non-sequential and tonally variant (IV-I) forms, recommended by Riepel as "excellently varied" (*trefflich verwechselt*).[59] He then presents Fonte as well with a variant progression (ii-V). The two types of harmonic deviation, shown in Figures 36 and 37, are presented by Riepel as important variants of the schemata, even though they somewhat contradict his initial explanation of their tonal functions.

Figure 36: Monte deviation in *Anfangsgründe* II:45

Figure 37: Fonte deviation in *Anfangsgründe* II:46

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[59] *Anf* II:45.

Riepel next uses Monte and Fonte to demonstrate the poor effect of two successive *Quintkadenz* or similar *Quintabsatz* endings (II:49). An interesting example appears on the following page of a metrically-displaced Fonte, where a single bar in the tonic precedes the usual schema progression: as Figure 38 shows, the schema's last bar is thus the first bar of the final phrase. Riepel notes that this construction may be applied to any of the three schemata; this is nevertheless an irregular variant, as is evident from Riepel's introduction to it: "The following example is perfectly acceptable if the need arises, even though it is not a Monte, Fonte or Ponte".[60] The section concludes with examples of melodic variation for each schema.

Figure 38: Metrically displaced Fonte in *Anfangsgründe* II:50

Riepel makes a revealing point in relation to the expanded minuet form. His example has 24 bars, comprising an 8-bar first reprise ending on a *Grundkadenz*, followed by an 8-bar excursus and an 8-bar conclusion marked from a location named **R**.[61] The excursus starts with a non-schematic pattern which progresses to a *Quintkadenz*, followed by the thematic return. As possible alternatives, Riepel states that a literal repeat of the first reprise ('*da capo*') would work well, but also that "from [**R**], I could have formed the entire completion over Monte, Fonte or Ponte":[62] this would thus create an 8-bar compound phrase to complete the minuet. The placement of the schema would be significant too, since it is close to the typical end-excursus Fonte or Monte as preparation for the thematic return within an expanded minuet. The example demonstrates, moreover, that a schema may be applied anywhere after a clear caesura (in this case a *Quintkadenz*), not just after the double bar.

An expanded minuet of 32 bars (II:57) has a 2+2 bar Fonte starting the second reprise after a *Quintkadenz* at the double bar and completed by movement to a *Quintabsatz*; a thematic return then leads to the closing *Grundkadenz*. The increased scale of the piece is achieved by a doubling in size of each reprise; Riepel next reworks the example using first a sequential Monte then a Ponte, although in these cases the closing phrase has no thematic return. In an extended passage

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[60] "Folgendes Exempel müßte in der Not recht **gut** sein, ungeachtet es weder zu Monte, noch zu Fonte und Ponte gehört" (Anf II:50). Metrically displaced Fontes also appear in two Fenaroli partimenti: (i) Libro primo, No.4 bb.21-3, and (ii) Libro quinto, Preludes & Fugues In Chromatic Keys, No.1a, bb.7-8 (MP).

[61] Since no other term seems to express the section so concisely, *excursus* is used in this study for the passage from the start of the second reprise to the tonal or thematic return; in expanded binary forms, the excursus may be of considerable length.

[62] "Von da an [**R**] hätte ich den ganzen Schluß über Monte, Fonte oder Ponte formiren können" (Anf II:51).

(II:58-60), Riepel uses Monte to introduce the technique of phrase expansion. He shows how the schema may be extended through one or more repetitions of the first segment (*Einschnitt*), optionally followed by a freely extended second segment (*Absatz*). Riepel then applies similar processes to the Fonte and Ponte. He stresses an important point that the two segments of the schema need not be of the same size: "it is well known anyway that the first or second segment could be made longer or shorter, or indeed that both segments could be made much longer through repetition".[63] Later, at II:62-3, a Fonte appears in Riepel's discussion of cadential repetition (*Verdoppelung der Cadenz*), although it is not a central feature.

Riepel proceeds to offer an eccentric but amusing analogy between scale degrees and the rural hierarchy, and accordingly associates Monte, Fonte and Ponte with the *Taglöhner* (farm labourer) **F**, *Unterläufferin* (foot servant) **D**, and *Oberknecht* (foreman) **G** respectively.[64] This is significant in so far as it implicitly identifies each schema with the tonal progression of its *first* segment, whose fixed tonality therefore contrasts with frequent manipulation of the *second* segment in order to achieve variation. Riepel continues his *Bauernhof* analogy with musical examples to show Fonte or Monte used for melodic continuation after a progression to the *Obermagd* (head maid) **A**, in what is effectively the excursus of a long theme; the schema thus again performs an end-excursus function before the closing phrase. Riepel clearly describes this procedure in the text, using *Noten-miniaturen*: "I find myself in the key of the sixth, A minor, and return back from there through a Fonte, thus C – G – A – C".[65]

The following *Allegro* theme provides a more elaborate example of this recourse to Fonte after tonal deviation. The location and function of the Fonte, specifically marked by Riepel in the score, is similar to the previous example, since it occurs after a cadence in vi within the "second part" (*zweyten Theile*), after a modulation to the dominant. The sequential Fonte here has an unusual 3+3 bar structure and is followed by 4 bars *piano* in the tonic minor, before a return in the major of thematic material from the end of the 'first part'; the passage is reproduced in Figure 39. We may now infer the typical functions of a schema in a later location within a movement: firstly, as continuation after a caesura (on vi in these examples); and second, as preparation for a return to the tonic (with a parenthetical insertion here of a phrase in the tonic minor key). The following example shows the same passage, but with a 3+3 part-sequential Monte instead of Fonte, and omitting the tonic minor transition (II/71). It demonstrates that *either* schema may be positioned

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[63] "Daß entweder der Einschnitt, oder der Absatz länger oder kürzer; oder das beyde zugleich mittelst der Wiederholung noch viel länger gemacht könnten werden, das ist ohnehin schon bekannt" (Anf II:60).

[64] Anf II:67; the scale degrees here are in C major.

[65] "Ich bin da eben auch in die Sext A, und von da an wieder durch das Fonte zurück gegangen, nämlich so: C – G – A – C" (Anf II:69).

effectively within this tonal context: A – [Fonte or Monte] – C, even though their start and end tonalities are quite different.

Figure 39: Fonte after tonal deviation: II:69-70

Riepel's next example, shown in Figure 40, contains the first appearance in the *Anfangsgründe* of Fonte in the key of the fifth degree, after a *Quintkadenz*. He describes his procedure in the text: "Starting at letter **P.** is a Fonte in the key of G",[66] with no suggestion that a schema in this closely related key is in any way unusual for Fonte. Here, it is neither in a start- nor end-location, and its function is apparently merely to establish the dominant, in which key the main theme returns several bars later.
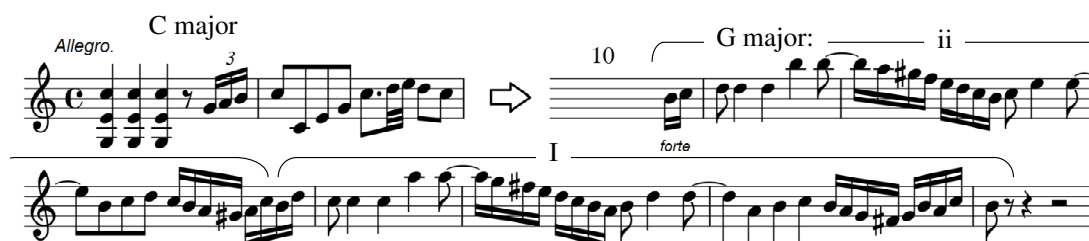
Figure 40: Fonte vi-V in *Anfangsgründe* II:71

Some interesting applications of the schemata appear in the next few examples from the *Anfangsgründe*. Figure 41 shows the opening of an extended *Allegro assai* example, with a cursory 2+2 bar Fonte II-I (i.e. using the *major* key on the second degree) in bb.5-6, recalling the progression noted earlier in Paisiello's *solfeggi* of Figure 24.[67] The *Allegro assai* proceeds directly to a longer Monte-like progression: initially this seems to be an unusual (and metrically displaced) Monte I-II, but it might equally be interpreted as a Monte IV-V in the dominant, serving as a transition to the second theme section in this key; if so, then the previous two examples show the use of both schemata to initiate transition to the second key of a longer

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[66] "Bey dem Buchstaben **P.** fängt ein Fonte an, welches zur Tonart G gehört" (Anf II:72).

[67] The original has *Allegroassai*, presumably in error.

(sonata-type) movement, and indeed we find later that Haydn often employs in particular the Fonte vi-V for this purpose.

Figure 41: *Allegro assai* in *Anfangsgründe* II:72, bb.1-14

An interesting example of schematic manipulation appears in the compressed but complete 'symphony' composed by Riepel's pupil in II:77-79, shown as Figure 42. Its *Andante* is praised as particularly effective, and a notable feature is that it begins with a Fonte, whose opening note supplies the omitted final G from the preceding movement: the pupil asks: "The Andante begins with a Fonte. Perhaps I could also have begun with a Monte?", to which the teacher replies "Have no doubt about it!".[68] (II/79). The schema location at the start of a movement is not remarked upon as particularly unusual, and Riepel again seems to emphasise that the two schema are interchangeable in many or most contexts.

Figure 42: Fonte linking two movements in *Anfangsgründe* II:78

Another example of an inter-sectional schema appears at II:80, in a discussion on the transition from the middle section of an *Aria* into the *da capo* repeat; Riepel's compressed layout for the song is shown in Figure 43. We see that the 'second part' (*zweiter Theil*) ends with a phrase which cadences in D minor, and thus provides the first segment of a Fonte; a transitional phrase then returns the piece to the tonic by supplying the second segment of the Fonte. The *Aria* can then return to the *da capo* to start the 'first part' (*erster Theil*) in the required tonic key. This is

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[68] [Disc] "*Das* Andante fängt mit Fonte an. Vielleicht hätte ich es auch mit Monte anfangen können?": [Praec] "Zweifle do*ch nicht daran!*" (*Anf* II:79).

clearly not a standard construction, location or formal function for Fonte, and indeed it is presented as a skilful manipulation of the schema:

> Itzt werde ich aber erst daraus klug; denn die Kadenz in D kömmt mir just vor als wie
> das erste Glied des Fonte, und die darauf folgende Vorbereitung mit Violinen giebt
> endlich das zweyte Glied des Fonte ab.[69]

> Now however I'm being clever; for the cadence in D seems to me like the first segment
> of a Fonte, while the following preparation in the violins produces the second segment of
> the Fonte.

An important observation here is that Riepel calls this bridging passage Fonte solely on the basis that it contains the characteristic scale degree progressions, without the normative contrapuntal outline: thus, he acknowledges the first punctuation as a *Kadenz* and not an *Absatz*. Moreover, the second segment then proceeds to a *Quintabsatz* rather than a *Grundabsatz*, thus creating a less normative Fonte ii-V.

Figure 43: Fonte as bridge to the *da capo*, in *Anfangsgründe* II:80

Further on in the volume, the main theme of the pupil's 'fourth' symphony (II:83) is preceded by a long unison (*Einklang*) introduction, whose third and fourth bars comprise a simple Fonte, without comment in the text, demonstrating again the flexibility allowed in the placement of a schema. Meanwhile, a reminder of the influence of convention in musical practice of this era appears in the *Allegro* theme of his 'fifth' symphony (I:83), which contains a Monte in its 'second half' ('recapitulation'), where the second segment does not begin on the typically expected note (Figure 44); although Riepel accepts that the passage was not actually conceived or intended as a Monte, it is nevertheless described as 'deceiving the ear',[70] and best avoided; without some

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[69] *Anf* II:81.

[70] 'Es betriegt das Gehör' (Anf I:85).

knowledge of Monte, the problem perceived in this passage would not be apparent to a modern listener.
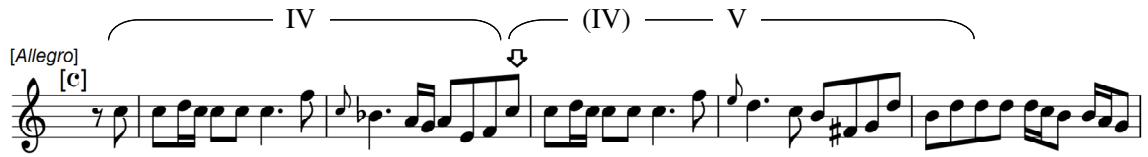
Figure 44: Evaded schematic expectation in *Anfangsgründe* II:84

The next pages in the volume contain several examples of Fonte and Monte which are relatively standard, or have been discussed in the text previously. Thus, the concerto theme at II:97-98 has a second half which progresses to vi (according to the *Miniatur* model C-G-A-C), and a 4+4 bar Fonte in C is shown as one means of continuation after the cadence in A minor; it is described by Riepel as a 'transition' (*Uebergang*) to the main thematic return in the tonic. Meanwhile, the triplet passage (*Rauscher*) from the minuet at II:100 contains a 2+2 Monte, within a discussion of key progressions in a concerto theme (II:100-101), examples appear of (i) 2+2 Fonte on vi-V, (ii) 2+2 Fonte on vi-V, (iii) Monte on IV-V, and (iv) Fonte on ii-I after a progression to iii.

Two further examples (II:101-102) contain three-part sequences after a *Grundabsatz*, the first on E-D-C and the second on F-G-A. It is not clear whether these are meant to represent Fonte and Monte; since they are not named as such within the text. The first of these examples, shown in Figure 45, is particularly interesting since the progression strongly implies a 'triple Fonte', whose last segment returns the key to C major, only for the melodic ending to deviate again to A minor. The second, 'triple Monte' example passes here without comment, even through Riepel makes important remarks on this construction in Volume 4.

Figure 45: Triple Fonte iii-ii-I in *Anfangsgründe* II:101

Riepel returns next to the Fonte II-I construction which appeared in the earlier *Allegro assai*. Adapting it to his own minuet, he presents two examples in succession, the first with a Fonte II-I and the second with Fonte ii-I. Since they raise a most interesting point, it is worth reproducing this entire passage from the *Anfangsgründe*:[71]

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[71] *Anf* II:102.

Man kann, wie du bey den Simpfonien schon vernommen hast, das Gehör wohl bisweilen ein wenig betriegen; allein es ist gar gefährlich. Du bist noch zu schwach darzu. Jedoch will ich dir indessen eine kleine Gleichniß geben:

As you already found out in your symphony, one can occasionally deceive the ear slightly; it is just rather risky. You were still too timid with it. However, in the meantime, I will tell you a little story:

Hier beym ✚ kömmt D mit Terz major hinein, welche nicht zur Tonart C gehört; denn es sollte vielmehr vermöge eines ♭ in H die Tonart D mit Terz minor dahin zu stehen kommen:

Arriving here at the ✚ is D major, which does not belong to the key of C; for through the use of B♭, it ought to occur in the key of D minor:

Jedoch ist das erste Exempel meines Erachtens für dießmal so gut als das letzte hier; aus Ursache, weil D Terz major nicht lang dauert, und dem darauffolgeneden □–Absatz in der Quint fast noch geneigter ist.

However, in my opinion, the first example is as good as the second; the reason being, that D major does not continue for long, and is almost a better match for the *Quintabsatz* in the dominant key.

Thus, for Riepel, the second of these examples belongs more correctly to C major, although the first (with B♮ rather than B♭) sounds just as pleasing, since the D major key is applied only briefly and it matches the modality of the destination *Absatz* (both II and V/V contain F♯). Although Riepel does not make the distinction here, the second example is of course the standard Fonte, and the first is a common and colourful variant.

This section of the volume includes an important discussion of the *Zwitter*. The presence or absence of this feature is an important feature of Fonte construction, and refers to the inflection of the sixth degree in the second segment of the schema. If we consider a Fonte in C major, the first segment typically contains B♭–A-G-F within the melodic descent, whereas the second segment may have either A-G-F-E or A♭-G-F-E: the first of these is considered as normative, while the second is referred to as *Zwitter* ('hermaphrodite'), because of the implied modal mixture within the segment (C major does not contain A♭). Riepel's example from the *Anfangsgründe* is shown in Figure 46. The advantage of the *Zwitter* is that it retains the same melodic contour and diminished seventh outer interval as the first segment (C♯-B♭ → B♮-A♭), so it produces the more exactly sequential Fonte. Equally logical arguments may therefore be made for or against the *Zwitter*, and the choice comes down to aesthetic preference. Riepel acknowledges that the *Zwitter* is widely used, but makes his own position clear: "It pleases a hundred connoisseurs; yet it has seldom pleased me".[72] It might be mentioned here that only three instances of *Zwitter* were found in the empirical study of the *solfeggi*; *Zwitter* frequency cannot be determined for *partimenti*, since they present only the bass line.

Figure 46: Fonte with *Zwitter* in *Anfangsgründe* II:103

Near the end of the volume (II:123) , Riepel discusses the construction of a minor key *Andante*. His examples show the use of Fonte and Monte in the relative major after the double bar, where the first reprise has ended in that key. He demonstrates that it is still possible to complete a minimal 16-bar piece in this way, since the completing 4-bar phrase can follow either schema towards a *Grundkadenz* in the tonic minor key.

Volume 3

Riepel begins the volume with a summary of the three schemata (*Gattungen*) presented in the previous volume. He proceeds to a very interesting discussion, with musical examples, of variant Fonte and Monte forms. In one case, the second half of a minuet is given a Fonte on vi-V, followed by a phrase leading to a *Grundkadenz* to complete the piece. While apparently approving this construction, Riepel nevertheless tells his pupil that it is a special case and recommends the more usual scale degrees of ii-I: "This progression is so unusual that it correctly belongs to *Special* Construction…You should first have written out the Fonte of *General*

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[72] "*Er gefällt hundert Kennern; mir aber hat er noch selten gefallen*" (*Anf* II:103).

Construction".[73] The pupil persists, however, and gives a further example of Monte '*ins besondere*', progressing V-vi, accepted by Riepel, and then (II:3) a pattern named as Fonte progressing from V-IV, somewhat less desirable of course than its inverted form (a standard Monte). This passage reveals two important points about Fonte and Monte: (i) each may occur in a 'standard' (*insgemein*) or 'special' (*ins besondere*) form, in this example according to the choice of scale degrees on which they are constructed; and (ii) the terms may apparently be applied more generally to any falling or rising progressions of a second, regardless of the actual scale degrees involved (e.g. Fonte may be V-IV, and Monte V-vi). Some corroboration for this claim was seen in the *partimenti* and *solfeggi* earlier, where occasionally a clear Fonte or Monte construction was found on non-standard degrees.

Near the end of the volume (III/81-82) is a brief exchange on the *variation* of Monte. The schema is presented successively in five guises:

(i)   4+4 bar sequential on IV-V ("Completely simple, without variation");

(ii)   4+4 bar non-sequential on IV-V ("With variation");

(iii)   4+4 bar non-sequential on IV-I ("…it could also be done this way");

(iv)   4+6 bar non-sequential on IV-I ("…with the second segment expanded");

(v)   4+8 bar non-sequential on IV-V ("…or even longer").[74]

Riepel nevertheless does not suggest that the basic Monte should be avoided completely: "However, the Monte ("*Schusterfleck*") itself need not be banned, provided it is well constructed and does not simply serve as a filler".[75] We note that this passage repeats the point made in Volume 2, namely that the progression IV-I may be considered as a 'varied' Monte, even though the scale degree movement is not actually one step upwards; although not mentioned in this section, the corresponding 'varied' pattern for Fonte is ii-V. There is no further discussion or example of Fonte or Monte in the volume.

Volume 4

After preliminary discussion of another topic, Riepel turns again to the schemata. He notes that one may compose countless works "without needing a single *Septimengang* [chain of 7th chords]

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[73] "*Dieser Gang is so fremd, daß er mit Recht zur Tonordnung ins besondere gehört…Du hättest erstlich das Fonte **insgemein** aufsetzen sollen*" (*Anf* III:2).

[74] (i) '*Ganz einfältig ohne Variatione*'; (ii) ('*Mit Variationen*'; (iii) '…*so könnte man ja auch setzt*'; (iv) '…*das zweite Glied verlängert*'; (v) '…*oder noch länger*' (*Anf* III:81-2).

[75] '*Und aber der Schusterfleck selbst ist nicht gar zu verbannen, wenn er gut angebracht wird, und nicht bloß zum ausfüllen dienet*' (*Anf* III:82).

or *Schusterfleck*".[76] He then proceeds to a long section on methods for varying first Monte, then Fonte; there is a strong implication that Riepel regards both as *Schusterfleck* devices, although with Monte much more outmoded.

The 2+2 bar sequential Monte on IV-V using both B♭ and F♯, where each segment proceeds to an *Absatz* with the 3rd in the melody, is presented again as the standard form. Riepel proceeds to discuss in turn a number of variations on this standard Monte (IV:13-14), noting that "afterwards it is no longer a *Schusterfleck*".[77] The space he devotes to a detailed discussion of the Monte variations reveals the importance he attaches to the schemata and their possible manipulations. Although it is not necessary here to list all of his variants, some are of particular interest since they imply considerable deformation or concealment of an underlying normative schema; segment proportions are doubled in the following descriptions, in accordance with contemporary interpretations of compound time:[78]

- 2+2 bar near-sequential on IV-I, where the second segment proceeds to a *Grundabsatz* with the 5th in the melody; Figure 47 shows how Riepel adds a completing phrase whose final segment which goes to a *Grundabsatz* with the 3rd in the melody, thus implying a deferred completion of the Monte IV-I;

- 2+2+2+2 bar partly-sequential starting with just a Monte *first* segment, and followed by matching segments descending stepwise; the final notes of the segments are thus A-G-F-E; Riepel describes this example, shown in Figure 48, as comprising "a series of *Absätze*";[79]

- 2+2+2 bar non-sequential with Monte opening, with successive *Absätze* in IV-ii-I; as Figure 49 shows, the second and third segments outline, perhaps unintentionally, a Fonte progression;

- 2+2+2 bar non-sequential with Monte opening, with successive *Absätze* in IV-vi-V; we may infer from Figure 50 that this is effectively a Monte IV-V with an intervening segment.

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[76] '*ohne hierzu einen einzigen Septimengang oder Schusterfleck zu brauchen*' (*Anf* IV:12).

[77] "*so ist es hernach kein Schusterfleck mehr*" (*Anf* IV:13).

[78] For Riepel and Koch, a compound time is understood to denote two bars of simple time joined together: thus $\frac{4}{4}$ represents 2 bars of $\frac{2}{4}$. Similarly, $\frac{6}{8}$ is counted as 2 bars of $\frac{3}{8}$, if a caesura can fall on the fourth quaver, typically with rhythmic attack on each quaver. *Alla breve*, specifically marked as ¢, is however considered as 2 minim beats.

[79] "*einer Folge von Absätzen*" (*Anf* IV:13).

Figure 47: Varied completion of Monte in *Anfangsgründe* IV:13

Figure 48: Varied completion of Monte in *Anfangsgründe* IV:13

Figure 49: Varied completion of Monte in *Anfangsgründe* IV:14
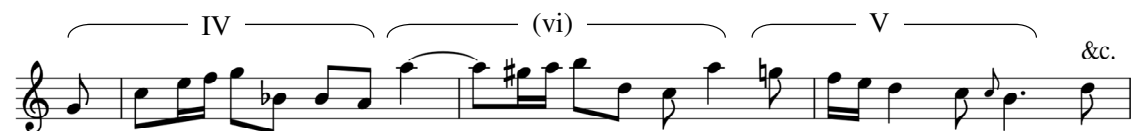
Figure 50: Varied completion of Monte in *Anfangsgründe* IV:14

Riepel notes that in this way, the second segment may vary the Monte by progressing to any of the four other related keys (i.e. other than V). He then gives several two-part examples using varied Monte progressions where the bass line for the second segment is non-sequential: "so that the second segment might have as little similarity as possible with the first".[80] Strangely, in some of these variations, the first segment no longer progresses to IV, with F in the bass; Figure 51 presents not only Monte starting on a dominant pedal, but also elision of the two segments, through a premature rise to C♯ in the bass. Riepel shows further examples (IV:16-18), where the second segment moves to ii, vi or iii, instead of the expected V (or I). It must be conceded that in these examples, and those appearing in the figures above, the underlying normative schema is sometimes so deformed that the resulting pattern is no longer obviously a Monte. It appears that the first segment alone is sufficient to signal the schema, and enable the listener to confirm retrospectively that a variation or manipulation has occurred.

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[80] "*damit das zweite Glied mit dem ersten um so weniger Aenlichkeit haben möge*" (*Anf* IV:14).
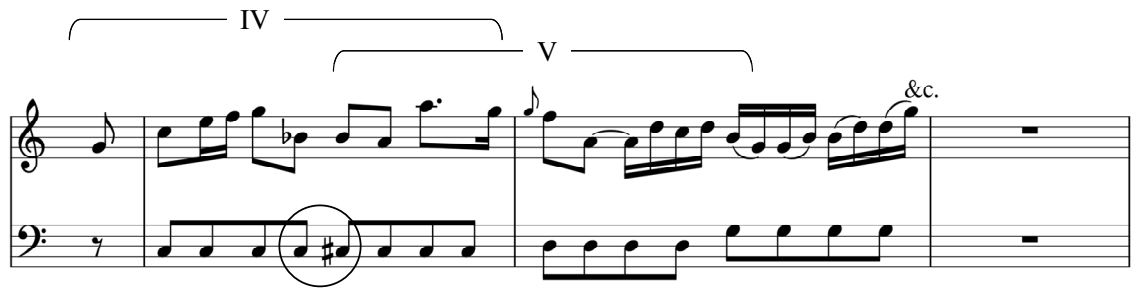
Figure 51: Elided pedal Monte in *Anfangsgründe* IV:15

Riepel next demonstrates the variation of longer Montes in a similar manner (IV/18-20). The schema is shown as a single melody, first in its standard sequential form, and then with several variations as regards the tonality of the second segment. These include the longer 4+4 bar sequential Monte on IV-ii, shown in Figure 52, which prepares for a phrase starting in V. Riepel comments that this pairing of scale degrees IV-ii is effective as a variation, but may soon become 'too common';[81] he prefers the corresponding sequential Monte on IV-vi, which in his view has a longer potential future than the progression to ii.
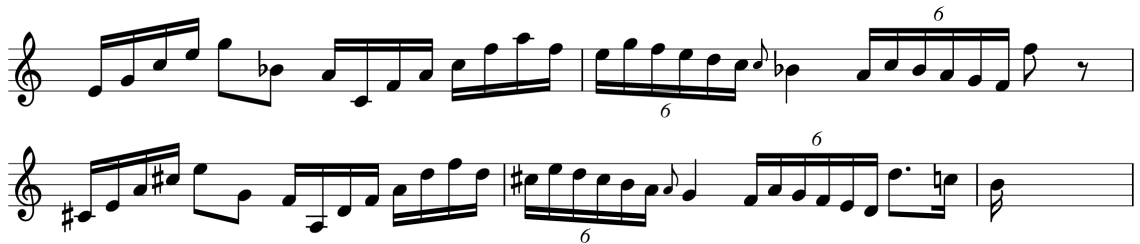
Figure 52: Monte IV-ii in *Anfangsgründe* IV:19

It is remarkable how much space Riepel next devotes to a discussion of the irregular Monte progression IV-iii, which incidentally resembles a Fonte, given that empirical findings elsewhere in this study do not identify this variant as particularly prominent. In any event, having demonstrated that the progression is harsh when produced through the melody alone, Riepel suggests several ways to improve the progression through addition of an appropriate bass line (IV:20-22). His three preferred improvements use an intermediate scale degree destination within the second segment; they may be represented by proportion and progression as:

- 4(IV)+2(ii)+2(iii)

- 4(IV)+2(I)+2(iii)

- 4(IV)+2(vi)+2(iii)

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[81] "*zu gemein*" (*Anf* IV:20).

To illustrate just how remote from normative Monte construction these Riepel variations can seem, his example of the final type above is shown here in Figure 53.
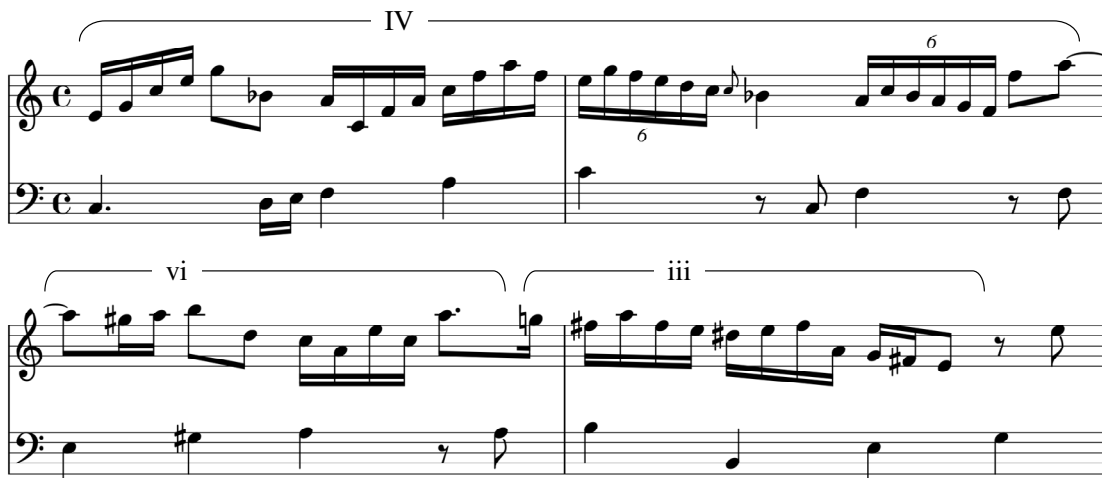
Figure 53: Monte IV-vi-ii in *Anfangsgründe* IV:21-2

There follows an interesting discussion on the 'triple Monte', which featured prominently in Gjerdingen's presentation, and was also seen in the *partimenti* and *solfeggi*. Riepel provides a two-part example of this construction, shown here as Figure 54, which he describes as "continuing melody".[82] He considers that this sequential succession of 2+2+2 segments is not in fact an extended Monte, but rather a deception: the first two segments *appear* to complete a Monte, but the listener becomes aware on hearing the third segment that "he finds himself deceived".[83] Riepel notes that although the pattern is quite common, many composers prefer to alter the progression by using different scale degrees for the second and third segments. Thus he shows the progressions IV-ii-vi and IV-vi-I as examples (IV:22-23), adding that the main point is to avoid the second segment of the Monte. His illustration of the first type is shown here in Figure 55, from which we note that he also reduces sequentialism by avoiding a G♯-A movement in the bass for the third segment.
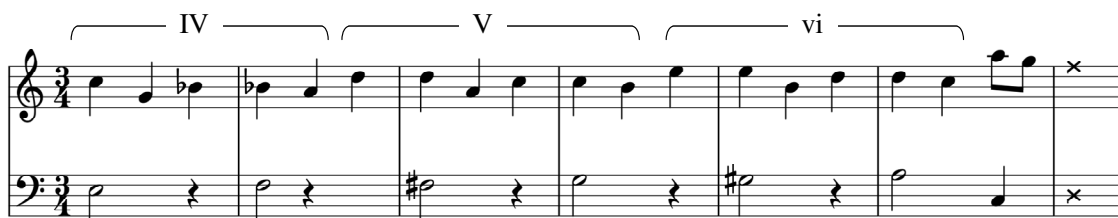
Figure 54: 'Triple Monte' in *Anfangsgründe* IV:22

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[82] "*fortdaurender Gesang*" (*Anf* IV:22).
[83] "*Er findet sich aber betrogen*" (*Anf* IV:22).
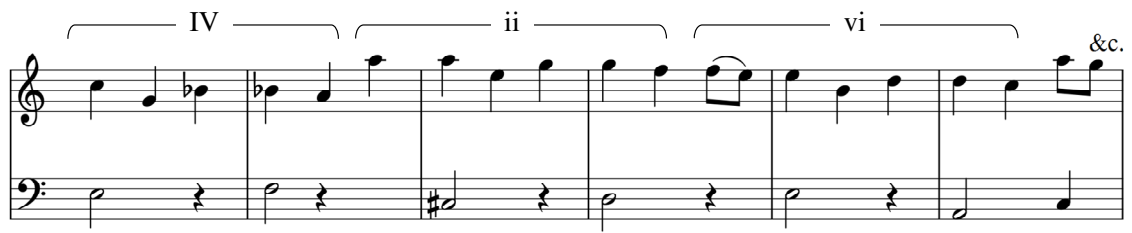
Figure 55: Altered triple Monte in *Anfangsgründe* IV:22

This section concludes with an exchange between teacher and pupil on the value and status of Monte in current composition. It is clear that the schema was becoming increasingly outmoded at the time this volume was written (1765), and that composers were divided as to whether or not they should use the schema at all. Riepel relates the following tale, however, to emphasise that the Monte is still a favoured device:

> Schau, hier ligt eine Oper-Arie von einem der größten Meister, wo im zweyten Theile sowohl das Monte als Fonte bald hinter einander vorkommen; die Arie ist zwar schon 17. Jahre alt [c. 1748]. Erst gestern habe ich wieder eine Arie von einem Meister gesehen, der noch nicht gar lang anfängt, in Teutsch- und Wälschland berühmt zu werden; in welcher Arie ich ebenfalls ein sehr saftiges Monte erblickte; und diese ist erst vergangenes Jahr [1764] componirt worden.[84]

> Look, here's an operatic aria by a great master, where in the second part Monte and Fonte appear one after another; the aria is actually 17 years old already [hence from c.1748]. And just yesterday I saw an aria by a master, now becoming famous throughout the German and Italian lands; in this aria too I spotted a juicy Monte; and that was composed just last year [hence c.1764].

He adds:

> dencke nur nichts arge, wann du manchmal in einem sonst wohlgesetzten Stücke etwan ein oder zwei Monte antrifft. Ich kenne diese Stunde noch einen Violinisten, der nicht eher vor Vergnügen entzückt wird, als bis er ein wohl ausgedehntes Monte hört. Und für einen Menuet-Liebhaber ist es gar ein Leckerbissen.

> …

> Wenn alle Componisten einstimmen, das Monte in hundert Jahren nicht mehr zu setzen, so wäre es demnach gewiß wieder eine rührende Neuigkeit.[85]

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[84] *Anf* IV:24.
[85] *Anf* IV:24.

don't think badly of it, when you sometimes come across perhaps one or two Montes in a generally well-composed piece. At this very moment I know a violinist who can derive no enjoyment before he hears a well drawn-out Monte. And for a minuet-lover it's certainly a dainty morsel.

…

If in a hundred years all composers agreed not to use the Monte any more, it would certainly become again a touching innovation.

Riepel devotes less time to Fonte than Monte in this volume, no doubt because it is not so essential for this schema to be varied. As with Monte, he first presents the standard Fonte, as both 2+2 bar and 4+4 bar sequential patterns. He returns briefly to a discussion of the *Zwitter*, reminding us archly that he does not favour it:

Diesem Gang [the standard form] suchten die Italiener schon vor langer Zeit, wiel er ihnen vermuthlich zu alltäglich und gemain war, mittelst des zweyten Gliedes eine ganz fremde Farbe anzustreichen…so nennen ihn die Italiener selbst deswegen gar *barbarismo*, einen barbarischen Gang.[86]

Presumably because it seemed too banal and common to them, a long time ago the Italians sought by means of the second segment to paint the regular Fonte in a most strange colour…for that reason, even the Italians themselves named it *barbarismo*, a barbaric procedure.

As with Monte earlier, Riepel now demonstrates how the second segment of Fonte may be set in the alternative related keys of F, G, A and E (IV:25-27). Of greatest interest perhaps is his discussion of a 4+4 bar sequential Fonte on ii-iii, shown in Figure 56, continuing to a *Quintabsatz*: Riepel notes that this construction resembles both Fonte and Monte, but in any event is rare and somewhat trivial: "the two are not very dissimilar. Once every ten years they might perhaps be used for a small affect".[87] He nevertheless extends his discussion with four more variations on this progression, mostly designed to soften the D-D♯ and F-F♯ cross-relations that may arise between the two segments. As noted above with Monte, it is evidently the first segment which signals the start of a Fonte, where the listener's expectation is then frustrated.

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[86] *Anf* IV:25.

[87] "*sie sind aber beiden nicht viel unähnlich. Alle zehn Jahre könnten sie vielleicht doch noch zu einem kleinen Affect dienen*" (*Anf* IV:26).

Figure 56: Fonte ii-iii in *Anfangsgründe* IV:25

The following section provides a fascinating insight into acceptable limits of schematic variation. Although the Fonte ii-V has been presented earlier as a viable alternative to the regular form, Riepel now presents examples of a Fonte in C major where the progression in the second segment to the dominant is judged to be unsatisfactory, since there is no clear connection between the segments, and the phrase extension is also somewhat arbitrary. Figure 57 shows the awkward example given by Riepel. We might thus infer that a completely non-sequential progression to a non-regular tonal degree can potentially deform the schema too greatly, and so exceed a limit of variation; the suggested recomposition shown here in Figure 58 would presumably restore the required features of a varied Fonte ii-V.

Figure 57: Unsatisfactory Fonte ii-V in *Anfangsgründe* IV:27

Figure 58: Recomposed version of Fonte ii-V in *Anfangsgründe* IV:27

In the final part of this section, Riepel states that since the Fonte is not so prominent a *Schusterfleck* as the Monte, one may vary its second segment just slightly.[88] He gives two examples of non-sequential 4+4 bar Fonte with this kind of simple variation of the second segment, the first to a *Grundabsatz* and the second to a *Quintabsatz*. Three further examples at IV:28 illustrate possible ways of extending the second segment, one of which is shown in Figure 59. Here, the entire phrase is given more coherence through the implied descending stepwise melodic line B♭-A-G-F-E in the second segment, and through repetition of internal figures within the segment.

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[88] "Da das Fonte kein so ansehnlicher Schusterfleck ist, als das Monte, so darfst du das zweyte Glied auch nur ändern…" (Anf IV:27).

Figure 59: Expanded and deviated Fonte in *Anfangsgründe* IV:28

One of the preceding examples contains an ascending melodic sequence which resembles a compressed 'triple Monte' (Figure 60); Riepel notes however that such single-measure figures are too short to be heard as Monte, and actually relate to the ascending 5-6 contrapuntal progression (*aufsteigende Quint-Sext*). As Figure 61 clarifies, he considers that Monte requires a segment size of at least two bars, and an appropriate chromatic bass line E-F-(F♯)-G-(G♯)-A. Although he does not state this, the presence of ❹ in the melody against ⑦ in the bass will also serve to confirm the pattern as Monte. It is of interest that Riepel's observations relate closely to the issues raised in relation to *partimenti Regole* and the derivation of Monte from the chromatically ascending bass line; accordingly, the analytical framework developed in Chapter 4 seeks to distinguish between an actual Monte instance and the ubiquitous harmonisation of a E-F-F♯-G bass line.

Figure 60: Compressed Monte-like sequence in *Anfangsgründe* IV:28

Quint-Sext (5-6) **not** Monte
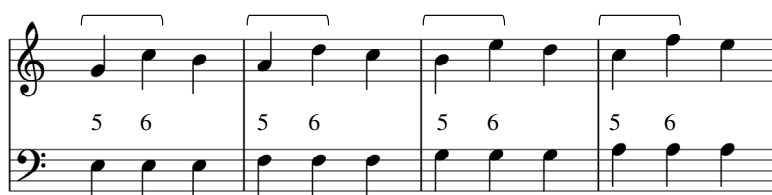
Monte **not** *Quint-Sext* (5-6)

Figure 61: Riepel's distinction between Quint-Sext and Monte

The discussion concludes with comments on the non-varied Fonte, after the pupil presents three non-sequential 2+2 bar examples in 'compact' style (*auf kurze Art)*, moving to a *Quintabsatz* or *Grundabsatz*. Riepel states that these forms are quite acceptable even if nearly sequential, ie. with the second segment even more similar to the first.[89] We might indeed add that countless Fontes with completely sequential relationship between segments are to be found in the galant repertory, including the corpora examined for this study. Riepel rounds off this section with another reminder that the two schemata are still current and valid in composition, advising his pupil not to be disdainful if he hears Monte or Fonte in good compositions.[90]

Volumes 5 to 9

There is no mention or musical example of Fonte or Monte in Volume 5. Surprisingly, however, an extended passage on Monte and Fonte melodic variation occurs around the middle of the second volume on counterpoint (Anf.Em VI:596-7). Recalling examples that "he had been shown", the pupil presents first a standard near-sequential 4+4 bar Monte on IV-V, after which he provides three chromatic and rather strange 'improvements' (*Verbesserungen)*. These essentially present harmonic embellishments of the schema, rather than any kind of phrase or formal manipulation, and it will be sufficient to examine just one of the examples here. Figure 62 shows the first of them, a 4+4 bar non-sequential Monte on IV-V, with an A♭ F♯ and E♭ added within the second segment; these inflections seem to imply a progression through F minor and the augmented 6th on A♭ before the melody settles on B♮ in a *Quintabsatz* dominant chord. It might be noted here, in anticipation of later empirical findings, that such chromatic embellishment of schemata is scarcely found at all in Haydn, but is very typical of Mozart.
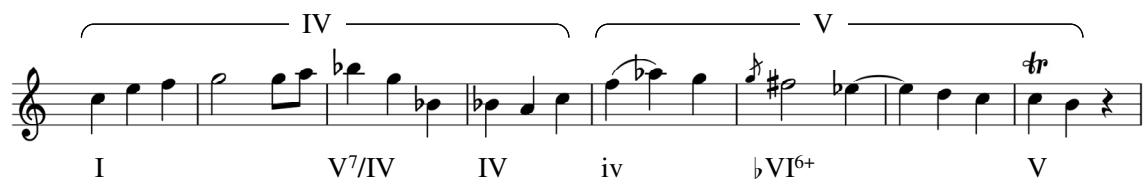
Figure 62: Monte "*Verbesserung*" in *Anfangsgründe* Anf.Em VI:596

The pupil proceeds to discuss similar chromatic 'improvements' of Fonte. He gives an example of an unusual Fonte (*sonderbare Fonte)* he has heard (Figure 63); this variation is eccentric in that it comprises a 2+2+2 bar nearly sequential progression through E minor, D minor and C major, as a kind of 'triple Fonte'; moreover, the third segment contains A♭, creating the *Zwitter* form within a major key, while the first segment contains the melodic interval F♮-A rather than the expected A-C♮.

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[89] "*Und wenn auch das zweyte Glied noch mehr Aehnlichkeit mit dem ersten hätte*" (*Anf* IV:31).
[90] "*Sey nur nicht boshaft und bübisch, wenn du in guten Compositionen Monte, Fonte [oder Septimengänge] hörest*" (*Anf* IV:31).

Figure 63: "Sonderbare" Fonte iii-ii-I in *Anfangsgründe* VI:Em.599

The pupil later presents an even more radical form of this variation (Figure 64), in which the middle segment is omitted altogether;[91] this produces the elliptical progression E minor – C major, claimed still to be a variation of Fonte even though the critical D minor segment, with expected melodic C♯-D, is notably absent; interestingly, the concluding segment here uses the non-*Zwitter* inflection.

Figure 64: "*Sonderbare*" Fonte iii-I in *Anfangsgründe* VI:Em.599

There is no further mention or musical example of Fonte or Monte in any subsequent volume of the *Anfangsgründe*. It is somewhat surprising that among the hundreds of examples in Volume 7/8 for adding a bass to a melody (*Baßschlüssel*), there is not a single model harmonisation of Fonte or Monte; we might expect that the many possible treatments of the bass line in these schemata could also be a rich source of variation that Riepel would wish to demonstrate. It is striking that the one complete harmonised minuet in this volume contains neither Fonte nor Monte.

Gjerdingen's standard construction of Fonte and Monte are more fixed and precise than are found in the *Anfangsgründe*. This probably reflects his focus on the core contrapuntal outline of each schema. Riepel's focus is essentially melodic and harmonic, although he does not entirely disregard the contrapuntal aspect of schemata: the core ❹-❸ over ⑦-① pairing is implicit in almost all of his examples. The following section summarises what may be inferred so far from both Gjerdingen and Riepel, whose most significant observations relate to the role of Fonte and Monte in phrase construction and formal function. The constructional elements identified here are in essence categorical slots within a frame, important schematic concepts which are discussed extensively in Chapter 4 before presentation of the complete analytical framework for Fonte and Monte.

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[91] "*Und zum Fonte dürfte man das mittlere Glied weglassen*" (Emmerig 1996:599).

Parametric Characteristics

HARMONY

Fonte: S1 is in the minor key on the second degree and S2 is in the tonic major key. A modern representation of the schema is [V*/ii – ii] – [V*/I – I], where V* is the equivalent of a 7th or 9th chord with dominant function.

Monte: S1 is in the major key on the fourth degree and S2 is in the major key on the fifth degree. A modern representation of the schema is [V*/IV – IV] – [V*/V – V].

MELODY

Fonte: the progression [S1]-[S2] typically contains the melodic degrees [❺-❹-❸]-[❺-❹-❸] or [❻-❺-❹-❸]-[❻-❺-❹-❸] or sometimes just [❹-❸]-[❹-❸]. Note that the ❻ in S1 would use the chromatically lowered seventh degree of the main key; the ❻ in S2 would usually be diatonic, but might also use chromatically lowered sixth degree of the main key to form a *Zwitter* inflection.

Monte: the progression [S1]-[S2] typically contains the melodic degrees [❺-❹-❸]-[❺-❹-❸] or just [❹-❸]-[❹-❸]. Note that the ❹ in S1 uses the chromatically lowered seventh degree of the main key

It appears characteristic for the melody in the first half of each segment to contain faster moving notes leading to a static or less mobile punctuation. The progression from S1 to S2 is exactly sequential in most cases, with the entire melody transposed down or up by one step. It appears that each segment of a normative schema proceeds to the 3rd of the chord rather than the 5th; movement to the root is rare.

BASS

Fonte: the progression [S1]-[S2] typically contains the bass degrees [⑦-①]-[⑦-①], or sometimes [⑤-①]-[⑤-①] in a root-position progression. Note that ⑦ in S1 here is the chromatically raised second degree of the main key.

Monte: the progression [S1]-[S2] typically contains the bass degrees [⑦-①]-[⑦-①] or [⑤-①]-[⑤-①], for a root-position progression. Note that ⑦ in S2 here is the chromatically raised fourth degree of the main key.

To simplify the explanation, a typical Fonte in C major requires C♯ in the bass and B♭ in the treble (also A♭ if a *Zwitter*), while a typical Monte requires F♯ in the bass and B♭ in the treble. The salient interval progression in each of the four segments is a diminished fifth moving to a major or minor third.

63

PROPORTIONS

The standard construction of each schema is symmetrical, where the segments are of equal length. In the small schema of four bars, the segment proportions may be represented as 2+2 bars, with an internal harmonic rhythm of [1+1]+[1+1]. The larger schema is usually 4+4 bars, with harmonic rhythm (in the absence of alternation or extra chords) [2+2]+[2+2] bars, or perhaps more typically [3+1]+[3+1] bars, where the dominant chord is longer than the destination chord. The phrase of completion after a Fonte or Monte is usually the same length as the entire schema.

FORMAL LOCATION AND FUNCTION

The standard location for Fonte or Monte is immediately after a clear caesura (*Absatz* or *Kadenz*). In small compositions, this location is typically the start of the second reprise directly after the double bar. The schema here performs the function of continuation; it typically creates (or precedes a phrase which creates) a *Quintabsatz*, after which the following phrase completes the period with a final *Grundkadenz*. In an expanded minuet (with an excursus section), the schema may function in a location directly after the double bar or just before the phrase of thematic return. The characteristic function of a Fonte or Monte schema is thus either continuation or preparation.

Much of Riepel's discussion on Fonte and Monte deals with how these schemata may be 'varied', in order to avoid merely routine (*alltäglich*) statements of them. A pervasive theme throughout the *Anfangsgründe* is the notion that as a schema becomes increasingly outmoded through excessive usage, so is it necessary to keep presenting it in new guises, and a variety of variation techniques is presented for this purpose. Riepel's perspective is thus remarkably historical, recognising that schemata such as Fonte and Monte have a life-cycle, as they are established, varied and finally displaced in favour of new schemata. He considers the variation of Monte essential, since it is the more exhausted schema, indeed close to extinction.

We conclude this chapter therefore with a selection of methods described in the *Anfangsgründe* for varying a schema. Only formal function and harmonic progression are included here, since Riepel's most interesting variations apply to these two factors. To show that his system actually implies a range of typicality in schematic formation, the variations presented here represent increasing degrees of variation, from normative to extreme.

LOCATION

1. Directly after the double bar, to start the second reprise.

2. After a caesura as an immediate preparation for the final closing phrase, usually the thematic return.

3. In the second part of a longer movement, to return to the tonic key after a caesura in a related key.

4. In any location after any clear caesura, especially within a longer movement; examples include schemata after caesuras in ii or vi.

5. To start a movement.

6. To link two movements, or principal sections within a movement; examples include schematic linkage of an *Andante* with the following *Allegro*, and of sections in an *Aria*.

HARMONIC PROGRESSIONS

FONTE

1. ii – I

2. ii – V (*Absatz* 'switch')

3. vi – V

4. II – I

5. V – IV ('reversed' Monte)

6. Parenthetic progressions:

    a. ii – (IV) – I

    b. ii – (IV) – V

    c. ii – (vi) – V

    d. ii – (iii) – V

    e. ii – (III – vi) – V

    f. ii – (III) – V (not recommended by Riepel)

    g. ii – (V – iii) – ? (unspecified)

    h. ii – (vi – iii) – ? (unspecified)

7. A 'triple' Fonte: iii – ii – I (Riepel uses a *Zwitter*)

8. Elliptical progression: iii – I (ii is omitted)

MONTE

1. IV – V

2. IV – I (*Absatz* 'switch')

3. IV – V – vi ('triple' Monte)

4. V – vi

5. Parenthetic progressions:

    a.   IV – (I) – V

    b.   IV – (ii) – I

    c.   IV – (vi) – V

    d.   IV – (iii) – V (possible, but not recommended); 'improvements' are:

        (1)   IV – (ii – iii) – [V]

        (2)   IV – (I – iii) – [V]

        (3)   IV – (vi – iii) – [V]

6. Avoidance of standard completion:

    a.   IV – ii – [vi]

    b.   IV – vi – [V]

    c.   any other avoidance of V as second segment

Several types of variation apply to both Fonte and Monte:

1. S2 continues as a sequence of segments.

2. S2 has sequential repetition of internal figures.

3. The salient chromatic inflections are in an inner voice.

4. The melody outlines a schema, but the bass line changes the expected chords.

5. The schema completes a sequence, eg. a Fonte at the end of iii – ii – I, where the location is appropriate for a schema.

Chapter 3: Fonte and Monte: Koch

Introduction

Koch's perspective on Fonte and Monte contrasts strongly with that of Riepel. Indeed, discussion of them in his *Versuch einer Anleitung zur Composition* is restricted to two brief and rather disparaging passages, giving the impression that they play only a minor role in his compositional theory. This impression is misleading, however, since numerous musical examples containing the schemata appear in Volumes 2 and 3 of the treatise.[92] The difference is that Koch does not draw attention to them in the manner of Riepel, merely presenting them without comment as specific phrase types. That he is perfectly aware of their conventional schematic character and significance is nevertheless revealed in the first of the two passages noted above, in which he remarks on their changing status in current composition. Having introduced Fonte and Monte primarily as techniques for phrase extension, he adds that:

> Because both these types of transposition have been used to excess, almost *ad nauseum*, in older compositions, they are rather avoided in modern compositions unless they appear in a new form[93]

This remark is interesting in view of Riepel's very similar observations in the *Anfangsgründe*; it is especially significant that Koch refers to *both* Fonte and Monte as having been used to excess (Riepel too implies that both are *Schusterflecke*) and requiring variation if applied in composition. Yet, while Koch's musical examples generally avoid Monte altogether, they frequently present Fonte without variation, and we know too from empirical study of works by Haydn and Mozart contemporary with the *Anleitung* that the unvaried Fonte was clearly acceptable. Fontes even abound in the works of C. P. E. Bach, the composer admired most greatly by Koch.[94]

Fonte and Monte also feature throughout Koch's treatment of phrase construction in Sections 3 and 4 of the *Anleitung*; as the following discussion shows, however, his focus is far more

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[92] Some 30 instances of Fonte or Monte are found in musical examples from Sections 3 and 4 of the *Anleitung*. Koch's own examples contain 15 Fontes and 5 Montes, while 3 Fontes and 4 Montes appear in works by his teacher Scheinpflug, and a further 3 Fontes are by other composers, including one by Haydn.

[93] Baker (1983:45). Note that Koch does not assign names to these constructions, and only refers to Monte as *Rosalia* much later in volume 4.

[94] My own informal empirical survey of C. P. E. Bach's keyboard sonatas reveals numerous Fontes and Montes, often of complex construction, although not necessarily with varied completion.

on the structural properties and phrase functioning of these patterns than on their conventional galant-schematic significance as emphasised in Riepel's *Anfangsgründe*. In fact, this twin character of the two schemata renders them doubly fruitful for the detailed case studies in Chapters 5-7, since they allow us to understand how manipulations of them may be interpreted equally across cultural-semiological and formal-functional axes.

Koch's *Anleitung* is more systematically structured than Riepel's *Anfangsgründe*, and is divided into volumes, chapters, sections and sub-sections. Volume 1 deals with the rudiments of theory and strict composition; the rest of the *Anleitung* is devoted to more modern concepts of free or galant composition, and is therefore of greater relevance to the present study. Volume 2 opens with a broad discussion on "the inner nature of a composition",[95] and proceeds to the theory of modulation, keys and meter; it concludes with a discussion of 'melodic sections', which continues as the central topic of volume 3. The main parts of the *Anleitung* relevant to this study are therefore:

- Volume 2, Section 3: "The nature of melodic sections", Chapters 1-3

- Volume 3, Section 4: "The connection of melodic sections, or the structure of periods", Chapters 1-4.

Koch's choice of melody as the principal agent of his *Formenlehre* is in fact slightly misleading, since, as with Riepel, he mostly assumes the correct application of implied harmonic, rhythmic and contrapuntal factors. Nevertheless, melodic structure and connection are for Koch too the most effective means to explain the construction of the smallest to the largest composition. Although the *Anleitung* is more logically presented than the *Anfangsgründe*, its terminology is not completely systematic: Koch sometimes uses the terms *part*, *section* or *segment* to represent arbitrary melodic lengths. However his most important concepts of incise, phrase and period, which are the foundation of his compositional theory, are very precisely defined and provide the basis too for the following discussions on the formal functions of Fonte and Monte.

Fonte and Monte in the *Anleitung*

It is not the intention here to present an outline of Koch's general compositional theory. The emphasis instead is on showing the function that Fonte and Monte may effectively serve within his theory, especially in regard to small compositions. Remarkably, as the following discussion reveals, these two schemata can be adapted to feature in almost every structural

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[95] An English translation of this part appears in Baker and Christensen (1995).

type or case described by Koch: we discover that the protean tonal qualities of Fonte and Monte enable their application in many different formal contexts, which no doubt explains Riepel's continual emphasis on their importance for the student composer.

For the above reasons, a novel approach is adopted in this discussion, wherein Riepel's famous minuet will be used as the illustrative basis for all of Koch's construction types and cases; this method not only explains the theory with the greatest possible clarity, but also facilitates the application of Fonte or Monte wherever eligible. An overarching objective, of course, is to gain greater insight into the formal implications of Haydn's manipulation of these schemata, to provide a further analytical tool for the case studies at the end of this chapter, and in the final chapters. A slightly adapted version of Riepel's 16-bar minuet is presented in Figure 65.

Figure 65: Riepel's Minuet[96]

Phrase Construction

Koch's theory of phrase construction is based on two fundamental concepts: segment length and punctuation. The first simply refers to the number of bars occupied by the melodic segment,[97] while the second refers to the type of melodic/tonal ending to the segment.[98] The second segment of the Fonte from Riepel's minuet, shown in Figure 66, may serve to illustrate a 2-bar melodic segment with *Absatz* punctuation type, while the final 4-bar segment, shown in Figure 67, concludes the minuet with a *Kadenz* punctuation type. The important distinction here is that the *Absatz*, which may take various forms, is effectively an intermediate punctuation type, the *Kadenz* a concluding type.

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[96] Initial appearance in the *Anfangsgründe* (*Anf* II:42).

[97] As counted in simple time.

[98] Koch describes these punctuations as creating 'more or less noticeable resting points' within the musical flow (*Anl* II:3, §77). Koch's phrase *Ruhepuncte des Geistes* actually translates as 'resting points of the spirit'.

Figure 66: Fonte S2, proceeding to an *Absatz* punctuation.

Figure 67: The final minuet phrase, proceeding to a *Kadenz* punctuation.

As regards tonality, Koch admits only two types of phrase, (I-phrase and V-phrase), which may occur in either the main (tonic) key or another key; the final chord on which the punctuation falls is thus the tonic or dominant respectively. Although Koch does not specify this, the preceding chords in the phrase are diatonic to the key of the phrase: it is only the ending formula that determines the type. Thus the distinction between a V-phrase in the tonic and a I-phrase in the dominant is not merely pedantic, since they will make use of different internal harmonies, the first from the tonic key and the second from its dominant key. A I-phrase ends on chord I of the prevailing key, with either an intermediate *Absatz* punctuation, forming an *Absatz* [phrase] ('internal phrase'), or a final *Kadenz* punctuation, forming a *Schlußsatz* ('closing phrase'). A V-phrase ends on chord V of the prevailing key with an *Absatz* punctuation; if the punctuation is a *Kadenz*, then the phrase is considered rather as a I-phrase in the dominant key. The four principal phrase types required in Koch's theory for the purposes of tonal motion, may be named and interpreted as follows:[99]

- *Grundabsatz* (GA): I-phrase ending in an *Absatz* punctuation

- *Grundkadenz* (GK): I-phrase ending in a *Kadenz* punctuation

- *Quintabsatz* (QA): V-phrase ending in an *Absatz* punctuation

- *Quintkadenz* (QK): I-phrase in the dominant key ending in a *Kadenz* punctuation

The largest structural unit in Koch's form theory is the period. Near the start of Section 3, he equates the period with the sentence in language,[100] but interestingly, it is not until well into

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[99] The four terms adopted here are those presented in Budday (1983) as an extension of Riepel's *Grundabsatz* and *Quintabsatz*. Note that the phrase types GA, GK and QA are constructions within the prevailing tonic key, while the QK is a cadence in the dominant; in fact, a cadence might be in a different key of modulation, for example the relative major (K/III).

[100] *Anl* II:3, §77.

section 4 that he reintroduces the concept; even here, he provides no explicit formal definition of a period, and we must infer it from the opening to his discussion on the connection of four melodic sections: "In this case ['Exercise'/Type I] the two sections which contain the cadence are usually the second and fourth phrase; that is, they divide the whole into two small periods or sections".[101]

Koch's free exchange of the terms section and period are somewhat unhelpful here, and it seems we may infer that any closing phrase with a full cadence will create a period. In the case of Types I and II, to be discussed in more detail later, the 16-bar composition comprises two 8-bar periods, where the first closes with either GK or QK, respectively, and the second closes naturally with a GK. Since the two periods within this short composition cannot possibly have the same structural prominence, we are clearly led to the concept of period hierarchies; indeed, Koch typically distinguishes between main and subsidiary periods within larger forms, such as the sonata. It is not unreasonable to extend Koch's notion of completeness to include periods, and by analogy with the incise and phrase, to posit that a period too may be incomplete or complete: in his Type I case of ___QK :‖: ___GK ‖, the first incomplete period thus required the following complete period to create the larger, main period.

A further matter of tonality particularly relevant to Fonte and Monte relates to modulation. Koch deals with this topic extensively within Section 1 of Volume 2, and it will be helpful to reproduce Baker's summary here:

> Koch distinguishes three type of modulation, which are ostensibly based upon the degree to which the related key is established. An incidental [*zufällig*] modulation is one in which a few notes are harmonized as if they were in another key; no modulation takes place, however. A passing [*durchgehend*] modulation does involve a change of key, and use of the leading tone of the new key, but no close in it…Koch outlines three possible types of formal [*förmlich*] modulation…[102]

Baker adds that Koch is not entirely consistent in his definitions of modulation, but it is clear that he considers the strength of movement to another key as located on a continuum, presumably between complete tonal stability at one end and emphatic cadential closure in a new key at the other. In any event, Koch's notions of modulation have relevance for Fonte and Monte, since both schemata involve movement to different scale degrees, reinforced by appropriate chromatic inflection. For Koch, therefore, the Fonte represents an incidental/passing modulation to the minor key on the second degree in its first part, with

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[101] *Anl* III:4, §24.
[102] *Anl* III:4, §42, fn.28.

chromatic inflection in the bass (and possibly the melody too), followed by a (typically) diatonic return to the main key in its second section. The Monte by contrast contains two incidental/passing modulations, the first to the fourth degree (subdominant) and the second to the fifth degree (dominant), with appropriate chromatic infection in the melody and bass respectively. We might thus specify that the Fonte proceeds to a *Grundabsatz* via modulation to the second degree, while Monte proceeds to a *Quintabsatz* via modulation to the fourth degree; significantly, neither schema effects a full close in the second key.

Koch notes that the melody in a basic complete 4-bar phrase "may cohere so closely that no noticeable resting points can be discovered which divide them up into incomplete segments. Or the phrases may contain these resting points and can be broken up into incomplete segments".[103] Figure 68 shows the minuet Fonte reworked to form the first type; this continuous phrase is arguably no longer a Fonte.

Figure 68: A Fonte opening which proceeds instead to a complete phrase.

Koch implies that the second kind of phrase is more common, at least in galant melody, and indeed much of his theory is based on the existence of smaller units within the phrase. Again, this distinction has clear relevance for Fonte and Monte, each of which typically comprises a 4-bar phrase (although not complete, as will be seen shortly) which contains two 2-bar sub-phrases, designated in the analytical framework for this study as S1 and S2. Koch's specific name for such a sub-phrase is incise; in its standard 2-bar form, it comprises a *complete* incise, while a distinct melodic unit of 1 bar or less in length is considered by Koch an *incomplete* incise. The distinction between the two is illustrated by the two examples in Figure 69.

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[103] *Anl* II:3, §83.
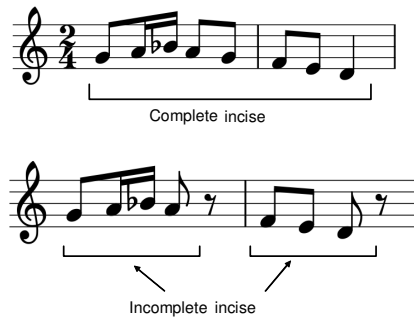
Figure 69: The Fonte S1 as a complete incise or two incomplete incises.

The prototypical Fonte and Monte is thus a sub-divisible phrase created by two complete incises. Indeed, Koch applies the notion of completeness at the phrase level too, and it is worth quoting here his comments on this point:

> Completeness in melodic phrases manifests itself in different ways. (1) A phrase may contain only as much as is absolutely necessary for it to be understood and felt as an independent section of the whole; such a phrase I call a **basic phrase** [*enger Satz*]. Or, (2) it may also contain a clarification, a more complete definition of the feeling, and in this case the phrase is an **extended phrase** [*erweiterer Satz*]. Or, (3) two or more phrases, complete in themselves, are combined so that externally they appear in the form of a single phrase; such a phrase we wish to call a **compound phrase** [*zusammengeschobener Satz*].[104]

To these definitions, we must also add his remark later in the volume:

> [A phrase may comprise] two complete incises, of which the second contains a repetition of the first on a different harmonic basis…The phrase always remains incomplete in the connection of two such incises when the ending formula of the second incise is the same as the ending formula of the first.[105]

Koch's definition above of the compound phrase as the combination of two complete phrases is actually misleading, and even implies the opposite of what he means: for later in the volume, on the section dealing with methods to create a compound phrase, he makes it clear that the first complete phrase must be made incomplete, in order to combine with the following complete phrase to form a compound phrase: in other words, the connection of

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[104] *Anl* II:3, §80, 3.
[105] *Anl* II:3, §122, 56.

73

two complete phrases cannot create a compound phrase; we must instead shape a construction so that "the subsequent phrase is required for the completeness of the first".[106]

The implications of these points for Fonte and Monte are considerable, since each represents the repetition of a complete incise on a different degree, with identical *Absatz* formation; technically, therefore, the schema is an incomplete phrase, requiring a subsequent closing phrase to create a larger, single compound phrase. The examples in Figure 70 show (i) the Fonte reworked to form a complete phrase, and (ii) the standard Fonte serving to form an incomplete phrase, in each case followed by the concluding phrase.
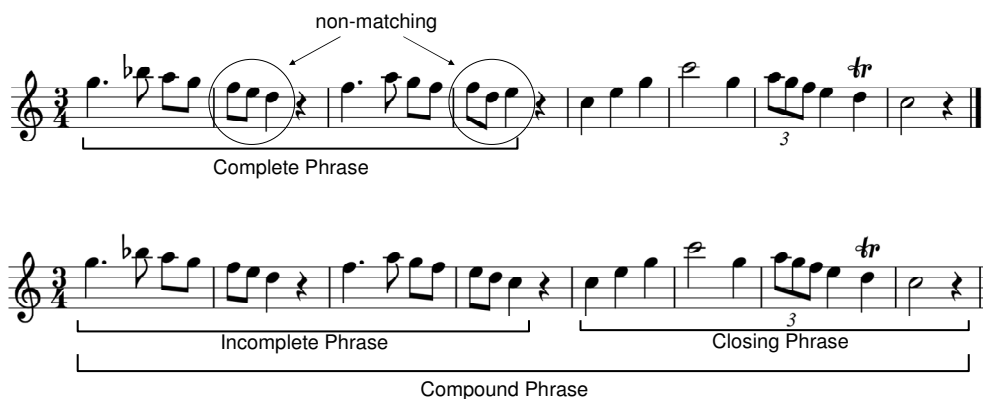
Figure 70: Fonte in complete and incomplete phrases.

The subtle difference here is that, according to Koch, (i) is strictly not a compound phrase, since the first phrase is already complete (through the varied punctuation of the second incise), whereas (ii) is indeed a compound phrase, comprising an incomplete phrase that requires the closing phrase to provide proper completion. These two examples illustrate clearly why sequential repetition is so crucial to Fonte and Monte: without it, these schemata lose the quality of forward propulsion which is their strongest asset in terms of formal function.

For Koch, the length of the basic phrase (*enger Satz*) is 4 bars of simple time (*Vierer*); the example in Figure 71 is therefore counted as 4 bars in length, not 2.[107]

Figure 71: Phrase in compound time, but actually a *Vierer*, comprising 4 bars of $\frac{2}{4}$.

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[106] *Anl* II:3, §122, 56.

[107] "Most common, and also, on the whole, most useful and most pleasing for our feelings are those phrases which are completed in the fourth measure of simple meters". (*Anl* II:3, §87). And later, "every measure of a compound meter contains two measures of a simple meter" (*Anl* II:3, §87). Koch provides Examples 31 and 32 in 𝐜 and $\frac{6}{8}$ respectively, to illustrate compound meters.

He proceeds to a discussion of phrase extension (*Erweiterung*) through various means to create phrases of 5 bars (*Fünfer*), 6 bars (*Sechser*) and 7 bars (*Siebener*), examples of which are shown in Figure 72. It should be emphasised that Koch regards all of these as basic phrases in their own right, rather than manipulations of a smaller basic phrase: "Not all basic phrases are complete in the fourth measure; often such a phrase becomes complete only in the fifth or sixth, occasionally not until the seventh measure…[they] should not be confused with extended phrases of the same number of measures".[108]

Figure 72: Formation of a *Fünfer*, *Sechser* or *Siebener*.

Koch's discussion of methods by which the punctuation may be decorated through continuation after the caesura note (*Überhang/Nachschlag*), or appoggiatura before it (*Vorschlag*), applies also to Fonte and Monte, as in the examples of Figure 73. Further techniques include harmonisation of the *Nachschlag* or *Vorschlag*, addition of a connecting run after the caesura, and pausing on the caesura note with a fermata.

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[108] *Anl* II:3, §89.

Figure 73: Examples of decorated punctuation.

Based on Koch's terminology noted earlier, we could describe Fonte as a I-phrase and Monte as a V-phrase. If, however, we include their two 'varied' forms described in Riepel, through movement to the opposite *Absatz*, then we produce four possible forms, such that either schema may serve to create a GA or QA (see Figure 74); the immense potential this provides for the use of Fonte and Monte in Koch's small composition types is revealed later in this chapter.

Figure 74: *Absatz* types for the four Fonte and Monte constructions.

Koch's discussion of cadences is of little relevance for Fonte and Monte, since these schemata are typically not used within closing phrases. Nevertheless, is it technically feasible to continue the first segment of a schema on to a cadence; Figure 75 shows an

example of this method, combined with two other devices of extension described by Koch: an augmented cadence and a cadential appendix (*Anhang*).
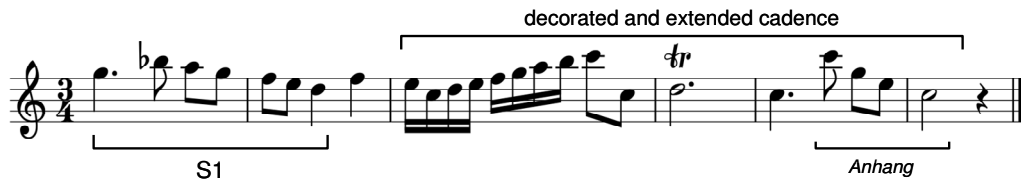
Figure 75: Fonte opening proceeding to an embellished cadence.

Koch describes four principal methods for the extension of a basic phrase, and all of them may be readily adapted to the standard Fonte or Monte pattern. Indeed, one of Koch's sub-methods is illustrated in his text by both schemata; because of its integral relationship with them in his presentation, discussion of this sub-method will be left to last here. The first main method in the *Anleitung* relates to extension of an *Absatz* phrase, so is directly applicable to Fonte and Monte. The simplest procedure uses varied or unvaried repetition of one or two bars, which may be initial or internal, as shown in the example of Figure 76. Koch's second method involves the addition of an appendix to the phrase; here again, it is his description of *Absatz*, rather than *Schlußsatz*, extension which relates more to the two schemata. The appendix may arise through varied repetition of the last segment, with or without alteration of the caesura note, as illustrated in Figure 77. Alternatively, the appendix may be an minimally varied octave repetition, a transposition to a different triad, or an entirely unrelated segment, all shown in Figure 78. Finally, it is possible to have two varied appendices moving to different caesura notes, as in Figure 79.[109] Again, the *enger Satz* remains a *Vierer* in all these cases.

Figure 76: Varied repetition of the first Fonte segment.

Figure 77: Appendix as a varied repetition of the second Fonte segment.

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[109] Koch requires that the root of the underlying triad should only be reached by the melody when the "phrase has attained its maximum completeness [and then] the phrase should not be extended further through an appendix" (*Anl* IV:§55). In other words, ❶ should appear only at the end of the phrase, as in the examples of Figures 78 and 79.
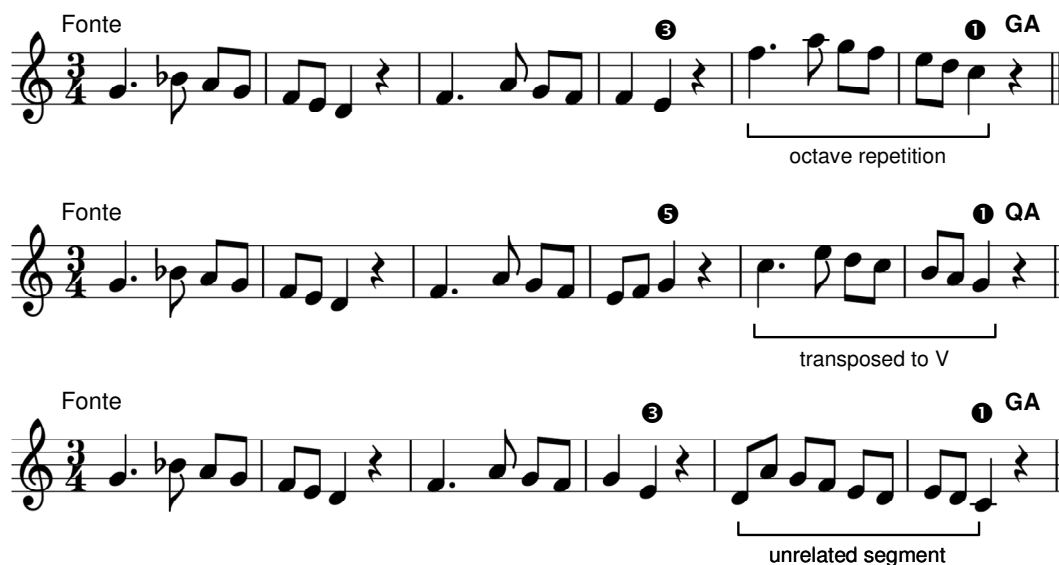
Figure 78: Different types of appendix to a Fonte.

Figure 79: Double appendix to a Fonte.

The third main method achieves extension through elaboration of a rhythmic or melodic idea, described by Koch as *passaggio*; of indeterminate length, an example applied to Fonte is shown in Figure 80. Finally, Koch's fourth method is somewhat similar to his first, in that it involves the 'parenthetic' insertion of a segment within the phrase. Unlike a literal repetition, however, the inserted segment is intended to be an unrelated idea which temporarily suspends the natural progression of the phrase; an example is shown in Figure 81.

Figure 80: Fonte opening continued as an extended *passaggio*.
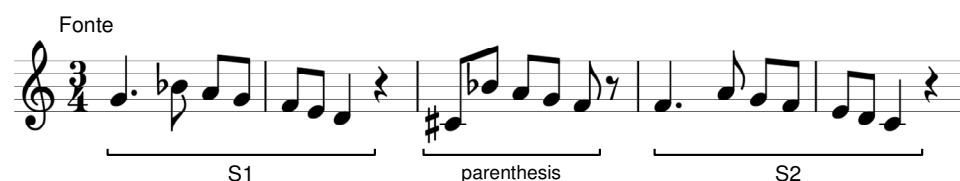
Figure 81: Single-bar parenthesis within a Fonte.

We return now to the specific application of Koch's first method mentioned previously, one which is of great interest to this study of Fonte and Monte. It effects extension of the phrase via transposition, ie. by sequential repetition in another key. The examples from the *Anleitung*, shown in Figure 82, actually represent Koch's first explanations of Fonte and Monte. In marked contrast to Riepel, who introduces these schemata as stock 4-bar devices for continuation after the double bar of a minuet, Koch first describes them within the specific role of extending a *Vierer* to a *Sechser*; in doing so, of course, he removes from them the very quality of incompleteness that enables them to generate a compound phrase. Indeed, since he presents the transposed segment as effectively an insertion *within* a complete phrase, it follows that his two basic phrases have no schematic content; by implication, the two underlying *Vierer* are those shown in Figure 83.
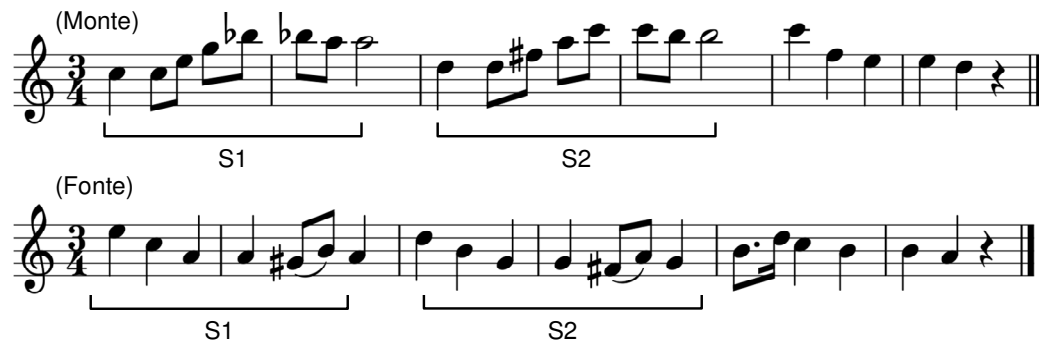
Figure 82: Koch's first examples of Fonte and Monte. [110]
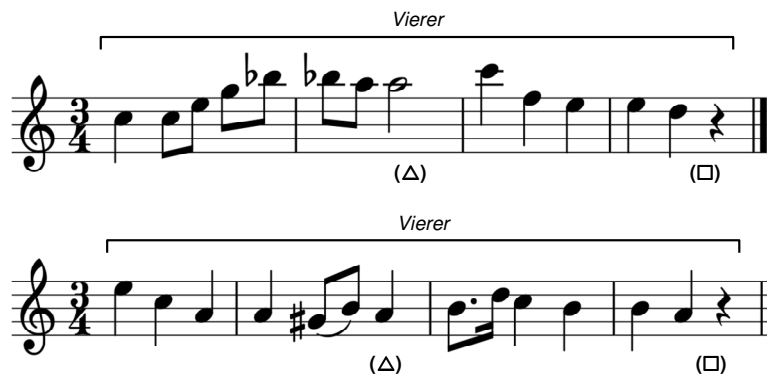
Figure 83: Koch's underlying *Vierer* for the Fonte and Monte in Figure 82

This somewhat curious initial presentation of Fonte and Monte suggests that Koch is consciously seeking to play down the conventional usage of these schemata; unlike Riepel, he offers no popular names for them, describing them in the most prosaic possible way as he states:

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[110] *Anl* II:3, §109, Exs. 142 and 143.

> In the first of these transpositions, the melody is led out of the main key into the key
> of the fourth, and the entire incise is repeated a tone higher in the key of the fifth. In
> the second, the incise formed on the key of the sixth [his example is a Fonte vi-V] is
> repeated a tone lower in the key of the fifth.[111]

The final chapter of Volume 2 deals with compound phrases. As noted earlier, these are
directly relevant to Fonte and Monte, since they appear most typically as the first part of
such phrases: all of Riepel's minuet examples illustrate this standard usage. Koch's first
method for the formation of a compound phrase involves elision through suppression of a
bar (*Takterstickung*). Although Koch demonstrates this method only in the cadential
repetition of a closing phrase, it may be readily applied to the link between a schema phrase
and the closing phrase. This technique of schematic elision, so frequent in galant
composition, features prominently in the analytical framework developed in Chapter 4, and
an example applied to Riepel's minuet is shown in Figure 84. It should be noted that this
technique results in a 7-bar compound phrase.

Figure 84: Elision of a Fonte with the return of the main theme.

Koch also describes a yet more irregular compound phrase arising from 'entanglement',
which involves the exchange of segments between two phrases, or even the insertion of an
entire phrase within the first phrase. The reader is cautioned that this technique should be
considered a "special device", which must not be "contrived, otherwise one easily falls into
bad taste".[112] The example in Figure 85, where the Fonte is adjusted to form a required
complete phrase, reveals how this technique is artificial yet arguably effective in certain
contexts.

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[111] *Anl* II:3, §109.
[112] *Anl* II:3, §124.
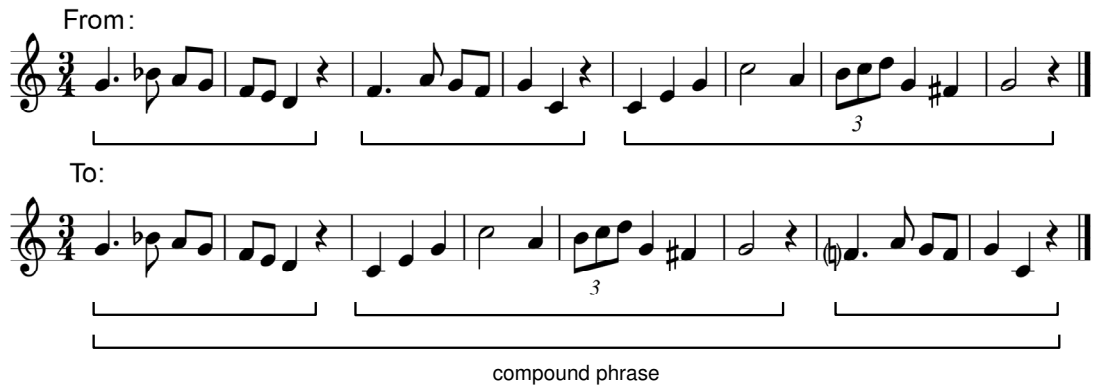
Figure 85: 'Entanglement' with an altered Fonte to form a compound phrase.

The most typical and important type of compound phrase is that which combines an incomplete phrase with a closing phrase. Interestingly, since Koch is not so concerned with Fonte and Monte, he presents this technique 'in reverse', starting with two complete phrases and then demonstrating various means to make the first phrase incomplete. Figure 86 follows his method in showing how a Fonte-like structure of two complete phrases, with dissimilar *Absätze*, may be converted into a single larger compound phrase by making the *Absätze* identical.
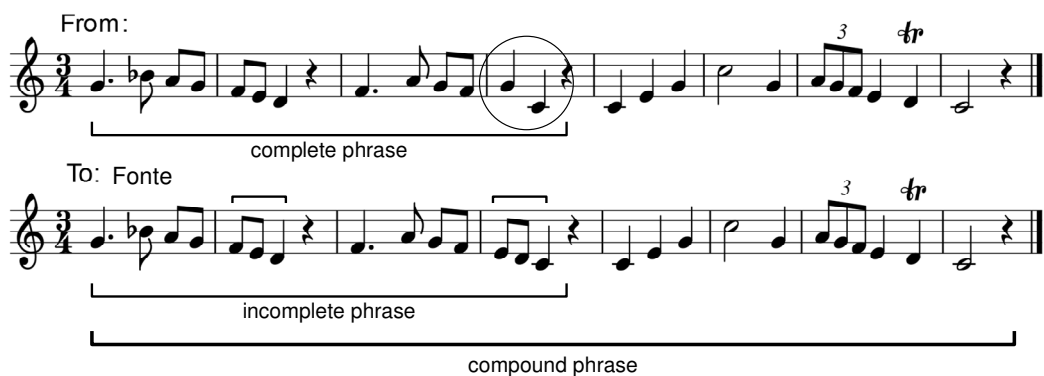
Figure 86: Fonte with matching segments to create an incomplete phrase, as the first half of a compound phrase.

Small Compositions

Section 4 of the *Anleitung* is devoted to the construction of periods. After an initial discussion of meter and dance types, Koch moves to the most important part of the volume on the principal types of construction for a small composition. Since it is extremely significant that Fonte and Monte can play such a prominent role in all of these types ('Exercises'), a detailed discussion of their application is central to this study. In particular, the types and cases examined here will serve as essential reference models for the analytical case studies of Haydn's schematic manipulation later in this chapter.

Koch gives examples of the thematic relationship of the four component phrases in the minimal 16-bar small composition. The three main types he describes may be represented as *aabb*, *abab* and *abca*, and Figures 87-89 show their application to a 'Fonte' minuet. It may be noted that Riepel favours the third type, the only one with a thematic return, in his examples from the *Anfangsgründe*.

Minuet: aabb

Figure 87: Minuet with form **aabb**.

Minuet: abab

Figure 88: Minuet with form **abab**.

Minuet: abca

Figure 89: Minuet with form **abca**.

Koch next turns his attention from thematic character to punctuation succession, as he discusses four main types of phrase organisation within a small composition. On the basis that these types all comprise two 'halves' (reprises), he classifies them according to the cadence, if any, which may complete the first reprise (the second reprise ends, of course,

with a GK). The fourth type is a more extended small composition whose second reprise contains 3 or more phrases. For convenience in the following discussion, the phrases are designated **1**, **2**, **3** etc. It is notable that Koch implicitly sanctions the use of Fonte and Monte within these compositional types when he states:

> Not to omit a form recurrent in short compositions of sixteen measures, I must add that the second period [reprise], instead of having two complete melodic sections, sometimes consists of a compound phrase.[113]

In fact, Koch has a special category for cases where phrase **3** contains a pattern such as Fonte or Monte: they are examples of 'passing modulation', by contrast with the simplest examples, which are diatonic to I (or V) throughout. Riepel's *Ponte* schema, realised as an extension of V, is one example of a diatonic phrase **3**. It might be argued that a small composition without any passing modulation is tonally static and lacks interest, explaining why Riepel introduces Fonte an Monte from the very start, even for the novice composer.

Type 1 contains two cadences to the tonic after phrases **2** and **4**. The intermediate *Absätze* may follow any of the four permutations of GA and QA. The four possible cases can thus be represented by the following schematics:[114]

Case I:　　　　**1**＿＿GA **2**＿＿GK :‖: **3**＿＿QA **4**＿＿GK:‖

This type can use a Monte IV-V for **3**, as shown in Figure 90.

Figure 90: Type 1: Case I with Monte.

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[113] *Anl* III:4, §26.

[114] The examples for each type use the standard schema construction to produce either the GA or QA *Absatz*. Note, however, that the non-standard (deviated) schema can produce the opposite *Absatz*. In phrase **3** of these examples, therefore, Fonte ii-I could be replaced by Monte IV-I with equal effect; Monte IV-V could be replaced by Fonte ii-V or Fonte vi-V. Of these alternatives, only Fonte vi-V is likely to create a true compound phrase, since the successive *Absätze* of Fonte ii-V or Monte IV-I are almost certain to be non-matching, thus creating complete phrases according to Koch's theory. Of course, phrases **3** and **4** may be either two complete phrases or one compound phrase in these small compositional models.

Chapter 3: Fonte and Monte: Koch

Case II: **1**   QA **2**   GK :‖: **3**   GA **4**   GK:‖

This type can use a Fonte ii-I for **3**, as shown in Figure 91.
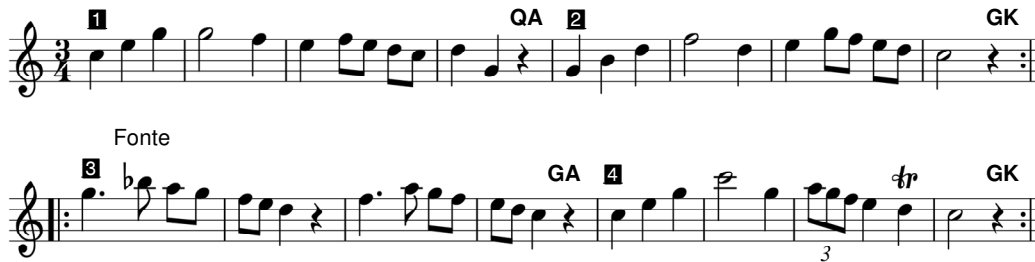
Figure 91: Type 1: Case II with Fonte.

Case III: **1**   QA **2**   GK :‖: **3**   QA **4**   GK:‖

This type can use a Monte IV-V for **3**, as shown in Figure 92.

Figure 92: Type 1: Case III with Monte.

Case IV: **1**   GA **2**   GK :‖: **3**   GA **4**   GK:‖

This type can use a Fonte ii-I for **3**, as shown in Figure 93. Tonally, this construction is somewhat static, since all four punctuations are in the tonic key. Nevertheless, Koch gives a specific example, which contains a Fonte, in a minuet by Stamitz.[115]
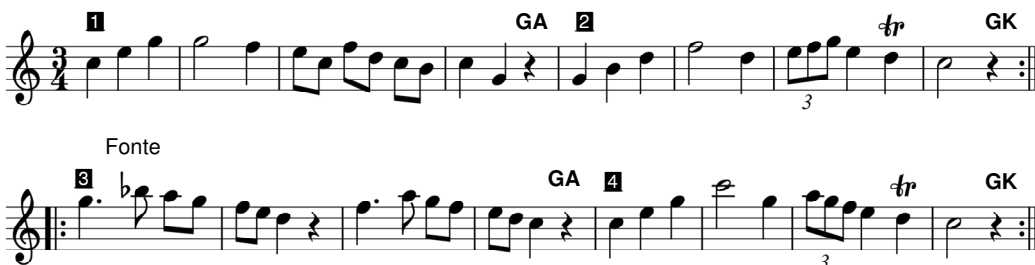
Figure 93: Type 1: Case IV with Fonte.

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[115] *Anl* III:4, §26. According to Baker, the minuet is probably by Carl Stamitz.

Type 2 also contains two cadences, but here phrase **2** proceeds to a QK. Again, the intermediate *Absätze* may follow any of the four permutations of GA and QA, and the four cases may be represented as:

Case I: **1**____GA **2**____QK :‖: **3**____QA **4**____GK:‖

This type can use a Monte IV-V for **3**, as shown in Figure 94.

Figure 94: Type 2: Case I with Monte.

Case II: **1**____QA **2**____QK :‖: **3**____GA **4**____GK:‖

This type can use a Fonte ii-I for **3**, as shown in Figure 95. The construction creates a strong dominant feel in the first reprise, and tonic weight in the second.
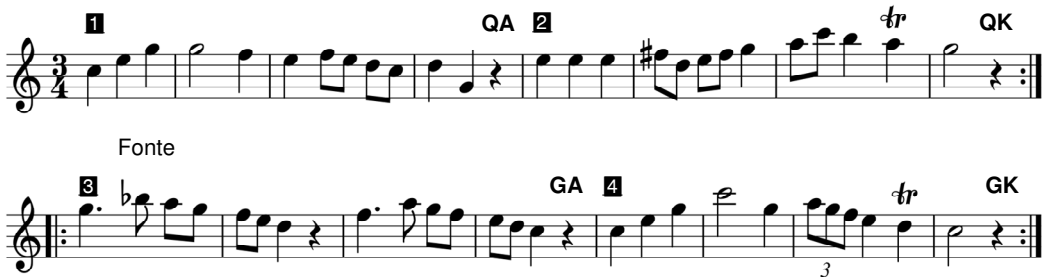
Figure 95: Type 2: Case II with Fonte.

Case III: **1**____QA **2**____QK :‖: **3**____QA **4**____GK:‖

This type can use a Monte IV-V or Fonte ii-V for **3**, as shown in Figure 96.[116] The construction strongly emphasises the dominant until the closing phrase in the tonic.

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[116] Koch returns again to a mention of the possible Fonte and Monte progressions as passing modulations in phrase **3** of this case: Ex. 252 has a Fonte ii-V to create a complete phrase; Ex. 253 has a Fonte ii-I to create an incomplete phrase as the first part of a compound phrase; Ex. 254 even has a varied Fonte vi-V; Exs. 257 and 258 have a varied and non-varied Monte IV-V respectively, with Koch referring to the latter as a *rosalia*, "used so frequently in older compositions that they have become disagreeable to some extent". (*Anl* III:4, §31).

Figure 96: Type 2: Case III with Monte.

Case IV:　　　**1**　　GA **2**　　QK :‖: **3**　　GA **4**　　GK:‖

This type can use a Fonte ii-I for **3**, as shown in Figure 97. The construction is analogous to that frequently chosen for the minuet in Riepel's *Anfangsgründe*.

Figure 97: Type 2: Case IV with Fonte.

It is worth turning at this point to use of the minor key in these small forms. Koch notes that compositions in the minor key usually move to III (the relative major) at the end of the first reprise. However, he does not discuss the use of passing modulation in phrase **3** before a resumption of the tonic key. In fact, such constructions are very common in the galant repertory, with numerous examples identified in Haydn's symphonies. The example in Figure 98 shows the use of a Fonte ii-I /III after the double bar, where phrase **3** effectively ends on a GA/III but connects well with the closing phrase in the tonic minor. Figure 99 shows the minor minuet using a Monte iv-V to prepare for the closing phrase. This example also reveals a fascinating possibility for schematic ambiguity, since the first segment could also be followed by a Fonte ii-I /III, as in the alternative working of Figure 100.

Figure 98: Fonte in the relative major to start the second reprise.

Figure 99: Monte iv-V in A minor to start the second reprise.
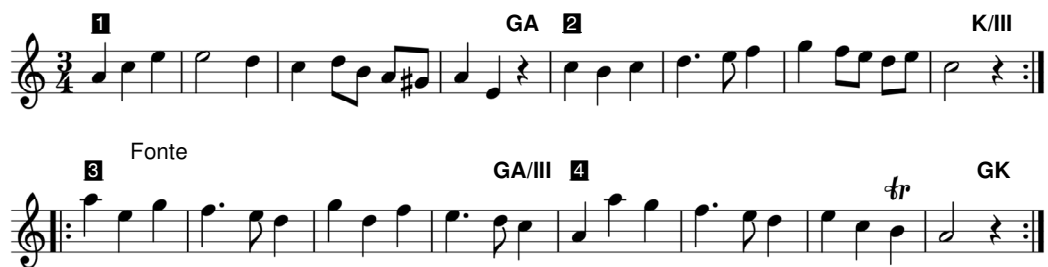
Figure 100: Fonte ii-I in C major to start the first reprise; the first two bars of **3** are identical with those in Figure 99, so there is schematic ambiguity until the third bar.

A minor-key passage may appear as a passing modulation within a composition in the major key, and Koch notes that this typically requires an extra segment as preparation for the closing phrase:

> passing modulations in the minor key of the third appear in short compositions just as seldom as the alternation of the minor mode with the major mode of the main key. If they are used, the phrase must, for the most part, be extended so that the V-phrase of the main key can be heard at the end of it before the closing phrase begins…[117]

Koch then provides an example (see Figure 101) which conforms remarkably well to the descriptions in Riepel of a Fonte progression iii-ii-I with the I segment replaced by an incise

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[117] *Anl* II:4, §31.

producing a QA. It would not take much to extend this to a fully-fledged Fonte iii-ii-I followed by an appendix to V before the thematic return, as shown in Figure 102.

Figure 101: An example from the *Anleitung* of passing modulation in the minor key of the third.[118]

Figure 102: A Riepel-style Fonte iii-ii-I incorporating a passing modulation to the minor key of the third.

Koch has another example (Figure 103) in which a major-key composition continues after the double bar in the tonic minor key; his minor-key passage could easily be replaced by a Fonte ii-i variant (Figure 104), followed similarly by an appendix to QA and closing phrase in the tonic major.[119]

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[118] *Anl* II:4, §31, Ex. 259.

[119] This characteristic galant usage of Fonte with modal mixture is central to a separate study I have completed on the much-disputed Fonte passage in the minuet from Mozart's Piano Sonata K331.
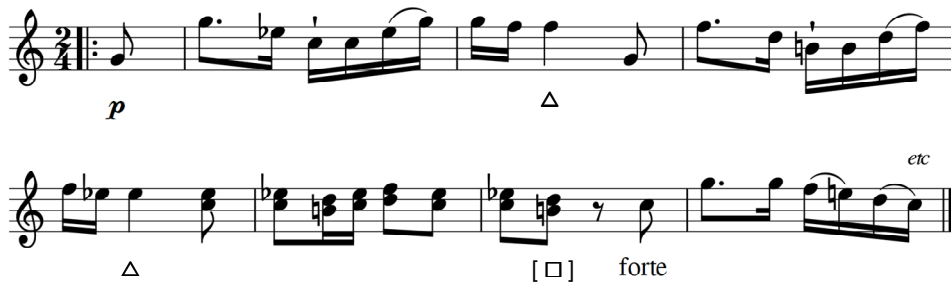
Figure 103: An example from the *Anleitung* of modal alternation.[120]

Figure 104: A Fonte ii-i proceeding to a QA as preparation for thematic return in the tonic major key.

Type 3 contains only one cadence, the GK which ends the piece. The problem that immediately arises is how to manage the successive *Absatz* formulas in phrases **1**, **2** and **3**. Koch's general rule is that using the same *Absatz* in successive phrases, even if their caesura notes are different, should be avoided unless the second phrase is a repetition or clear variation of the first. Apart from such exceptions, he allows only two cases for this compositional type:

Case I: **1**____GA **2**____QA :‖: **3**____GA **4**____GK:‖

This type can use a Fonte ii-I for **3**, as shown in Figure 105. No *Absatz* succession problems arise with this construction.
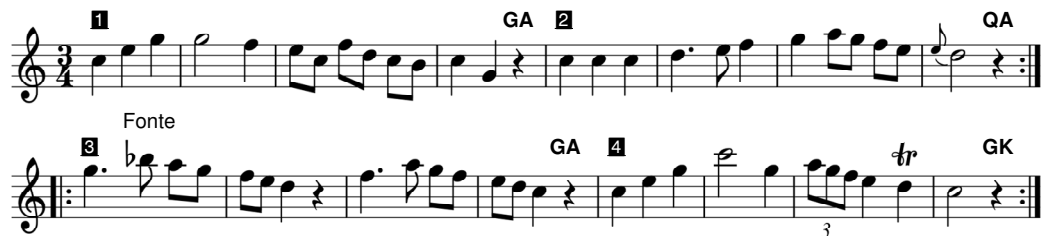
Figure 105: Type 3: Case I with Fonte.

Case II: **1**____GA **2**____QA :‖: **3**____QA **4**____GK:‖

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[120] *Anl* II:4, §31, Ex. 260.

This type can use a Monte IV-V for **3**, as shown in Figure 106. The successive QAs are potentially a problem; Koch accepts the succession provided phrases **2** and **3** use different caesura notes/decorations. Indeed, use of the Monte is very likely to ensure it.[121]

Figure 106: Type 3: Case II with Monte.

Type 4 contains more than four phrases. While the previous three types relate to small compositions of 4 x 4-bar phrases across two equal halves ("simple binary form"), Koch's final type is an expanded small composition ("rounded binary form"), where his main focus is on the construction with two phrases in the first reprise and four phrases in the second reprise.[122] The extra 8-bar melodic section inserted after the double bar, and before the closing phrase, has been designated in this study as the *excursus*, which serves to expand the composition from 16 bars to 24 bars in length.

Koch discusses several possible cases for this minimal 6-phrase composition, whose punctuation constraints arise from the three principal 'maxims' which he has developed already for the previous types.[123] Significantly for this study, we find that Fonte or Monte may play a central role in almost all of them. The six cases are presented below with appropriate examples based on Riepel's minuet; the * indicates a flexible choice for this punctuation, X is used to represent a new key, and **5**, **6** contains the 2-phrase melodic section of tonal or thematic return:

Case I: **1**_____* **2**_____GK or QA :‖: **3**_____GA **4**_____QA **5**,**6**_____GK :‖

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[121] Koch's discussion of *Absatz* succession focuses on phrases **1** and **2**, but he includes a comment that more exceptions are possible for 'continuation of the period' (ie. phrases **2** to **3**). He provides an example from a Haydn minuet to show how "[when] two V-phrases [ie. QAs] are heard immediately one after the other … we have to take care that their sequence does not produce an unpleasant effect" (*Anl* III:4, §38).

[122] Koch restricts himself to 'dance melodies', in which "generally not more than two melodic sections are connected in the first reprise [and in which] instead of three phrases, four or more phrases are always used for the formation of the second reprise". (Anl III:4, §40).

[123] Essentially, these maxims are expressed in terms of what may follow a I-phrase, a V-phrase and a cadence. (Anl III:4, §39).

The main feature here is that **3** and **4** are non-modulating phrases; this is therefore the only case in which Fonte and Monte cannot be used. Figure 107 gives an example of a simple diatonic minuet with this construction, using alternations of I and V after the double bar.

Figure 107: Type 4: Case I with no Fonte or Monte.

Case II: **1**____* **2**____GK or QA :‖: **3**____X **4**____QA **5**,**6** ____GK :‖

The main feature here is that **3** and **4** are (passing) modulating phrases. This construction offers several possibilities for schemata in the second period:

(i)   an 8-bar Monte IV-V for **3** and **4** (Figure 108); a 4-bar Monte IV-V for **3**
         followed by a QA for **4** would also be possible;
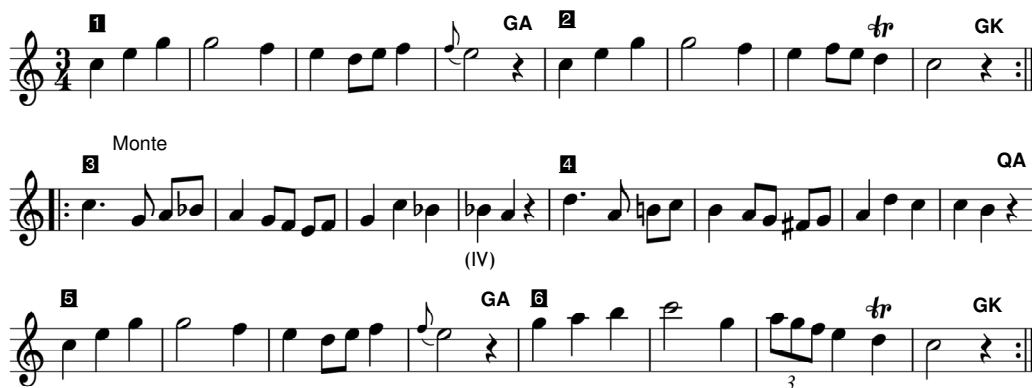
Figure 108: Type 4: Case II with 8-bar Monte.

(ii)   an 8-bar Fonte ii-V for **3** and **4** (Figure 109);[124]

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[124] Koch gives an example of precisely this construction in Ex.281 (*Anl* III:4, §42).
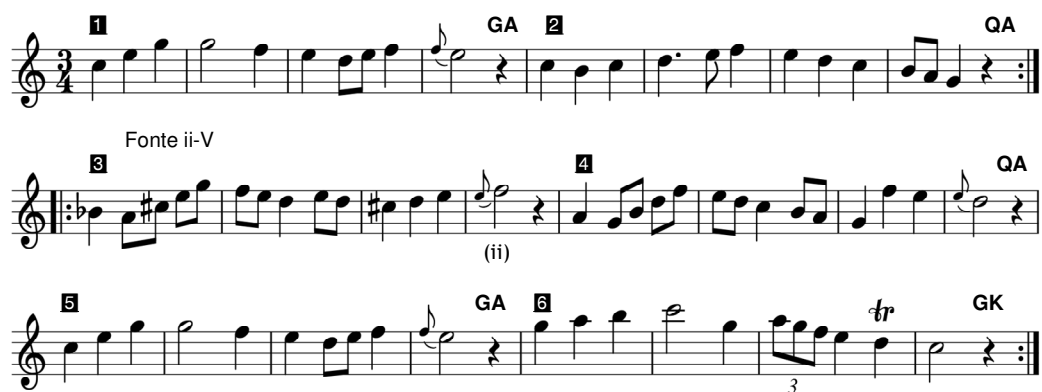
Figure 109: Type 4: Case II with 8-bar Fonte.

(iii)   a 4-bar Fonte ii-I in **3** followed by a 4-bar QA phrase in **4** (Figure 110); this construction, which only modulates in the first half of **3**, is not mentioned by Koch but presumably conforms to the case.

Figure 110: Type 4: Case II with 4-bar Fonte.

(iv)   variant of (iii), where a 4-bar Fonte ii-I in **3** is followed by a 4-bar Monte IV-V in **4** (Figure 111); this example effectively has two passing modulations in the first halves of **3** and **4**; even if Koch accepted such a construction, he would probably object to this succession of *Schusterflecke*.

Figure 111: Type 4: Case II with 4-bar Fonte and 4-bar Monte.

Case III: The main feature here is that **3** and **4** proceed to a cadence in a new key (K/X), ie. effecting a formal modulation. It is interesting that these cases, along with related musical examples in the *Anleitung*, illustrate the schema (Fonte, in particular) serving the formal

function of either continuation or preparation. Koch describes three different models of construction for **3** and **4**:

(i)　　**1**＿＿＿ * **2**＿＿＿GK or QA :‖: **3**＿＿QA/X **4**＿＿_K/X **5**, **6** (*TR*)＿＿GK :‖

Here, phrase **3** must be a 'complete section'; Fonte is not possible, and neither is the standard (incomplete) Monte. However, an unusual schema construction, such as a varied Monte [IV-V] / V might be applied to create a complete phrase, as in the example of Figure 112.

Figure 112: Type 4: Case III (i) with Monte in V.

(ii)　　**1**＿＿＿ * **2**＿＿＿GK or QA :‖: **3**＿＿＿ * **4**＿＿＿_K/X, **5**, **6** _*TR*＿＿GK :‖

Here, phrase **3** need not be a QA/X, provided it forms an "incomplete section [which attaches] directly to the closing phrase";[125] any standard Fonte or Monte is therefore possible, to create an effective compound phrase with the following QK phrase. Figures 113 and 114 respectively show examples using 4-bar Fonte ii-I and Monte IV-V phrases.
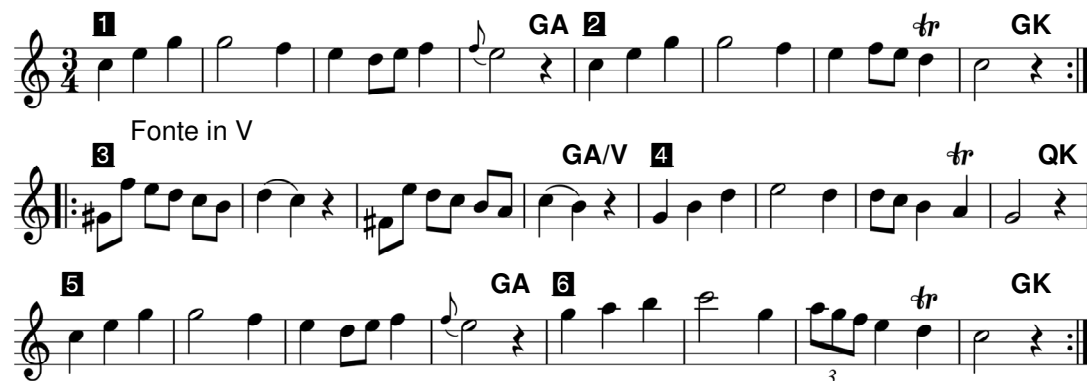
Figure 113: Type 4: Case III (ii) with Fonte in V.

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[125] *Anl* III:4, §43, n.32.

Figure 114: Type 4: Case III (ii) with Monte.

(iii)   **1** * **2** GK or QA :‖: **3** QA/X or * **4** K/X **5** → **6**, **7** *TR* GK :‖

This is a further expanded model, with more than four phrases in the second reprise; here, **5** represents one or more phrases which 'lead back' to the main key. Koch notes that it typically contains a passing modulation, so it is well suited for Fonte or Monte with the formal function of preparation. Since this case is highly relevant to application of the two schemata, Figures 115-118 show four examples using contrasting schema variants.[126]
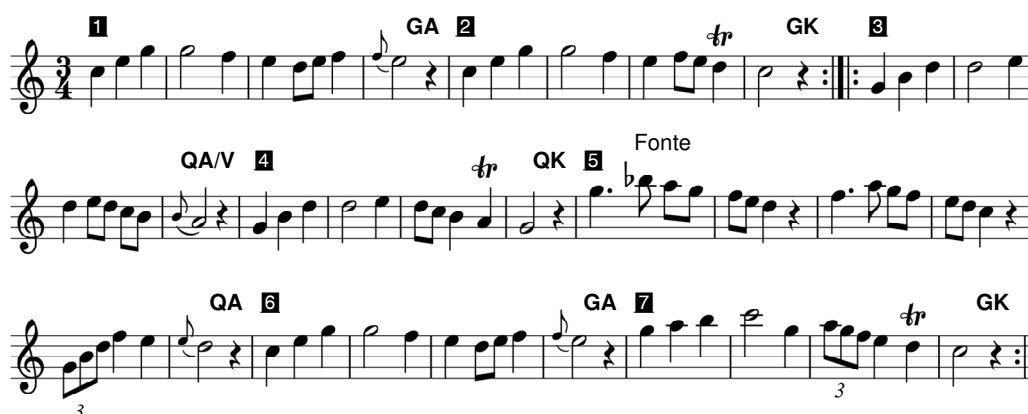
Figure 115: Type 4: Case III (iii) with Fonte.

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[126] Koch illustrates this use of a 'lead-back' phrase in a symphonic minuet by Haydn (Ex. 283). Although Koch neither discusses nor mentions it, the minuet presents a technique which is very characteristic of Haydn, namely the use of a 2 bar Fonte ii-I, followed by an 2-bar *Einschnitt* to QA. This appears to be the only example of a compressed schema in the *Anleitung*. According to Koch's definitions, it might be viewed as a 2-bar complete *Einschnitt* comprising two 1-bar (thus incomplete) *Einschnitte*, forming only the first part of a phrase and thus having a completely different formal function from the regular 4-bar schema.
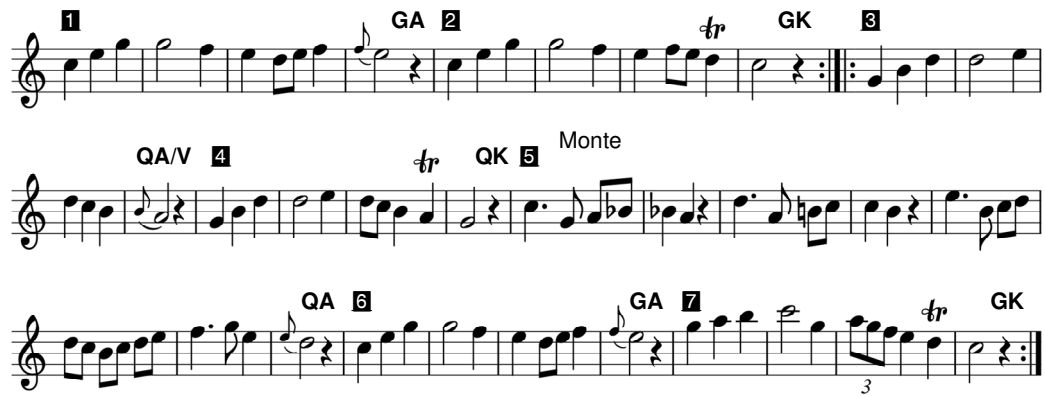
Figure 116: Type 4: Case III (iii) with Monte.
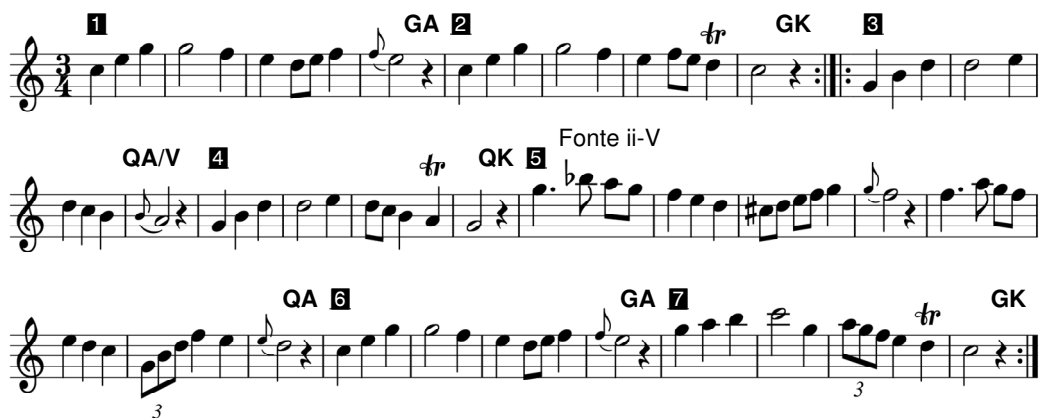
Figure 117: Type 4: Case III (iii) with Fonte ii-V.
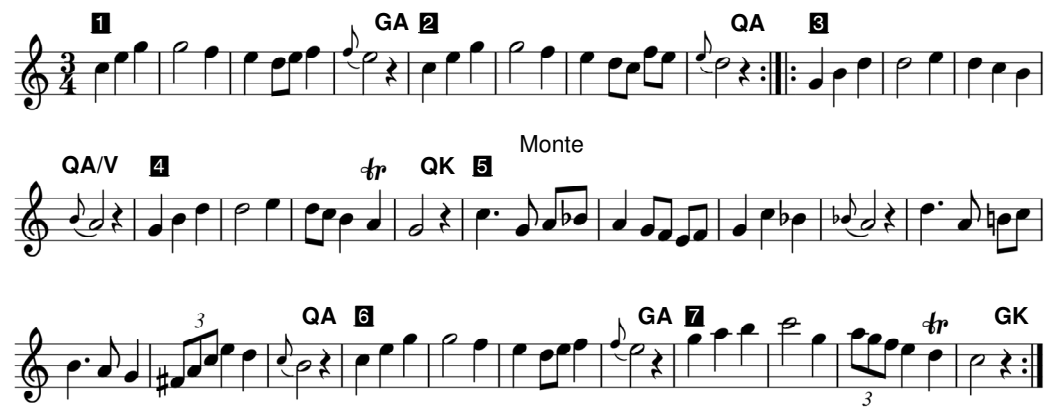
Figure 118: Type 4: Case III (iii) with 8-bar Monte.

Case IV: **1**_____* **2**___QK or K/III :||: **3**____X **4**____QA **5**, **6**___GK :||

In this case, the *first* reprise effects the formal modulation, with a cadence in the related key. The continuation after the double bar then follows the model of Case II. Figures 119-120

show further possibilities for Fonte and Monte in **3** and **4**.[127]

Figure 119: Type 4: Case IV with Monte.

Figure 120: Type 4: Case IV with Fonte in III.

Koch briefly discusses the small compositional form which may contain three phrases in its first reprise, citing as examples "odes, songs, and small pieces of unrestricted type and tempo".[128] He notes that such forms always modulate to the related key to end the first reprise, while treatment of the second reprise is exactly as described for the 'dance melodies' above. Thus no further discussion of this model in relation to Fonte and Monte is required here.

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[127] Koch includes an unusual example of this case in a minuet by Scheinpflug (Ex.286): the second reprise begins directly after the double bar with (apparently) an incomplete Fonte vi-V; however, instead of the expected second Fonte segment in V, it presents a varied Monte IV-V, thus leading in a different way to the required QA. Again, Koch does not draw attention to this interesting schematic interplay.

[128] *Anl* III:4, §45.

Larger Compositions

A detailed examination of Chapter 4 in the *Anleitung*, on the 'Arrangement of Larger Compositions', will not be attempted in this study, for two reasons: first, the most relevant principles of phrase construction have already been covered in Chapter 3; as Koch himself states, "Melodic sections are connected in compositions of greater length according to the punctuation and rhythmical rules and maxims which were introduced in the preceding chapters".[129] His focus now is instead on the "connection and treatment" of 'main' periods, whose disposition and combination provide, in his view, the diverse types of large forms.

Second, it is clear that Fonte and Monte, as relatively small-scale devices, very much on the musical surface, may have a role in formal construction only at the phrase level within an individual main period. It is certainly difficult to imagine how these schemata might influence large-scale formal construction. As the previous chapter has revealed, they may of course play a different kind of role in communication, one in which the semiological character of the schemata as galant conventions is more significant than their technical or formal function. In fact, the separation of play with convention and manipulation of formal function is not always clear-cut, since the latter may well serve a central function within the former.

For these reasons, the discussion here is restricted to Koch's model of formal construction for the main period within a larger composition; as will be seen, Fonte and Monte may also be employed to effect the required punctuation successions. Koch provides a fairly detailed survey of current vocal forms before moving to a discussion of the instrumental genres. Within these, his main focus is on the 'modern symphony', and in particular the period structure of the first *Allegro* movement. It is most interesting to compare his description of formal construction of this movement with later conventional definitions of 'sonata form'; Koch states that it comprises two larger 'sections', with a single main period in the first (ie. 'exposition') followed by two main periods in the second ('development' and 'recapitulation').[130] More generally, larger compositions with two sections always have one main first period and one or more 'remaining periods'. Koch proceeds to describe the

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[129] *Anl* III:4, §72.

[130] Koch's 'Allegro I' form comprises three periods contained in two main sections: the first period contains the 'plan of the symphony'; after an optional slow introduction, its first phrases in the tonic key are followed by modulating phrases and then phrases in the related key, leading to a cadence and appendix in that key; the second period (in 'modern symphonies') serves to 'continue, dissect or transpose' a phrase from the main section, not necessarily staring in V, and modulating to close or remote keys, after which a transition leads back to a return of the first period; the third period starts with the main theme (or other 'main melodic idea') in the tonic key, typically 'compresses' the main phrases and may move to IV, before the second half of the first period is repeated in the tonic key. (*Anl* III:4, §101 - §103).

construction of these periods in some detail, and since Fonte and Monte may serve formal functions within the types he includes, it will be appropriate to discuss his theoretical model here; note that the expanded minuet occupies a position at the 'smaller' end of larger compositions, so Riepel's melody may be conscripted again to illustrate its method of construction.

According to Koch, there are two principal types of punctuation structure within the first main period, one for major keys and the other for minor keys, as follows:

Major key: **1**___GA **2**___QA **3**___QA/V **4**____QK :‖

Minor key: **1**___GA **2**___QA **3**___QA/III **4**____K/III :‖

In larger compositions, "still other subsidiary melodic sections are connected with these four main punctuation sections of the period [but] no other resting points take place in this period".[131] For the purpose of this study, and in the interests of economy, we restrict the discussion here to the main period in a major key with minimal subsidiary sections. In fact, the first period is of less relevance for Fonte and Monte: as explained previously, these schemata produce an incomplete phrase to be followed by a closing phrase, with a cadence in the key in which the schema represents a passing modulation. This requirement effectively excludes such a schema within a first period which has no 'subsidiary melodic sections'. It is therefore in the second main section that we would expect to find Fonte or Monte.

Although it was noted above that this second section may contain more than one period, we consider here only the compositional type with a single period, as in the *Tempo di Minuetto* models discussed below. Koch states that this second period contains no modulatory cadence, starts its first half in the related key, or with a passing modulation back to the tonic, and then proceeds to a QA, as preparation for tonal/thematic return in the second half. He acknowledges the many possibilities of passing modulation and phrase punctuation within this general framework, but identifies three typical models of construction for the second period:[132]

MODEL 1
The theme is presented in V, after which a modulation to ii, iii or vi continues to a QA phrase; the tonal/thematic return then completes the section. It is significant that Koch mentions the possible modulation to ii, and indeed his example for the next model contains a

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[131] *Anl* III:4, §131.
[132] *Anl* III;4, §150-§151.

Fonte ii-I proceeding to a QA.[133] An analogous construction for Riepel's minuet produces the example in Figure 121.

Figure 121: Model 1 with Fonte.

MODEL 2

The theme is presented in V and then returns to I, either through alteration or simple transposition of the theme. A modulation to one of the degrees indicated for Model I then leads again to a QA and tonal/thematic return. Koch presents an example of immediate transposition of the main theme into the tonic key, and an analogous construction for the minuet is shown in Figure 122.

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[133] *Anl* III:4, §150, Ex. 393.
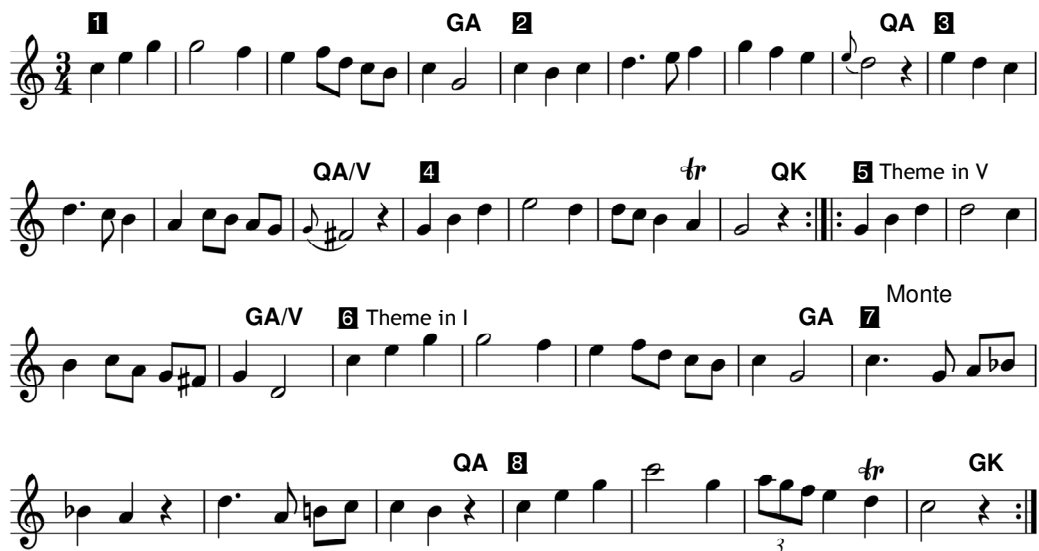
Figure 122: Model 2 with Monte.

MODEL 3

The second period starts with a passing modulation back to the tonic key, and thence to a QA as preparation for tonal/thematic return. This is the classic construction for schematic continuation after the double bar. It is curious that Koch provides no musical example, and it perhaps reflects his disdain for the two *Schusterflecke* which are clearly implied by his description of the model.[134] Fonte and Monte applications to Riepel's minuet are nevertheless shown here in Figures 123 and 124. Note that the latter example uses a 4-bar Monte followed by a QA phrase; an 8-bar Monte IV-V could also have been chosen.

Figure 123: Model 3 with Fonte.

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[134] Koch's description in *Anl* III:4, §151 is given just four lines.

Figure 124: Model 3 with Monte.

This completes the present survey of Koch's compositional theory in particular relation to Fonte and Monte. It provides the essential foundation for the case studies in the next section, which seek to determine how these rules of melodic construction play into Haydn's formal manipulations of these schemata in his symphonies.

Koch and Haydn

A thorough empirical study focusing on Haydn's application of Koch's compositional types and cases in his symphonic and other instrumental works, especially in relation to his construction of small forms, would be extremely revealing; this must however remain as a future exercise. For present purposes, it will be sufficient to conclude this chapter with a selection of movements or sections from Haydn's symphonies containing Fonte or Monte, to gain insight into his application of them within some of the formal models described by Koch. In general, these examples are rounded binary forms comprising minuet or trio movements, or self-contained sections within an episodic movement such as a *Finale* or *Theme and Variations*.

The examples in the following discussion have been selected to illustrate several compositional types and cases, but also because they include Fonte and Monte instances for which more detailed analysis appears in later chapters, as illustrations of parametric variation. For convenience and economy here, we follow Riepel's method of showing just the melody of each piece, on the basis that the implied harmonisation is understood; in cases of uncertainty, the harmony is made clear with a roman numeral. In addition to the notations used in the previous section on Koch's formal types, some further symbols are used in the

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following discussion: ⇨ represents a point of weak punctuation, such as forms an incomplete phrase, where continuation is strongly implied; ✚ refers to an extension of the punctuation formula, typically through some kind of repetition; and • refers to the end of this extension. Finally, each Fonte or Monte is indicated in the score, although without the analytical detail supplied in Chapter 5.

EXAMPLE 1: TYPE 2 CASE I

This construction contains just four phrases, with a QK and GK respectively to end each reprise. The *Trio* in Figure 125 contains a compressed Fonte embedded within a QA phrase to start the excursus immediately after the double bar. This unusual compression enables the Fonte ii-I progression to proceed to a QA, all within the same phrase; a longer Fonte ii-V would be required otherwise to achieve the same punctuation. Haydn's construction is similar to the case in Figure 94 (although this has a longer Monte to a QA), represented as:

1   GA **2**   QK :‖: **3**   QA **4**   GK:‖

Figure 125: Haydn Symphony No.69, iii *Trio*.

EXAMPLE 2: TYPE 2 CASE III/TYPE 4 CASE IV

The *Menuet* in Figure 126 poses an interesting problem of interpretation. The respective closing cadences of each reprise, QK and GK, may indicate either Type 2 or Type 4 Case IV, with a formal modulation in the first reprise. The decision rests primarily on the analysis of phrase **3**: the sheer length of the melodic section in bb.15-26 might lead us to posit a new phrase starting with the Fonte in b.21; yet the three incises in bb.15-20 cannot be taken to form a complete phrase. Thus we must interpret **3** as a long single compound phrase, and conclude that the minuet comprises four phrases. Note too that the Fonte is parenthetic, in

that bb.21-24 could be omitted to yield a more regular 8-bar compound phrase. In any event, Type 2 Case III emerges as the preferred interpretation; the example is analogous to Figure 96, and may be represented as:

1____QA **2**____QK :‖: **3**____QA **4**____GK:‖

Figure 126: Haydn Symphony No.82, iii *Menuet*.

EXAMPLE 3: TYPE 4 CASE II, II

An informal survey of Haydn's symphonies reveals that Type 4 is the most frequent model for his small compositions; this is not surprising, given that only four phrases are likely to produce an unduly small piece (although the previous example shows that such Type 2 pieces can be expanded significantly through repetitions and appendices). The *Menuet* in Figure 127 provides an example of Type 4 Case II, with each reprise ending with a GK. The Fonte after the double bar is derived rhythmically from the main theme, and supplies the required passing modulation in the second reprise, before proceeding to an extended QA as preparation for the thematic return. This particular example is closely analogous to the earlier illustrative Figure 109, and may be represented as:

1____ * **2**____GK :‖: **3**____(vi) **4**____QA **5**,**6**____GK :‖

Figure 127: Haydn Symphony No.29, iii *Menuet*.

EXAMPLE 4: TYPE 4 CASE III, I

The *Menuetto* in Figure 128 again uses a GK to end each reprise, but also has a formal modulation required for this case in the second reprise. Phrases **2** and **3** follow Koch's classic model for preparation of the QK by its own dominant (QA/V). The preparatory Fonte at the end of the excursus is strictly superfluous, since the thematic return could easily follow the QK in b.22; this would be rather abrupt, however, so the brief Fonte provides what Koch might call a transitional phrase, 'leading back' to the main theme. The compositional model for this example is analogous to Figure 112, and may be represented as:[135]

1___(GA)/⇨ (**1**⁺)__GK or QA :‖: **2**, **3**__QA/X **4**_K/X **5** __F.ii-I, **6** __GK :‖

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[135] The first reprise actually contains a single compound phrase, rather than two complete phrases, but this does not affect the essential principle underlying the compositional model.

Menuetto

Figure 128: Haydn Symphony No.43, iii *Menuetto*.

EXAMPLE 5: TYPE 4 CASE III, II

The main theme from the *Vivace* in Figure 129 offers an excellent illustration of Koch's sub-case ii, where phrase **3** serves as 'an incomplete section [which attaches] directly to the closing phrase'. Here, this incomplete phrase comprises four 1-bar incises, the latter two forming a brief Fonte to V; the following closing phrase then strongly establishes the mid-reprise modulation required. As in the previous example, Fonte again plays a role in the transitional phrase which leads back to the thematic return. The example is analogous to Figure 113, and may be represented as:

1　　GA **2**　　GK :‖: **3**　＿　⇨ **4**　　QK **5** (F) QA **6**＿　GK :‖

Finale: Vivace

Figure 129: Haydn Symphony No.101, iv *Finale*.

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EXAMPLE 6: TYPE 4 CASE III, iii

The Menuet in Figure 130 is an example of Koch's sub-case iii, since it contains more than four phrases in the second reprise, which again features a formal modulation. The simple Monte preparing for thematic return at the end of the excursus provides the transitional phrase characteristic of the Case III models. The example is analogous to Figure 115, and may be represented as:

1 GA **2** GK :‖: **3** QA **4** QK **5** (M) QA **6** GA **7** GK :‖

Figure 130: Haydn Symphony No.38, iii *Menuet*.

EXAMPLE 7: TYPE 4 CASE IV

The main theme of the minor key episode in the *Vivace* of Figure 131 provides an example of the case where a formal modulation occurs within the *first* reprise. This modulation is to the relative major (III), the most typical destination for minor keys. The Monte directly after the double bar supplies a neat and effective return to the tonic key, since its first segment is common to both keys; we notice again that ambiguity is a characteristic of the minor-key Monte, since the listener cannot know after S1 whether S2 will belong to a Fonte in F major or a Monte in D minor. In this example, the latter course is taken to produce a QA at b.38, extended to the thematic return at b.42; as required, this QA contrasts significantly with the succeeding QA at b.46. The entire melody is analogous to Figures 119 and 120, and may be represented as:

1 ___QA **2** ___K/III :‖: **3**, **4** _(M)_ ⇨ _QA **5** ____QA **6** ____GK :‖

[**Finale**: Vivace]

Figure 131: Haydn Symphony No.75, iv *Finale*.

EXAMPLE 8: TYPE 2 CASE III ✚ TYPE 4 CASE III

Deferred for a final example is the *Menuetto* in Figure 132. This melody has a particular complexity not covered by any of Koch's small compositional models, in that it contains *two* formal modulations, one in each reprise. Moreover, the first phrase is unusual in containing an embedded Fonte which wittily effects the QA. Notably abrupt progressions after the double bar then take the melody into the key of the mediant major (III), before phrase **3** produces the required QA for thematic return. On account of its two modulations, this example may be interpreted as a hybrid of Type 2 Case III, and Type 4 Case III (i), where the F♮ in b.22 could be heard as weakly implying a QA/III to effect partial completion of the phrase. Analogous examples were presented earlier as Figures 96 and 112 respectively, and the final hybrid model may be represented as:

1_(F)_QA **2**_____QK :‖: **3**___iv__(QA/III)__K/III **4**_____QA **5**_____GK :‖

Menuetto: Allegretto

Figure 132: Haydn Symphony No.88, iii *Menuetto*.

Chapter 4: Schema Theory and Analytical Methodology

Introduction

This chapter describes the development of a detailed analytical framework for an empirical study of schematic instances in Haydn's symphonies, or indeed eighteenth-century instrumental works generally. Since a study of this type has not been attempted previously, it is of particular importance that its analytical methodology has a sound theoretical basis: the validity of the statistical results produced can only be as good as the validity of the analytical apparatus that produces them. The first part of this chapter will therefore deal at some length with the development of schema theory in cognitive psychology and artificial intelligence, before discussing its extension to musical analysis and listening. There has been little research in musicology on the cognition of phrase-level musical schemata in listeners, deriving from and analogous to the psychological studies of the 1970s and 1980s, and this chapter attempts a preliminary mapping from formal schema theory to a more specific musical schema theory for the galant schemata identified by Robert Gjerdingen (2007). It then develops a framework for the detailed analysis of the Fonte and Monte schemata. It is worth noting that the refinement of a proposed schematic model, whether for application in cognitive psychology or music analysis, is essentially an iterative process, based on the reciprocal and adaptive alignment of concept and perception. This inherent circularity is a natural feature of human conceptual development, regardless of the perceptual domain.

Schema Theory

A schema is understood in cognitive psychology as a mental representation of an experiential phenomenon that comprises multiple components. The phenomenon may be primarily spatial, as with an object or arrangement of objects, or temporal, as in a succession of connected events. At the core of the schema lies the notion of a prototype, whose development reflects the successive phases of acquisition, refinement and application. The key insight offered by the concept of a schema, is that it enables a person to make sense quickly of manifold and complex stimuli in the real world that would otherwise be chaotic and overwhelming. It is easy to appreciate why the schema model, and in particular the psychological theories dealing with temporal schemata, should be extremely relevant to musical perception and cognition. Indeed, Gjerdingen's central and radical claim is that musical convention in late eighteenth-century Europe may be interpreted from this perspective as the succession and combination of such phrase-level musical schemata, implying distinctive prototypes that were shared by composers and listeners alike. Since the

schema model clearly has application to music, it will be helpful to review its essential concepts and development before proceeding to construction of a musical schematic framework for the analysis of Fonte and Monte.

Brewer and Nakamura (1984) provide a helpful overview of schema theory, including its history and key concepts. Like most recent writers, they acknowledge Bartlett (1932) as the first psychologist to develop the idea of schemata as a model for comprehending the world. They note, however, that he was pursuing this approach more or less in isolation, and that schema theory remained obscure until the mid 1970s. The authors attribute this neglect to the domination of empiricism and behaviourism in British and American psychology respectively; its revival required a paradigmatic shift in psychology from 'stimulus-response' to 'information-processing' models of human perception, cognition and action. Chomsky's writings on generative linguistics in the 1960s provided an impetus for the revival of schematic models in cognitive psychology, while the new disciplines of computer science and artificial intelligence in the 1970s and 1980s were also conducive influences. This was the period in which musicologist Leonard Meyer was developing his theory of 'archetypes', the forerunner of Gjerdingen's musical 'schemata'.

The concept and terminology of schemata has its origin in epistemology, in particular Kant's *Critique of Pure Reason* (1787). [136] His conception of a schema as a product of the imagination for the representation of reality persists through the many variations and elaborations applied to it since. The revival in the twentieth century of the term may be attributed to Bartlett, although he acknowledged that it was used earlier by the neurologist Head (1920) in his study of posture and motion. It is therefore worth reviewing the relevant components of Head's understanding of a schema. His idea of schemata as "organised models of ourselves" has aroused debate over whether a schema is essentially a physiological or psychological entity. [137] The current view tends towards separation: "Schema theory complements neuroscience's well-established terminology for levels of *structural* analysis (brain region, neuron, synapse) with a *functional* vocabulary". [138] It is interesting however that recent research has also revived Head's physical origination in the form of 'embodied schemata'.

Bartlett's characterisation of a schema is of such seminal importance that an extended quotation is appropriate here:

> 'Schema' refers to an active organisation of past reactions, or of past experiences, which
> must always be supposed to be operating in any well-adapted organic response. That is,

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[136] Available as *Cambridge Online Edition*, A140-1/B179-80 (accessed 24-09-2016).
[137] Head 1920, quoted in Bartlett (1932:199-200).
[138] Arbib (1992:1)

whenever there is any order or regularity of behaviour, a particular response is possible only because it is related to other similar responses which have been serially organised, yet which operate, not simply as individual members coming one after another, but as a unitary mass. Determination by schemata is the most fundamental of all the ways in which we can be influenced by reactions and experiences which occurred sometime in the past[139]

Prescience is revealed too in his discussion on schematic application, where he notes that "an individual does not normally take such a situation detail by detail and meticulously build up the whole [but tends instead] to get a general impression of the whole; and, on the basis of this, he constructs the probable detail."[140] This is essentially what later writers would describe as 'top-down' processing, which seeks confirmation of a proposed schema from perceptual details, in contrast to 'bottom-up' processing, which collects perceptual details before invoking an appropriate schema for them. For Bartlett, the development of a schema includes the phases of "invention, condensation, elaboration, simplification and…other alterations"[141]. He also discusses the notions of schema networks and sub-schemata, both developed in later theory. Significantly, he addresses the evolutionary or behavioural function of schemata, suggesting that they serve as biologically and socially adaptive devices for the individual. In sum, our predisposition for schema formation and application is deeply rooted, regardless of the particular stimulus context or goal.

The initial impetus for the revival of schema theory after Bartlett came from the expanding field of computer science, with seminal works on schema modelling by Becker (1973) and Minsky (1975); the analytical framework developed for this present study applies key concepts derived from these works. Later in the decade, and during the 1980s, scholars of artificial intelligence or cognitive psychology, including Rumelhart and Ortony (1977), Schank and Abelson (1977), and Jean Mandler (1984), made further contributions to schema theory, devising often complex models for spatial and temporal schemata; of particular significance to the musical domain were those event schemata characterised as 'scripts' and 'stories'. These more specialised concepts, some of which informed Gjerdingen's early work on musical schemata, are discussed next. Since the our central concern is the application of schema theory to music, and in particular to the cognition of phrase-level musical schemata, the presentation of its relevant concepts and models are supplemented here by conjectural transformations to the process of musical listening.

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[139] Bartlett (1932:201).
[140] Bartlett (1932:206).
[141] Bartlett (1932:212).

Very few domain stimuli are perceived as purely unitary, in other words, requiring just a single category for the evaluation and classification of the data presented: in the visual domain, a possible example might be a human hair, in music a single note. In the real world, a perceived phenomenon usually comprises multiple components requiring several categories or variables, each constrained by a particular range of values. A schema may thus be understood as the mental representation of a composite set of categories, providing a 'fit' where the data values within them correspond sufficiently well to the stimuli perceived. These categories may be organised in either the spatial or temporal dimension. The classic example of a spatial (or object) schema is that of/for a human face: its variables are mouth, eyes, nose etc, where not only must each feature fall within an accepted range of sizes and shapes, but it must also be of the correct number and spatial arrangement in relation to the others if the object is to be evaluated as a human face. An analogous example in music might be a simple triad in root position, whose variables of root, 3rd and 5th must conform to accepted intonational ranges and follow a prescribed 'spatial' arrangement.

The classic example of an event schema is 'going to a restaurant': disregarding object and scene variables in this context, the temporal variables are arranged as a succession of 'events', each permitting a constrained range of possible realisations, and following a more-or-less prescribed order. Referred to in the theory as a *script*, this is clearly a more complex type of schema, for which an analogous musical example might be 'writing the melody for an eighteenth-century minuet': the 'variables' would include implied opening chord, opening rhythmic motive, type of ending ('punctuation formula') for the first and second phrases, conventional pattern to use after the double bar, etc. The important idea in both these examples is that the general flow and event of each script is predetermined, but the actual content and perhaps even ordering of the events is variable: it is therefore not necessary for the individual to have a distinct mental representation for every different restaurant visited (or yet to be visited), or for every different possible minuet melody.

The seminal work on scripts was that of Schank and Abelson (1977), whose variant terminologies for similar concepts is quite typical of schema theory from this period: "A script is a structure that describes appropriate sequences of events in a particular context. A script is made up of slots and requirements about what can fill those slots. The structure is an interconnected whole, and what is in one slot affects what can be in another."[142] In fact, a description of this kind of sequential-event structure with sub components was offered a few years earlier in Becker (1973), and reproduced in Gjerdingen (1988). A more dynamic view of a script is offered by Mandler (1984), who describes it as "a hierarchically organized set of units describing generalized knowledge about an

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[142] Schank & Abelson (1977:41).

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."[143] She also introduces the concept of a 'scene schema', which refers to a particular setting or context, including its characteristic objects and their arrangement relative to each other.[144] If we again replace the purely spatial dimension implied in the psychological theory of scripts with a musico-spatial equivalent in the musical domain, we might argue that a scene corresponds to a particular tonal context or formal location within a compositional script: the musical elements of the 'scene' at the double bar of a minuet might include a dominant chord, its own chord of preparation (or implied by a raised fourth degree), a root-progression in the bass, a strong rhythmic progression, etc. The potential of a script is thus enriched by the association of scene schemata with each temporal event it contains.

Yet another concept related to temporal schemata is the 'story schema'. Although Mandler's extensive discussion of this schema is almost exclusively directed towards language-based stories (such as folk tales), the 'story schema' has special relevance to musical composition, since it corresponds to Gjerdingen concept of a higher-level 'formal' schema in music.[145] It is an abstraction of a large scale temporal schema containing one or more scripts. Koch's models presented in Chapter 3 might therefore be understood as a formal schema for small compositions, defined as a set of alternative scripts. An actual story, to apply Schank and Abelson's terminology, may accordingly be understood as an 'instantiation' of the script(s), where the default values in a script's slots are replaced by actual persons or objects; the musical equivalent would be a complete minuet melody written out in its final form, after selection from the set of choices available within each principal event 'slot'. Mandler's dynamic model also specifies the nature of linkage between successive events in a script: she includes among them 'causal', 'enabling', 'conventional/sequential' or 'arbitrary' connections. It is plausible to translate these concepts to the categories of relationship between specific parameters forming successive events in music, where such agents of motion already have terminology such as voice-leading, progression or upbeat.

A further type of temporal schemata discussed in the literature is the 'plan'; this term was proposed by Schank and Abelson for the case in which a plan must be used when a routine script is not available to account for a new situation. Since the concept is rather less intuitive than that of script, the following explanations provided by the authors may offer some clarification:

> …people can deal with situations that they have never encountered before. They can do this because they have access to the mechanisms that underlie scripts…To do this, it is necessary to connect pieces of information by means other than scripts…A plan is

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[143] Mandler (1984:14).
[144] Mandler (1984:15-17).
[145] Gjerdingen (1986:25).

> intended to be the repository for general information that will connect events that cannot be connected by use of an available script or by standard causal chain expansion…a routinized plan can become a script…plans are where scripts come from. They compete for the same role in the understanding process, namely as explanations of sequences of actions that are intended to achieve a goal. The difference is that scripts are specific and plans are general. Both are necessary in any functioning system[146]

It appears therefore that the plan consists of a set of underlying mechanisms, abstracted from repeated exposure to scripts, and available for application in situations that have not been encountered before, but whose elements may be assimilated into the more generic framework of comprehension that the plan provides. Thus, if this account of a plan's derivation is correct, we might equally claim that 'scripts are where plans come from'. The implications of this concept for music are significant; assuming that his comments on phrase construction could be extended to other musical parameters too, it is notable that Gjerdingen suggests a historical shift from one approach to the other:

> …the structurally stereotyped and emotionally neutral formulae of the later eighteenth century gave way in the nineteenth century to phrase patterns that are structurally less specific but emotionally more directed. Borrowing terms from the cognitive scientists Schank and Abelson, I describe the stereotyped eighteenth-century patterns as definite "scripts" and the nineteenth-century patterns as generalized "plans."[147]

While it would be unfair accordingly to characterise Classical composition as merely imitative, by comparison with Romantic composition as creative and original, this distinction does help to explain an important aesthetic shift around 1800: it is entirely plausible that the nineteenth-century emphasis on individual genius is connected with the devising and application of increasingly complex plans, while the eighteenth-century reveals more an emphasis on the mastery and manipulation of scripts of existing conventions.

Whether serving as scripts or plans, temporal schemata have the critical characteristic that they are almost always purposive, or 'goal-driven'. As Rumelhart notes, "[schematic] perception is goal directed. We do not passively wait for some stimuli to arrive and then at that late date attempt an interpretation. Instead, we actively seek information relevant to our current needs and goals."[148] Moreover, schemata direct not only acquisition of the data but also its likely location and context: "schemata guide our information seeking. Not only do schemata tell us *what to see*,

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[146] Schank & Abelson (1977:70-72).

[147] Gjerdingen (1986:31).

[148] Rumelhart (1980:51).

but they also tell us *where to see it*".[149] This maxim of course translates perfectly to the act of listening in music: Not only do schemata tell us *what to hear*, but they also tell us *where to hear it*.

These observations remind us that closely bound to the notion of goal is that of expectation. It applies at all schematic levels: Mandler even anticipates Gjerdingen by a few years, with her observation that story-expectations have implications for formal musical schemata:

> From an early age people develop expectations about the overall form of traditional stories; they learn that these stories involve protagonists who have goals and who engage in attempts to achieve those goals, and that goals and events cause other goals and events in predictable ways. They also learn story conventions that differ somewhat from other event sequences. Such knowledge is abstract because it is not dependent upon the particular contents of a story. Its abstract character is reminiscent of musical schemata, which are also independent of the particular sequence of notes employed in a given composition.[150]

Remaining at the story level, Schank and Abelson emphasise the connection between goals and expectations:

> However, in stories ... there are many expectations about likely events. These expectations are based on detailed knowledge of the genesis and nature of particular goals. Since such expectations are crucial to understanding, we must know what kinds of goals there are and how they interact with each other in order to formulate expectations.[151]

Even moving to a lower level, however, a script schema may equally be understood as a set of expectations. The top-down processing model is essentially expectation-driven, where a schema's relevant 'sub-procedures' are instantly triggered to help confirm or reject a proposed interpretation of perceived data. This process may be readily observed in schema-oriented music, as in the late eighteenth century, where composer and listener share a common set of schematic conventions; at each moment, the listener is either invoking or confirming a schema, based on the context, location and incoming musical data, through sub-procedures activated to evaluate relevant harmonic, melodic, rhythmic or other parameters. It might be added that if the nature of musical passage is too opaque or ambiguous, the bottom-up model will be invoked: data will then be aggregated and evaluated until the relevant set of sub-procedures is able to trigger a schema that will account satisfactorily for it; the selected schema will then be confirmed or rejected

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[149] Rumelhart (1980:51).

[150] Mandler (1984:x-xi).

[151] Schank & Abelson, (1977:102).

iteratively using the top-down process. As Rumelhart notes: "In schema-directed processing, activation goes in both directions".[152]

Cognitive Psychology

Although much of the preceding discussion has focused on the schema concept from the perspective of artificial intelligence, complementary research in cognitive psychology and linguistics has yielded equally important insights. Its most influential scholars include Rosch, Lakoff and Johnson, whose work in the 1970s and 1980s represents a quite different orientation from that of artificial intelligence, with the notions of embodied schemata, biological and cultural contingency, and categorisation especially resonant. We turn next to a discussion of the essential concepts in this stream of scholarship.

In *Metaphors we Live By*, Lakoff and Johnson introduced the notion of bodily-derived orientational metaphors such as up-down, in-out or central-peripheral, claiming that "they have a basis in our physical and cultural experience",[153] and that "most of our fundamental concepts are organized in terms of one or more [of them]".[154] They posit that we also develop 'entity and substance metaphors' and 'container' metaphors as means to conceptualise reality. Such metaphors enable us to engage with external phenomena and to communicate this engagement meaningfully to others. This has clear relevance to music, whose ontological elusiveness ensures that almost any music-analytical statement must rely on spatial, event or action metaphor; Zbikowski refers to such cross-domain mappings of image schemata and musical events as 'conceptual blends'.[155]

Lakoff and Johnson present an interpretation of the script schemata in terms of multiple dimensions of experiential structure. Choosing human conversation as an example of such Gestalt experience, they describe its salient components as Participant, Parts, Stages, Sequence, Causation and Purpose.[156] This is clearly a richer model than the frame and slots structure of artificial intelligence, although to incorporate them all within an explication of the musical experience seems implausible.

The two separate books produced by these scholars in 1987 reflect their divergent specialisms, one in linguistics and the other in psychology and epistemology. It is the latter who presents the most radical and influential reformulation of schemata: as its title suggests, Johnson's *The Body in the Mind* emphasises the role of bodily experience in shaping the fundamental cognitive

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[152] Rumelhart (1980:42).
[153] Lakoff and Johnson (1980:14)
[154] Lakoff and Johnson (1980:17)
[155] Zbikowski (2002:82ff)
[156] Lakoff and Johnson (1980:77-8)

processes through which we acquire understanding and meaning. He identifies image schemata and metaphorical projections as our two principal types of embodied, imaginative structure. Explaining the relationship between the two types, he states that "our bodily movements and interactions in various physical domains of experience are structured (as we saw with image schemata), and that structure can be projected by metaphor onto abstract domains".[157] Of potential relevance to music are the fundamental bodily-derived schemata, each performing a 'metaphorical mapping' from a 'source-domain' to a 'target-domain': Paths, Cycles, Scales, Links And Center-Periphery.[158] Johnson considers that embodiment is the basis for all abstraction: "as animals we have bodies connected to the natural world, such that our consciousness and rationality a tied to our bodily orientations in and with our environment".[159] We may infer that the process of comprehension and explication of musical experience also follows the path Body → Concept → Reason.

Johnson's discussion of *force* Gestalts has interesting implications for music, and in particular the galant musical schemata at the core of this study. He identifies the seven primary experiential components of force as compulsion, blockage, counterforce, diversion, removal of restraint, enablement and attraction; for each type, he emphasises and illustrates the biological and environmental basis of the concept. It is remarkable how much our engagement with music draws upon metaphorical projections of such force experiences, with further recourse to bodily and 'personification metaphors'.[160] Thus, we speak of a key *diverting* to another, a melodic *leap counterbalanced* by *step*-wise *motion inwards*, or a harmonic *progression enabled* by a *chromatic inflection*. It is apparent too that the parametric analytical framework developed for the present empirical study is necessarily restrictive, since it cannot explicitly account for these dimensions of experiential force, even at the musical surface. Nevertheless, they are implicit in many of the parametric interactions and nuances of segment completion which are prominent components of the framework.

Lakoff's conception of schemata is essentially derived from Johnson. His classification consolidates and simplifies the model as a set of 'Kinesthetic Image Schemas', which include Container, Part-Whole, Link, Center-Periphery and Source-Path-Goal schemata.[161] Several of these and other metaphorical models are relevant to the construction and completion of the Fonte and Monte musical schemata: the Container schema is implicit in the identification of key and segmentation for these musical schemata; the Part-Whole schema describes the hierarchical structure of their phrase-segments-functional chords; the Link schema accounts for the

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[157] Johnson (1987:xv)
[158] Johnson (1987:113ff)
[159] Johnson (1987:xxxviii)
[160] Lakoff and Johnson (1980:33-4)
[161] Lakoff (1987:271-5)

relationship between corresponding elements of the two symmetrical segments; and the Source-Path-Goal schema encapsulates well both the strongly directional character within segments and the overall progression to an expected harmonic goal. It seems reasonable in addition to posit that the sequential Fonte or Monte pattern be interpreted as a 'Response schema', comprising the metaphorical projection of a physical mimicking response, or perhaps a two-step motor completion.

The purpose and method of categorisation, so integral to schema formation and application, is seemingly straightforward: to make sense of our perceptual reality by partitioning its objects into distinct named categories comprising members with shared features. In fact, the issue is highly problematical, and has been a particular focus of research in cognitive psychology, linguistics and epistemology. Its clear relevance to the analytic framework for galant schemata developed in this study make it essential to examine some of these concepts in more detail.

The most influential seminal work on categorisation was that of Rosch, initially in collaboration with Mervis. It is helpful first to outline some preliminary concepts from their article on the categorisation of natural objects.[162] Three fundamental properties of categories are identified: (i) there is a primary, or basic, level at which we perceive or interact with potential category members; (ii) these members have similar overall shapes; (iii) we have a single mental image to represent the entire category.[163] An important related concept is that of representativeness, a measure of how good an example is of its category; moreover, this measure determines such responses as speed of categorisation, facility in producing member examples, degree of grading or 'hedging' of judgements, and speed of learning a new category.[164] Categorisation of a natural object relies upon evaluating its features, or attributes, and just four basic types are specified: parts, appearance, relationship and function.[165] A particular concept revived by Rosch and Mervis was that of family resemblance, which focuses on the relationship between members of the same category rather than the specific attributes of a member considered in isolation. They summarise its operation:

> …category members differ in the extent to which they share attributes with other members. [This variable is called] family resemblance (after Wittgenstein 1953). Items which have the highest family resemblance scores are those with the most shared

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[162] Mervis and Rosch (1981)
[163] Mervis and Rosch (1981:92)
[164] Mervis and Rosch (1981:96-7)
[165] Mervis and Rosch (1981:108)

attributes…[they are also] those which share few (if any) attributes with members of related [contrast] categories.[166]

Categorisation is better understood as a human activity than an objectivised representation of reality. Rosch emphasises this perspective in her article on the psychological principles of categorisation.[167] She identifies two primary principles: (i) Cognitive Economy, which allows us to gain maximal information with minimal mental resource; and (ii) Correlational Structure, which reflects our tendency to perceive relevant attributes as highly correlated rather than arbitrary or unconnected. Thus these are clams about human perception, not objectivised reality. Moreover, she considers our automatic selection of one salient level in a taxonomic hierarchy as the most perceptually basic ('informative') to arise from statistical learning of our environment. The mechanism Rosch proposes is 'cue validity', the probability that a given cue predicts a particular category; this probability is determined by the frequency with which the cue is experientially associated with the category.[168] She argues that cue validity is "maximized at that level of abstraction at which basic objects are categorized…[while members of superordinate categories] share only a few attributes among each other [and those of subordinate categories] contain many attributes that overlap with other categories."[169] By this formulation, the taxonomic portion of the classification in Figure 133 below presents the superordinate and basic levels for the galant schemata, while a subordinate level might specify a particular type of Fonte.

We conclude this overview of categorisation by examining one of its central concepts which is also at the core of this study of galant schemata, namely the prototype. It will help first to clarify its context, however, by contrasting it with two alternative models of categorisation.[170] The 'Classical' model proposes that the mental representation is a set of common features shared by all members of the category; cognition then consists of feature evaluation and enumeration. The 'Exemplar' model proposes that the mental representation is a set of memorised exemplars, with minimal conceptual abstraction of features; cognition then consists of comparing an object with all stored exemplars to determine categorical inclusion or exclusion. These models are no longer in favour since both are relatively weak and unsophisticated, with the second in particular placing implausible demands on memory. The model now preferred within most disciplines is that of the prototype, which unfortunately is also problematic to define. A conventional interpretation is that a prototype refers to a central tendency or average, and that its mental representation is a typical or idealised exemplar with which an object is compared to determine categorical inclusion or

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[166] Mervis and Rosch (1981:99)
[167] Rosch (1978)
[168] Rosch (1978:30)
[169] Rosch (1978:31). In fact, she notes that Tversky's (1977) mathematical calculation of 'category resemblance' serves a similar role to cue validity.
[170] Summarised from Howard (1987:Chap.6, esp. 90-106).

exclusion; while this captures its essence, recent scholarship has sought to clarify and refine the concept to reflect the multiple complexities and nuances of human perception.

Rosch provides a careful definition of a prototype, and discusses two common misconceptions:

> By prototypes of categories we have generally meant the clearest cases of category membership defined operationally by people's judgements of goodness of membership in the category. A great deal of confusion in the discussion of prototypes has arisen from two sources. First, the notion of prototypes has tended to become reified as though it meant a specific category member or mental structure…Second, the empirical findings about prototypicality have been confused with theories of processing.[171]

It seems then that the concept of relationally derived prototypicality based on the degree of shared attributes (family resemblance) is preferable to that of prototype as a singular and self-sufficient object. Rosch also notes that prototypes cannot be used to *represent* categories.[172] Thus there is no unique prototype for a category, and there may be several 'clear cases' sharing many attributes with other members; nor is it possible to construct an idealised exemplar to define a category. These qualifications alert us to the elusiveness of the concept, deter us from over-precise categorisation, and rule out the prospect of a singular and well-defined exemplar to serve as a convenient prototype. We must therefore conclude that references to prototypes for the galant musical schemata are inappropriate, and that we should focus instead on the cluster of attributes whose degree of sharing determines degree of prototypicality. This is clearly an advantage of the parametric analytical framework developed for this study.

We shift focus back now to the script schema and its role in communication, with a particular emphasis on musical listening. Just as invoking such schemata and seeking confirmation of the expectations generated by them is essential to functioning in everyday life, it can also serve in language and communication to enable comprehension and appropriate interpretation of the communicator's putative intention. However, the process sometimes fails. Rumelhart identifies three main reasons from the perspective of schemata that a text might not be correctly understood, and since his reasons plausibly apply to a musical composition as much as a narrated story, it is worth recasting them here almost verbatim into the musical domain:

1. The listener may not have the appropriate schemata. In this case he or she simply cannot understand the meaning of the passage being communicated.

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[171] Rosch (1978:36)
[172] Rosch (1978:40)

2. The listener may have the appropriate schemata, but the clues provided by the composer may be insufficient to suggest them. Here again the listener will not understand the passage but, with appropriate additional clues, may come to understand it.

3. The listener may find a consistent interpretation of the passage but may not find the one intended by the composer. In this case, the listener will "understand" the passage but will misunderstand the composer's intention.[173]

We might have some reservations here over the 'intentional fallacy' and 'decoding' of meaning. Objectivisation of the text and separation of author from reader is contentious, as Bordwell notes in relation to film criticism: "Meanings are not found but made…Comprehension and interpretation thus involve the construction of meaning out of textual cues…meaning-making is a psychological and social activity…the perceiver is not a passive receiver of data but an active mobilizer of structures and processes…".[174] Nevertheless, the crucial difference here is that the perspective of galant schemata as scripts is based on the comprehension and interpretation of conventional technical devices for which the evidence is entirely formalistic and embedded within the 'work'; so it is reasonable to accept authorial intent as both plausible and likely. Of course its discovery may sometime prove intractable: Rumelhart's analysis assumes that the author's (or composer's) communication of the schemata is intended as consistent and straightforward, and that apart from insufficient clues being provided, the failure to comprehend may be attributed to the reader (or listener). In fact this is not always the case. Schank and Abelson note that a particular script may be implied, but then contradicted by data suggesting a different one. They identify two types of script 'frustration' and the adaptive process they trigger:

> There are two types of interferences: obstacles, where some enabling condition for an impending action is missing, and errors, where an action is completed with an unexpected and inappropriate result ... [moreover] Distractions are unexpected states or actions which initiate new goals for the actor, carrying him temporarily or permanently out of the script ... [these] new expectations will now guide the processing of subsequent inputs. A detour path will be followed until the original script either is reentered or abandoned.[175]

There are implications here for our understanding of late eighteenth-century music. Gjerdingen marvels at "the ways composers played with the expectations of convention", adding that "In the

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[173] Adapted from Rumelhart (1980:48). This transcription replaces only the words *reader* and *author* with *listener* and *composer*, respectively. The retention of his term *meaning* here is merely suggestive, and does not seek to imply that it is equally appropriate for musical as for literary texts.
[174] Bordwell (1989:3)
[175] Schank & Abelson (1977:52-3).

hands of the lowliest kapellmeister this system provided a ready syntax for the replication of convention; in the hands of Mozart [or Haydn] it amazes us yet today."[176] In fact, we find a sophisticated discussion of the realisation and frustration of expectation in music earlier with Meyer (1956). In his seminal work on meaning and communication in music, Meyer relies on the psychological theory of emotion from conflict for his central hypothesis that "Affect or emotion-felt, is aroused when an expectation - a tendency to respond - activated by the musical stimulus situation, is temporarily inhibited or permanently blocked."[177] Effective musical communication is thus achieved not primarily through the unfolding of normative and predictable instantiations of a script schema, entirely confirming expectation, but rather through the deliberate frustration of that expectation. This explains why the 'lowliest kapellmeister' cannot, even with the most highly-practised 'replication of convention', match the communicative power of a composer resourceful enough to create sophisticated manipulations of these conventions: the term therefore implies manipulation not just of musical material, but also of listener's expectations. It might be argued that Meyer's emphasis on *emotion* gives rise to a misunderstanding of the concept as it functions within communication: terms such as *attention* or *cognitive arousal* might be more readily understood. It is interesting in this connection to note Mandler's observations on schemata and expectation:

> In general, the more expected something is in a situation, that is, the more typical it is of the situation, the less well it is encoded or recognized, and in some circumstances, recalled. These findings have been called "the typicality effect"…[studies have shown that] the length of fixation on objects in pictures was a function of their typicality…Subjects looked reliably longer at low-probability objects than at medium or high-probability objects…Such findings indicate rather fine tuning of the perceptual process by expectations. The schema prepares the person to see certain kinds of things; consequently, little attention need be paid to those things that match the expectations, leaving attentional resources free to devote to the more unusual, and therefore more informative, items…once a schema has been activated, its guiding role is to assume the obvious and to direct attention to the unusual.[178]

A stimulating discussion of musical listening from cognitive and social perspectives is provided by Cross. He invites us to consider listening to music as "an active, interactive and, at root, communicative human behaviour".[179] Moreover, in observing that the expert listener has an important status and role in "cultures that provide appropriate contexts for the exercise of

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[176] Gjerdingen (1986:43).
[177] Meyer (1956:31).
[178] Mandler (1984:101-7).
[179] Cross (2010:68)

connoisseurship",[180] he could almost be referring directly to the *Kenner* of eighteenth-century German musical culture, in which the public "representation of listening has an acknowledged cultural or institutional role".[181] Cross argues that the connoisseur's engagement with music is not merely personal, but may also have an interactive function in the "management of social relations".[182] Requiring no formal musical training, he gains the necessary knowledge and skills through statistical learning of tonal hierarchies and schemata via pre-conceptual processes; 'applied' musical listening then "seeks out structure on the basis of previous experience, yet reconfigures the representations of that previous experience on the fly as it encounters novel structures".[183] Many of Cross's ideas resonate closely with our knowledge of galant musical culture, and in particular the role of schematic manipulation in Haydn's symphonies as an agent of communication with the expert listener.

Research in cognitive psychology or music theory on the perception of musical schemata is relatively limited. Zbikowski has provided the most extensive treatment of music conceptualisation informed by recent work on schemata and categorisation in psychology and artificial intelligence.[184] He identifies the motivic level in music as representing a categorical basic-level, and provides a structural diagram for motivic forms in the opening of Beethoven's Fifth Symphony; his hierarchy of *attribute - value* is analogous to that of *category – parameter* in the analytical framework for this study, but goes further in specifying a prototypical instance ('individual') for the category.[185] Zbikowski notes that choice of categories varies according to historical, cultural or music-generic context: they are "structured around whatever set of musical relationships seems best to account for what is salient about a particular repertoire".[186] Gjerdingen would presumably cite as an example the interactions between galant schemata in an mid-eighteenth-century instrumental work.

Saslaw has emphasised the role of kinaesthetic image schemata in the conceptualisation of music.[187] Of particular interest is her discussion of the cadential progression I-IV-V-I as representing the conceptual blend of three principal bodily-derived schemata: Container, In-Out and Source-Path-Goal. This musical structure is closely analogous to the galant Fonte or Monte, which are also characterised by bounded tonalities, modulatory inflections and clear harmonic goals. Her reference to Riemann's description of tonal 'Return' after a modulation as the process which "leads us home" is strongly reminiscent of Reipel's metaphor for the role of the second

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[180] Cross (2010:68)
[181] Cross (2010:69)
[182] [182] Cross (2010:76)
[183] Cross (2010:70-1)
[184] Zbikowski (2002)
[185] Zbikowski (2002:42)
[186] Zbikowski (2002:59)
[187] Saslaw (1996)

segment in a ii-I Fonte: "The second (*Fonte*) creates an *Einschnitt* in D minor after the aforementioned cadence, in order to produce, one step lower, a *Grundabsatz* in the key of C major, and happily returning home to the ■ Kadenz."[188] We notice also how his description of musical path and goal also makes pointed use of the personification metaphor.

Much of the other psychological research relevant to this study has a more scientific orientation, in that it involves experiments in music perception or cognition yielding precise conclusions based on statistical analysis. The phenomena examined are thus of necessity restricted, and typically comprise localised, uni-parametric events at the musical surface; they tend also to focus on response to tonal structures and progressions. In fact this emphasis is an advantage when extrapolating conclusions to Fonte and Monte, since these musical patterns are strongly characterised as harmonic progressions. Nevertheless, it is worth quoting an extended passage from Krumhansl's recent article, since it sums up the musicological issue with clarity and frankness:

> Music theory is directed at describing circumscribed style systems, with an eye towards analysis and composition, often working from the page and considering extended musical examples. it tends not to address more general issues about why music tends to be structured in certain ways, or how it is processed in real time. By contrast, music cognition is concerned with uncovering general principles of psychological organization, sometimes tested using what are hoped-to-be representative musical materials sometimes considerably reduced in complexity.[189]

The author is actually responding to methodological criticism of her earlier seminal work *Cognitive Foundations of Musical Pitch*,[190] whose experimental findings are too numerous and complex to examine here in detail, even though they include statistical results on key relationships, tonal hierarchies and chord progressions which have potential application to Fonte and Monte and invite further study. An important issue that Krumhansl discusses in her article relates to the hierarchical organisation of music often represented by conceptual tree structures. She notes that typically 50% of musical events recorded in these trees are non-adjacent, and it has long been a contentious question in music cognition whether, or to what extent, listeners are able to perceive and process relationships between, or subsumed under, temporally separated events. A reasonable preliminary hypothesis is that cognitive processing is essentially sequential rather than recursive. In linguistic analysis, the analogous distinction exists between constituency ('part-whole relation') and dependency ('part-part relation'), where the former requires trees for its graphical representation, while the latter is essentially a sequence of 'modifiers' linked to a single

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[188] *Anf* I:44
[189] Krumhansl (2015: 22)
[190] Krumhansl (1990)

'head': Hudson argues that "syntactic analysis needs dependency but does not need constituency".[191] It is worth noting here that galant schematic analysis implies focus on the foreground in preference to the background. Nevertheless, there is some experimental evidence that non-adjacent events in music can be relationally comprehended, especially when organised within tonal hierarchies, and since analytical description of galant schemata includes both contiguous and hierarchical elements, this section concludes with brief mention of three recent psychological studies on this issue.

Koelsch et al note that "Hierarchical structure …can be identified theoretically in most pieces of tonal music [but] previous studies have argued against the perception of such structures…we show processing of nonlocal dependencies in music".[192] Their conclusion from a experiment based on modified Bach chorales is that "music listeners process long-distance dependencies that are the result of underlying hierarchical and recursive syntactic structure".[193] The experimental study by Bigand et al on the effect of local and global tonal context on the perception of harmonic relationships leads the authors to claim that "harmonic priming not only occurs from chord to chord but also involves higher levels of structure".[194] Deliège et al conducted a more ambitious experiment on the cognition of a larger-scale musical structure based on salient 'cues' which articulate the musical surface; musician and non-musician subjects were assessed on their identification of these cues, identification of segment location, and (re)assembly of the piece from individual segments.[195] The authors concluded that the cognition of musical structure preferentially relies more on 'cue-abstraction' than recursive processing of hierarchies; nevertheless, they also found evidence that formally-trained musicians have acquired higher-level "schematas of order" which improved their performance in the reassembly task.[196]

The discussion of constituency and dependency has clear implications for Fonte and Monte. It could now be argued that these two schemata contain elements of both cognitive organisational

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[191] Hudson (1980:196)
[192] Koelsch et al (2013:15443)
[193] Koelsch et al (2013:15447)
[194] Bigand et al (1998:101)
[195] Deliège et al (1996)
[196] Deliège et al (1996:155). Since perception experiments on larger-scale musical organization such as this have particular relevance to music analysis, some further comment on this experiment might be of value here. One observation is that the chosen piece (a late Schubert miniature from the time of the 'Unfinished' Symphony and *Die schöne Müllerin*) has some notably non-normative features which might influence cue identification: the implied harmonic anacrusis to start each main phrase creates metrical ambiguity; moreover, the harmonic structure of phrase III is most unusual, since an initiating V^7 chord actually progresses (in repeated incises) to a triadic V *Absatz*, with chromatic local dominant preparation. These features probably contribute to the musician's dissatisfaction with his 'correct' solution! (144) A further point is that Schubert frames these eccentric gestures within a classical compositional model that is decidedly normative, ie. a 16-bar binary form comprising 4 equal phrases. in addition to the durational and tonal features cited as the criteria for segmental ordering and grouping (152), the contribution of such a normative and frequently- experienced compositional/phrase structure might also be considered.

forces: experiential schematic knowledge of the non-adjacent dependencies controlled by S1 and S2, in combination with pairs of sequential adjacent dependencies created by locally-tonicised harmonic progressions. This conjunction of vertical and horizontal forces, creating Source-Path-Goal trajectories at two hierarchical levels, results in a particularly strong cognitive salience and transparency for these two galant schemata.

The next section outlines the analytical framework for Fonte and Monte developed for the empirical study of these schemata in Haydn's symphonies. It is worth clarifying here the two central concepts, both important for musical schemata, that relate to the category structure for a mental representation that defines a schema. The first is that the nature of subsumption in the categorical hierarchy may be either *taxonomic* or *partonomic* (or *meronomic*): these are equivalent to the concepts of constituency and dependency in linguistics. In the former, the lower level items are *types of* the node above (e.g. BIRD -> lark, sparrow, pigeon, etc.); in the latter, the lower levels are *features of* the node above (e.g. BIRD -> beak, wings, feathers etc.). The classification of eighteenth-century musical schemata therefore has elements of both types, as shown in Figure 1. This representation is based on Gjerdingen's characterisations of his galant schemata; it also shows where Fonte and Monte are located as taxonomic subsumptions of dyadic, sequential schemata, with distinctive melodic, harmonic, rhythmic and other features as partonomic subsumptions of each schema.[197]

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[197] Apart from *Romanesca*, *Fonte* and *Monte*, the schema names in the 4th level of Figure 133 are Gjerdingen's.

A Classification of Galant Schemata

Taxonomic

Partonomic
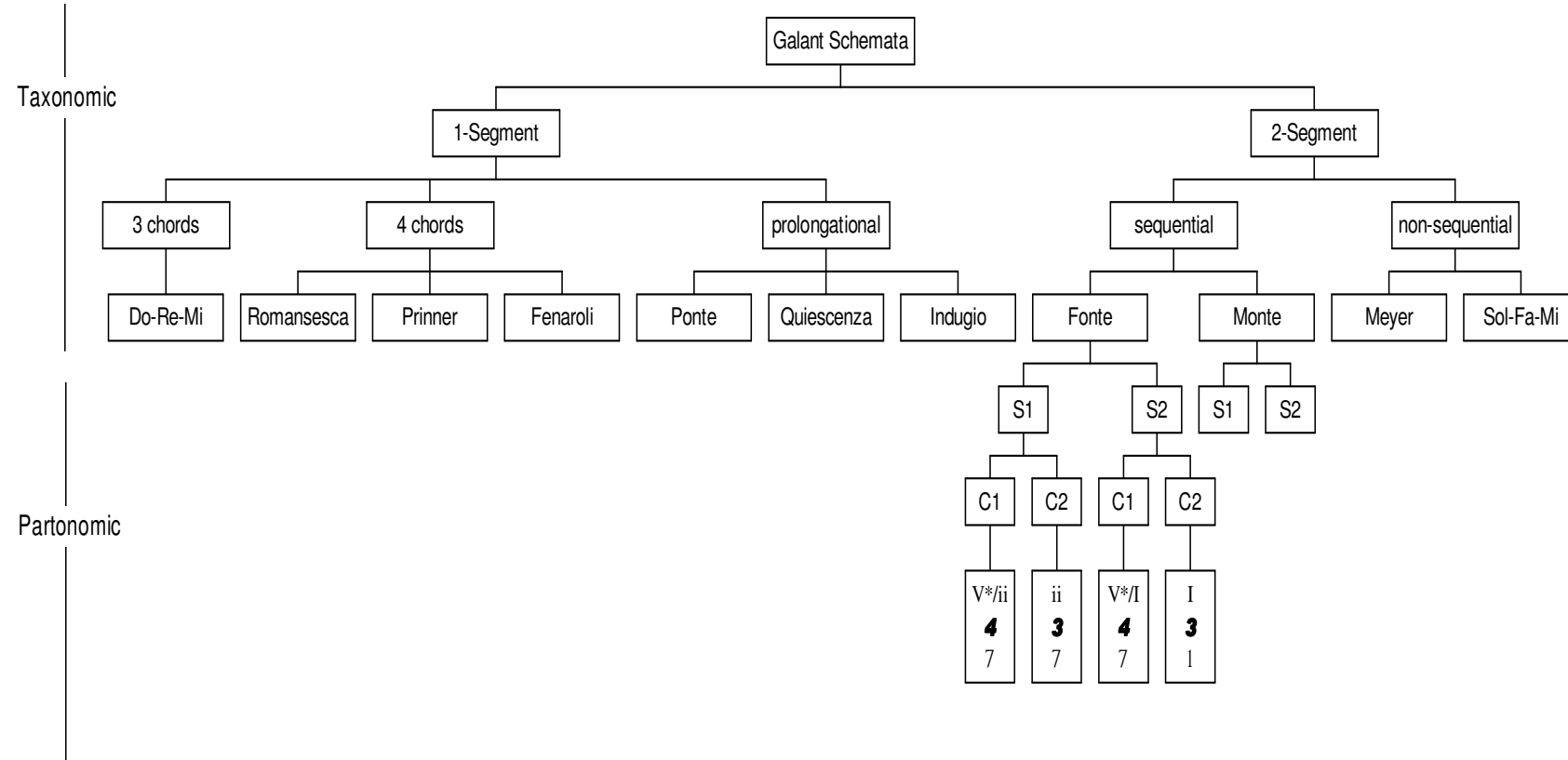
Figure 133: Suggested classification scheme for Gjerdingen's galant schemata

The second concept is that of *level*, and schema theory identifies three main levels within the complete conceptual structure: (i) the *primary level* corresponds to the 'basic' level for categorisation discussed previously, and comprises distinct elements that tend naturally to be perceived first in the overarching schematic category (e.g., car, lorry, bus); (ii) the *superordinate level* is the composite abstraction of these elements (e.g. VEHICLE); and (iii) the *subordinate level* represents specific varieties of the elements in the primary level (e.g., taxi, racing car, limousine etc). The application of this concept to galant musical schemata would therefore produce the following taxonomic hierarchy:

Superordinate Level: dyadic, step-wise sequential pattern

Primary Level: Fonte; Monte

Subordinate Level: ii-I Fonte; vi-V Fonte; IV-V Monte; iv-V Monte etc

Construction of the analytical framework will take into account typicality and boundaries, with reference to prototypical instances established by statistical frequency or identified as such in the contemporary theoretical literature.

Analytical Framework

The framework developed for this study provides a detailed and comprehensive model for classifying and discussing the Fonte and Monte schemata, and for identifying degrees of typicality and manipulation in particular instances. It is based on a separation of the two essential categories for a Fonte or Monte schema, namely (i) **construction** of the segment, and (ii) **completion**, which is essentially the relationship between segments. A further category of (iii) **context** refers primarily to tonal context and location of a schema within a movement, but may also include features such as formal function and thematicism.

The structure and component parts of Fonte and Monte have been observed from somewhat different perspectives in Chapters 1 to 3. The principal aim of developing this analytical framework is to establish a more precise and consistent method for the identification and description of these schemata in an empirical analysis of Haydn's symphonies. A detailed terminology and notation for this purpose is therefore central to the following discussion.

(i) **Construction**. It is the first segment (S1) that is regarded as definitive, since it automatically implies a corresponding construction for the second segment (S2); where this S2 deviates from the default or expected construction, it is better viewed as pertaining to the second category of completion. Several parameters contribute to a description of the

construction of the schema, including proportion, harmonic structure, pitch collection and rhythm. These will be discussed separately below for Fonte and Monte, across proposed scales of typicality from standard to non-standard, inferred from statistical frequency. This category is therefore primarily concerned with assessments of typicality of the constructional parameters for each schema, although examples of extremely non-standard or varied construction might also be understood in terms of manipulation rather than atypicality.

(ii) **Completion**. The statement of S1 performs three principal functions: to announce that a schema is now being introduced, to reveal the default construction of the segment(s), and to imply the form of expected completion, which may or may not actually be realised. This category is therefore concerned with what happens after the S1 has been stated; broadly, this equates to the relationship between S2 and S1. The parameters used to describe this relationship are defined differently from those in the first category, and include among others symmetry of proportion or harmonic rhythm, sequentialism, scale-degree progression, and the contiguity or separation of segments. As before, each of these parameters may be assessed on a scale from standard to non-standard, inferred partly from descriptions in Riepel, and partly from frequency distributions observed in actual works. This category is therefore primarily concerned with assessments of manipulation of the relational parameters for each schema, although examples of extremely standard or non-varied relationships might also be understood in terms of typicality.

(iii) **Context**. The primary parameters for this category are tonal context and location within the movement. The first parameter relates to how the schema might function within the tonal organisation of a piece or section, and is concerned mainly with the key and punctuation formula which precedes a schema, and the tonal destination of the schema. To some extent, the second parameter reflects typicality, in so far as there are certain locations where a Fonte or Monte schema is more likely to occur than others, but it may also suggest manipulation if the placement of a schema is particularly unusual. This category might also include cases when a schema appears to be constructed or manipulated to serve a more significant thematic or tonal function within the compositional design, and not just for the sake of variety or to stimulate listener expectation.

Each category within this analytical framework has associated with it cognitive implications, in terms of first recognizing the announcement of a schema, through the appearance of its first segment, and then understanding how the schema is subsequently realised or frustrated in some way. The chosen set of parameters and their divergences may therefore serve as a basis for discussing aspects of communication and listener response in relation to musical schemata.

It was noted previously that reciprocity between concept and exemplar is part of the iterative process by which schemata are acquired and refined by the individual. In keeping with this principle, the actual experience of regularly playing and listening to instrumental works from this period is a fundamental means of assimilating the characteristic idioms of Fonte and Monte, establishing mental representations for the schemata, and improving recognition of their typical constructions and manipulations. Similarly, the theoretical descriptions of Riepel and Gjerdingen are supplemented here by preliminary empirical study of schematic usage in Haydn's symphonic minuets and trios to refine the analytical framework.

Construction

HARMONIC DEGREES

Each segment of a Fonte or Monte is considered in Riepel's terms to be in the key of a particular degree of the scale, and by default the chord on that degree is preceded by its actual dominant, which may be diatonic or chromatic within the main key. The harmonic progression for the two chordal parts of each segment may thus be represented as C1 = {V*/X}, C2 = {X}, where X indicates the scale degree, and V* is a short-hand notation adopted here for the functional harmonic notation for any variant of the local dominant chord; it will frequently contain one or other inflectional form of the 7th or 9th above. The distinction between major and minor scale degrees is shown with upper- or lower-case numerals respectively.

In fact, the reduction of a schema segment to just two constituent chords is an over-simplification, since in many cases the V*/X in C1 is preceded within the segment by one or more other chords. For example, a Monte S1 may often be analysed as C1 = {I – V*/IV}, C2 = {IV}, while Gjerdingen gives a Fonte by J. Stamitz with C1 = {(vi-iv-vi-iv-vi) -V^7/vi}, C2 = {vi}, and a much earlier example by Gasparini, best analysed contrapuntally as C1 = {(❻$^+$-❼$^+$) -❼$^+$} above {(④-②) –⑤}, C2 = {❽} above {①}. While harmonic elaboration within a segment must therefore be admitted as a means of varying the construction, the core internal progression is always V*/X – X, and for the purposes of this study such preceding chords are viewed as optional dominant preparation within C1. It should be added that no example is found in Riepel or Gjerdingen of a corresponding elaboration of the destination chord in C2.

The standard placement of Fonte S1 is on the 2nd (minor key) degree of a major key, and the characteristic progression may be represented as C1 = {V*/ii} to C2 = {ii}. Riepel has 35 musical examples of this type, while 4 are found in Gjerdingen. Less typical for Fonte S1 is placement on the 6th (minor key) degree of a major scale, with the characteristic progression represented as C1 = {V*/vi} to C2 = {vi}. Riepel has 3 musical examples of this type, with

just one in Gjerdingen. A few examples of atypical placement for Fonte S1 in Riepel are: II, iii and IV. Gjerdingen has no examples of these uncommon placements.

The standard placement of Monte S1 is on the 4th (major key) degree of a major key, and the characteristic progression may be represented as C1 = {V*/IV} to C2 = {IV}. Riepel has 69 musical examples, with 4 in Gjerdingen. There are no significant examples of Monte S1 on other degrees in Riepel. As noted above, Gjerdingen has 3 placements on other degrees, namely V of major, III of minor, and ii of major (thus a potential Fonte S1); these all begin triple sequences, so to include them here as atypical Monte S1 placements would be questionable.

A particular application in Haydn, not mentioned by Riepel, is the use of the minor chord iv in Monte S1; in most cases, this occurs within a minor key schema, although there is one example in a major key. Two minuets have Fontes with the major II in S1, as described briefly by Riepel.

MELODIC DEGREES

At the core of each segment within a Fonte or Monte is a 2-part contrapuntal structure with specific scale-degrees in the voices above and below. As noted previously, these scale-degrees are numbered in this framework according to the *local* key for the relevant segment; this system has the advantage of being more readable and of showing the symmetry between segments more clearly.

The characteristic scale-degrees in Fonte S1 are C1 = {❺-❹} or C1 = {❻-❺-❹} above {⑦}, leading to C2 = {❸} above {①}. In the examples from *Anfangsgründe*, the two choices for C1 occur with equal frequency, and Riepel appears to regard the melodic ❻ as more or less optional. For Gjerdingen, however, the melodic progression ❻-❺-❹ is central to his definition of Fonte construction, and 6 of his 8 examples contain the melodic ❻. A ❼ or ⑦ in S1:C1 is always chromatic to the main key as its raised tonic.

An associated parameter of typicality is the melodic *Absatz* note for the punctuation which completes Fonte S1. In Riepel, this may either settle on ❸ or continue to ❶ with equal frequency, while Gjerdingen has more examples of the first of these melodic formulas than the second. A melodic movement to ❺ or ❺-❶ is rare. Movement directly to ❶ is also infrequent, with 3 notable examples in Riepel where the characteristic ❹-❸ is omitted: the first has ❻-❺-❼-❶, the second has ❹-❷-❼-❶, and the third has ❻-❹-❷-❼-❶. Gjerdingen also has an example of ❻-❺-❼-❶.

The characteristic scale-degrees in Monte S1 are C1 = {❺-❹} above {⑦} leading to C2 = {❸} above {①}. A ❹ or ④ in C1 is chromatic to the main key as its lowered seventh degree, while ❼ or ⑦ in C2 is chromatic as its raised fourth degree. In Riepel, the melodic *Absatz* punctuation is twice as likely to be ❸ than ❸-❶; in Gjerdingen ❸ is three times as frequent. In both, ❺-❶ is more frequent in Monte than Fonte, and melodic patterns without the characteristic ❹-❸ are less frequent. Riepel gives two examples of Monte with a ⑤ pedal, diatonic and chromatic. Notably, there is only one melodic example in Riepel of Monte with an added ❻, applied to both the progressions V-vi and IV-V. There are so many imaginative variants of melodic *Absatz* forms in Haydn, compared with the relatively simple examples in Riepel, that this cannot be considered a distinctive feature of the schemata.

VOICING AND HARMONY

The contrapuntal lines containing the characteristic scale-degree progressions are typically in the outer parts, although other distributions are also possible. The standard Fonte or Monte S1 clearly has these two melodic lines in the highest and lowest parts ('melody' and 'bass'). Riepel gives no example of Fonte with any other voicing, and just two examples of Monte with ❼-❶ above ⑤-④-③. Conversely, Gjerdingen has no examples of Monte with any other voicing, but gives two examples of Fonte with ❼-❶ above ⑤-④-③ and ❼-❶ above ⑤-①; this higher proportion of examples with irregular voicing probably reflects Gjerdingen's focus on core degree progressions more than typicality in practice.

Haydn's minuets and trios contain many examples of voicing and harmonisation which deviate from the precise contrapuntal patterns emphasised by Gjerdingen. They include cases such as ❼-❸ over ②-① and ❺-❸ over ④-③, as well as many bass movements ⑤-①; we could claim that the V* in C1 may be in any inversion, and the destination chord may be in either root position or first inversion. The framework will classify unusual voice-leadings or harmonic constructions such as 'diatonic' Fonte or Monte and Riepel's 6-5 interval progression as a separate type, provided the instance is judged to be schematic. The empirical study also requires that further type be added to include special techniques such as *pedal*, *tutti unison* or *imitation.*

RHYTHM

All of Riepel's examples of Fonte and Monte appear within passages of $\frac{2}{4}$, $\frac{3}{4}$ or $\frac{4}{4}$. The well-known section in Volume 2 of the *Anfangsgründe*, in which he first introduces these schemata, may give the false impression that their application is restricted to the simple minuet form, since it is clear from other passages that they may be applied equally in any movement. Gjerdingen is not primarily concerned with meter, but it is interesting that he represents the strength of metric (or hypermetric) position from C1 to C2 within each

segment in Fonte and Monte as *Weak* to *Strong*. It should be noted here that such a relationship is not confirmed in the accompanying study of schemata in Haydn's minuets and trios. Neither theorist focuses on internal rhythmic distribution within a segment, although the examples suggest that it is a significant parameter of typicality.

A study of the musical examples in Riepel and Gjerdingen suggests that the standard Fonte or Monte S1 is slightly more likely to start on the first beat of a measure than on a preceding upbeat. Moreover it will typically have some greater rhythmic motion in C1 leading to a relatively static, though possibly decorated, note in C2. The results also show that a Fonte C1 is twice as likely to contain faster moving notes than C2, and a Monte C1 almost three times as likely. Either finding supports the intuitive sense of directed rhythmic motion to the destination chord in each segment. A rhythmic relationship in which both C1 and C2 have slower-moving notes appear in only 2 Fonte examples and 9 Monte examples, so this disposition is clearly atypical.

Finally, it appears characteristic of Fonte and Monte to add rhythmic interest to the construction of the segment. This may be through means such as tied notes, dotted notes, smaller note values, syncopations or triplet figures. While few of Riepel's examples contain features of this kind, many more appear in Gjerdingen's examples, suggesting that this is a routine way for composers to depart from over-typicality in a schema construction without deviating radically with respect to other parameters.

SEGMENT LENGTH

This parameter is concerned with the segment length in a schema, and in particular the length of S1. The survey of examples in Riepel and Gjerdingen show that the overwhelming majority have a standard S1 length in Fonte or Monte of 2 or 4 bars.

Riepel has 9 examples of other segment lengths for a Fonte or Monte, mostly produced by repetition of all or part of the segment. He has two clear examples of a 3-bar Monte segment. A segment length of 1 bar is so atypical that no examples appear in Riepel or Gjerdingen. Apart from some examples of expanded 2- or 4-bar segments, and a 3-bar segment, there is a significant new type used frequently by Haydn but not mentioned in Riepel. This may be described as a 1+1 schema, even though neither Riepel nor Koch would permit such classification in their theory, since a single bar is insufficient to form an incise. However, as it is used so often by Haydn, typically as an embedded segment within a phrase, a special type is required for it in the framework.

HARMONIC RHYTHM

The relative length of the chords in C1 and C2 is a significant characteristic of a schema. The standard constructions of Fonte and Monte have C1 and C2 of equal lengths. The two means of varying this parameter are (i) making C1 and C2 unequal in length, usually with C1 being longer, and (ii) using an alternation of C1 and C2 within a longer segment.

A study of all the examples in *Anfangsgründe* shows that a Fonte S1 has C1 and C2 of equal length in 73% of cases. C1 is longer than C2 (i.e., by a ratio of up to 3:1) in 17% of cases, and much longer (i.e., by a ratio of up to 7:1) in 10% of cases. Alternation of C1 and C2 occurs in about 13% of cases. A Monte S1 has C1 and C2 of equal length in 50% of cases. C1 is longer than C2 (i.e., by a ratio of up to 3:1) in 26% of cases, and much longer (i.e., by a ratio of up to 7:1) in 24% of cases. Alternation of C1 and C2 occurs in about 8% of the musical examples.

It must be said that it is not always clear in the *Anfangsgründe* precisely where the chord of C2 is first sounded, since Riepel's melody might imply either a continuation of the 'dominant' chord (extended for example across the bar line) or an appoggiatura formation above the 'tonic' chord; judgement must be applied in these cases. Nevertheless, the percentages above suggest some differences between Fonte and Monte as regards harmonic rhythm. In particular, it appears that Monte is as likely to have unequal as equal harmonic rhythm between C1 and C2. Moreover, Riepel clearly favours equal harmonic rhythm for Fonte, while Gjerdingen has unequal harmonic rhythm in two-thirds of his Fonte examples. No example appears in either source where C1 is shorter than C2, so this would be a highly atypical construction. The compressed schema from Haydn introduces a relation of harmonic rhythm not found in Riepel, namely a short-long proportion. A typical example might be $\frac{3}{4}$ ♩ ♩ | for a complete segment. The extra type *short-long* is therefore included in the framework.

Completion

This category is concerned with what happens after the initial segment of a schema has been stated; essentially, it seeks to describe the relationship between S1 and S2. The descriptions and musical examples of Riepel and Gjerdingen enable us to define precisely the standard completion of Fonte and Monte. In fact, Riepel spends little time in the *Anfangsgründe* discussing such cases, since he is far more interested in methods for manipulating ('varying') the schemata than in prescribing standard construction and completion. While Gjerdingen does not specifically refer to Riepel's imperative for variation, it is interesting that almost all his Fonte examples are non-manipulated in respect to the category of completion, while his

Monte examples rely on particular manipulations which in some cases even Riepel might consider extreme.

VOICING AND HARMONY

This parameter relates to symmetry between the chord structures of S1 and S2. Only one example is found in Riepel where the second dominant chord does not match the first, so we may conclude that harmonic symmetry is almost an invariable requirement of schema completion. It is also standard for the harmonic rhythm of the second segment to match that of the first. Switched voicing appears not be used for manipulation, although, since Riepel gives only the melody in most of his examples, he is required to show the S2 response in the same voice; nevertheless, the evidence from Haydn's minuets and trios suggests that 'voice-switching' is rare in schema completion, and Gjerdingen presents no example of it. A similar observation applies to varied instrumentation within the completion. Taken together, these points might suggest that altering the harmonic structure, voicing or instrumentation in S2 would produce for the listener an unconvincing realisation of schematic expectation (or an intentional, but aesthetically unsatisfactory, frustration of it). Isolated examples appear in the minuets and trios of varied harmonisation, registral shift and non-correspondence in S2, as well as schemata over a pedal, and *tutti* unison segments or schemata

PROPORTION

The standard completion of a schema has S1 and S2 of equal length. Phrase expansion, usually achieved through a repetition of a C1-C2 sub-segment, may result in S1 and S2 of unequal lengths. Riepel gives 18 examples where S2 is longer than S1. Most of these are applied in the *Anfangsgründe* to the Monte schema, but the technique is equally valid for Fonte. Since Riepel has only one example where S1 is longer than S2, we may conclude he considers this proportional relationship less effective.

MELODIC SIMILARITY

The standard completion has an identical (transposed) melody for the second segment. Variation of this parameter is achieved through the progressive reduction of melodic similarity between the two segments, and indicative statistics may be derived in particular from the *Anfangsgründe*. Of his Fonte examples, Riepel has 32 with identical melody in S1 and S2, 17 with melodic variation to a lesser or greater degree, and 17 where S2 is completely non-matching. The figures for his Monte examples are somewhat different: 41 have identical melody, 23 have some degree of melodic variation, and 52 are non-matching. A further interesting observation is that non-matching melodic *Absätze* for S1 and S2 are found in only one Fonte example, but in 27 of the Monte examples. Gjerdingen's examples

show similar distributions, and all these figures support Riepel's point that variation is required more for Monte than Fonte.

RHYTHMIC SIMILARITY

The standard completion has an identical rhythmic pattern in the second segment. As with melody, variation reflects the degree to which the rhythmic patterns differ. Of his Fonte examples, Riepel has 34 with identical rhythm in S1 and S2, 14 with rhythmic variation to a lesser or greater degree, and 18 where S2 is rhythmically non-matching. The differences for Monte are slightly less than for melody: 43 have identical rhythm, 27 have some degree of rhythmic variation, and 46 are non-matching. Again, Gjerdingen's proportions correspond closely.

It is worth noting that melodic and rhythmic variation work together to create the degree of similarity between the two segments. The most extreme deviation results when the segments are non-matching in relation to both of these parameters; in such cases, the feeling that the second segment responds to or completes the first may be significantly reduced or even lacking.

HARMONIC PROGRESSION

This is clearly the most important of all methods of manipulation discussed by Riepel, since he devotes so much space to it in his *Anfangsgründe*, and presents in succession varied progressions for Fonte and Monte in some detail.[198] Given that he provides just one example for each theoretical type of progression in most cases, it is not possible to assess well-established and widely-applied these forms of manipulation were in practice; Haydn's minuets and trios contain no examples of these progressions.

The standard harmonic progressions for proper schema completion are ii – I or vi – V for Fonte, and IV – V for Monte. In cases of less typical scale degree placement for S1, the standard progressions are one step downwards or upwards respectively. This includes the single Fonte II-I and the V-IV (non-standard 'Fonte' or 'reversed Monte') that appear in Riepel. It is worth noting that all of Gjerdingen's examples conform to this stepwise pattern, although with some very non-standard S1 placements: one of his Montes proceeds V-vi, and he describes his two Scarlatti examples as triple Monte, even though one starts on III and the other on ii.

The first level of manipulation that Riepel mentions is an '*Absatz* switching' for the schema, in which Fonte proceeds to a *Quintabsatz* as ii – V, and Monte to a *Grundabsatz* as IV-I. The

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[198] A complete list of Riepel's varied Fonte and Monte progressions appears in Chapter 2.

case of vi – QA/V is not found in Riepel, nor any other non-stepwise progression where the S1 starts on a non-standard degree. The preliminary examination of Haydn's minuets and trios suggests that he seldom employs the switched *Absatz*. The next level of manipulation is represented by the class of 'parenthetic progressions'. All of Riepel's examples proceed after the inserted segment to V, with the exception of a Fonte ii-(IV)-I and a Monte IV-(ii)-I. It is possible that we should regard a parenthetic progression which proceeds to the standard scale-degree destination as slightly less manipulated that one which also has an *Absatz*-switch. For example, Fonte ii-(IV)-V represents a higher level of manipulation than ii-(IV)-I.

A particular class of eccentric manipulation is introduced with the sequential progression iii-I which Riepel describes as Fonte with ii omitted. This case shows how far a schema may be distorted while still retaining the designation, at least for Riepel. It implies that one must be alert to similar cases where a similarly obscured schema might be identified. The most extreme manipulation of the harmonic progression described by Riepel occurs when the standard or switched destination is not reached at all; an example given is Monte IV-ii-[vi]. The analytical framework treats a case like this as an incomplete schema, unless the segment on ii follows IV sequentially.

A comment is appropriate here on the question of contiguity, which refers to how closely the second segment follows on from the first. In the overwhelming majority of cases, the succession is immediate, so this may be stated as a condition of standard completion. The parenthetic progressions noted above, and described by Riepel as a means of advanced schema variation, represent a potential departure from this principle. Even though S1 and S2 are not contiguous in this situation, however, the inserted segment in Riepel's examples typically implies a sequential continuation of C1, so a sense of contiguity at least is maintained. Non-contiguity is clearly a feature, however, in cases of delayed and incomplete schemata.

COMPLETENESS

This is not so much an independent parameter as a measure of the degree of completeness created by all the parameters above in combination. It is therefore a perceptual and subjective measure located on a continuum between maximal completeness and incompleteness. The first extreme is easy to define and experience perceptually, since it results from standard construction and completion with regard to every parameter. The other extreme is more problematical, since Riepel does not actually acknowledge the existence of an 'incomplete' schema: even his most unusual examples of tonal manipulation in the *Anfangsgründe*, where a clear S2 can be almost impossible to identify, are treated as 'varied' Fonte or Monte. One explanation is that Riepel considers an S2 to exist in every case,

however much it might be suppressed, especially if it proceeds to a *Grundabsatz* or *Quintabsatz* which matches that of the first segment; a more interesting possibility is that at this level of manipulation, the S1 alone is sufficient to represent the schema, regardless of whether or how it is completed. Nevertheless, the analytical framework permits the case of an incomplete schema, albeit at the most extreme end of the continuum.

Between these two extremes lie schemata with varying degrees of completeness, effected by procedures such as diversion, continuation, parenthesis and delayed completion. A clear example of a diverted schema is a sequential Fonte ii – V or Monte IV – I, where the sense of completeness is strong, yet the destination is unexpected. Continuation refers to those cases where the two segments of the schema are followed sequentially by one or more further segments: the 'triple Monte' is a well-known example of this. Similar, though less common, is the procedure in which the schema is created by the final two statements of a segment sequence: Riepel has an example of iii – ii – I which produces this effect. Parenthesis refers to the insertion of just one or two segments before the expected S2 appears, so the deferral of completion is brief. Delayed completion in this study refers to a few examples in Haydn minuets and trios where the S1 is diverted and is apparently completed much later within the section of a movement; sophisticated techniques of this kind are not discussed by Riepel, but will be evident in the symphonic case studies of the following chapters.

Context

LOCATION

Neither Riepel nor Gjerdingen specifies the particular location(s) within a movement where Fonte and Monte are most typically applied. The examples of complete minuets in *Anfangsgründe* suggest that the standard location for a schema is at the start of the second reprise, immediately following the double bar: its function here may be described as that of continuation. However, Riepel later states that a schema may also introduce the phrase leading to the thematic/tonal return, and its function here may be described as that of preparation. Further musical examples in the *Anfangsgründe* show that the schema may also be placed within longer melodies from movements such as an *Allegro*, immediately after some progression to a related key. Its function here may be described as that of tonal return. All of Gjerdingen's Fonte examples have the schema following the double bar, and the *Studio* by Durante has a Monte at the end of the first reprise or main section leading to a strong *Quintabsatz*.

It is clear from all sources that a schema must always follow a caesura; in fact, the presence or absence of such a caesura, together with the degree of sequentialism, can help to determine whether a schema-like passage should be identified as a schema at all, or merely a routine harmonic progression which resembles one. It is also clear that the standard location for a schema is at the start of the excursus, immediately after the double bar. The next most frequent location is near the end of the excursus, where it leads directly either to the thematic or tonal return or to another phrase which prepares for it. It is less typical to find a schema within a section, as a means of returning to the main key after a caesura in a related key. More location types must be added to the framework for analysis of other movements in the symphonies, and in particular the different sections of a sonata-form movement; they include 1st reprise/exposition, introduction and coda.

It should be noted that Riepel seems to view Fonte and Monte as more-or-less interchangeable: at no point in the *Anfangsgründe* does he state or imply that Fonte is appropriate for one particular context, and Monte for another. This suggests that for Riepel either schema may serve the formal function required at a given point: continuation, preparation or tonal return.

TONAL CONTEXT

Riepel and Gjerdingen do not discuss the question as to which keys and punctuation endings may precede or follow a schema. The tonal destination of each schema is clear, since standard Fonte and Monte completions effect tonal progressions to the tonic and dominant respectively. Whether the two schemata are interchangeable with respect to the preceding punctuation is less clear, given that Fonte C1 and Monte C1 represent different harmonies. Yet Riepel nowhere implies that a Fonte ii-I follows a *Grundabsatz* more naturally than a *Quintabsatz*, for example. Preliminary analysis of the Haydn minuets revealed that a Fonte in a major-key movement most frequently follows a *Quintkadenz* at the double bar, while Monte most frequently follows a *Grundkadenz*.

Finally, it makes sense to include formal function in the framework, to account for more diverse possibilities in other movements of the symphonies, which are typically much longer and more complex than the minuets and trios. The formal functions added include tonal transition and thematic usage.

Definition and Refinement of the Framework

No single terminology has emerged from psychological schema theory to describe the different levels of schematic structure. The analytical framework here follows the example

suggested by Minsky,[199] and others in artificial intelligence literature, but replaces terms such as *slots* and *variables* with the three-fold partonomic hierarchy of *Categories*, *Parameters* and *Types*. At the highest level, the schema itself is considered the member of a *Class*. This is the classificational model on which the discussion in the previous section was structured, and is the basis for the following complete analytical framework for Fonte and Monte. This framework will provide the basis for the empirical study of the two schemata in Haydn's symphonies which is the focus of Chapter 5.

CLASS: **SCHEMATA**

Members: Fonte

     Monte

     'Reversed'

CATEGORY: **CONSTRUCTION (S1)**

Parameter: Melodic Degrees (C1-C2)

Types: ❹-❸

     ❺-❹-❸

     ❻-❺-❹-❸

     no ❹-❸

     ❼-❶

     Other

Parameter: Bass Degrees (C1-C2)

Types: ⑦-①

     ⑤-①

     ④-③

     ②-①

     Other

Parameter: Rhythm (C1:C2)

Types: Quick-Short

     Quick-Quick

     Short-Quick

     Short-Short

Parameter: Segment Length (S1)

Types: 1 bar

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[199] Minsky (1988).

	2 bars
	3 bars
	4 bars
	> 4 bars
	[repeated incise]
Parameter:	Harmonic Rhythm (C1:C2)
Types:	1:1
	Long:Short
	Very Long:Short
	Short:Long
	[C1/C2 alternations]

CATEGORY: **COMPLETION (S1 – S2)**

Parameter:	Harmonic Similarity
Types:	identical harmony & voicing
	identical harm, different voicing
	identical voicing, different harmony
	different harmony & voicing
	non-matching
	[different register/instrumentation]
Parameter:	Melodic Similarity
Types:	identical
	mostly matching
	partially matching
	non-matching
	[ornamented S2]
	[*Zwitter*]
Parameter:	Rhythmic Similarity
Types:	identical
	mostly matching
	partially matching
	non-matching
Parameter:	Proportion (S1:S2)
Types:	equal

	longer S2
	shorter S2
Parameter:	Chord Progression
Types:	FONTE
	Major Key:
	ii-I
	vi-V
	ii-V
	II-I
	ii-i
	ii-I +
	iii-ii-I
	other or minor key
Types:	MONTE
	Major Key:
	IV-V
	iv-V
	IV-V-VI
	iii-IV-V
	other
	Minor Key:
	iv-V
	iv-v'
	other
	'triple Monte'
Parameter:	Completeness
Types:	standard completion
	schema switch
	sequence continued
	at end of sequence
	delayed completion
	non-completion

CATEGORY:	**CONTEXT**
Parameter:	Location
Types:	Start-Excursus/Development; after double bar
	pre-Thematic Return
	1st Reprise/Exposition
	coda/closing theme
	thematic return elision
Parameter:	Function
Types:	continuation
	preparation for thematic return
	continuation and preparation
	key transition
	'thematic' usage
Parameter:	Thematic connection
Types:	thematic
	non-thematic

Chapter 5: Corpus Study and Empirical Results

Introduction

This chapter discusses significant empirical results from the application of the analytical framework developed in Chapter 4 to all the movements in Haydn's symphonies. First, however, some preliminary remarks on the nature and scope of such empirical studies will be helpful.

In essence, an empirical study in musicology seeks to provide support, through the observation and analysis of relevant musical data, for a claim or hypothesis that would otherwise remain speculative and subjective. Its particular value is in providing a check and counterbalance to assertions often encountered in musicology that are unfounded and might actually prove incorrect if tested; as Cook and Clarke note: "musicologists are prone to build interpretations on very small data sets or even on single instances".[200] Given the vast amount of data that has long been available to almost every branch of musicology, it is perhaps surprising that empirical research is such a recent development in the discipline. Indeed, reviewing the history of musical corpus research, Temperley and VanHandel (2013) record just three such studies before the mid-twentieth century, and note that this methodology has become standardised only within the last decade or so, in particular through the work of David Huron.[201] A clear indication of how important empirical and statistical corpus research has become in recent musicology is that *Music Perception* published two special issues in 2013-14 devoted entirely to articles on the topic.[202]

Corpus research in music analysis or psychology often involves computerised searches on a database of musical works encoded into machine-readable form; the most extensive database and searching resource currently in use is the *Humdrum* toolkit developed by Huron and others at Stanford University. The software allows large corpora such as a composer's complete symphonies or string quartets to be systematically searched for specific musical features like interval frequencies or melodic contours. There are two further important music information resources not mentioned by Temperley and VanHandel: one is ISMIR, with its repository of wide-ranging material devoted to the development of computational systems for the extraction and analysis of music;[203] the other is CCARH, which provides large repositories of musical scores,

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[200] Clarke and Cook (2004:4).

[201] Temperley and VanHandel (2013:1).

[202] *Music Perception*, 31:1 (2013); 31:3 (2014).

[203] International Society of Music Information Retrieval at http://www.ismir.net.

software and other resources for computational manipulation.[204] The advantages of computer analysis are obvious: consistency, accuracy, speed and capacity. It offers the quickest and most reliable method to find all the F♯ to G melodic progressions in Mozart's piano concertos, for example. However, its limitations are also immediately apparent: it requires that the data source processed be correct, consistent and complete; it assumes that the data itself has sufficient objective validity; and it is effective only when search criteria are simple and unambiguous.

As the musical feature under consideration increases in complexity, so the computer's ability to search for it diminishes. It would be a serious challenge to devise an algorithm to identify thematic transformation widely separated in a movement, and its results would almost certainly be received with scepticism; the musical phenomenon here is well beyond the limits of what a computer algorithm could detect. The difficulty in detecting sequential harmonic schemata lies somewhere between these two extremes, and the reasons for such limitations are easy to understand: analytical experience tells us that a configuration of notes within even a single bar can pose interpretive problems which require direct inspection, and may only be resolved, if at all, by reference to other features in the score, or some specific knowledge of music theory; with larger and more complex musical phenomena, the number of contributing parameters increases dramatically and makes direct inspection essential. This limitation of automated computer searching, and the inability of machine analysis to match the human mind, is echoed by Albrecht and Shanahan (2013) in the context of their research: "…using algorithms to assign keys to pieces often fails to emulate the ability of human analysts".[205] It is clear then that for complex musical phenomena, human analysis is almost always superior to machine analysis.

Some further considerations relevant to this empirical study of Fonte and Monte are discussed by Gjerdingen. His perspective that music of the eighteenth century is essentially schematic, rather than structurally hierarchical or merely an aggregation of individual elements, leads him to advocate the practice of 'historically informed corpus studies'.[206] He also notes that flawed classification and algorithmic representation of the musical feature being investigated can produce incorrect results, as can the presence of multiple musical streams and non-contiguous components of the feature.[207] Affirming some of the limitations noted above, Gjerdingen asserts that patterns such as schemata cannot be detected by machine analysis. In particular, he cautions against the assumption of event contiguity; as it happens, contiguity is a typical feature of the sequential Fonte and Monte schemata, so in this case it is non-congruence between the two

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[204] Center for Computer Assisted Research, Stanford University at https://ccrma.stanford.edu/~esf. This resource hosts the MuseData and Themefinder repositories, and also offers a Humdrum portal.

[205] Albrecht and Shanahan (2013: 59).

[206] Gjerdingen (2014).

[207] Gjerdingen (2014:192-193).

segments which would create the main problem for machine analysis. Nevertheless, the issue of non-contiguity does arise too in the case of non- or delayed completion of schemata. Gjerdingen's case studies of *cadenzia doppia* emphasise a further critical point relevant to the analysis of Fonte and Monte, namely that they do not primarily express a harmonic progression as it is usually understood, but rather a contrapuntal configuration with historical origins: machine analysis would surely fail to account for the essential 'collocation of voice-pairs'[208] central to the schema derived from *partimenti* traditions.

Of course, the extraction of data is only one half of the empirical exercise; the other concerns the interpretation of that data. A tendency has emerged in empirical musicology, whether in relation to the conducting of experiments or the retrospective analysis of historical data sets, to adopt the methodologies well established in the physical or social sciences, including significance testing as the final phase of the study. Inferential statistics is of particular importance to studies in music perception, but may feasibly be applied to musical analysis; thus, it is quite typical for authors to state an error level *p* to indicate degree of confidence for statistical claims in their studies. While appropriate for the study of narrowly-defined features or relationships in a musical study, the notions of samples, populations and correlations tend to be associated with the orientation of scientific method, which in other cases may be inappropriate or misguided. It is entirely reasonable for an empirical study to be directed towards 'hermeneutics not prediction'.[209] Indeed, it may be essentially exploratory, intended to provide indicative results that suggest possible directions for further, non-empirical investigation. Its orientation may be qualitative more than quantitative, especially if the musical features are complex, and the methodology requires subjective judgment. Here, the role of statistics ought to be indicative rather than inferential, and significance testing is neither necessary nor appropriate; as Cook (2004) notes, "Empirical musicology [simply] embodies a principled awareness of both the potential to engage with large bodies of relevant data, and the appropriate methods for achieving this".[210] A final comment on matching methods to aims may be taken from Huron (2013): "Conscientious scholars focus on the questions, and then acquire whatever tools best allow them to address those questions.[211]

To bring the above considerations to bear on the present study, we might claim that the recommendation of Huron has been assimilated into each of its three main phases: the analytical framework is specifically designed as a transformation from psychological schema theory to the detailed conceptual definitions of Fonte and Monte; the empirical data from the symphonies is not automated, but rather extracted through careful human analysis of every schematic instance; and

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[208] Gjerdingen (2014:200).
[209] Huron (2013:8).
[210] Clarke and Cook (2004:5).
[211] Huron (2013:9).

the interpretation of results adopts a quantitative but primarily indicative model, designed to support a preferred hermeneutic analytical approach to assessing the central hypothesis of the study. It might be argued that simply to accept the limitations of computer-based extraction of information is pessimistic, and fails to appreciate the accurate level of pattern recognition of which sophisticated algorithms or neural network models are capable. In the case of harmonic schemata, it should not be impossible by any means to produce a model which can accurately identify *normative* instances of the schema, but skewed or intentionally manipulated forms would almost certainly require direct human analytical intervention. The present chapter, whose aim is to examine the full range and variation of techniques that Haydn applies to Fonte and Monte schemata, therefore applies non-automated analysis to generate indicative empirical results, illustrated by relevant passages from the symphonies. Chapter 6 is more ambitious: despite earlier reservations and cautions, inferential statistical testing on Haydn's schematic usage is applied there in an attempt to reveal possible stylistic changes within and between symphonic groups of established musicological interest.

The symphonies

The corpus for this empirical study is the complete set of Haydn symphonies. Including the two early symphonies "A" and "B", but excluding the *Concertante* H.105, it comprises 106 symphonies, with 412 movements. The issues of chronology and grouping of symphonies according to context and function are particularly important to the present study. However, there are numbering discrepancies in previous complete editions or chronologies, relating in particular to some symphonies before c.1782. Webster has provided a chronology and grouping based on the research of Gerlach,[212] which supersedes that of Robbins Landon and Feder. He retains the conventional Hoboken catalogue numbers, although with their ordering changed to reflect the editorial revisions, and his chronology for the symphonies is based on 15 separate categories or groups to reflect the changing contexts or influences in Haydn's compositional career. These will be examined further in Chapter 6, where the statistical analyses require a partitioning of the symphonies into potentially distinct stylistic groups. For the present chapter, where any chronological observations relate only to the entire set of symphonies, it is sufficient to note the symphonic chronology proposed by Webster and Gerlach; this produces the sequence of Hoboken numbers shown in the table of Figure 134.

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[212] Gerlach (2000).

Chronology of Haydn's Symphonies
(Hoboken numbers)
1, 2, 4, 5, 10, 11, 18, 27, 32, 37, '107A', 3, 14, 15, 17, 19, 20, 25, 33, 36, '108B', 6, 7, 8, 9, 12, 13, 16, 40, 72, 21, 22, 23, 24, 28, 29, 30, 31, 34, 35, 38, 39, 41, 58, 59, 65, 26, 42, 43, 44, 48, 49, 45, 46, 47, 51, 52, 64, 50, 54(I), 55, 56, 57, 60, 53, 54(II), 61, 66, 67, 68, 69, 62, 63, 70, 71, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100, 101, 102, 103, 104

Figure 134: Webster/Gerlach chronology for Haydn's symphonies[213]

Analytical notes

The detailed analytical framework developed for this study was presented and discussed in Chapter 4. Some further explanatory notes are needed here on issues that inevitably arise when applying the framework in practice to the schema instances in the symphonies.

Within the superordinate level designated in the framework as *Class*, the first two *members* are simply Fonte and Monte. A third type, not discussed by Gjerdingen or Riepel has a construction or location within a movement that may suggest parallels with either of the two principal schemata; this speculative form is designated as a 'reversed schema'. Mentioned in Chapter 3 as arguably a distinct galant schema in its own right, it appears as a reversal of the two segments which make up a standard schema. To retain its connection to Fonte or Monte as tightly as possible, the criteria applied these reversed schemata are: (i) if S1 is major and S2 is minor, then it may be interpreted as a reversed Fonte, with R-Fonte I-ii as the most typical construction; (ii) if both S1 and S2 are major, it may be interpreted as a reversed Monte, with R-Monte V-IV as the most typical construction; (iii) any other configuration of major and minor segments rules out classification as a reversed schema.

Since frequency counts and distributions are an essential part of this study, it is important not to record the 'same' schema more than once for a movement. There are two main contexts in which unwanted duplication must be avoided: (i) where a Fonte vi-V in one section of the movement is matched by a corresponding Fonte ii-I in another section, with essentially similar construction and local function, then only the *second* Fonte is recorded; (ii) where a Fonte or Monte is part of a theme or passage that recurs more than once within a movement (e.g. variation or rondo structure), then only the *first* instance is recorded, unless one of the later instances uses a significantly different or varied construction, in which case this is recorded too.

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[213] Webster (2000).

Each category in the analytical framework contains several parameters, and each of these permits a range of mutually exclusive types, sometimes with an additional qualifier. It should be noted that in most cases, it is clear which type applies for a given schema instance, but ambiguity arises in some cases; it is necessary here to apply judgement to determine the type that best describes the schema. This issue relates to the problem of indistinct category boundaries discussed in Chapter 4, and it was decided that the alternative policy of simply omitting such instances would be more detrimental to the empirical results than erroneous classification. This principle of applying judgement in ambiguous cases applies to all parameters across the analytical framework. The following section provides analytical notes for each parameter and the principal types associated with it.

CONSTRUCTION

Melodic Degrees (C1-C2): this parameter refers to the salient scale degrees that form or underpin the upper ("treble") melodic line within a segment. Where the actual upper line in the passage is decorative (e.g. a dominant pedal), then an inner line is chosen to provide the salient degrees. Sometimes the treble melody may imply two embedded contrapuntal lines (e.g. ❻-❺-❼-❶), in which case a choice must be made, with reference also to the bass line, as to which pair of degrees is the more prominent. The salient degrees in the melodic line of a fully-fledged Fonte are considered to be ❻-❺-❹-❸, and for a Monte ❺-❹-❸. The other types which may appear are: ❹-❸, no ❹-❸, ❼-❶, and "Other". The qualifier "❻ present" may also be used in conjunction with the types ❹-❸ or ❼-❶.

Bass Degrees (C1-C2): this parameter refers to the salient scale degrees that form or underpin the lower ("bass") melodic line within a segment. Similar considerations to those noted above apply here. The salient degrees in this case for a standard Fonte or Monte are ⑦-①. The other types which may appear are ⑤-①, ④-③, ②-①, ②-③, pedal ⑤ or ① and "Other". The qualifier ❻ may be used in conjunction with any of these types. It should be noted that a degree not indicated within the treble or bass lines is not necessarily absent from the texture; if not in the outer parts, the degrees 4 or 7 are almost invariably supplied by an inner part.

Rhythm (C1:C2): this parameter refers to the rhythmic profile of the schema segment, and describes the movement across the change of chords C1 → C2. This feature is not specifically discussed in other sources, yet it is clearly important in defining the character of the passage: a segment whose melody follows the rhythm $\frac{3}{4}$ ♩ ♩ ♩ | ♩˙ | has a very different character from one whose rhythm is $\frac{3}{4}$ ♩ ♩ | ♫♫ ♩ |. Segments of the first type will be classified as quick-slow, those of the second type as slow-quick. The remaining types 'equal', 'quick-quick' and 'slow-slow' are self-explanatory. It often happens that the rhythmic profile must be sought in the non-melodic line,

for example where the treble line proceeds across the two chords in equal quavers, but the bass line has the rhythm $\frac{2}{4}$ ♪ ♪ | ♪ |; in this case, the schema would be designated as 'quick-slow'.

Segment Length (S1): this parameter refers to the length of the first complete segment. The actual number of bars takes into account the time signature: in $\frac{4}{4}$ (but not ¢) each half-bar is counted as a full bar of $\frac{2}{4}$; the time signature $\frac{6}{8}$ is treated as two bars of $\frac{3}{8}$ if a punctuation formula can fall on the fourth quaver, and when rhythmic activity occurs on each quaver. The number of bars may be recorded as < 1, 1, 2, 3, 4 or > 4. The precise start of a schema is sometimes difficult to specify, and it should be noted that C1 often contains one or more chords before the actual schema (V*/x) chord; this results in a longer recorded bar length. The qualifier "repeated incise" may be tagged with one of the longer lengths, indicating an exact repetition of a smaller motive within the segment.

Harmonic Rhythm (C1:C2): this parameter refers to the relative durations of the chords C1 and C2. The length of C1 is taken to include any introductory chords, and C2 is taken to last until the onset of C1 in S2. The possible types are '1:1' (equal proportion), 'long:short' (<=3:1), 'very long:short' (>3:1) and short:long (1:>1). The qualifier "alternation" may be tagged with any of these lengths, and indicates a repeated schema progression which does not contain a repeated incise.

COMPLETION

Harmonic Similarity: this parameter refers to the harmonic-contrapuntal correspondence between the two schema segments. Perfect similarity occurs where every chordal note of S2 is one step lower or higher than in S1, and the type here is recorded as "identical harmony & voicing". It is possible to retain the same harmony but with a different voicing, if for example a chord in S2 appears in a different inversion. It is also possible to retain the same voicing but with a different harmony, if for example a note in the chord in S2 is chromatically altered but the chord function remains the same. Finally, it is possible for both harmony and voicing to be different in S2; this undermines the sequential nature of the passage, which nevertheless remains recognisable as a schema. The qualifier 'different register or instrumentation' may be added to any of these four types. Even where S2 differs significantly from S1 in some respects, the harmonic similarity is assessed according to the configurations which do match. No type is recorded for the parameter where the schema instance is noted elsewhere as non-completed.

Melodic Similarity: this parameter refers to the degree of similarity in the principal (usually upper) melodic line between the two schema segments. Perfect similarity occurs where every melodic note of S2 is one step lower or higher than in S1, and the type here is recorded as 'identical melody'. The type 'closely matching' typically indicates either melodic decoration or the

retention of just part of the melody in S2. The type 'partially matching' applies where only a trace of similarity exists, while 'non-matching' indicates no similarity whatsoever; this last case again tends to undermine the sequential nature of the schema. Finally, the qualifier "*Zwitter*" ('hermaphrodite' inflection) may be added to any of the four types if the lowered ❻ or ◎ appears in S2:C1.

Rhythmic Similarity: this parameter refers to the degree of rhythmic similarity between the two segments, particularly of the principal melodic line. The types for this parameter correspond to those for melodic similarity above, and are determined according to the same criteria. They comprise 'identical', 'closely matching', 'partially matching' and 'non-matching'.

Proportion: this parameter refers to the relative length (number of bars) of the two schema segments. Although the typical proportion is 'equal', there are many examples in the corpus of unequal segment lengths; these are accorded the types 'longer S2' or 'shorter S2'. It is mostly the inclusion or omission of incise repetition, C1/C2 alternation, parenthetic insertion or ellipsis which create the difference in segment lengths. In thematic elision, the segment lengths are considered equal even though the schema completion is provided in part by the theme itself.

Progression: this parameter refers to the scale degrees on which S1:C2 and S2:C2 are constructed. Since these are clearly different for Fonte and Monte, the two schema are classified separately in this study:

Fonte

The Fonte invariably appears only in a major key, as construction in a minor key is prevented by the diminished triad on the second degree. Nevertheless, many variant forms are still possible. This study considers all Fontes to be constructed on the degrees 2-1 in a local key (usually the main tonic key, or in the relative major if the main key is minor), with one exception: while Fonte vi-V could be interpreted as Fonte ii-I in the dominant key, it is so frequent and particular in function that it makes sense to highlight it as a contrasting type; this is very much how Riepel introduces the Fonte vi-V. Variant Fonte types are created by substitution of major/minor chord in C1 and/or C2, deviated progression to the dominant, placement of the schema at the start or end of a longer sequence (as described by Riepel), reversal of S1 and S2, and construction on non-standard degrees. For convenience, the classification uses the upper- and lower-case Roman numerals to indicate major and minor chords on the given scale degree. The full set of types found to be sufficient for this corpus is:

- ii-I

- vi-V

- ii-V

- II-I

- ii-i

- ii-I-+

- iii-ii-I

- reversed (I-ii, V-vi)

- [qualifiers 'in relative major' or 'in other key' may be added to Fonte 2-1 types]

Monte

The Monte may appear in a major or minor key. Its variant forms are created by substitution of a major/minor chord in C1 and/or C2, deviated progression to the tonic, reversal of V and IV, the 'triple Monte' (even though this is regarded by Riepel as a deception and not a Monte at all), Monte at the end of a sequence, and Monte in another key. The full set of types for this schema in a prevailing major key is:

- IV-V

- iv-V

- IV-V-vi

- iii-IV-V

- IV-I

- other key

The full set of types for Monte in a prevailing *minor* key is:

- iv-V or IV-V

- iv-v

- reversed (V-IV)

- iv-i

- "triple"

- other key

Completeness: this parameter refers to the mode or extent of schema completion by S2. The designation 'standard completion' is used when S2 follows directly after S1, and creates a schema instance in discrete dyadic form. It is distinguished from those instances which 'start a sequence' or 'end a sequence'. Complementary types are 'non-completion' and 'delayed or non-contiguous completion'. Unclear or problematic cases are shown as 'other'.

CONTEXT

Location: this parameter refers to the formal location in which the schema first appears. With relatively few exceptions, Haydn's formal organisation for a movement, or independent section of a movement, corresponds to one of these models: simple binary, rounded binary, 'sonata' structure, 'rondo' structure or variations. It is possible to create a set of types to specify location within any of them, without concern for which one precisely. This abstracted description of location is helpful for the purposes of this study. The parametric types are:

- within First Reprise/Exposition/Introduction

- start of Excursus/Development/directly after double bar

- mid-Excursus/Development

- end of Excursus/Development/preparation for Thematic Return

- within Thematic Return

- post Thematic Return/Recapitulation

- within Coda/Closing Theme

- Other/Indeterminate

Function: this parameter refers to formal function that the schema serves in the location specified. While the parameters of location and function are linked, they do not refer to exactly the same

concept, so it is helpful for the purposes of this study to define them separately: location may perhaps be regarded as a realisation of function. The parametric types for function are:

- continuation after a caesura

- preparation for thematic statement or return

- continuation and preparation

- tonal transition

- 'thematic' function

- 'closing' function

- other/indeterminate function

Thematic connection: this parameter refers to the relationship between the melodic material of the schema and one or more of the main themes in the movement. It is helpful to identify whether a schema instance is thematic or non-thematic; preliminary analysis during development of the methodology suggested that it could be either, and the following parametric types were created to account for the different cases that emerged:

- forming an entire principal theme, or part of one

- elided with a thematic return

- other thematic connection

- derived from an earlier prominent motive

- new idea/no clear connection with an earlier theme or motive

The detailed parametric structure of this analytical framework, together with mutually exclusive types created for each parameter, might imply that the unequivocal classification of schema instances ought to be straightforward. In fact there are many difficulties which arise during analysis which require reflection and subjective judgement to resolve. It is worth concluding this section with a brief discussion of these cases.

A general problem in the analysis relates to the degree of confidence with which we may identify a schematic instance. Fortunately, in most cases, the collection of parametric attributes points so strongly to a schema that we may clearly identify a Fonte or Monte. There is of course an inherent

circularity in this process, similar to that noted in connection with development of the schema framework in Chapter 4, since we have essentially derived the attributes from what is already accepted as a 'known' schema, and then applied these attributes in order to determine whether or not a passage may be considered as a schema instance. Nevertheless, as was emphasised in the psychological literature, this iterative process is characteristic of the relationship between the selection of a schema and the evaluation of perceptual stimuli. In other words, a proposed interpretation must sometimes be evaluated in both directions until an acceptable level of confidence is reached; this is incidentally another clear difference between 'human' and 'machine' analysis in approaching such problems. In empirical analysis it is also sometimes necessary to 'force the issue' on uncertain cases: as mentioned earlier, erroneous classification is considered preferable to omission.

A particular difficulty may arise in the actual identification of a schema instance: it is often unclear, for example, whether a passage should be interpreted as a Fonte or merely the realisation of a circle of fifths progression. From the perspective of functional harmony, the chords of a Fonte are constructed on a fundamental bass rising in successive perfect fourths (or falling in perfect fifths); choosing the key of C major for simplicity, this traces out the bass progression A-D-G-C, where the A and G are altered as required to serve as local dominants. In most cases, we would reject as Fonte a progression based on four such root-position chords. However, the characteristic contrapuntal bass line for Fonte (C♯-D-B-C) can also be derived from the circle of fifths simply by choosing chords in first inversion and root position respectively. Moreover, this bass progression virtually forces a melodic line AGF-GFE, which is only one B♭ away from creating the classic Fonte contrapuntal outline. In such cases, therefore, a harmonic or contrapuntal analysis alone may not be sufficient to determine whether or not the passage is a Fonte. The solution adopted for this study is to assess in addition the melodic and rhythmic structure, which for Fonte should yield two clear segments rather than four, where the C1 of each segment is heard as preparing for and settling on the C2, perhaps also with an implied caesura between the segments.

A somewhat different problem arises with the identification of Monte. This schema is not based on the circle of fifths progression, so this issue has no relevance here. The difficulty is caused rather by the ubiquity in music of a harmonic progression to IV (often signalled by appearance of the lowered 7th degree), especially in preparational or closing gestures. Our confidence in identifying such a progression as Monte may be further undermined by Riepel's insistence that its second segment should be varied, sometimes so much as to obscure its sequential nature altogether. He even allows a progression from IV to I instead of V. Analysis of the contrapuntal lines is again of limited help, since the rising chromatic bass line E-F-F♯-G is simply too common

to imply specifically Monte, and moreover tends to force the melodic line CB♭A-DCB♮. The solution, as with Fonte, is to assess whether the melodic and rhythmic structure yields two clear segments rather than four, with similar disposition on C1 and C2, and an implied separation of the segments. It should be added that one may sometimes accept a passage as Monte even if the C1 chords are in root position throughout, or if the characteristic F♯ is absent, provided the passage conforms reasonably well with the profile of a schema.

Finally, one must acknowledge the cues that location and function provide in the identification of schema instances. From the writings of Riepel and Koch, and from the exploratory analysis of Haydn's minuets, it is clear that the typical location of a schema in small forms is either at the start of the second reprise directly after the double bar, or at the end of the excursus, where it serves the function of continuation or preparation respectively. In sonata form, which is longer and contains more sections, other locations become available for placement of a schema, for example in the transition to V in the exposition, or as part of a coda. These points are raised here as a timely reminder that the parameters of location and function may play a vital role in confirming or rejecting whether a passage should be considered Fonte or Monte, with harmonic, melodic, rhythmic and contrapuntal parameters serving as a means of corroboration.

Empirical results

The empirical study revealed 452 Fonte and Monte schema instances in all the symphonies.[214] Given the total of 412 movements, this equates to an average of 1.09, or slightly more than one schema per movement. They are not as evenly distributed as the measure might suggest: Figure 135 shows that about 32% of movements have no schemata, 38% have a single schema instance, and 30% have more than one distinct schema.
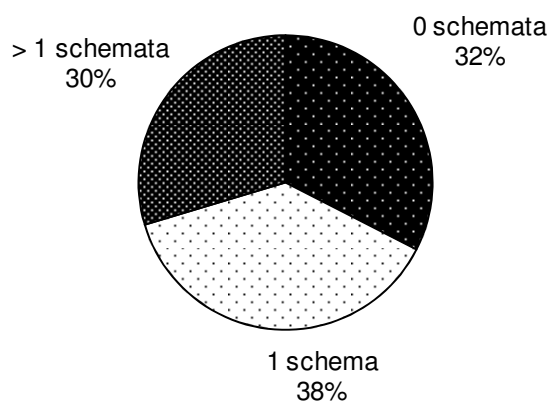

Figure 135: Proportions of movements according to number of schemata

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[214] References and types for the full set of schema instances are included in Appendix C.

This preliminary observation alone is enough to dispel any notion that Haydn might have avoided schematic references in his symphonies. On the contrary, it shows that he included at least one Fonte or Monte in more than two-thirds (68%) of all his movements, and only one symphony (No.47) was found to have no schema instances at all. Moreover, it is not the case that schemata are more prevalent in the relatively slighter movements: Although 99 instances appear in the minuet and trio movements, a further 353 appear in the other movements, yielding an average of about 118 instances per movement type, assuming the four-movement symphony as typical. Of course, the schemata tend to be more prominent in the minuets and trios, since these movements are invariably smaller, so the instance density is greater.

The relative proportions of Fonte and Monte schemata in the symphonies is of particular interest and importance, and these appear in Figure 136. From the remarks of Riepel and Koch, we might expect that Fonte should vastly outnumber Monte. In fact, we find that the ratio is not so extreme, with around three times as many Fontes as Montes (307 instances compared with 105). The frequently encountered patterns based on harmonic progressions such as V-IV or I-ii, and referred to in this study as 'Reversed' schemata, account for 7% of the total (30 instances).
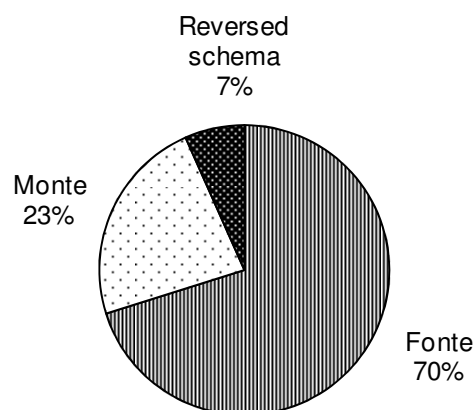
Figure 136: Proportion of schema types in the symphonies

Of equal significance to the counts and proportions for the schemata are their chronological distributions across the complete set of symphonies. These works span the period 1757-95, so Riepel's remarks in the early 1750s that Monte, and possibly even Fonte, should be regarded as a *Schusterfleck* ('cobbler's patch') might lead us to expect a gradual decline in the number of such instances in Haydn's works as the century progresses. . In fact, the results reveal quite the opposite, evidence that this composer at any rate did not consider these schemata merely trivial devices: Figures 137 and 138 show the distribution charts for Fonte and Monte across the symphonies arranged in chronological order.

Figure 137: Distribution of Fonte instances across Haydn's symphonies

Figure 138: Distribution of Monte instances across Haydn's symphonies

These two charts display the occurrence of the schema instances across the 12 chronological groups on which the statistical comparisons in the next chapter are based. For now, we see that the results for Fonte not only show its consistent application throughout the entire set of symphonies, but actually suggest an increased density from about the early 1770s onwards.[215] The resul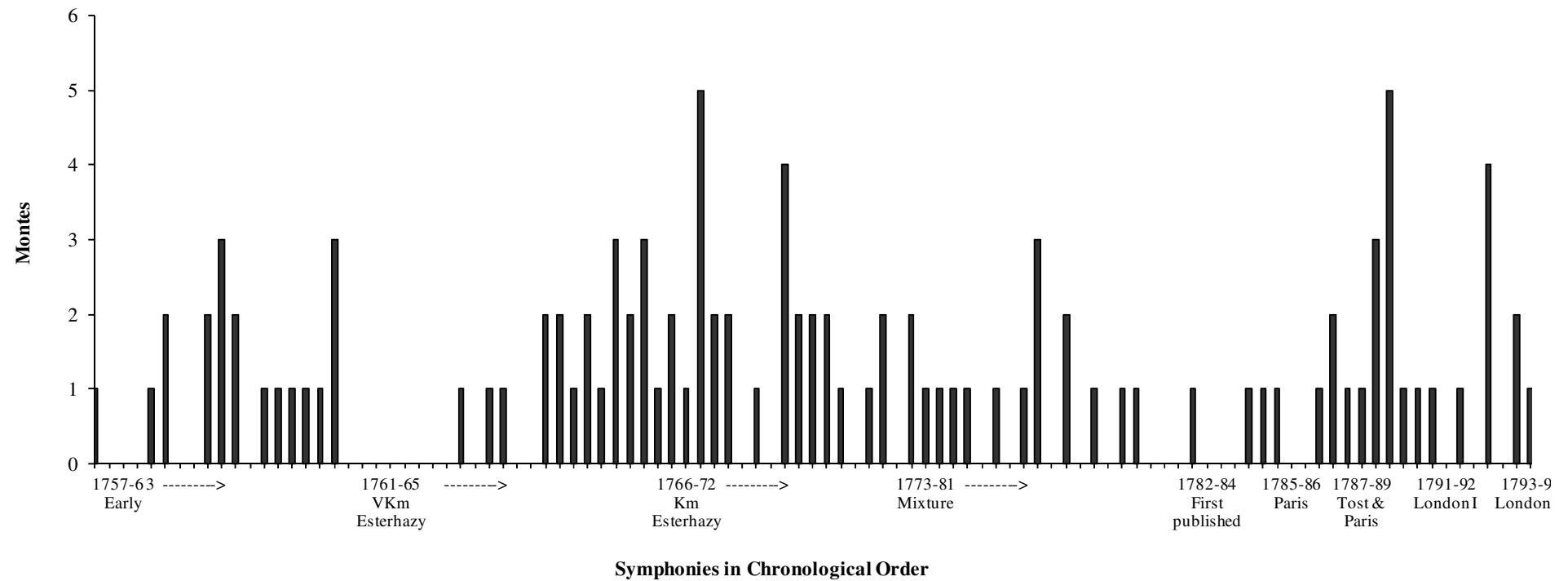ts for Monte are extremely interesting too, and reveal that it not as outmoded a schema in the later part of the eighteenth century as we might infer from Riepel and Koch: the chart indicates an significant use of the schema in the period c.1765-77, followed by a decline over the next 10 years or so, and then a resurgence in the *Tost & Paris* and *London I* groups. Nevertheless, while these possible clusterings and trends are suggestive of changing compositional practice, frequencies of instances alone are insufficient to claim differences in Haydn's use and manipulation of these schemata according to the different contexts and purposes for which the symphonies were composed. The most meaningful way to investigate this is through a hermeneutic analysis of suggestive instances from each group, where interpretations may be corroborated by the empirical results obtained from the study for specific parameters. The matter of such stylistic connections with selected symphonic groups will be therefore be examined separately in Chapter 6, after presentation and discussion of specific parametric results from the empirical study in the present chapter.

We consider first selected empirical results for the category of **construction**. A question of great interest relates to the relative frequencies of salient melodic and bass lines for each schema. From Gjerdingen, we would expect that ❻-❺-❹-❸ in the melodic line, with ⑦-① in the bass, will predominate for Fontes; we would also expect that ❺-❹-❸ over ⑦-① will predominate for Montes. In fact, the empirical results from this study of Haydn's symphonies confirm these expectations only weakly, and reveal surprisingly frequent variant forms.

Figure 139 shows the proportions of constituent types for Fonte melodic degrees. Immediately striking is the fact that ❼-❶ is the most frequent (30%) of the distinct melodic lines. However, this finding is subject to qualification, since the lines ❹-❸, ❺-❹-❸ and ❻-❺-❹-❸ do comprise 64% of all cases. We may therefore conclude that melodic lines in which the core contrapuntal motion is ❹-❸ are twice as common as those with the motion ❼-❶. Nevertheless, the study shows that the complete ❻-❺-❹-❸ line appears in only one quarter of all Fonte instances in

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[215] These distribution charts represent standard Fonte and Monte progressions only, and exclude instances designated in the study as 'reversed" schemata.

Haydn's symphonies, so cannot really be considered a mandatory or defining feature of this schema.[216]
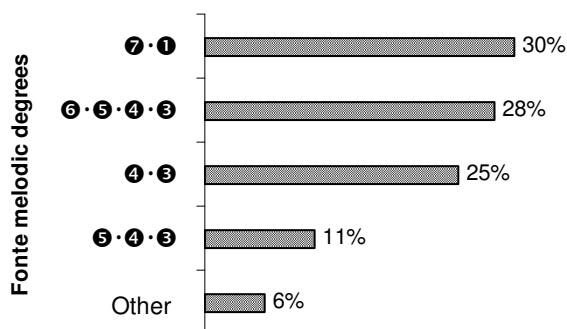
Figure 139: Proportions of melodic lines from all Fonte instances

The preceding observations help to explain the chart for types of Fonte bass line, shown in Figure 140, since the results here for ⑦-① and ④-③ complement the melodic frequencies mentioned. Attention might also be drawn to the relatively high frequency for ⑤-① in the bass; the earlier reservations about circle of fifth progressions notwithstanding, this finding suggests that root-position chords in the Fonte are by no means unusual.
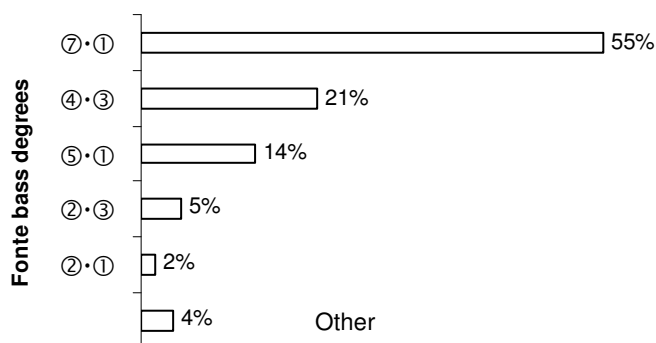
Figure 140: Proportions of bass lines from all Fonte instances

Figure 141, which shows the most frequent melodic/bass combinations for the Fontes, confirms the flexibility hinted at above in the choice of salient contrapuntal motion for the upper and lower lines in the texture. It does reveal, however, that ❻-❺-❹-❸ over ⑦-① is indeed characteristic of the schema, since this configuration outnumbers the simpler ❺-❹-❸ and ❹-❸ melodic forms.

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[216] The ❻ appears in several instances where the full descending line to ❸ is absent. In some cases, the melody contains the descending diminished 7th interval from ❻ followed by a rising ❼-❶.

Fonte melody / bass counterpoint

- ❻·❺·❹·❸ ✧ ⑦·① — 22%
- ❹·❸ ✧ ⑦·① — 19%
- ❼·❶ ✧ ④·③ — 19%
- ❺·❹·❸ ✧ ⑦·① — 9%
- ❼·❶ ✧ ⑤·① — 5%
- ❹·❸ ✧ ⑤·① — 5%
- ❼·❶ ✧ ②·③ — 3%
- Other — 17%
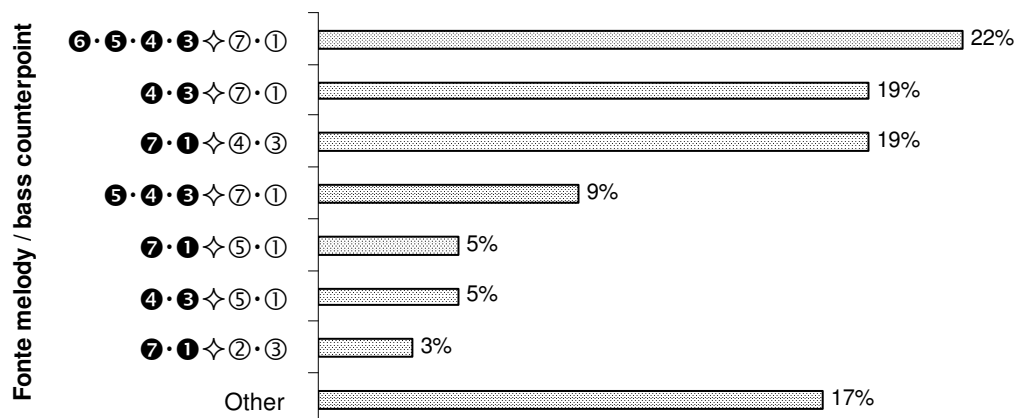
Figure 141: Proportions of outer-voice contrapuntal combinations in the Fonte instances

Figure 142 provides an interesting example of the ❻-❺-❹-❸ over ⑦-① motion, within a Fonte of continuation after the double bar in a *Minuet* movement.[217] We notice in this example that each C1-C2 progression is preceded by a local ii harmony, which in the second segment is actually provided by C2 of the first segment. S2 is also extended by repetition of the main progression.

Figure 142: Fonte ❻-❺-❹-❸ over ⑦-① in Haydn Symphony No.57, iii *Menuet*

It is perhaps also remarkable that the inverted pattern ❼-❶ against ④-③ occupies second-equal place in the table of frequencies. A simple example of this construction from the symphonies appears in Figure 143, where the Fonte of continuation appears in the violins alone.

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[217] Note that this example presents its salient melodic degrees in the order ❹-❻-❺-❸ rather than ❻-❺-❹-❸; this does not invalidate the classification of the schema as containing all four degrees. For economy, the transcriptions of passages from Haydn's symphonies in the present and later chapters show the string section only, except where a significant or essential detail appears in the winds.
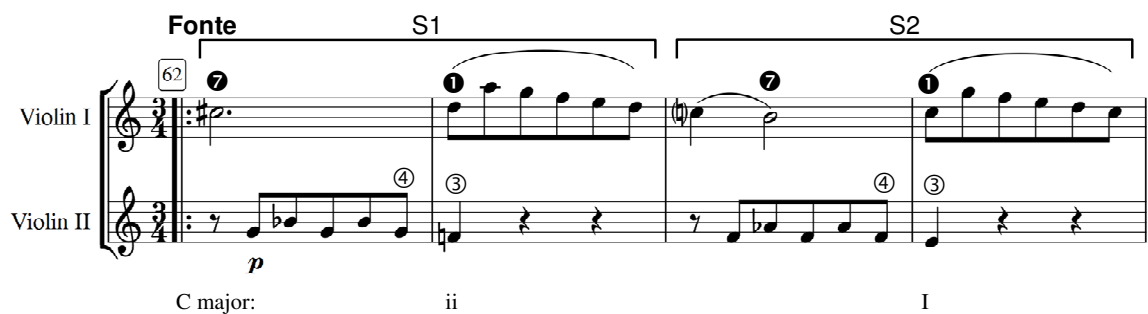
Figure 143: Fonte ❼-❶ against ④-③ in Haydn Symphony No.50, i *Allegro*

Figures 144 and 145 show the proportions of salient melodic and bass lines from the Monte instances. We might expect the results to indicate a strong preference for the melody/bass structure ❺-❹-❸ over ⑦-①. While the following charts confirm that ⑦-① is easily the most frequent bass line, they also reveal surprising statistics for the melodic lines. We find that the ❺-❹-❸ structure comes only in fourth place, behind even ❻-❺-❹-❸, and that the most frequent by some margin is the simple ❹-❸ form. It is as though the ❺-❹-❸ structure is avoided, perhaps on the grounds of being too commonplace, but also in line with Riepel's recommendation that the Monte be varied, with the basic schema prototype intentionally obscured.
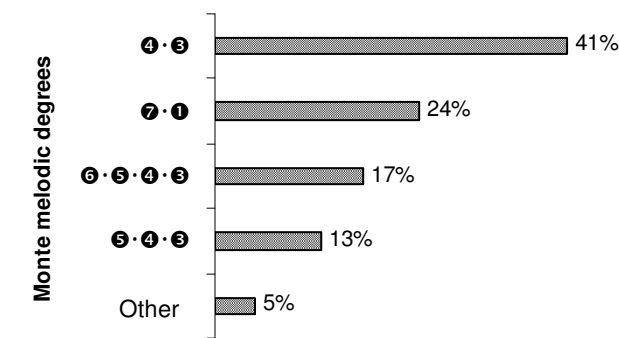
Figure 144: Proportions of melodic lines from all Monte instances
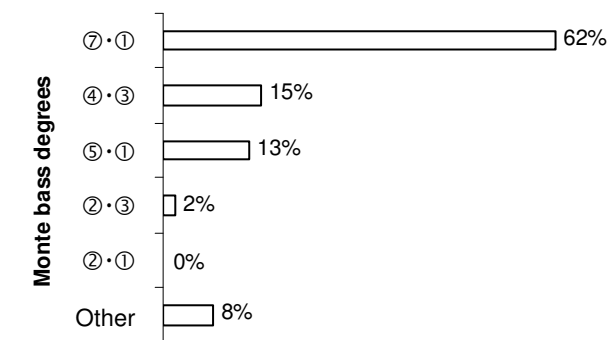
Figure 145: Proportions of bass lines from all Monte instances

164

Proportions of Monte outer-voice contrapuntal combinations are shown in Figure 146. As the two previous figures would predict, the combined contrapuntal motion ❹-❸ over ⑦-① is the most frequent, occurring in 34% of all cases. However, the next two motions in the table are also of interest, since they show the relatively high frequency of both the inverted form and the ❻-❺-❹-❸ form, which we would not normally associate with the Monte.
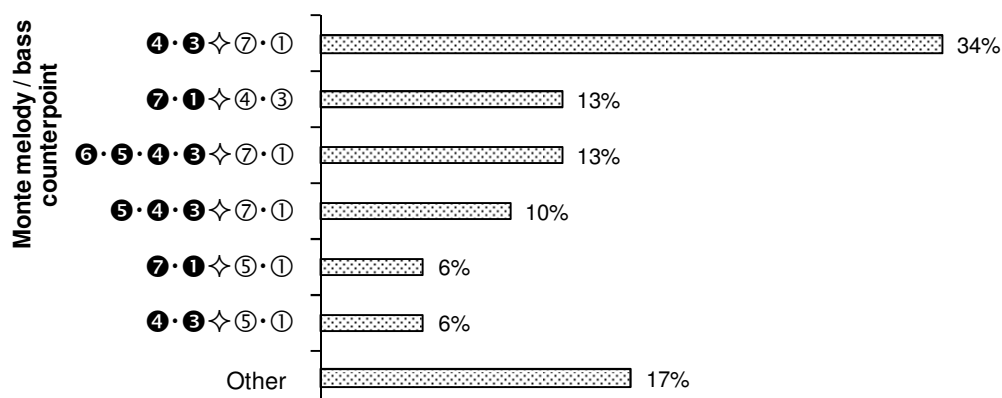
Figure 146: Proportions of outer-voice contrapuntal combinations in the Monte instances

The example from a *Trio* section in Figure 147 shows a simple parenthetic Monte which occurs within the thematic return as preparation for the final cadence. Although, the second violins have the highest notes here, the effective contrapuntal pairing is ❼-❶ over ④-③ between first violins and cello.

Figure 147: Monte ❼-❶ against ④-③ in Haydn Symphony No.55, iii *Trio*

A particular construction of interest is the Fonte over a harmonic pedal, usually the fifth in the bass; Monte is evidently unsuitable for pedal, since all 15 instances found in the symphonies are pedal Fontes. The example in Figure 148 shows a simple 4-bar Fonte (the movement has the time signature 𝄴) over a dominant pedal. Note that the contrapuntal ❼-❶ over ④-③ appears nevertheless between the first violins and violas.

Figure 148: Pedal Fonte, with ❼-❶ against ④-③ in Haydn Symphony No.73, i *Allegro*

Turning our attention to rhythm, the study of theoretical and other sources documented in Chapters 1 to 3 suggest that the typical rhythmic profile across C1 and C2 in a segment follows the pattern quick-slow; in other words, there is a sense of rhythmic drive to the destination C2 chord. The relative proportions of each type in Haydn's symphonies are shown in Figure 149 for Fonte and Monte. The charts are very similar, and confirm the preference in both schemata for equal or quick-slow patterns, with the slow-quick pattern relatively infrequent.

Fonte C1:C2 rhythmic patterns   Monte C1:C2 rhythmic patterns
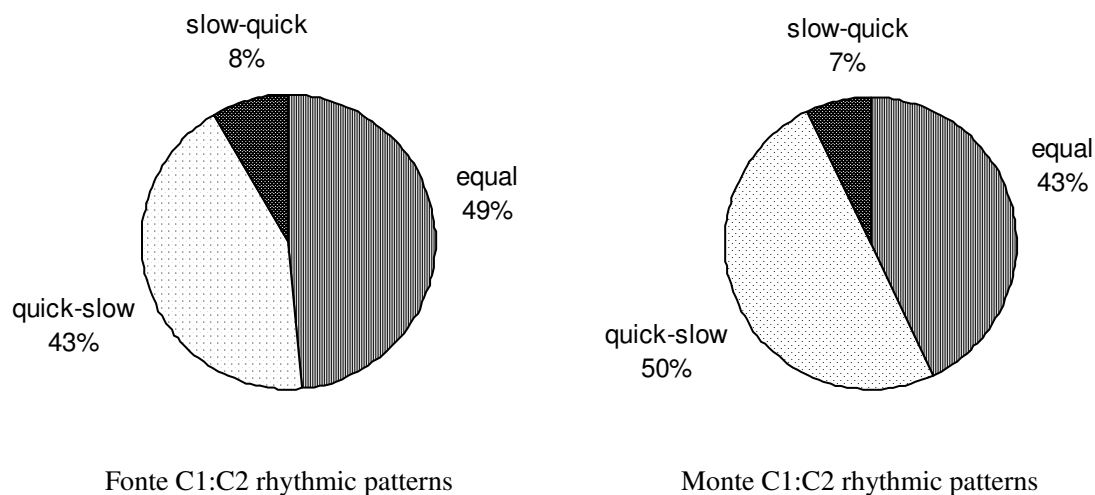
Figure 149: Proportions of rhythmic-pattern types for Fonte and Monte

Riepel tells us that a schema segment may be of any length, and this is borne out by the results from the Haydn symphonies.[218] Figures 150 and 151 reveal the clear predominance of 2-bar segments in both Fonte and Monte, with the latter schema having the greater preference for 2-bars instead of 4 bars. Other lengths are well represented too; the high number of 1-bar segments is particularly notable, given that Riepel regards 2+2 bars as a 'short' schema instance.
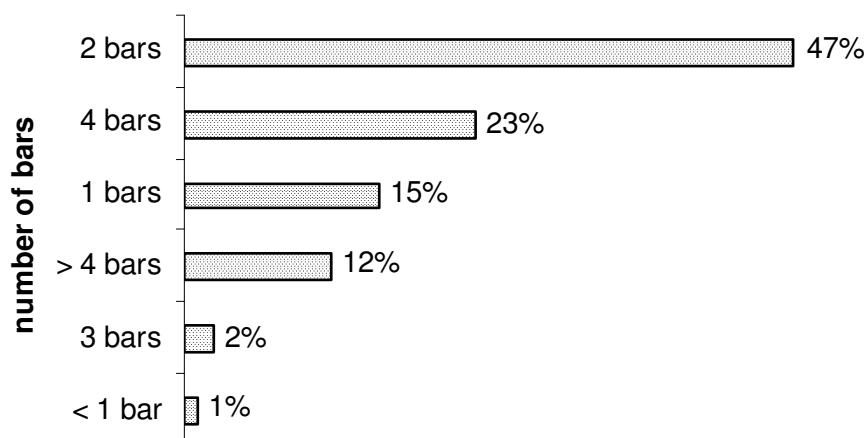
Figure 150: Fonte S1 lengths
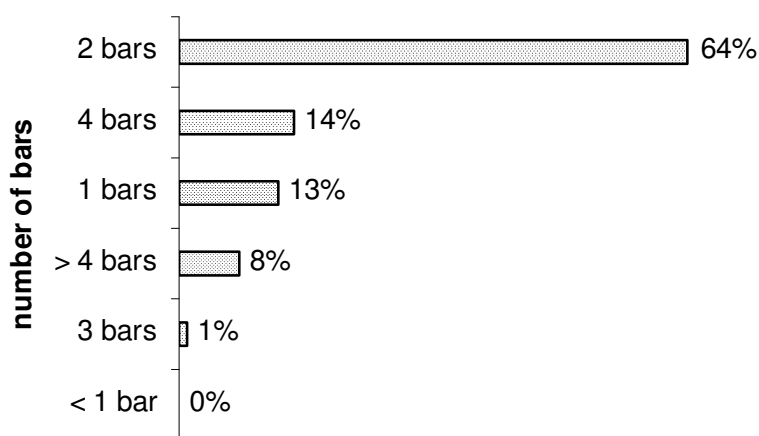
Figure 151: Monte S1 lengths

The example from the *Finale* of Figure 152 is striking in that it contains two distinct 1+1 bar Fontes, the first vi-V proceeding to a QK, and the second ii-I to a QA; there is certainly a playful emphasis on Fonte within this passage of continuation after the double bar.

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[218] It should be noted that this parameter relates only to the length of **S1**: its relationship to S2 is discussed later under the category of *completion*.

Figure 152: 1+1 bar Fonte in Haydn Symphony 101, iv *Finale: Vivace*

The even smaller schema with segment length of less than 1 bar is also quite favoured by Haydn. This 'compressed schema' has an especially perfunctory effect, and can have formal implications as regards construction of the phrase. Figure 153 shows an example after the double bar in a *Trio* section, where each Fonte segment is effectively in $\frac{2}{4}$, thus creating a brief metrical displacement of the prevailing $\frac{3}{4}$ time. Note that this construction enables the formation of a 4-bar QA phrase which would not otherwise be possible using a Fonte ii-I.

Figure 153: Compressed Fonte in Haydn Symphony 69, iii *Trio*

The results for harmonic rhythm between C1 and C2 are shown in Figures 154 and 155. As expected, the majority of cases for both schemata have equal harmonic rhythm. Nevertheless, a significant number of instances have long- or very long to short patterns (*L:S* or *LL:S*), especially in Fonte (24%). The proportions of short to long patterns in both Fonte and Monte are surprising, given the unusual syncopated effect produced by this particular harmonic rhythm.
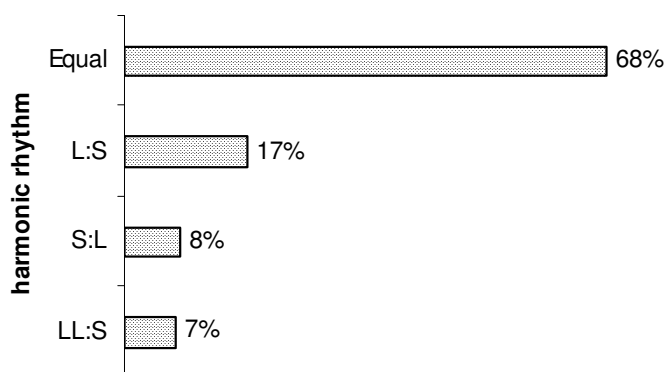
Figure 154: Fonte C1:C2 harmonic rhythm
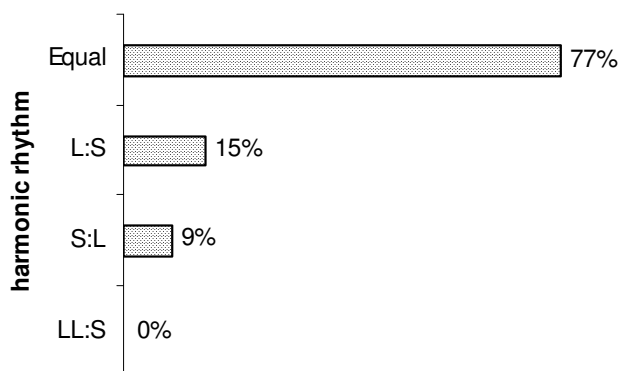
Figure 155: Monte C1:C2 harmonic rhythm

We consider next the category of **completion**, which concerns the relationship between S1 and S2, beginning with the parametric distribution for similarity in harmony and voicing. As noted in Chapter 4, the analytical methodology separates these elements of harmony and voicing to create four constituent types for this parameter. This separation is admittedly somewhat easier in theory than in practice, where the two elements can become intertwined. In most cases, nevertheless, it is possible in analysis to identify a completed schema instance as conforming clearly to one of the four types. The main motivation for assessing this parameter is to establish the degree to which an exact harmonic correspondence between the two segments is characteristic of a schema. The results shown in Figures 156 and 157 indeed confirm the expectation that S2 has identical harmony and voicing in the vast majority of cases for Fonte and Monte.
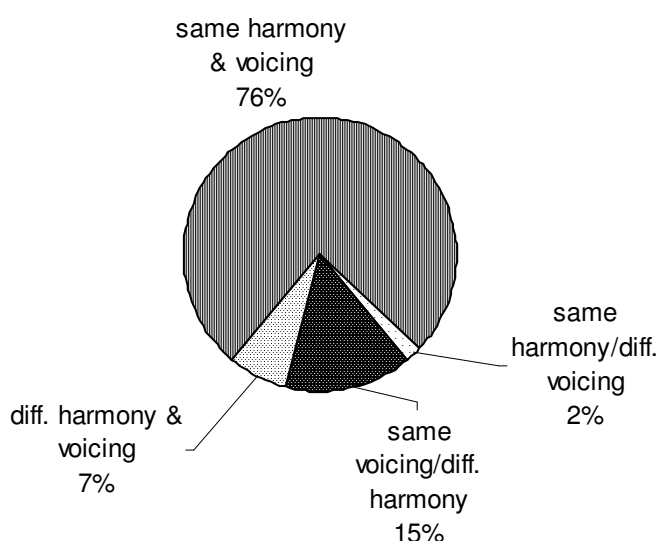
Figure 156: Fonte S1:S2 harmonic similarity
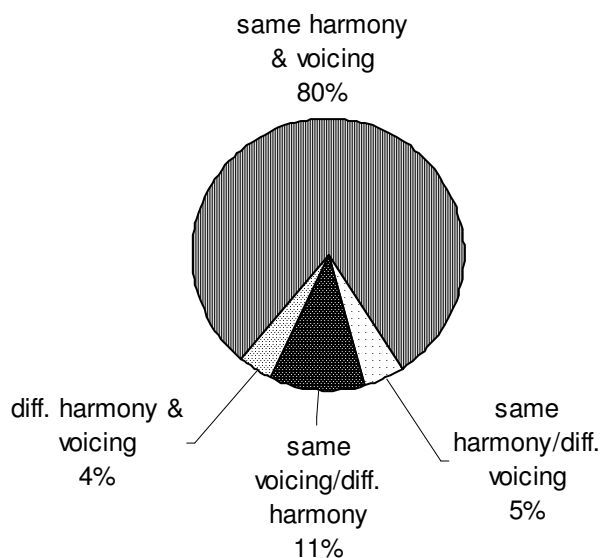
Figure 157: Monte S1:S2 harmonic similarity

Nevertheless, the schema instances in which one or both of harmony and voicing are varied still comprise 20-25% of all cases. The combination of *same voicing/ different harmony* is the most frequent of the three variations; an example from the symphonies is given in Figure 158, in which S2:C1 is changed to a diminished 7th chord through the E♭ in the second violin. Note that register and instrumentation are nevertheless the same for both segments, and indeed these parameters are non-matching in only about 2-3% of all Fonte and Monte instances in the symphonies.

Figure 158: Monte in Haydn Symphony 97, iii *Menuetto*

The parameter of melodic similarity permits the straightforward classification of an instance in its two extreme types, *identical* (an exact diatonic or chromatic transposition one degree higher or

lower) and *non-matching* (completely dissimilar melodies), but is more problematical for the intermediate types *closely matching* and *partially matching*. It is worth noting here that these terms do not refer to degrees of varied or ornamented repeats of the melody in S1, since these would be classified here as 'identical' melodic response. In fact, it is interesting that virtually no examples of this technique are to be found in Haydn's symphonies: the effect was perhaps considered too facile or old-fashioned. In this corpus, close or partial matching is determined rather by how much material from the main melody is retained in the responding segment. The criterion applied here, therefore, is that if a significant part of the melody in S1 is retained in S2, then the instance is classified as *closely matching*; if just a smaller fragment is retained, then the instance is classified as *partially matching*.

Figures 159 and 160 show that melodic response in the majority of schema instances is identical, as expected, although a significant proportion have non-identical melody. Completely non-matching examples are infrequent. The charts also suggest that non-identical melody is somewhat more frequent in Monte than Fonte, which again conforms with Riepel's remarks on the need for greater variation in this schema.
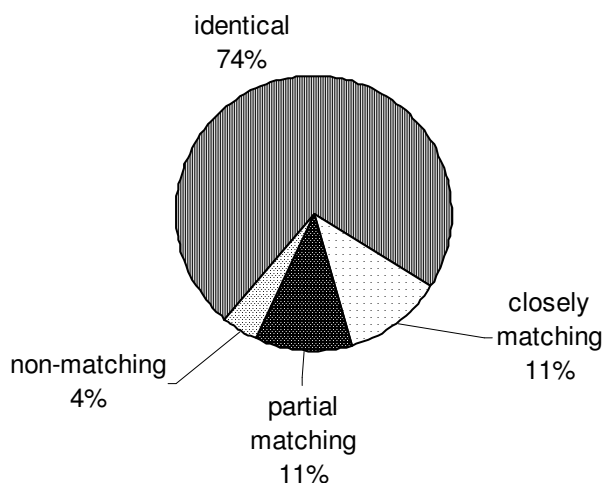
Figure 159: Fonte S1:S2 melodic similarity
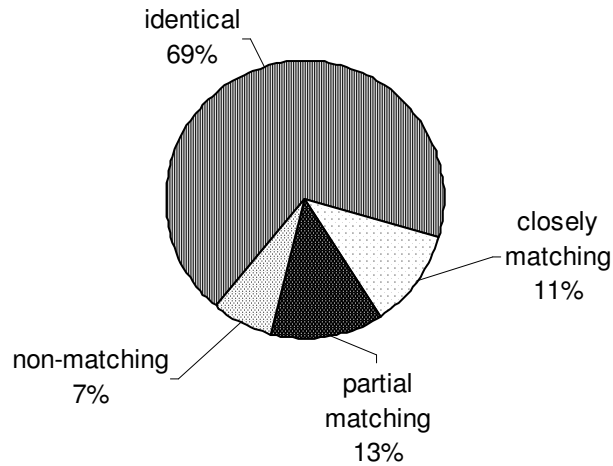
Figure 160: Monte S1:S2 melodic similarity

Not shown in the charts are the results for *Zwitter* inflection in the second segment, as this can occur in conjunction with all types. In fact, the finding here is interesting and perhaps surprising: Haydn applies the *Zwitter* in no fewer than 9% of all his Fontes, and even 7% of all his Montes. It should be mentioned that these proportions include examples where the lowered **6** in S2:C1 appears in an inner part, or sometimes in the bass. Figure 161 shows an example from a minuet of a *Zwitter* in the melody; a C♮ to start the second segment would have been perfectly feasible here, and it is likely Haydn chose the *Zwitter* C♭ to remain consistent with the prominent semitonal movement in this passage of continuation after the double bar. Figure 162 gives an example of a bass *Zwitter* from the minuet discussed in Chapter 3 in relation to phrase construction.

Figure 161: Treble *Zwitter* Fonte from Symphony 52, iii *Menuetto: Allegretto*
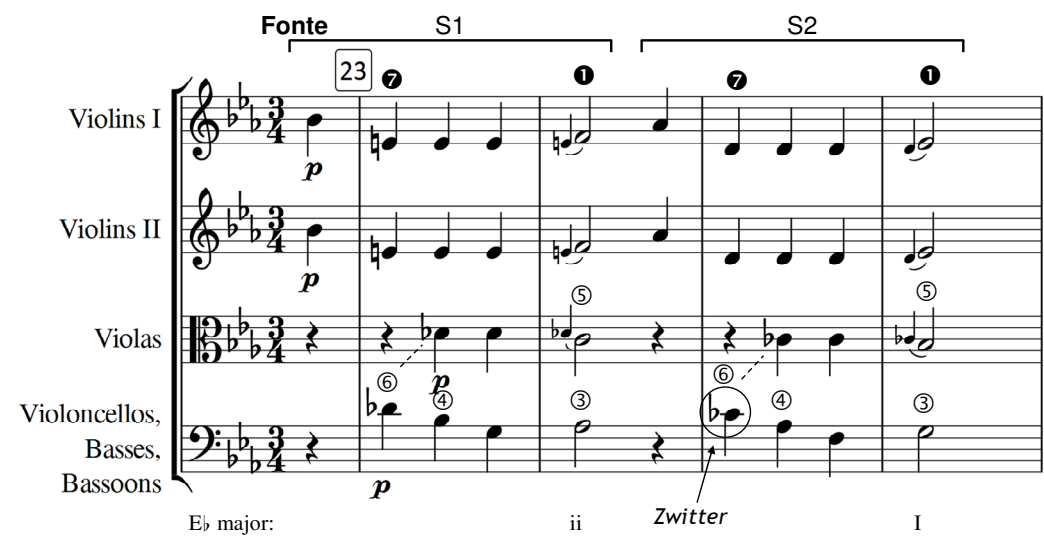
Figure 162: Bass *Zwitter* Fonte from Symphony 43, iii *Menuetto*

The classificational criteria for rhythmic similarity are much the same as above, and indeed the two parameters are closely linked. What the charts in Figures 163 and 164 do show, however, is that identical rhythm is somewhat more frequent than identical melody, which suggests that even when new melodic fragments occur, they tend to use the same rhythmic pattern. As before, Monte tends slightly more towards variation than Fonte.
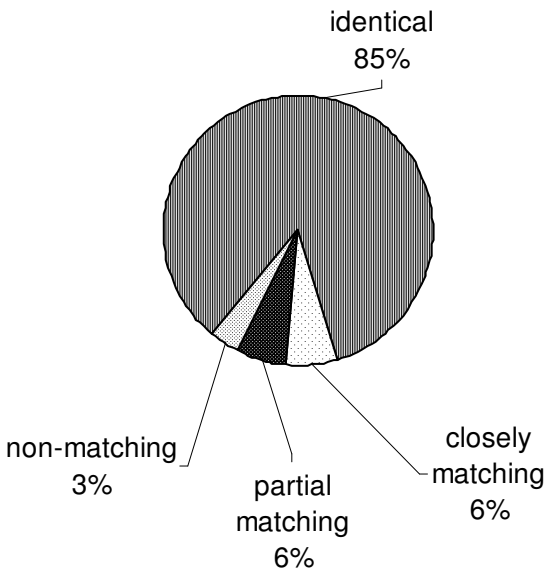
Figure 163: Fonte S1:S2 rhythmic similarity

identical
79%

closely
matching
6%

non-matching
5%

partial
matching
10%
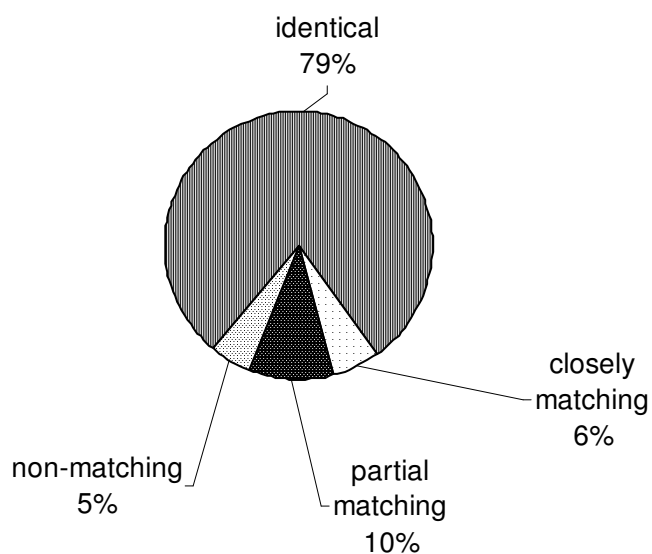
Figure 164: Monte S1:S2 rhythmic similarity

The charts in Figures 165 and 166 show the proportions of relative-size types of S1 and S2 for each schema. As expected, the overwhelming majority of Fonte and Monte instances have equal segment sizes; where the sizes differ, it is S2 rather than S1 which tends to be shortened.

equal
86%

longer S2
3%

shorter S2
11%
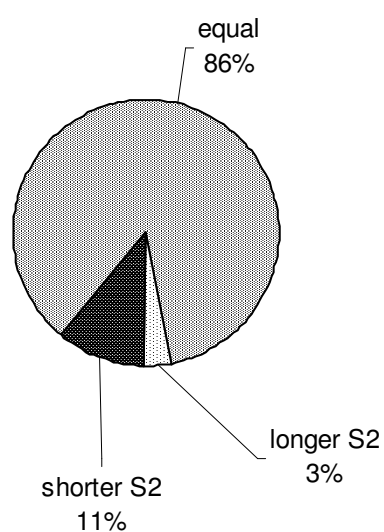
Figure 165: Fonte S1:S2 proportion
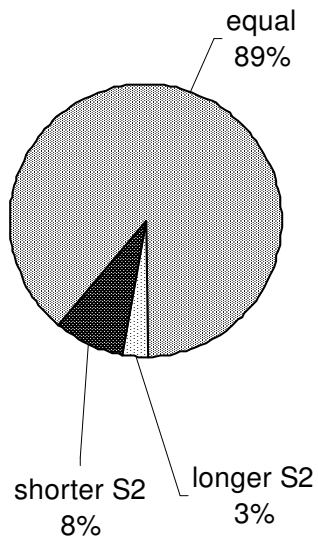
Figure 166: Monte S1:S2 proportion

It will be best to consider the harmonic progressions for Fonte and Monte separately, since they are quite distinct for the two schemata. Moreover, Fonte is restricted to the major key, while Monte may occur in major or minor keys. For the sake of clarity, a roman numeral system of notation is adopted again, with upper case or lower case for major or minor chords respectively.

As Figure 167 shows, the vast majority of Fonte progressions are ii-I. Some 89% of these cases are in the main (major) tonic key, 6% are in the relative major key and the remaining 5% are in another key (typically a 'false' Fonte on IV). It is worth reiterating that this study analyses the Fonte types vi-V and ii-V as common alternative progressions in the main tonic key, not in the dominant key. In general, the empirical results for Fonte correspond well with the frequencies presented by Riepel: the majority are standard ii-I progressions, with a significant proportion of singular vi-V progressions, while the 'switched-Absatz' type (ii-V) and double-major chord type (II-I) are relatively infrequent. The *Other* progressions include ii-i, and the end-sequential iii-ii-I discussed by Riepel as a special case.
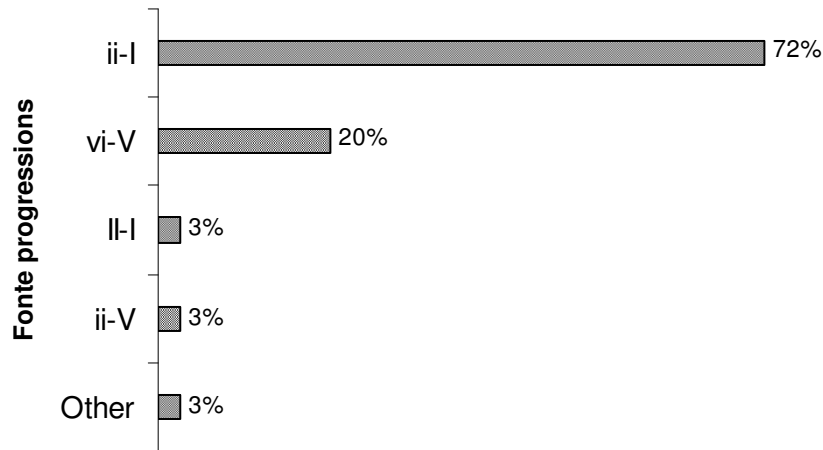
Figure 167: Fonte progression frequencies

Numerous examples have already been provided during this study of the normative Fonte ii-I and Fonte vi-V progressions. It will be interesting now to view some examples of the less standard progressions which nevertheless appear occasionally in Haydn's symphonies. Thus in Figure 168 we see an example of Fonte II-I, starting the excursus in a minuet movement; again, there is no clear reason that II is used here rather than ii, apart from creating a more shapely descending melodic line C-B♮-B♭-A across the Fonte. The opposite nuance of two successive minor harmonies occurs in the Fonte ii-i progression; an example is shown in Figure 169, where the unexpected inflection is humorously delayed until the very last beat of the Fonte.

Figure 168: Fonte II-I from Symphony 40, iii *Menuet*

Figure 169: Fonte ii-i from Symphony 73, iii *Menuetto: Allegretto*

An example of Fonte ii-V is shown in Figure 170. Note that this is quite different from Koch's *Sechser* construction, since the progression to I is avoided altogether, and deviated instead to V.

Figure 170: Fonte ii-V from Symphony 30, iii *Finale: Tempo di Menuet*

Finally, Figure 171 presents a seemingly unequivocal example of Riepel's Fonte iii-ii-I, a sequence in which the last two segments provide the standard Fonte; it occurs at the end of the development section as preparation for the thematic return at b.46.

Figure 171: Fonte iii-ii-I from Symphony 14, iv Finale: *Allegro*

The progressions and their frequencies for Monte instances differ according to whether the schema occurs in a major or minor key. The results indicate that 69% of Montes are in a major key. A sizeable number, however, are in a minor key (31%), an interesting and prominent group not discussed at all by Riepel. A graphical representation of the more complicated tonal and progression possibilities for Monte, and the empirical results for them from the symphonies, is shown in Figure 172.
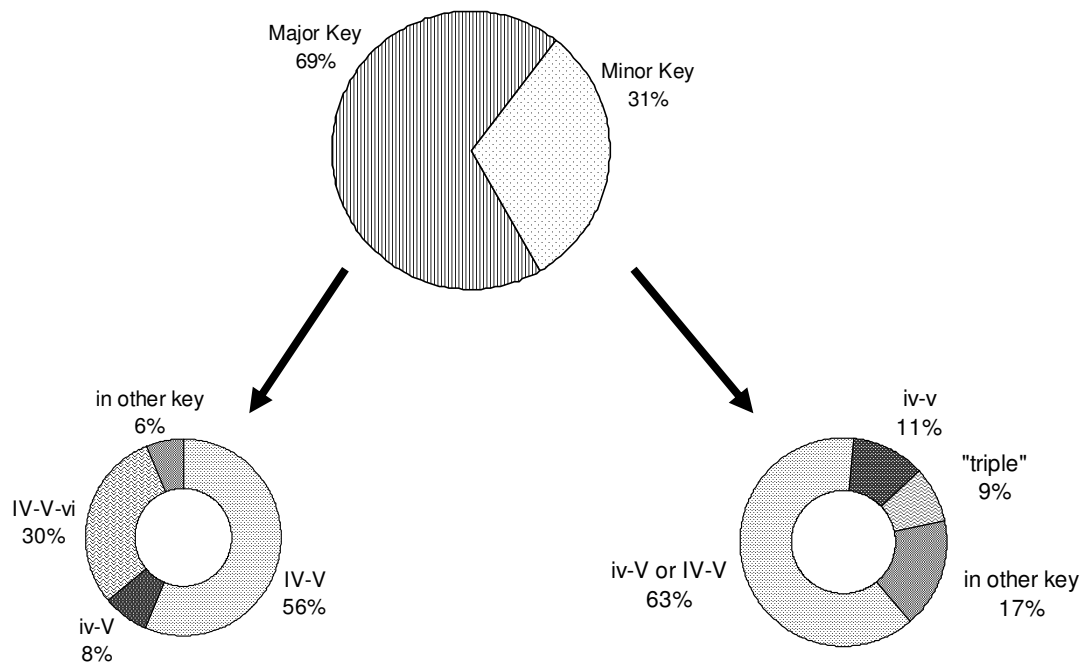
Figure 172: Monte: proportions of major and minor keys, and progressions within each type

This figure shows that more than half of the progression types for Monte in the major key are IV-V, as we would expect, while 30% continue the schema to vi, thereby creating a 'triple Monte'; we recall that Riepel regards this formation more as a 'deception' than an accepted 'variation' of Monte, but since his argument actually confirms the common origin or properties of the two formations, they are both treated in this study as Monte progressions. It is worth noting that the progression with a minor C1 chord (iv-V) is quite common (8%) for major-key Montes. This is another usage not discussed by Riepel; moreover, no examples of the IV-I progression, which he proposes as an alternative form for Monte, were found in the Haydn symphonies.

The example in Figure 173 shows a Monte iv-V serving as preparation for the thematic return in G major; admittedly, this Monte comes at the end of an excursus in G minor, and in fact all of Haydn's Monte iv-V progressions follow a passage in the flat side of the prevailing major key. A typical application of this Monte construction is therefore i-iv-V-I.

Figure 173: Monte iv-V from Symphony 73, ii *Andante*

The majority of Montes in the minor key also go to V (63%). However, these cases include both iv-V and IV-V forms, which are not separated in this study since they are not distinct harmonic variants, and reflect instead the specific minor-key inflections of ❻ and ❼ in the given schema instance. The number of remaining Monte cases is actually small, given the modest number of minor-key Montes in the corpus. However, the few examples of iv-v are worth noting, since this too may be regarded as a form of 'deceptive' Monte, with its unexpected progression to the dominant minor. The *Siciliano* passage in Figure 174 is a languid Monte iv-v which progresses eventually to a QA: the A♯ of the proper dominant V only appears in b.40, after the thematic

return has started. Note also the voice exchange in the contrapuntal pairing at the end of this passage.

Figure 174: Monte iv-v from Symphony 46, ii *Poco Adagio*

The progressions in major-key and minor-key Montes denoted in Figure 172 as 'in other key' are too varied and individual to suggest any specific recurring type. The two most common progressions in the 6% of all schema instances identified in the study as 'reversed schema' are the Fonte I-ii and Monte V-IV. As noted earlier, the correct interpretation of these harmonic devices is unclear: they may be regarded as manipulated schemata, or they may have no intended connection to the schemata: the latter would of course not preclude a contemporary listener from *hearing* such a progression as a reversed Fonte or Monte.

Finally, an example of the 'triple' Monte appears in the early *Andante* of Figure 175. When Riepel describes this sequence progression as deceptive, it is possible that he is referring to the standard function of a Monte in phrase construction, where it settles on a QA in preparation for tonic return; the movement to vi is therefore a departure from normative tonal organisation rather

than an invalidation of the first two segments as Monte. Immediately after the passage in the example shown, the triple Monte is followed by its own reversal, ie. vi-V-IV, before proceeding to a QA for thematic return.

Figure 175: 'Triple' Monte from Symphony 10, ii Andante

The analytical methodology includes several constituent types to denote mode or degree of 'completeness' for a given schema instance. As Figure 176 shows, the vast majority of cases (85%) proceed to 'standard completion', which means contiguous completion of the two-segment schema. Some 7% of instances were considered to be *non-completed* instances, on the basis that a strongly schematic S1 was identified but completion was averted in some way. A further 6% of schemata were connected with longer sequences, generally a Fonte 3-2-1 or 'triple' Monte. Delayed completion appears to be exceptional, and then associated with some unusual formal or thematic manipulation. No evidence was found in Haydn's symphonies for the parenthetic progressions (and thus non-contiguous completions) such as ii–(IV)–I, described at length by Riepel in the *Anfangsgründe*.
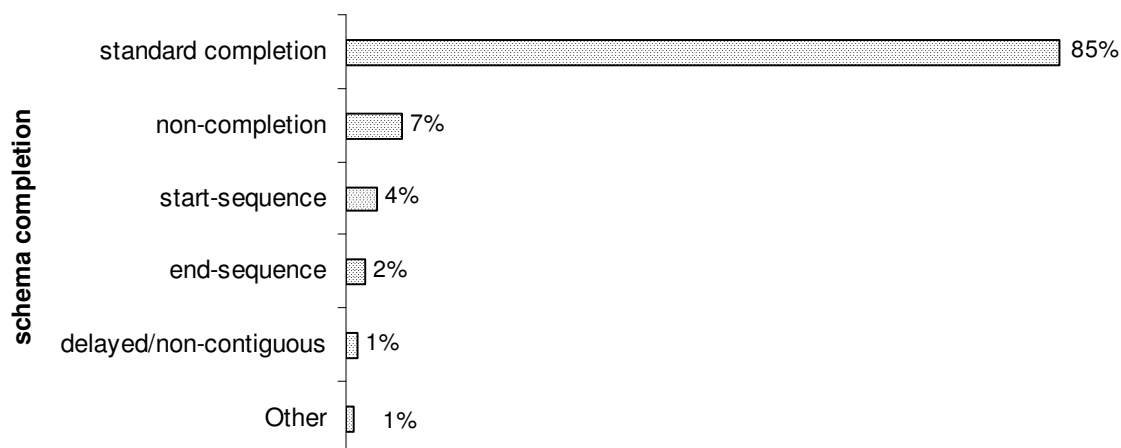
Figure 176: Modes and degrees of schema completion for Fonte and Monte

Within the final category of **context**, location is strongly associated with schematic occurrence. The constituent types were chosen to reflect corresponding locations within different formal structures so far as possible. Since movements apart from the minuet and trio typically have multiple themes or sections, they require extra types for the classification of schema instances. The guiding principle in this study is to establish relative schematic frequencies at equivalent formal locations, regardless of the type of movement.

The results in Figure 177 show that the most frequent locations for schemata are the start (28%) and end (26%) of the excursus or development sections. Movements other than the minuet-and-trios create possibilities for location within transitional passages; these numerous movements typically contain two or more thematic groups and longer developments. Thus we also find 41% of cases in the corpus where a schema instance occurs within the first reprise/exposition, Mid-Excursus/development, or post-excursus/recapitulation sections.
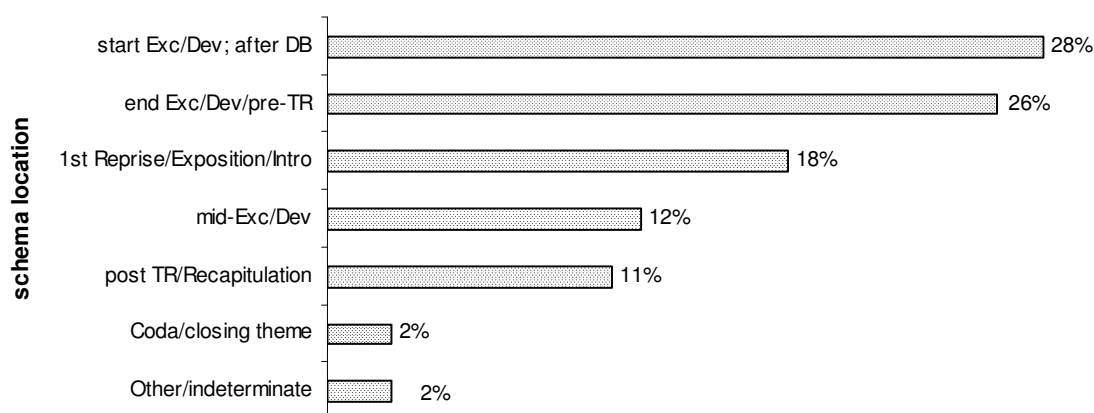
Figure 177: Frequency of locations for all schema instances in the symphonies

A comparison was made between the frequencies of location types for Fonte and Monte, to see if any significant differences exist between them. In fact, the separate results for each schema turn out to be very similar to the aggregated results in Figure 177. There is perhaps a slightly greater tendency for the excursus/development to start with Fonte (28%) rather than Monte (24%), and conversely to end with Monte (28%) rather than Fonte (26%). Monte (21%) appears more likely to appear in the post excursus/recapitulation or coda/closing theme sections than Fonte (12%). These frequencies are derived from all the movements in the symphonies. It is of interest that the preliminary empirical results for just the minuet and trio movements reveal more clear-cut differences between the two schemata, with Figures 178 and 179 confirming that Haydn did not view Fonte and Monte as entirely equivalent and interchangeable. We see here that Fonte is preferred at the start of the excurses considerably more than Monte, and conversely, that Monte is preferred at the end-excursus location.
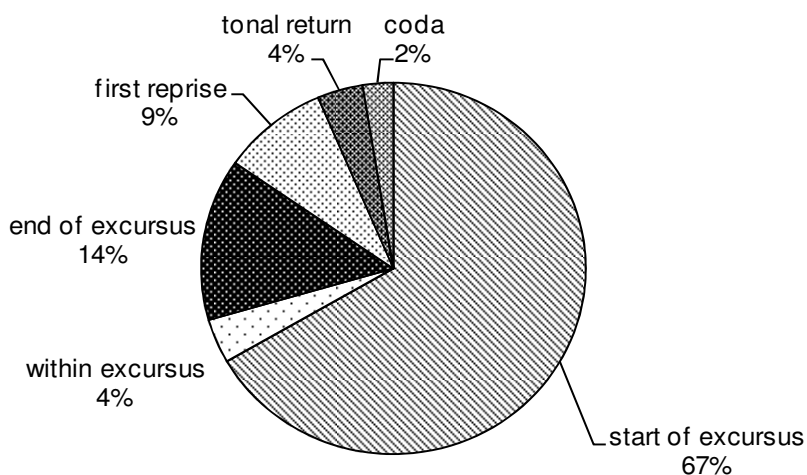
Figure 178: Fonte locations in the minuet and trio movements
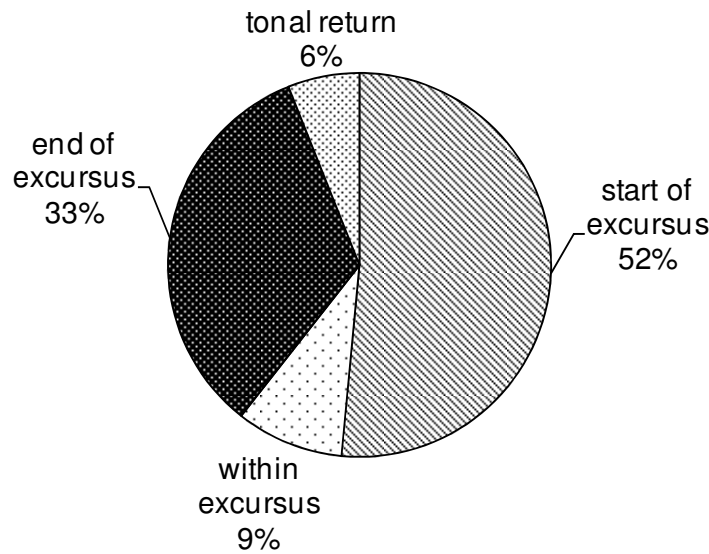
Figure 179: Monte locations in the minuet and trio movements

If 'location' is a neutral description of where a schema instance occurs within a movement, then 'formal function' seeks to understand the particular musical function it provides at that location. The two parameters are clearly correlated, yet it can be helpful to separate them in order to describe schematic function in more generalised and abstract terms. The empirical results from the symphonies, shown in Figure 180, reveal a satisfying equality between the frequencies of *continuation* and *preparation* as the principal functions of a Fonte or Monte. Tonal *transition* represents the next largest frequency, and occurs most typically as the Fonte vi-V within the exposition, or else through the application of either schema type within the development section. The type *thematic usage* refers to a schema instance which has a close connection with the principal thematic material: for example, it may constitute the entire theme, be embedded within it, or be elided with its return; these possibilities are described in greater detail by the last parameter of *thematicism* discussed next. The important point here is that schemata are mostly non-thematic, although they often proceed by developing a motive previously introduced in the movement. The small number of instances in the following chart showing simultaneous functions of continuation and preparation occur invariably in smaller forms with a brief excursus.
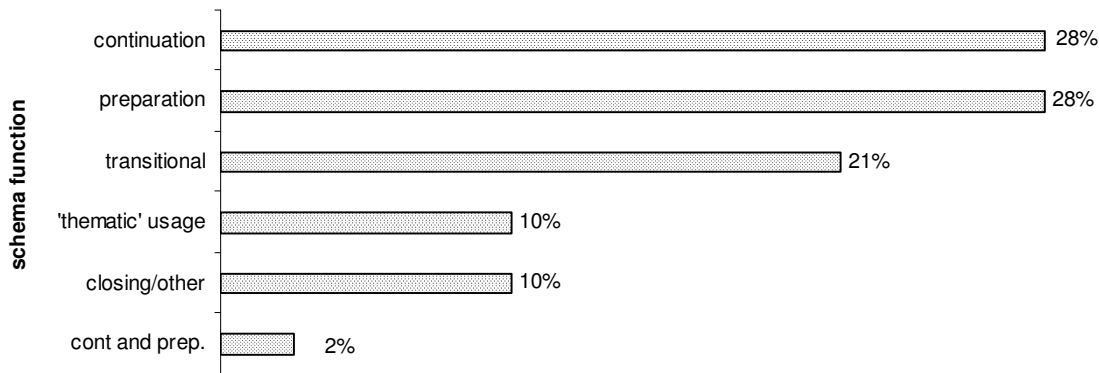
Figure 180: Frequency of functions for all schema instances in the symphonies

The Fonte or Monte of continuation represents the most archetypal and transparent application of either schema. Its likely occurrence directly after the double bar, following a strong caesura to end the previous reprise or section, greatly increases the index of expectation attached to it. It is worth recalling that Riepel first presents these schemata as stock devices of continuation at the start of the excursus. Experience and musical education would both therefore have primed the contemporary listener to hear a Fonte or Monte at this well-defined point in a movement, and as often as not the expectation will be realised. Figure 180 shows that Haydn had no reservations about following this convention and starting his excursus or development with a Fonte or Monte. This chapter has already presented examples of Fonte after the double bar, with each however illustrating some unusual feature of construction or completion. Figure 181 provides by contrast a simple and normative Fonte example from a minuet. In accordance with Riepel's recommendations, completely normative Montes are relatively scarce in the symphonies, as Haydn prefers to create the QA with a standard first segment followed by a varied second segment. The example in Figure 182 is one of the few simple Montes of continuation to be found in the symphonies, and we see how the second segment proceeds in a non-sequential manner via a compressed 'triple' Monte to the QA.

Figure 181: Fonte from Symphony 62, iii *Menuet: Allegretto*

Figure 182: Monte from Symphony 51, iv *Finale: Allegro*

Curiously, Haydn is more likely to apply a simple Monte when it serves as preparation for thematic return. The example is Figure 183 shows a matter-of-fact Monte leading back directly to the main minuet theme; it is still not sequential, however, since the melody in S2 is slightly varied and there is no F♯ in the bass.

Figure 183: Monte from Symphony 38, iii *Menuet: Allegro*

A favourite device noted in each of the chapters on *Partimenti*, Riepel and Koch is schematic-thematic elision, where a schema of preparation overlaps with the return of the main theme. The schema is always a Fonte, since this progression ends naturally on the tonic. A neat example is shown in Figure 184, which contains a perfunctory Fonte with harmonic alternation produced by incise repetition; note how interruption of the regular completion of the Fonte is accentuated by the shift from *p* to *f* for the thematic return.

Figure 184: Fonte with elision from Symphony 46, i *Vivace*

Schema instances often occur in the slow introduction or coda/closing theme sections of symphonic movements, but it is evident that a schema may actually be inserted at more or less any location within the movement. A favourite device with Haydn is to introduce a Fonte vi-V to

initiate the transition to the second main period in the dominant within the exposition of a larger sonata-form movement. Interestingly, it is not as a rule repeated as a Fonte ii-I in the recapitulation, although a passage motivically derived from it may reappear there in a different guise. A late example of the Fonte vi-V effecting a transition from tonic to dominant in the exposition is shown in Figure 185.

Figure 185: Fonte vi-V in exposition section from Symphony 102, i Vivace

Thematicism in schemata refers in this study to the manner and extent of thematic connection between a schema instance and principal themes or prominent previous motives in the movement. It will be best to consider the results for Fonte and Monte separately, since there appear to be subtle differences between them, as seen in Figures 186 and 187.
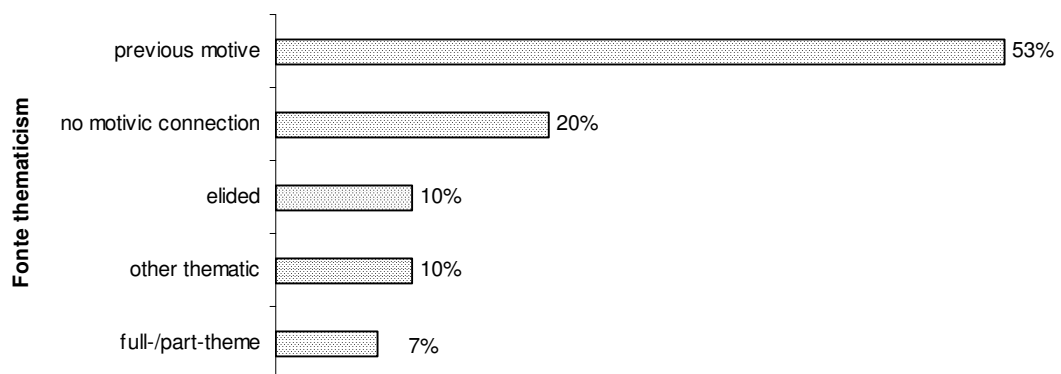
Figure 186: Fonte thematic connection
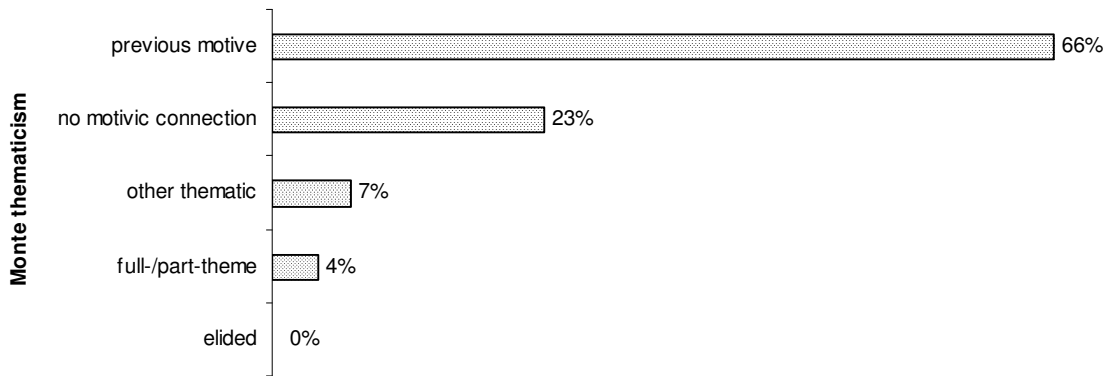
Figure 187: Monte thematic connection

Apart from the somewhat greater tendency for Monte (66%) to be derived from previous motives than Fonte (53%), the most interesting results relate to actual thematic connection: if we combine the figures for instances where the schema is entirely thematic, embedded within a theme or elided with a theme, we find that the proportion of Fonte schema instances is 17%, while that for Monte is just 7%. This suggests that the Fonte is more suitable for thematic connection than the Monte, at least for Haydn. Moreover, the technique of schematic-thematic elision, which arises typically with the thematic return after the excursus or in the recapitulation, occurs in 10% of Fonte instances but never with Monte; as noted earlier, the reason is that in most cases the main theme opens with tonic harmony and only the Fonte progresses naturally to this chord.

An excellent example of a schema embedded within a theme occurs in the minuet from Symphony No.88, which was discussed in relation to Koch's compositional models at the end of Chapter 3 (see Figure 74). It will be instructive, however, to conclude this section with a more involved example to show how manipulation of a schema may involve several parameters at the same time. Figure 188 shows the opening theme from the Finale of Symphony No.103 ("*Paukenwirbel*").

Figure 188: Thematic Fonte from Symphony 103, iv *Allegro* con *spirito*

Omitted from this figure are the first four bars which present a solo horn call motive, since it does not relate directly to the schematic element under discussion. The interesting point about the main theme is that after its first two phrases, to GA and QA respectively, the continuation is based on a 'double' Fonte treated in a fugal fashion; the points of imitation at b.13 and b.16 are quite marked, and is an unusual feature so close to the start of the *Finale* theme. Certainly, Haydn's listeners might be puzzled by some of the opening gestures of the movement, such as the solo horn call and fermata, the unaccompanied main theme in the first violins, the early appearance of Fonte, and indeed its imitative treatment. There is no question that the composer pointedly makes Fonte a prominent feature early in the *Finale*, since it returns in different guises at bb.25, 29 and 52; the second of these is a pedal Fonte construction, hinting again at *fugato*.

As regards the arrangement of motives in bb.13-18, we find that the lower strings introduce a 4-bar Fonte S1 (derived from the second phrase), but half-way through the upper strings imitate the motive with a shortened and transposed S1. The result is that at the start of b.15, two separate S1 segments have been announced and are awaiting Fonte completion; what Haydn does is to have the first violins provide S2 for the longer S1, and the second violins provide S2 for the shorter S1. Both Fontes are therefore complete at the start of b.18. In terms of salient contrapuntal pairings,

the local ❻-❺-❹-❸ appears in the shorter Fonte, while the local ⑦-① is in the longer Fonte. This relationship is thus inverted by Haydn's distribution of the Fonte S2 responses in bb.15-18; in other words, ❻-❺-❹-❸ over ⑦-① is switched to ❼-❶ over ⑥-⑤-④-③; it might be noted here that the core degrees in both Fonte and Monte automatically render them candidates for invertible counterpoint, The basic succession of contrapuntal pairings in the *Finale* Fonte may be represented as in Figure 189.

Figure 189: Core contrapuntal pairings for the 'double' Fonte in Figure 188

The discussion of this example has been somewhat extended for two main reasons: first the passage reveals that in advanced cases, the formal description of a schema instance may require more sophistication than mere parametric listing and classification permits; and second, a passage such as this clearly has cultural or semiological resonances which may require an altogether different approach to convey its wider meaning. It will be argued in Chapter 7 that empirical and statistical analysis must therefore be complemented by hermeneutic modes of interpretation in order that Haydn's schematic manipulations, and their role in communication with the contemporary listener, can be fully appreciated.

Chapter 6: Haydn's Symphonies: Statistical Investigation

Introduction

The empirical results obtained from application of the analytical methodology for this study were presented and discussed in the previous chapter. The emphasis there was on descriptive statistics, to reveal the distributions and proportions of individual parameters derived from the full set of Haydn's symphonies. In the present chapter, focus shifts to the question of identifiable differences within and between symphonic groups selected according to prior knowledge of developments across the composer's career. This task presents a greater challenge to the empirical methodology developed for this study, since it is now being required to provide statistically significant evidence for changes in parametric distribution or proportion at a more granular level; it represents in other words a shift from descriptive to inferential statistics, and so requires the application of a more formal statistical method which includes the element of significance testing.

The empirical data produced by the analytical framework designed for this study takes the form of frequency counts for individual types across the full set of fifteen parameters. This representation is fruitful, since the matrix format is not only well suited to comparing parametric type distributions between and within selected symphonic groups, but also facilitates analysis of possible chronological trends for individual parametric types. The two statistical tests applied are (i) the Chi-Square Test of Independence and (ii) the Spearman's Rank-Order Correlation Test, supplemented by regression analysis and graphs where appropriate for clarification.[219] A more detailed discussion of these methods follows the next section.

Symphonic Groups

A. Peter Brown provides a conventional classification of Haydn's symphonies based on clear phases in the composer's career;[220] Webster's classification is based more on the social/musical functions and contexts of distinct symphonic groups.[221] The present study consolidates them into 12 symphonic groups, mainly to improve the accuracy of statistical analysis by increasing the

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[220] Brown (2002:33).
[221] Webster (2000).

number of symphonies in each group. The revised classification is shown in the table of Figure 190.

Group	Dates	Designation	Symphonies (Hoboken numbers)
1	1757 – 63	Morzin-early Esterhazy	"A", "B", 1, 2, 3, 4, 5, 10, 11, 14, 15, 17, 18, 19, 20, 25, 27, 32, 33, 36, 37
2	1761 – 65	Vice-Kapellmeister at Esterhazy	6, 7, 8, 9, 12, 13, 16, 21, 22, 23, 24, 28, 29, 30, 31, 34, 40, 72
3	c.1765-68	Entertainment Symphonies	35, 38, 39, 41, 58, 59, 65
4	c.1768-72	'Sturm und Drang'	26, 42, 43, 44, 45, 46, 47, 48, 49, 51, 52, 64
5	1773-74	1773-74	50, 54(I), 55, 56, 57, 60
6	c.1774-77	Theatrical and Popular Symphonies	53, 54(II), 61, 66, 67, 68, 69
7	c.1778-81	Serious Entertainment	62, 63, 70, 71, 73, 74, 75
8	1782 – 84	First symphonies for publication	76, 77, 78, 79, 80, 81
9	1785 – 86	Paris Symphonies	82, 83, 84, 85, 86, 87
10	1787 – 89	Apotheosis of the Chamber Symphony	88, 89, 90, 91, 92
11	1791 – 92	London I	93, 94, 95, 96, 97, 98
12	1793 – 95	London II	99, 100, 101, 102, 103, 104

Figure 190: Consolidated classification for Haydn's symphonies

Statistical Tests

The Chi-Square Test for Independence is applied to the empirical data to identify significant differences in the proportion of parametric types between or within selected symphonic groups. In particular, the test is applied to the following group comparisons:

(i)   within the complete set of symphonic groups:
        G1-G12
(ii)   within combined groups:
        G1-G4; G5-G8; G9-G12
(iii)   between combined groups
        [G1-G4]-[G5-G8]; [G5-G8] – [G9-G12]; [G1-G7]-[G8-G12]

The rationale for creating these groups and comparisons arises directly from the corpus partitions discussed in the previous section. The Chi-Square tests therefore serve to identify significant differences in parametric application (i) within the entire set of Haydn's symphonies; (ii) within

combined groups which represent clear symphonic phases; and (iii) between these combined groups. Clear musicological reasons therefore motivate these statistical tests.

The Spearman's Rank-Order Correlation Test (*Spearman's*) is applied to each parametric type to reveal any significant change in its relative prominence; it therefore complements the Chi-Square test but with specific focus on an individual type. The primary test is performed across the entire set of symphonic groups. However, since we are also interested in likely changes in Haydn's compositional style, this study also performs Spearman's on subsets of earlier and later symphonic groups. The problem arising here is that Spearman's is less meaningful for sample sizes less than about five, and moreover to simply choose the subsets G[1-6] and G[7-12] risks losing trend information across G6-G7. Since the pre- and post-publication works provide an obvious partition, the solution adopted is to apply Spearman's to G[1-7] and G[7-12], comprising seven and six groups respectively; G7 serves as a 'pivot' group which represents both the culmination of the earlier set and the starting point of the later set.

Neither of these two statistical tests provides information about trends for individual parametric types across successive groups. Further tests are required for this task, informed by inspection of the type graphs and post-hoc analysis of established significant results. In particular, we apply to successive symphonic groups (i) the Chi Square test to assess differences in parametric type distribution; and (ii) the Chi Square test (or Fisher's exact test if more appropriate) to assess changes in proportional prominence for each individual parametric type. Note that although the type graph helps to identify potential changes across groups, caution is needed, since the graph might suggest a change which the statistical test reveals as not significant. For this reason, the above tests are applied to all group successions, with the graph serving as intuitive confirmation of significant results. Finally, a particular problem arises in those cases where the graph clearly reveals a succession of changes in the same direction, but where the tests produce no significant result for a single succession; a good example is seen in the graph for 1st Reprise between G6 and G9 (see Appendix D). The solution adopted is that if the outer groups reveal significant change, then the changes across each intervening succession are also accepted as significant, in this example G6-G7, G7-G8 and G8-G9.

Further details on principles, guidelines and assumptions in relation to these statistical tests, together with an example of their application and conclusions, are found in Appendix D.

Statistical Results

This section reports the significant results obtained from the Chi-Square, Spearman's and Group Succession tests, and presents conclusions taking into account the relevant post-hoc analyses. An interpretation of the statistical findings and several musical examples complete this chapter.

SCHEMA

Graph

The statistical analyses for schema incidence require a slightly different procedure, since the data represents frequency counts in relation to symphonies rather than schema instances, and there are only two distinct classes of schema. However, the testing methodology is essentially the same as described above. It makes sense to start with a regression analysis on the two schemata, which yields their graphs and measures of statistical reliability. We note that regression is plausible if the variables are first converted from interval to continuous values,[222] as in the following table of data which shows the proportions of Fonte and Monte per symphony in relation to years elapsed since the conventional date for the first symphony:

Elapsed years after 1757	3	6	9.5	13	16.5	18.5	22.5	26	28.5	31	34.5	37
Fontes per symphony	1.9	2.3	2.0	3.0	3.7	3.0	3.6	3.3	3.8	3.6	3.7	5.0
Montes per symphony	0.8	0.5	1.7	1.4	1.0	1.0	0.7	0.3	0.3	1.2	1.8	1.3

This data produces the following regression graphs:

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[222] see Appendix D, (iv).
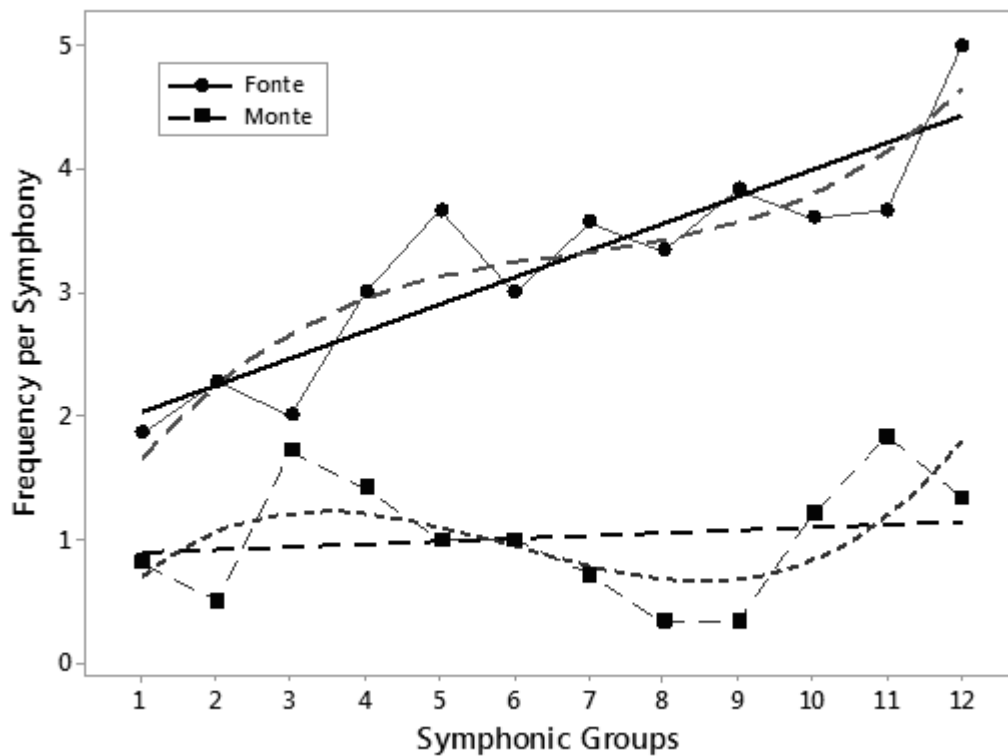
The measures of statistical reliability are:

Fonte: $\beta = 0.07$, $R^2 = 79.25\%$, $p < .001$ (very significant positive trend)[223]

Monte: $\beta = 0.007$, $R^2 = 2.23\%$, $p = 0.64$ (no significant trend)

Chi-Square Results

We recall that these Chi-Square results are for differences between Fonte and Monte distributions, in terms of relative frequencies per symphony:

Groups [1-12] $\chi^2 = 19.6$, $df = 11$, $p = 0.05$, $N = 409$

Groups 2-3 $\chi^2 = 6.8$, $df = 1$, $p = 0.01$, $N = 76$

Groups [1-4]-[5-8] $\chi^2 = 4.6$, $df = 1$, $p = 0.03$, $N = 289$

Spearman's Results

This test was not performed as the predominance of Fonte throughout means that rank comparisons are meaningless. Fortunately, results from the other statistical tests allow valuable inferences to be drawn about trends across and between groups.

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[223] The most important measures here are the direction of the slope (β), the amount of variance explained by the regression (R^2), and the confidence level for the regression (p).

Group Succession Results

There are only two schema classes (Fonte and Monte), so the following results represent changes in their proportion across the assessed groups:

Fonte:Monte	G2:G3	$\chi2 = 6.6$, $df = 1$, $p = 0.01$, $N = 76$
	G3-G8	$\chi2 = 9.3$, $df = 1$, $p < 0.01$, $N = 51$
	G9-G11	$\chi2 = 5.8$, $df = 1$, $p = 0.02$, $N = 58$

Conclusions

(i)   The regression results are striking for different reasons: naturally, the strong increase in Fonte frequency across the entire set of symphonies is of particular interest, with the p and R^2 values confirming a high level of confidence for this result. By contrast, Monte reveals low confidence in the regression, and has very low $R2$, indicating high variability. Of great interest, however, is a significant revival of Monte within G9 to G11, as noted in (vi).

(ii)   The differences in distribution across the full set G[1-12] are intensified by the frequent local changes for Monte, although the steady increase in Fonte with a relatively constant Monte would produce this result anyway.

(iii)   There are significant differences in schema proportion between G[1-4] and G[5-8]; it reflects the decline in Monte relative to Fonte in the second combined group.

(iv)   There is a significant group succession trend for Fonte:Monte across G2-G3. Inspection confirm that this results mainly from a strong increase in Monte.

(v)   There is a significant group succession trend for Fonte:Monte across G3-G8. Inspection confirms increases in Fonte across G3-G5, and sustained decreases in Monte across G3-G8.

(vi)   There is a significant group succession trend for Fonte:Monte across G9-G11. Inspection confirms marked increases in Monte across G9-G10 and G10-G11.

MELODIC DEGREES

Graph
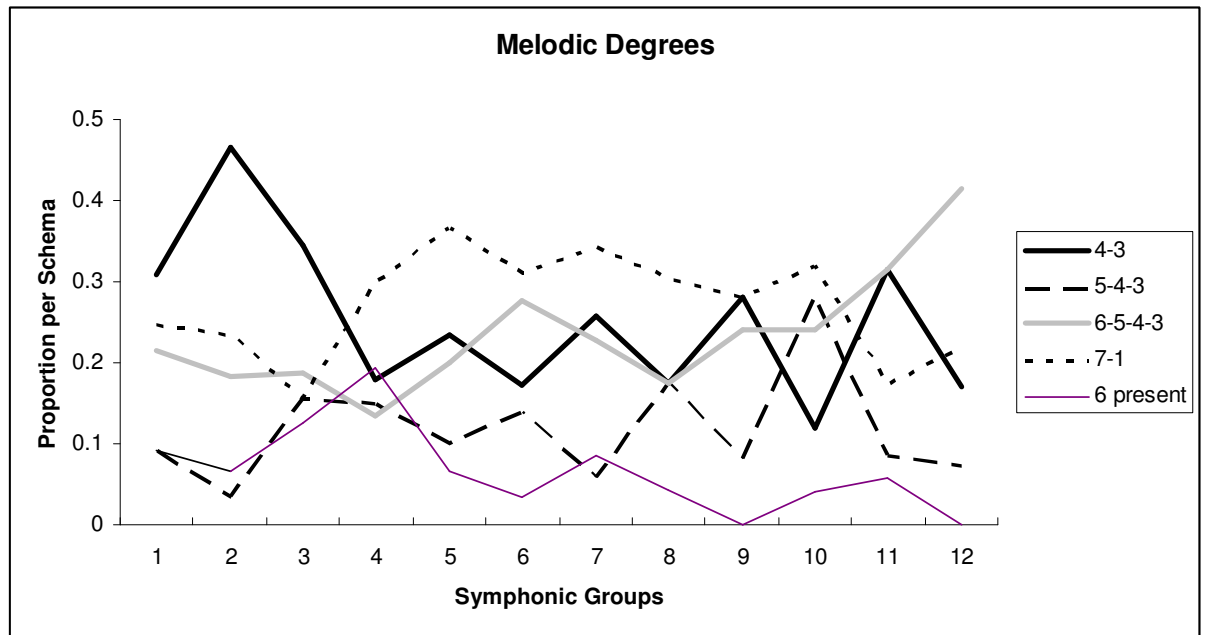
Chi-Square Results

Groups [1-12] $\chi^2 = 49.1$, $df = 33$, $p = 0.04$, $N = 461$

Groups [1-4] $\chi^2 = 20.5$, $df = 9$, $p = 0.02$, $N = 222$

Spearman's Results[224]

Groups G[1-12]	❹-❸	$r_s(10) = 0.53$, $p = 0.04$
	❻ present	$r_s(10) = 0.57$, $p = 0.03$
Groups [7-12]	❻-❺-❹-❸	$r_s(5) = -0.84$, $p = 0.02$

Group Succession Results

❹-❸	G1-G2	$\chi2 = 3.3$, $df = 1$, $p = 0.07$, $N = 125$
	G3-G4	$\chi2 = 3.2$, $df = 1$, $p = 0.07$, $N = 99$
	G10-G11	$\chi2 = 3.3$, $df = 1$, $p = 0.08$, $N = 60$
	G2-G4	$\chi2 = 12.4$, $df = 1$, $p < 0.001$, $N = 127$
❺-❹-❸	G2-G3	Fisher's exact test: $p = 0.04$, $N = 92$
	G10-G11	Fisher's exact test: $p = 0.07$, $N = 60$
❻-❺-❹-❸	G4-G6	$\chi2 = 2.6$, $df = 1$, $p = 0.09$, $N = 96$
	G8-G12	$\chi2 = 4.1$, $df = 1$, $p = 0.05$, $N = 64$
❼-❶	G3-G5	$\chi2 = 3.6$, $df = 1$, $p = 0.05$, $N = 62$
❻ present	G4-G6	Fisher's exact test: $p = 0.05$, $N = 96$

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[224] Significant results for the type 'no ❹-❸' are omitted here as their counts are extremely low in all symphonies.

Conclusions

(i)   There are significant differences in type distribution across the full set G[1-12]. The pattern is variable, and visual inspection suggests that the overall reported decrease in ❹-❸ is largely due to changes between G2 and G4. The reduction in '❻ present' is more consistent. It appears that ❹-❸ and ❻-❺-❹-❸ are equally preferred between G4 and G9, while ❺-❹-❸ arguably increases up to G10 before falling away. The most remarkable observation is that ❼-❶ is the most prominent type between G4 and G10, contrary to normative construction.

(ii)   There are significant differences in type distribution within combined groups G[1-4]. Inspection suggests strong realignments between G2 to G4, marked most notably by a reduction in ❹-❸, increase in ❺-❹-❸ and start of the increase in ❼-❶, which then predominates until G10, as noted in (i).

(iii)   There is a significant trend result of decrease for ❹-❸ across G[1-12]. This result must be qualified by the observation in (i): the type is actually quite steady after G4, and its oscillations in G9 to G12 are perhaps of more interest than the overall trend result.

(iv)   There is a significant trend result of decrease for '❻ present'. We recall that this type represents melodic lines with ❻, but not the expected following ❺-❹-❸, and it typically includes the diminished 7th descent within ❻-❼-❶.

(v)   There is a significant trend result for increase in ❻-❺-❹-❸ across G[7-12]. The result can be attributed to normative Fonte constructions (Monte typically has no ❻). In fact, the graph suggests a non-linear increase:

Melodic ❻-❺-❹-❸
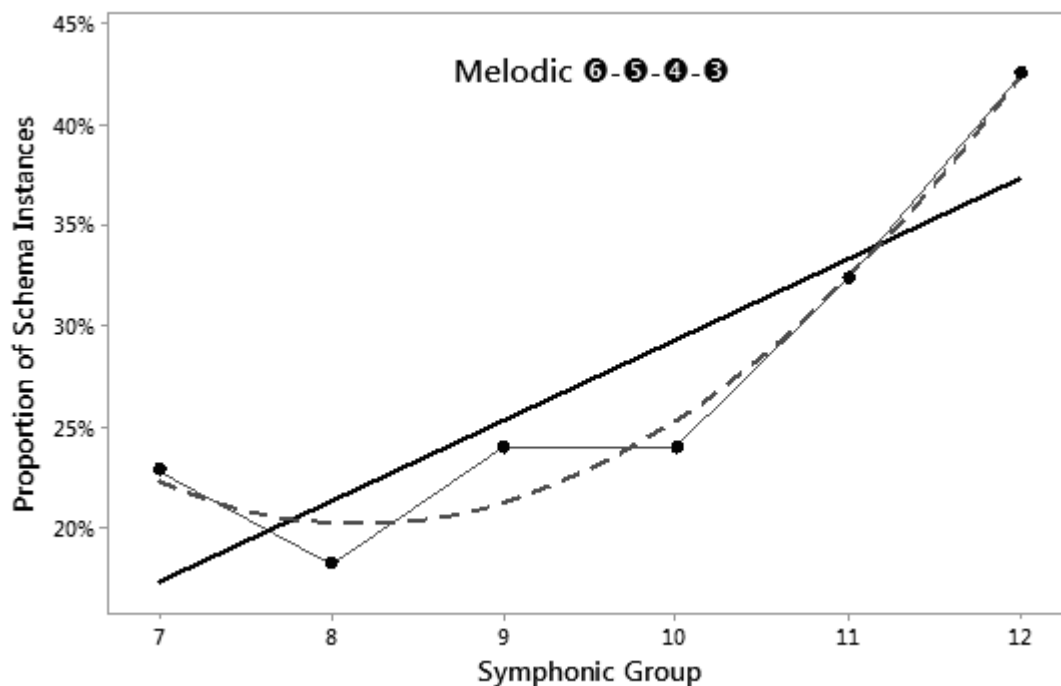
(vi)   Significant group succession trends for ❹-❸ include increase across G1-G2, decreases across G2-G3 and G3-G4, and increase across G10-G11.

(vii)   Significant group succession trends for ❺-❹-❸ include increase across G2-G3 and decrease across G10-G11.

(viii)   Significant group succession trends for ❻-❺-❹-❸ include increases across G4-G5, G5-G6, G8-G9, G9-G10, G10-G11 and G11-G12.

(ix)   Significant group succession trends for ❼-❶ include increases across G3-G4 and G4-G5.

(x)   Significant group succession trends for ❻ present include decreases across G4-G5 and G5-G6.

BASS DEGREES

Graph
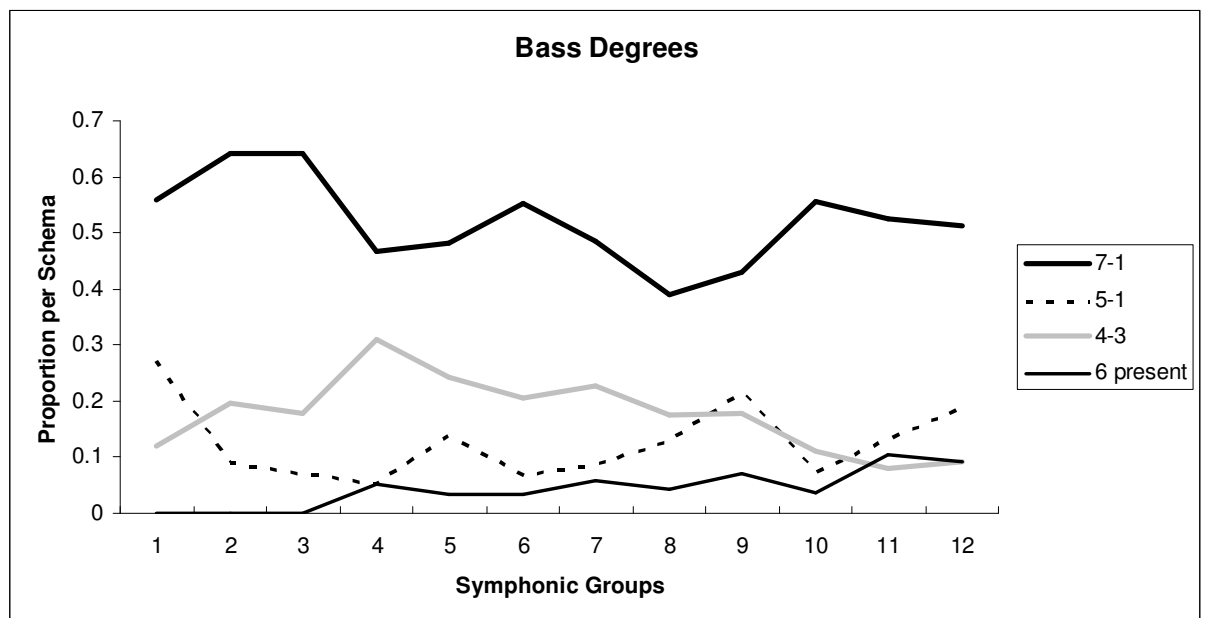
Chi-Square Results

Groups [1-7]-[8-12] $\chi^2 = 13.2$, $df = 2$, $p = 0.001$, $N = 453$

Spearman's Results

Groups [1-12]	④-③	$r_s(10) = 0.72$, $p = 0.004$
	Other	$r_s(10) = -0.81$, $p < 0.001$
Groups [1-7]	⑤-①	$r_s(5) = 0.76$, $p = 0.03$
	Other	$r_s(5) = -0.73$, $p = 0.03$
Groups [7-12]	④-③	$r_s(4) = 0.88$, $p = 0.01$

Group Succession Results

④-③   G1-G4 $\chi2 = 6.4$, $df = 1$, $p < 0.01$, $N = 117$

                   G4-G11 $\chi2 = 7.2$, $df = 1$, $p < 0.01$, $N = 96$

⑤-①   G1-G2 $\chi2 = 6.7$, $df = 1$, $p = 0.01$, $N = 115$

Conclusions

(i)   No significant differences in type distribution were found across G[1-12], although inspection confirms the decline in ④-③ identified by Spearman's. The prominence throughout of ⑦-① and ④-③ are also evident in the graph, with the normative type clearly preferred. However, the presence of ⑤-① is striking, and it even supplants ④-③ in G1, G9, G11 and G12.

(ii)   There are significant differences in type distribution between combined groups G[1-7] and G[8-12]. Inspection suggests that the decrease in ④-③ across G[8-11], together with increases in ⑦-① and ⑤-①, might be responsible; the non-④-③ types also become more tightly bunched in the second combined group.

(iii)   There is a significant trend result of strong decrease for ④-③ across G[1-12], with an even stronger result across G[7-12]. Inspection actually confirms a steady decrease from G4, as is strongly evident in the graph for this set of groups:
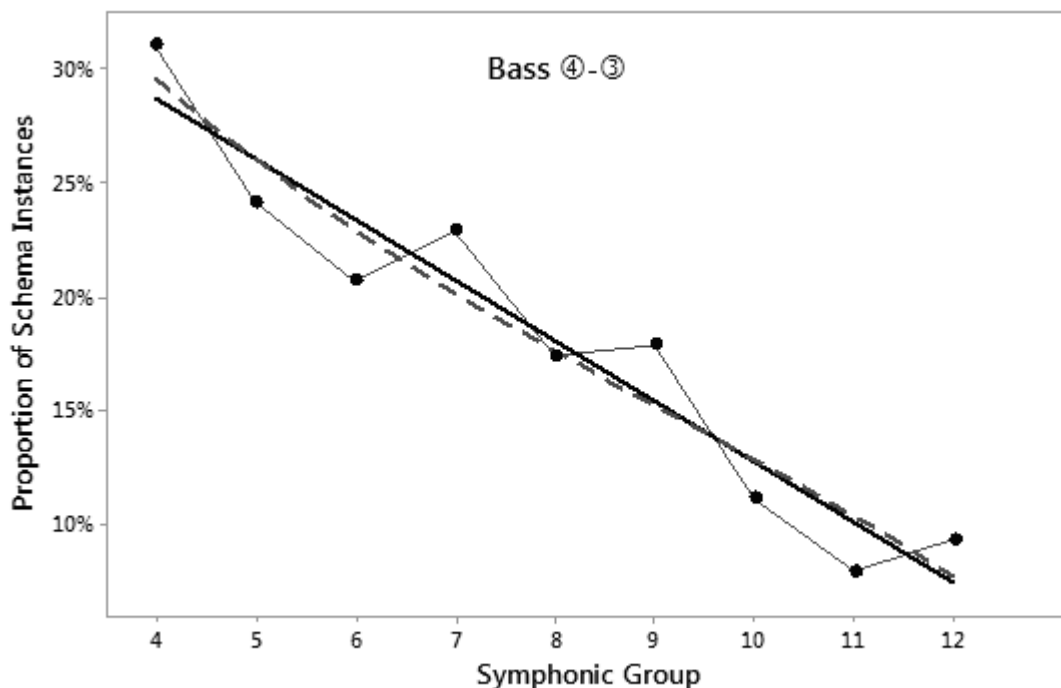
(iv)   There is a significant trend result of strong increase for 'Other' across G[1-12], and in particular across G[1-7]. This result reinforces the observations in (ii) and (iii). The gradual increases in ⑤-① and '⑥ present' appear to be the main contributors to the

increase, whose graph for the full set is:
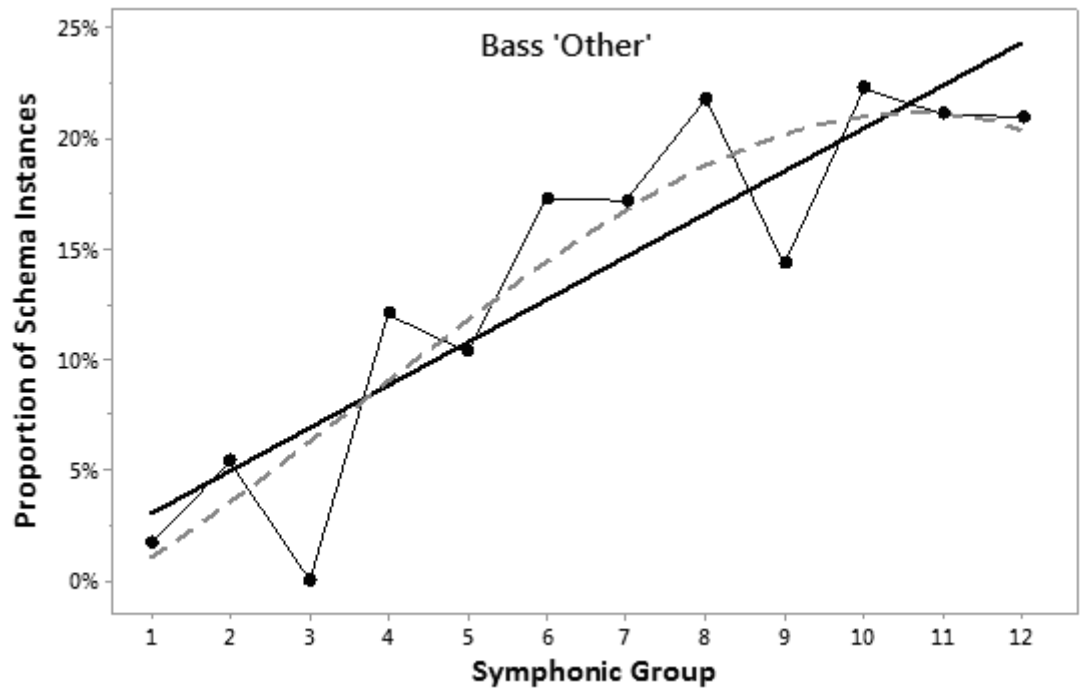
(v)   There is a significant trend result of strong decrease for ⑤-① across G[1-7]. This result is interesting because the trend appears to reverse from G6, as noted in (i) and (ii). Moreover, as its graph reveals, the plots within G[1-7] are extremely variable:
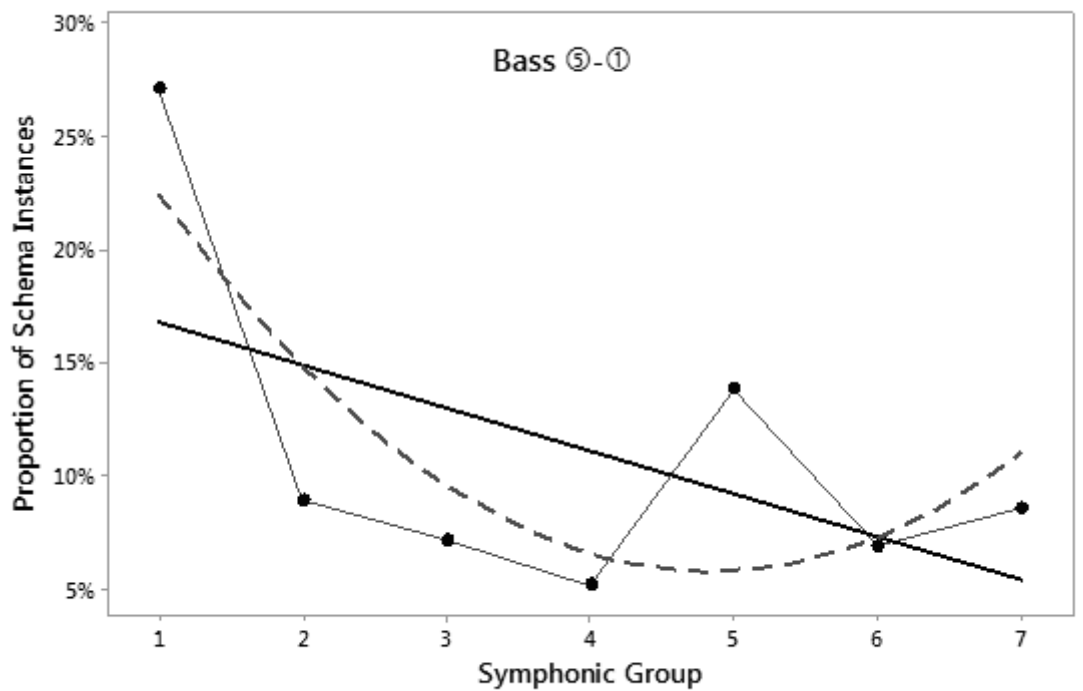
(vi)   Significant group succession trends for ④-③ include increases across G1-G2 and G3-G4,

and decreases across G4-G5, G5-G6, G7-G8, G8-G9, G9-G10 and G10-G11.

(vii)   A significant group succession trend for ⑤-① is a decrease across G1-G2.

RHYTHM

Graph
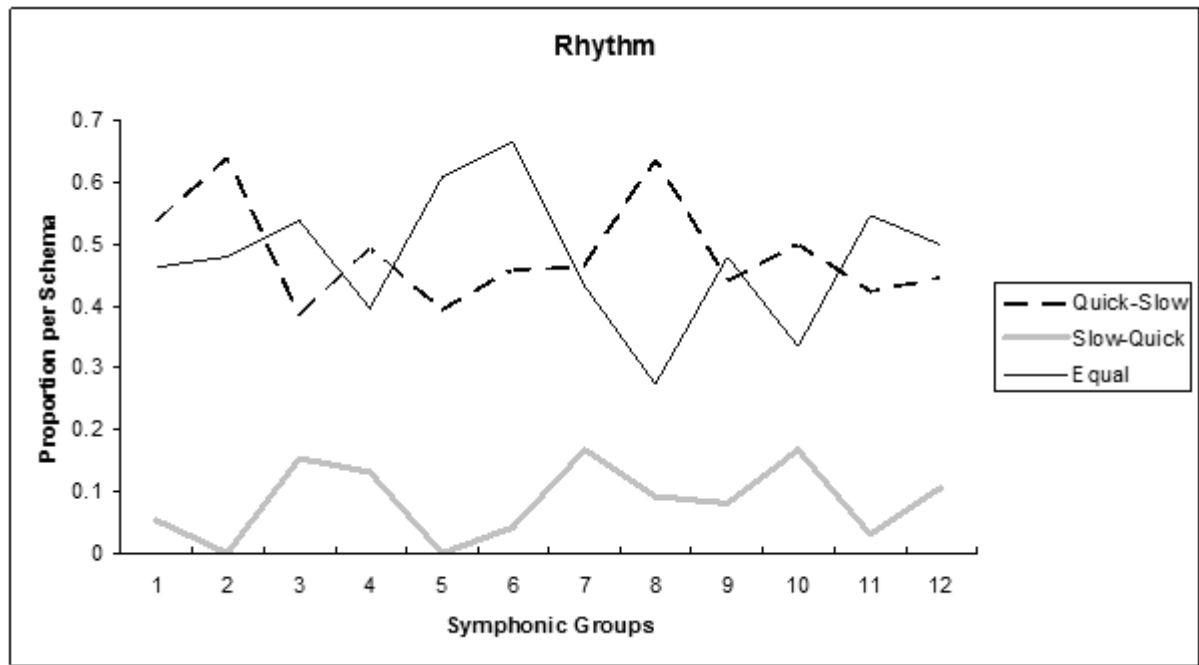
Group Succession Results

Equal	G4-G5	$\chi2 = 3.5$, $df = 1$, $p = 0.06$, $N = 82$
	G6-G8	$\chi2 = 4.6$, $df = 1$, $p = 0.03$, $N = 50$
Quick-Slow	G2-G3	$\chi2 = 3.5$, $df = 1$, $p = 0.06$, $N = 84$
	G5-G8	$\chi2 = 2.9$, $df = 1$, $p = 0.09$, $N = 50$
Slow-Quick	G2-G3	Fisher's exact test: $p = 0.01$, $N = 84$
	G4-G5	Fisher's exact test: $p = 0.09$, $N = 82$
	G5-G7	Fisher's exact test: $p = 0.05$, $N = 60$

Conclusions

(i)   There are no significant distribution differences or overall trends for parametric type between or within any groups.

(ii)   Significant group succession trends for Equal include increase across G4-G5, and decreases across G6-G7 and G7-G8.

(iii)   Significant group succession trends for Quick-Slow include decrease across G2-G3, and increases across G5-G6, G6-G7 and G7-G8.

(iv)   Significant group succession trends for Slow-Quick include increase across G2-G3,

decrease across G4-G5, and increases across G5-G6 and G6-G7.

SEGMENT LENGTH

Graph
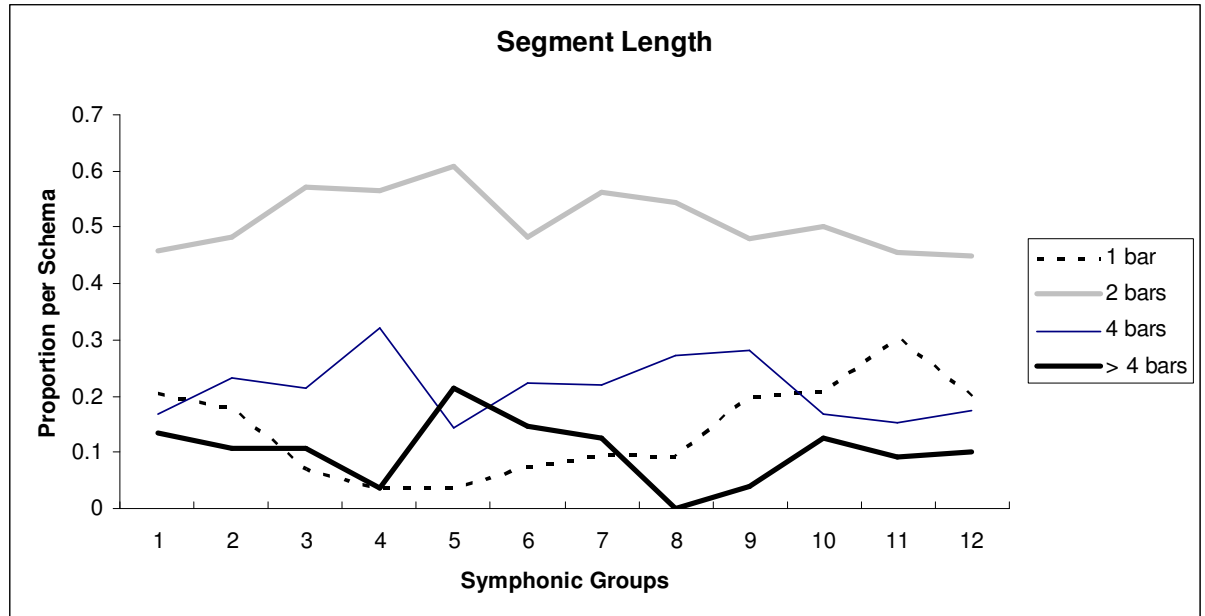
Spearman's Results

Groups [1-7]	1 bar	$r_s(5) = 0.81, p = 0.01$
Groups [7-12]	1 bar	$r_s(4) = -0.92, p = 0.005$
	4 bars	$r_s(4) = 0.87, p = 0.01$

Group Succession Results

1 bar	G1-G5	Fisher's exact test: $p = 0.05, N = 87$
	G8-G11	Fisher's exact test: $p = 0.09, N = 55$
4 bar	G1-G4	$\chi2 = 3.5, df = 1, p = 0.06, N = 112$
	G4-G5	$\chi2 = 3.2, df = 1, p = 0.08, N = 81$
> 4 bar	G4-G5	Fisher's exact test: $p = 0.02, N = 81$
	G1-G4	Fisher's exact test: $p = 0.09, N = 112$
	G5-G8	Fisher's exact test: $p = 0.03, N = 50$

Conclusions

(i)   There are no significant differences in distributions of parametric type between or within any groups. Inspection reveals that 2 bar is strongly preferred throughout.

(ii)   There are significant trend results for 1 bar. Inspection confirms the strong increase for this type across G[1-12] and across G[7-12]; in fact, its increase is evident from G4, as

seen in the graph for this set of groups:
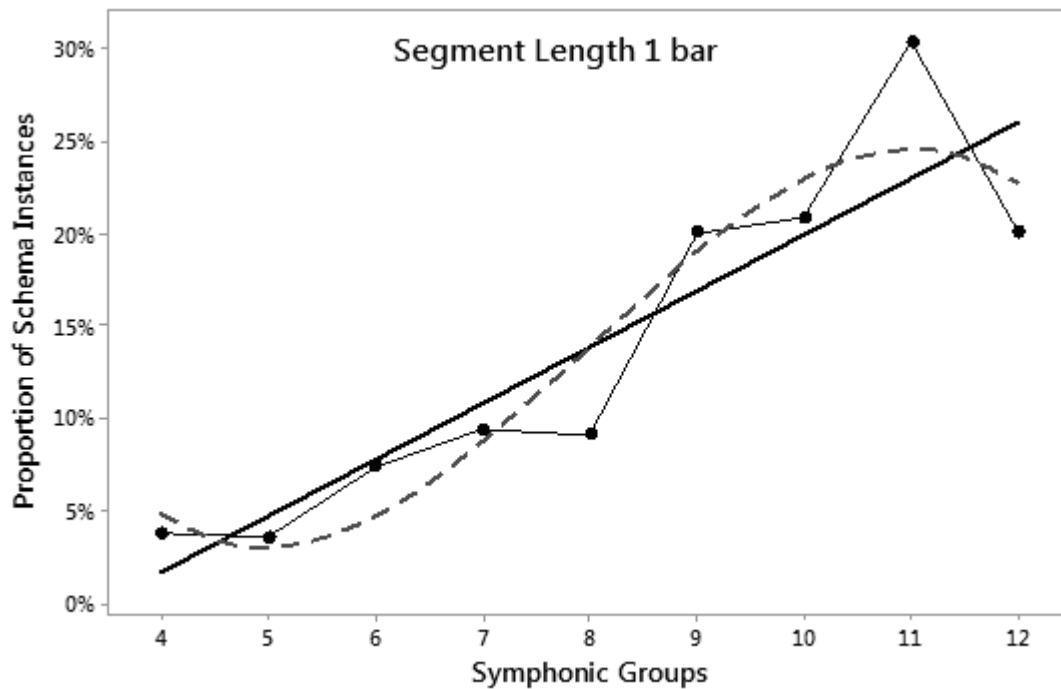
(iii)   There is a significant trend result of strong decrease in 4 bar across G[7-12]; this result is concealed in the graph by the slight increase from G7 to G9.

(iv)   Significant group succession trends for 1 bar include decreases across G1-G2, G2-G3, G3-G4 and G4-G5, and increases across G8-G9, G9-G10 and G10-G11.

(v)   Significant group succession trends for 4 bar include increase across G1-G2 and G3-G4, and decrease across G4-G5.

(vi)   Significant group succession trends for > 4 bar include decreases across G1-G2, G2-G3, and G3-G4, increase across G4-G5, and decreases across G5-G6, G6-G7 and G7-G8.

HARMONIC RHYTHM

Graph
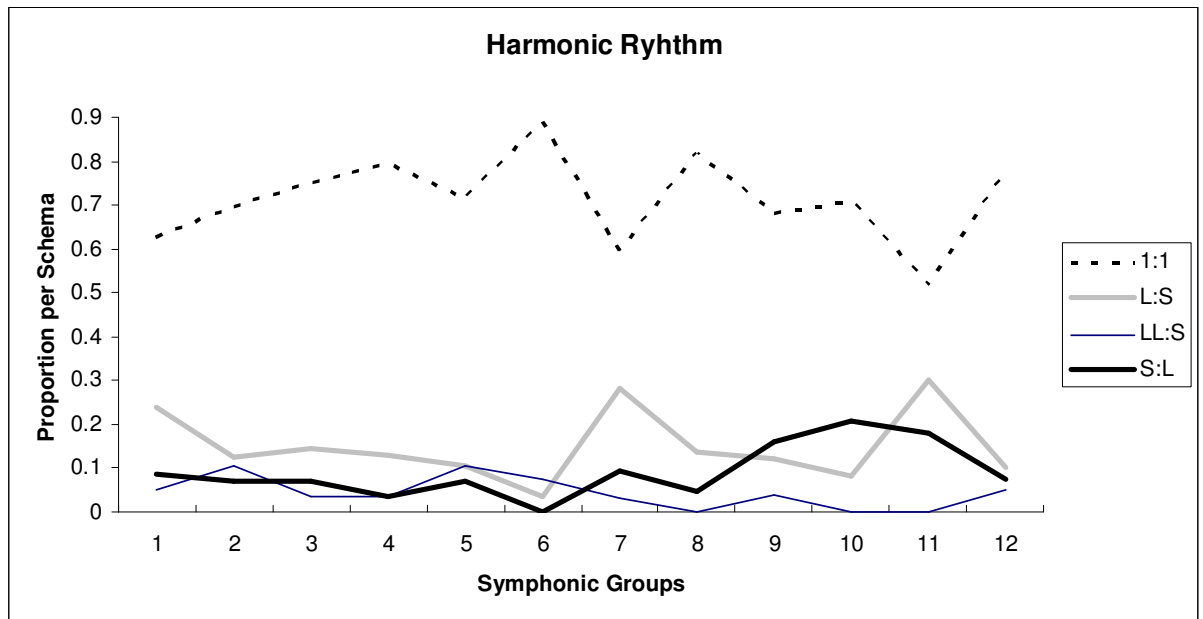
Chi-Square Results

Groups 6-7	$\chi^2 = 6.5$, $df = 1$, $p = 0.01$, $N = 59$
Groups 11-12	$\chi^2 = 5.4$, $df = 1$, $p = 0.02$, $N = 73$

Group Succession Results

1:1	G6-G7	$\chi2 = 6.9$, $df = 1$, $p = 0.01$, $N = 59$
	G7-G8	$\chi2 = 3.0$, $df = 1$, $p = 0.08$, $N = 54$
	G11-G12	$\chi2 = 5.4$, $df = 1$, $p = 0.02$, $N = 73$
	G1-G4	$\chi2 = 3.9$, $df = 1$, $p = 0.05$, $N = 113$
Long:Short	G1-G6	Fisher's exact test: $p = 0.03$, $N = 86$
	G6-G7	Fisher's exact test: $p = 0.01$, $N = 59$
	G10-G11	$\chi2 = 4.0$, $df = 1$, $p = 0.04$, $N = 57$
	G11-G12	$\chi2 = 4.8$, $df = 1$, $p = 0.03$, $N = 73$
	G7-G10	Fisher's exact test: $p = 0.09$, $N = 56$

Conclusions

(i)   No significant differences in type distribution were found across G[1-12], nor within or between combined groups. The graph reveals a remarkably consistent pattern, in which 1:1 is strongly preferred throughout. No significant overall trend was found for any individual parametric type.

(ii)   The significant results for distribution difference across G6-G7 and G11-G12 are clearly confirmed by the graph, and described in the following conclusions.

(iii)   Significant group succession trends for 1:1 include increases across G1-G2, G2-G3 and

G3-G4, decrease across G6-G7, and increases across G7-G8 and G11-G12.

(iv)   Significant group succession trends for Long:Short include decreases across G1-G2, G3-G4, G4-G5, G5-G6, G7-G8, G8-G9, G9-G10 and G11-G12, and increases across G6-G7 and G10-G11.

HARMONIC SIMILARITY

Graph
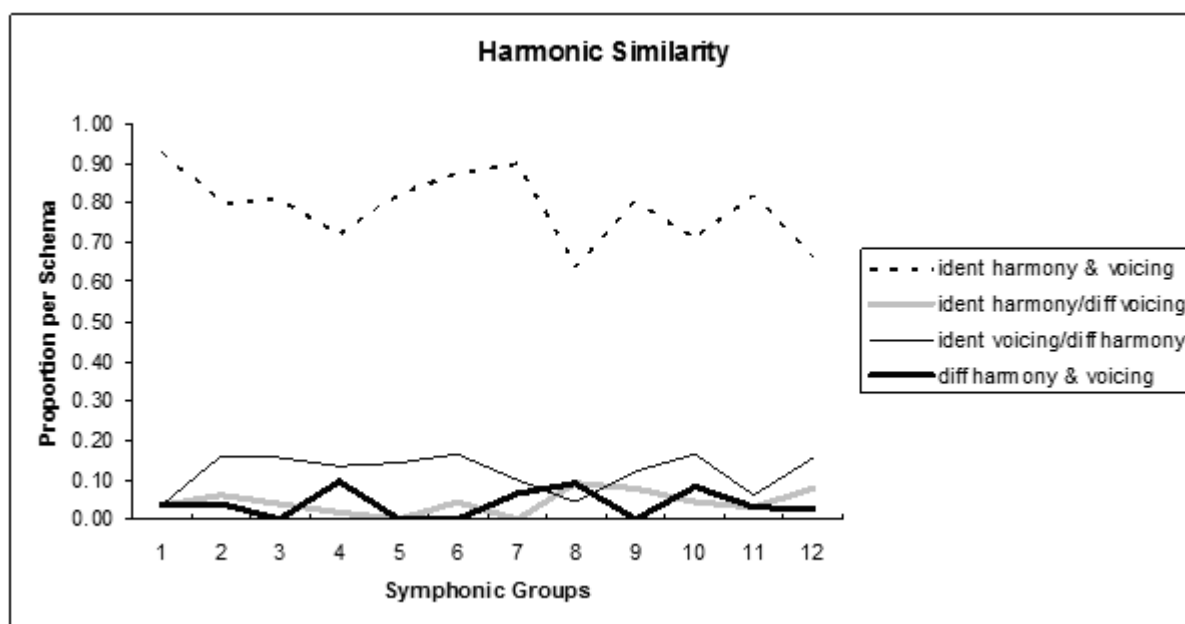
Group Succession Results

= H = V	G1-G2	$\chi2 = 4.6$, df = 1, p = 0.03, N = 107
	G11-G12	$\chi2 = 2.8$, df = 1, p = 0.09, N = 64
= V ≠ H	G1-G2	Fisher's exact test: p = 0.04, N = 107

Conclusions

(i)   There are no significant distribution differences or overall trends for parametric type between or within any groups.

(ii)   Significant group succession trends for = H = V include decreases across G1-G2 and G11-G12 (the decrease across G7-G8 is not statistically significant).

(iii)   A significant group succession trend for = V ≠ H is an increase across G1-G2.

MELODIC SIMILARITY

Graph
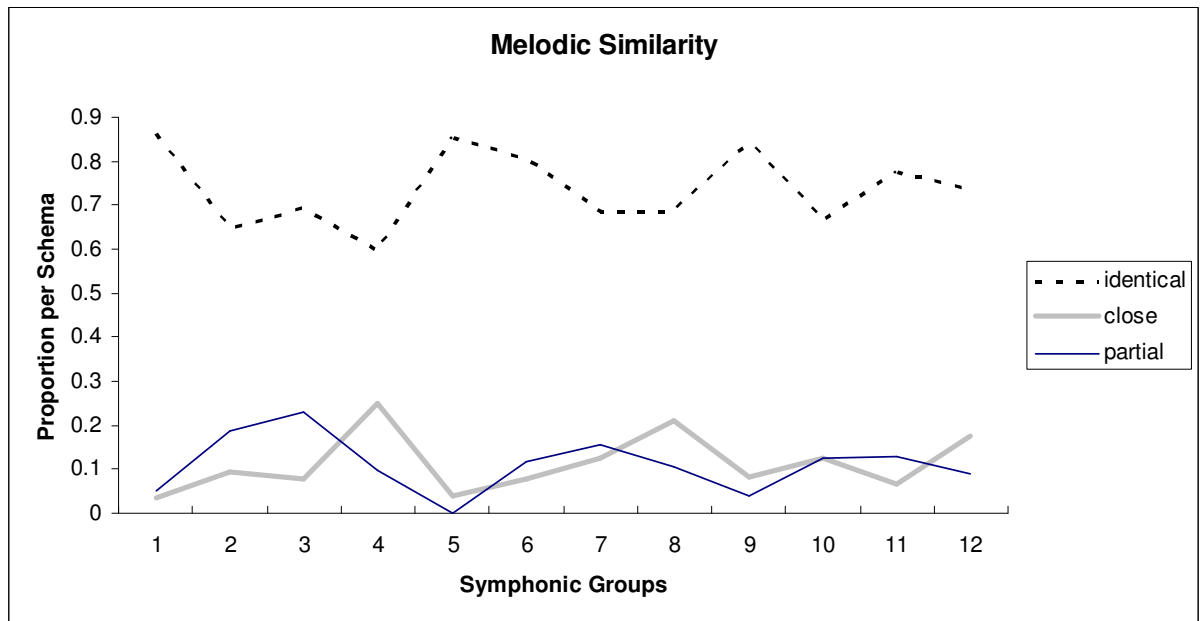
Chi-Square Results

Groups 1-2	$\chi^2 = 7.0$, $df = 1$, $p = 0.01$, $N = 112$
Groups 4-5	$\chi^2 = 5.4$, $df = 1$, $p = 0.02$, $N = 79$
Groups [1-4]	$\chi^2 = 10.7$, $df = 3$, $p = 0.01$, $N = 190$

Group Succession Results

Identical	G1-G2	$\chi 2 = 7.0$, $df = 1$, $p < 0.01$, $N = 112$
	G4-G5	$\chi 2 = 5.4$, $df = 1$, $p = 0.02$, $N = 79$
Closely	G3-G4	$\chi 2 = 3.3$, $df = 1$, $p = 0.06$, $N = 78$
	G4-G5	Fisher's exact test: $p = 0.03$, $N = 79$
Partial	G1-G2	$\chi 2 = 4.9$, $df = 1$, $p = 0.03$, $N = 112$
	G1-G3	Fisher's exact test: $p = 0.02$, $N = 84$
	G3-G5	Fisher's exact test: $p = 0.01$, $N = 53$
	G5-G7	Fisher's exact test: $p = 0.05$, $N = 59$

Conclusions

(i)   No significant differences in type distribution were found across G[1-12], nor overall trends for any individual types. Inspection reveals a consistent pattern, with 'identical' strongly preferred throughout.

(ii)   The significant result for distribution differences within G[1-4] is nevertheless confirmed by closer inspection, which shows the decrease in 'identical' and corresponding increases in 'close' and 'partial' types.

(iii)   The significant results for G1-G2 and G4-G5 are clearly confirmed by the graph, and are described in the following conclusions.

(iv)   Significant group succession trends for Identical include decrease across G1-G2 and increase across G4-G5.

(v)   Significant group succession trends for Closely include increase across G3-G4 and decrease across G4-G5.

(vi)   Significant group succession trends for Partial include increases across G1-G2 and G2-G3, decreases across G3-G4 and G4-G5, and increases across G5-G6 and G6-G7.

RHYTHMIC SIMILARITY

Graph
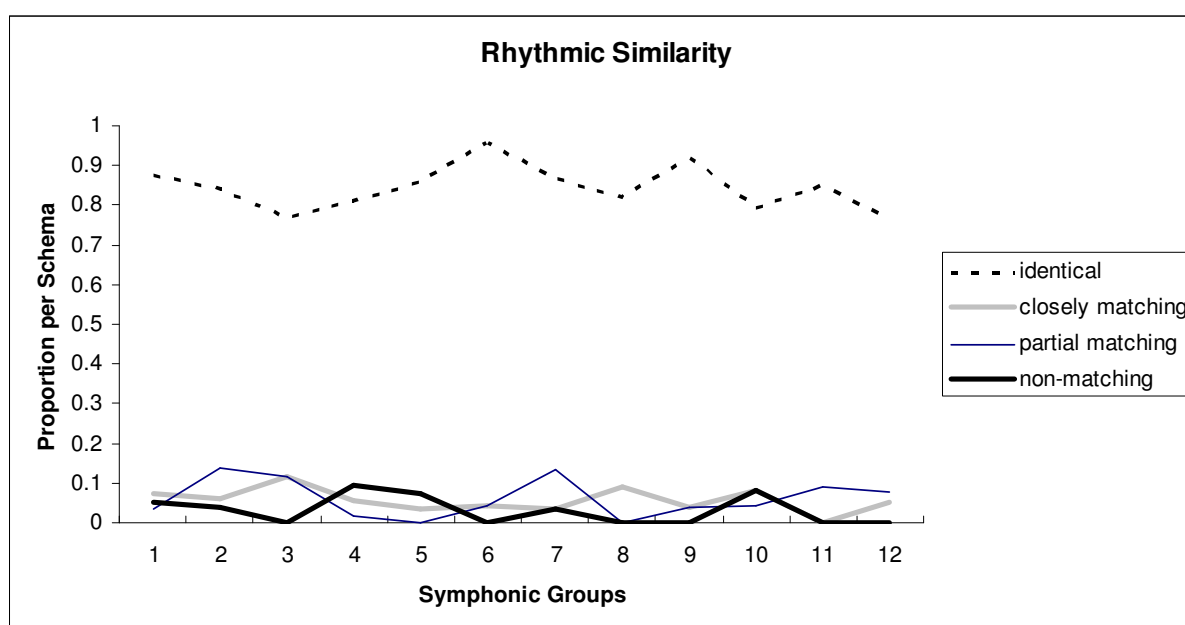
Group Succession Results

Partial   G1-G2   Fisher's exact test: $p = 0.08$, $N = 112$

                 G3-G4   Fisher's exact test: $p = 0.10$, $N = 78$

                 G2-G5   Fisher's exact test: $p = 0.09$, $N = 81$

Conclusions

(i)   There are no significant distribution differences or overall trends for parametric type between or within any groups. Identical is strongly preferred throughout.

(ii)   Significant group succession trends for Partial include increase across G1-G2, and decreases across G2-G3, G3-G4 and G4-G5.

PROPORTION

Graph
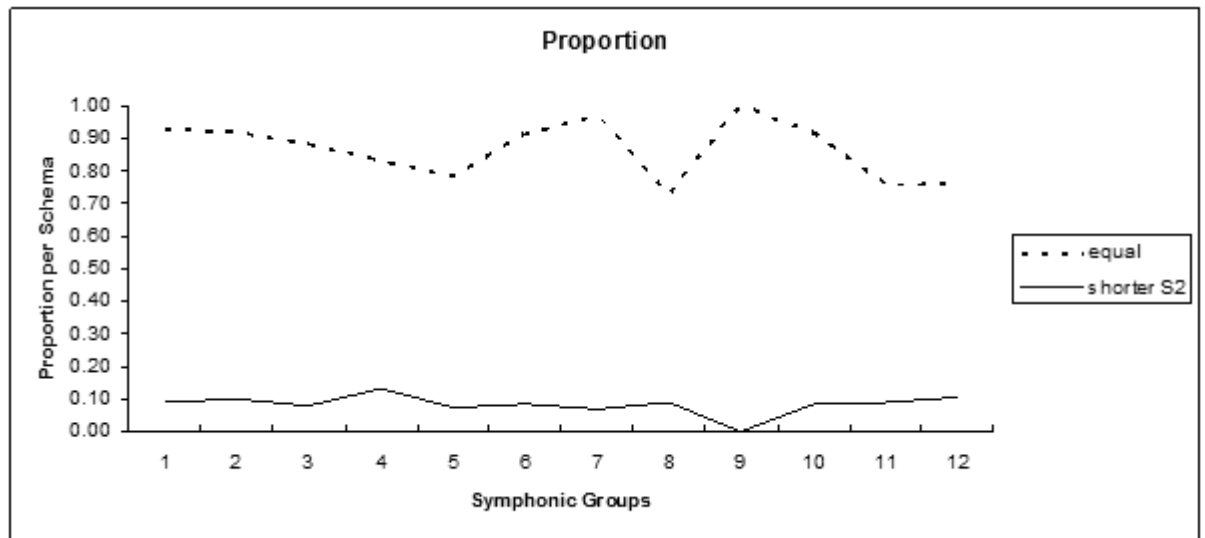
Group Succession Results

Equal   G9-G11   Fisher's exact test: p = 0.05, N = 55

Conclusions

(i)   There are no significant distribution differences or overall trends for parametric type between or within any groups. Equal is strongly preferred throughout.

(ii)   Significant group succession trends for Equal include decreases across G9-G10, G10-G11 and G11-G12.

FONTE PROGRESSION

Graph
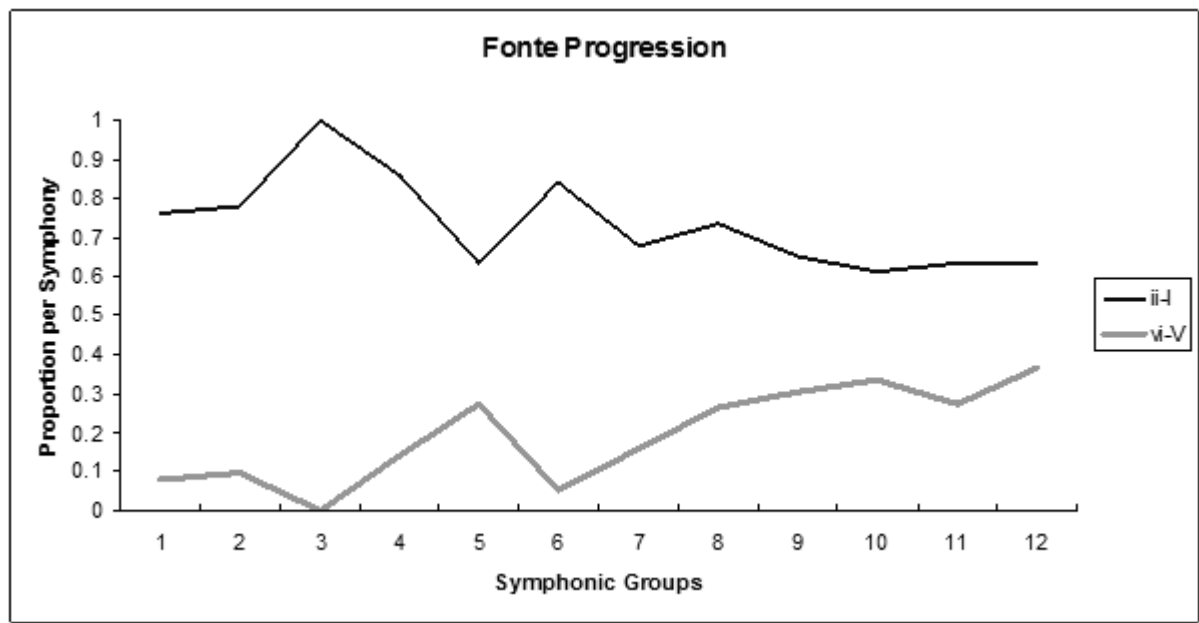
Chi-Square Results

Groups [1-7]-[8-12] $\chi^2 = 6.4$, $df = 1$, $p < 0.01$, $N = 331$

Spearman's Results

Groups [1-12]   vi-V $r_s(10) = -0.66$, $p = 0.01$

                     Other $r_s(10) = 0.66$, $p = 0.01$

Group Succession Results

vi-V   G5-G6   Fisher's exact test: $p = 0.09$, $N = 46$

            G3-G5   Fisher's exact test: $p = 0.03$, $N - 41$

            G6-G10   Fisher's exact test: $p = 0.03$, $N = 41$

Conclusions

(i)   No significant differences in type distribution were found across G[1-12]. Inspection makes this result surprising, since vi-V increases steadily from G6. However, its impact is found to be significant only in the following group comparison.

(ii)   There are significant differences in type distribution between combined groups G[1-7] and G[8-12]. Inspection reveals that this results from increase in vi-V and decrease in ii-I; we recall that a Fonte instance is classified as vi-V when no corresponding ii-I Fonte occurs. It is interesting to compare the relative prominence of the two progressions in G3 and G12.

(iii)   There are significant trend results for vi-V and 'Other'. However, these are of limited interest here, since they reveal only that vi-V proportion increases moderately at the

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expense of 'Other' types, which include ii-V, ii-i and progressions in other keys. It is more instructive to view the trend graphs for vi-V and ii-I, especially across G[3-12], to confirm their reciprocal changes:
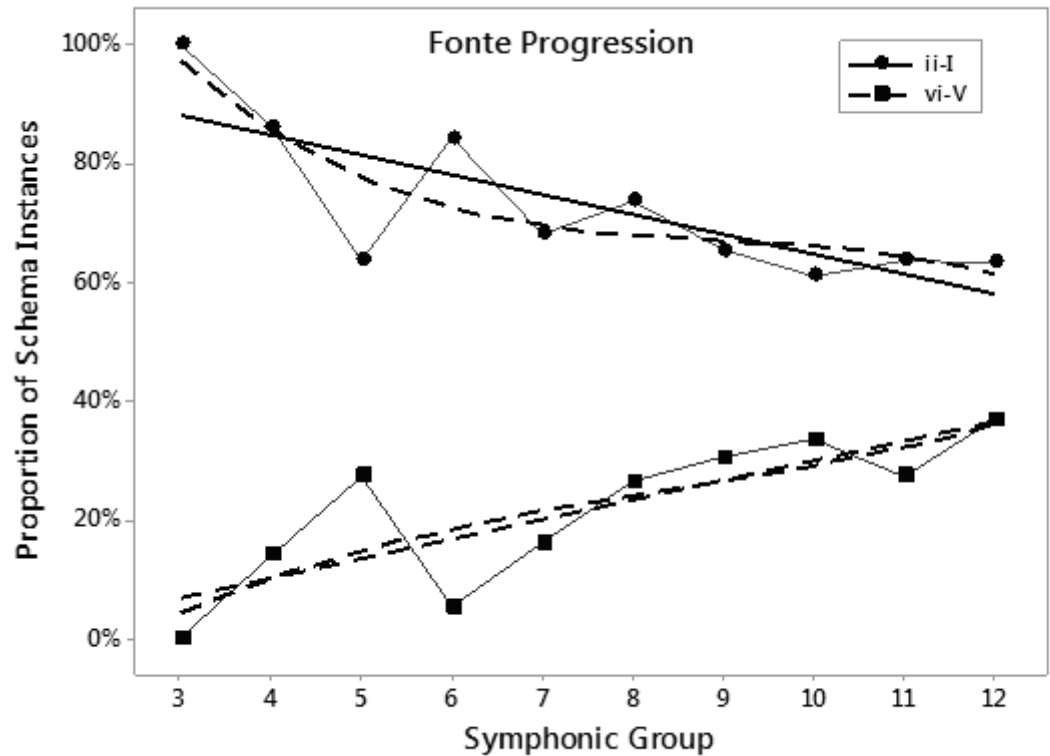
(iv)   Significant group succession trends for vi-V include increases across G3-G4, G4-G5, decrease across G5-G6, and increases across G6-G7, G7-G8, G8-G9 and G9-G10.

LOCATION

Graph
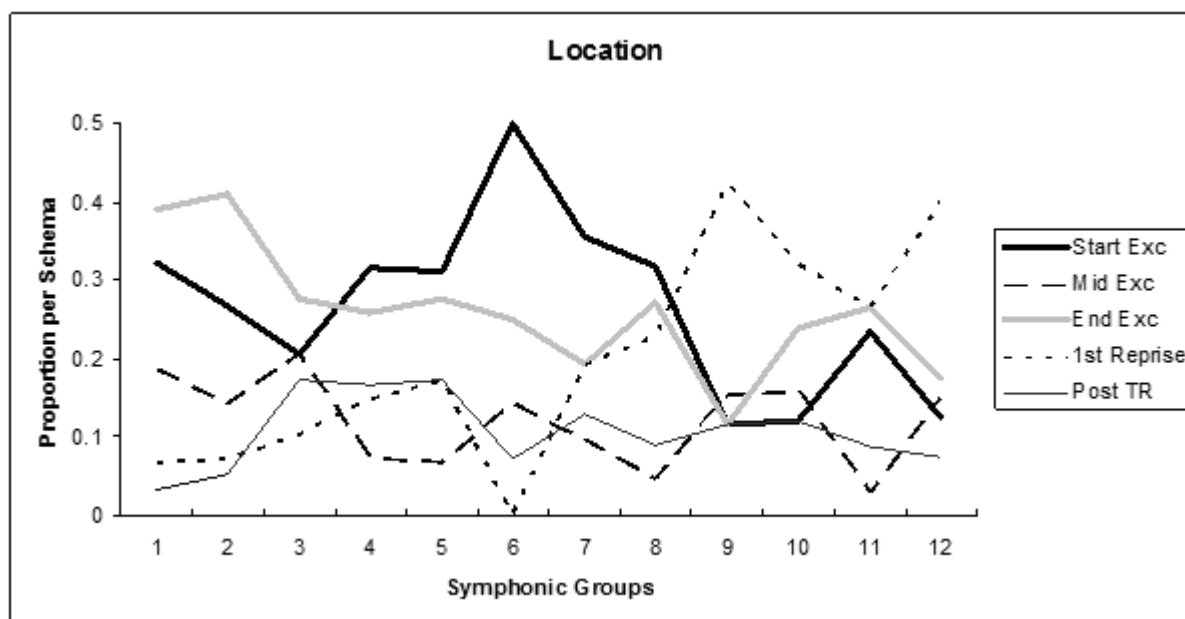
Chi-Square Results

Groups [1-12] $\chi^2 = 69.0, df = 33, p < 0.001, N = 433$

Groups 5-6 $\chi^2 = 8.1, df = 3, p = 0.04, N = 57$

Groups 6-7 $\chi^2 = 8.6, df = 3, p = 0.03, N = 59$

Groups [5-8]-[9-12] $\chi^2 = 22.3, df = 3, p < 0.001, N = 235$

Groups [1-7]-[8-12] $\chi^2 = 38.5, df = 34, p < 0.001, N = 433$

Spearman's Results

Groups [1-12]   start-Excursus $r_s(10) = 0.56, p = 0.03$

                      End-Excursus $r_s(10) = 0.51, p = 0.04$

                      1st Reprise $r_s(10) = -0.84, p = 0.003$

Groups [1-7]   Start-Excursus $r_s(5) = -0.78, p = 0.02$

                      End-Excursus $r_s(5) = 0.92, p = 0.002$

Group Succession Results

Start-Excursus   G3-G6 $\chi2 = 5.4, df = 1, p = 0.02, N = 57$

                        G6-G9 $\chi2 = 9.2, df = 1, p < 0.01, N = 54$

Mid-Excursus   G3-G4   Fisher's exact test: $p = 0.09, N = 83$

End-Excursus   G2-G7 $\chi2 = 4.2, df = 1, p = 0.04, N = 87$

1st Reprise   G5-G6   Fisher's exact test: $p = 0.05, N = 57$

                        G6-G7   Fisher's exact test: $p = 0.02, N = 59$

                        G6-G9 $\chi2 = 14.9, df = 1, p < 0.001, N = 54$

Post TR   G1-G3   Fisher's exact test: $p = 0.04, N = 88$

Conclusions

(i)   There are significant differences in type distribution across G[1-12]. Close inspection reveals that this results mainly from a decrease in End-Excursus, an increase in 1st Reprise, and fluctuations in Start-Excursus.

(ii)   There are significant differences in type distribution between groups G[5-8] and G[9-12]. Inspection reveals that this results mainly from a decrease in start-Excursus and an increase in 1st Reprise.

(iii)   There are significant differences in type distribution between groups G[1-7] and G[8-12]. Inspection reveals that this results mainly from a decrease in start-Excursus and an increase in 1st Reprise; End-Excursus is also lower in G[8-12].

(iv)   There are significant trend results for Start-Excursus. This type shows moderate decrease across G[1-12] and strong increase within G[1-7]. As the graph reveals, the latter increase would be even more pronounced if not for the initial decline across G[1-3]:
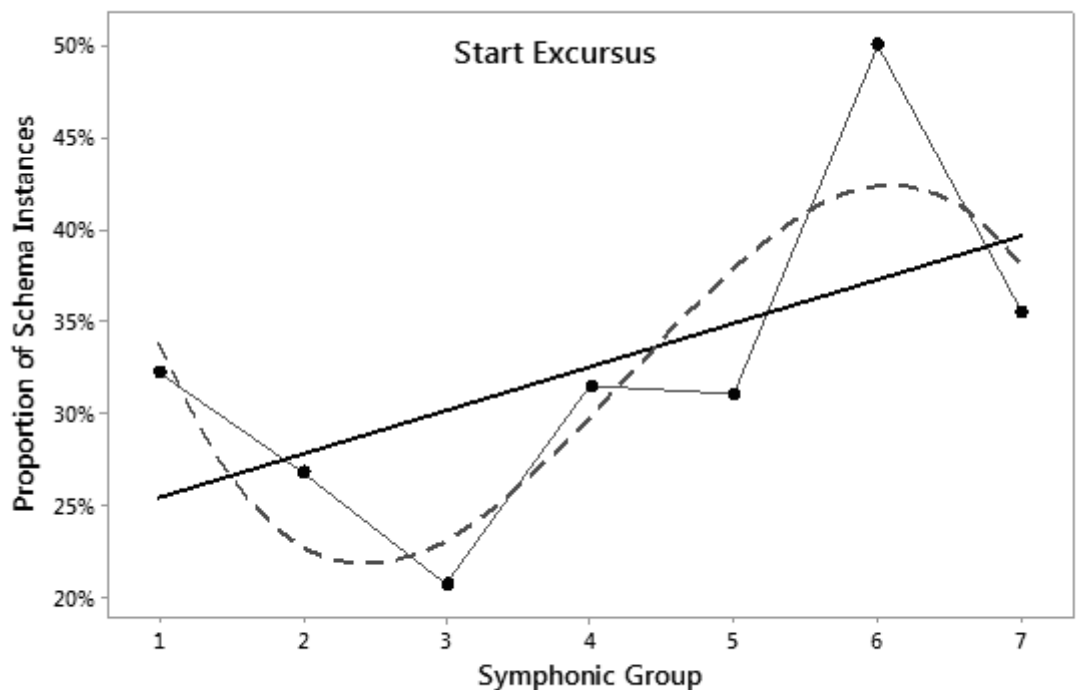
(v)   A decrease in Start-Excursus across G[7-12] is apparent from inspection, but was reported with only marginal significance. When the test was reasonably repeated on G[6-12], however, a significant strong decrease was reported, and the relevant graph clearly confirms this trend:
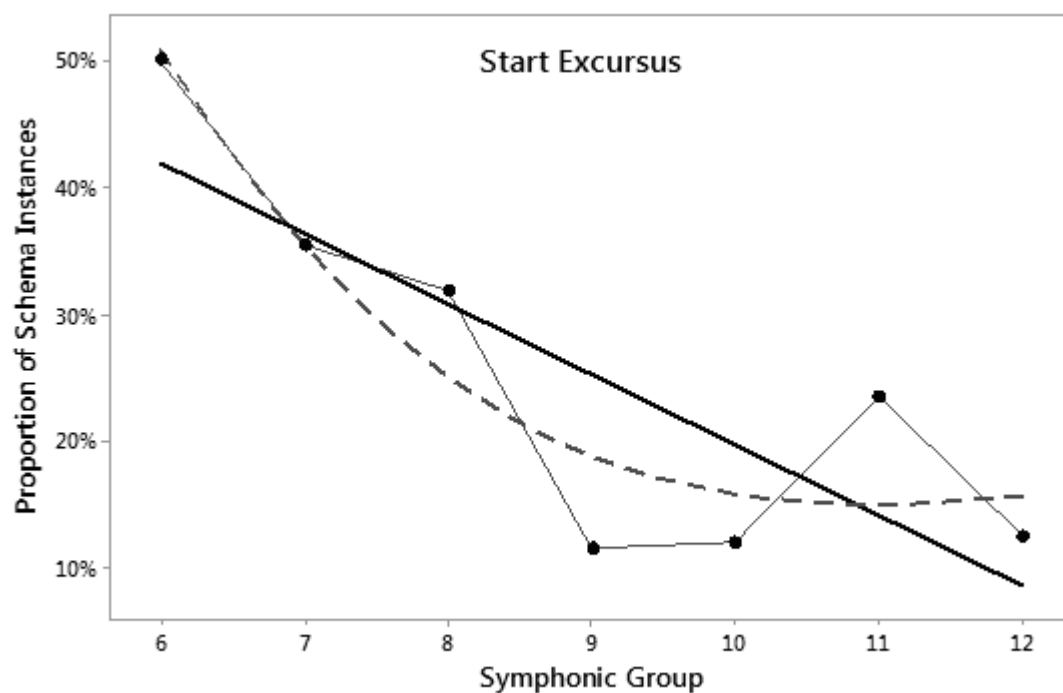
(vi)   There are significant trend results for End-Excursus. This type shows moderate decrease across G[1-12] and strong decrease within G[1-7]; interestingly, it experiences the same sharp decline across G8 to G9 as Start-Excursus. The graph for End-Excursus is:
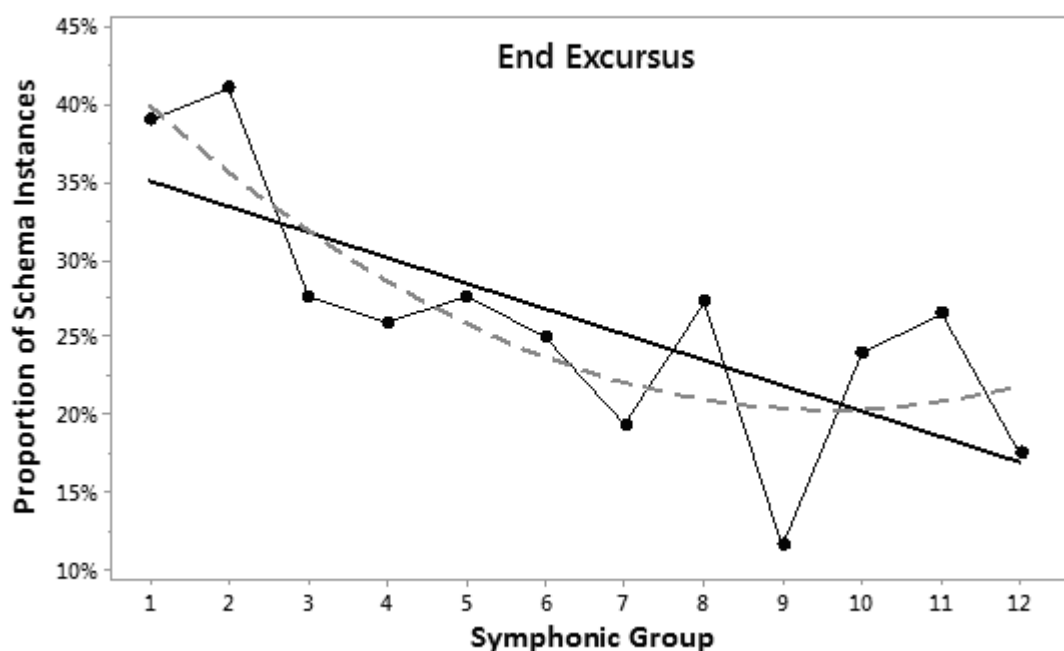
(vii)   There is a significant trend of strong increase in 1st Reprise across G[1-12]. The increase would in fact be stronger if not for the unexpected fall in G6. We note again the sharp increase in this type across G8 to G9. The graph is:
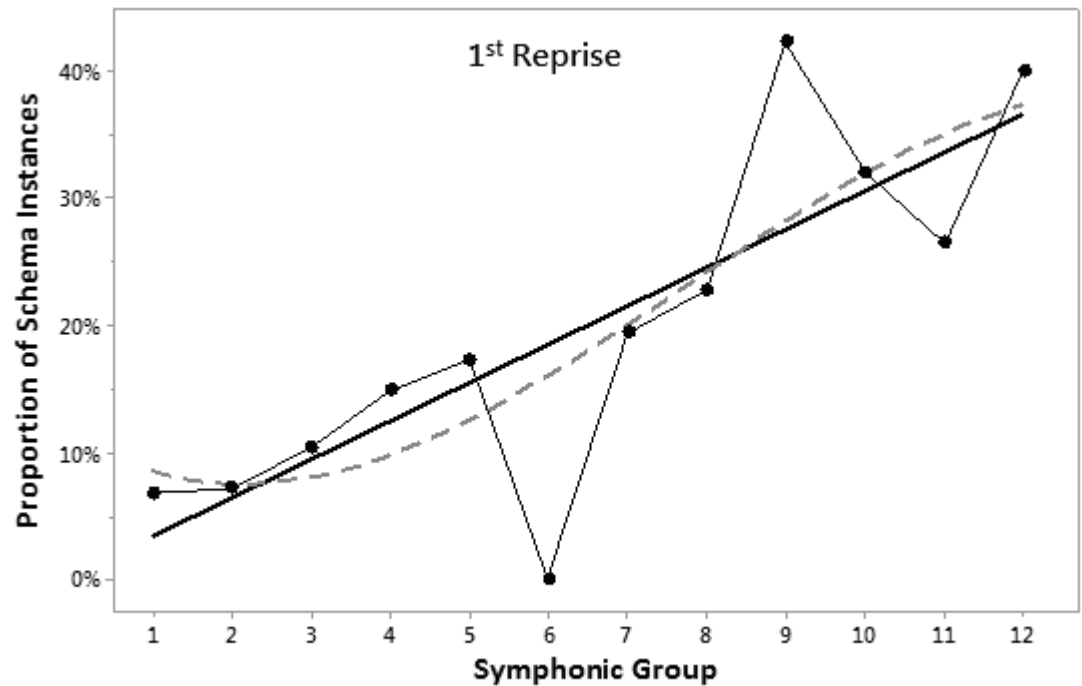
(viii)   Significant group succession trends for Start-Excursus include increases across G3-G4, G4-G5 and G5-G6, and decreases across G6-G7, G7-G8 and G8-G9.

(ix)   The significant group succession trend for Mid-Excursus is a decrease across G3-G4.

(x)   Significant group succession trends for End-Excursus include decreases across G2-G3, G3-G4, G4-G5, G5-G6 and G6-G7.

(xi)   Significant group succession trends for 1st Reprise include decrease across G5-G6, and increases across G6-G7, G7-G8 and G8-G9.

(xii)   Significant group succession trends for Post TR include increases across G1-G2 and G2-G3.

FUNCTION

Graph
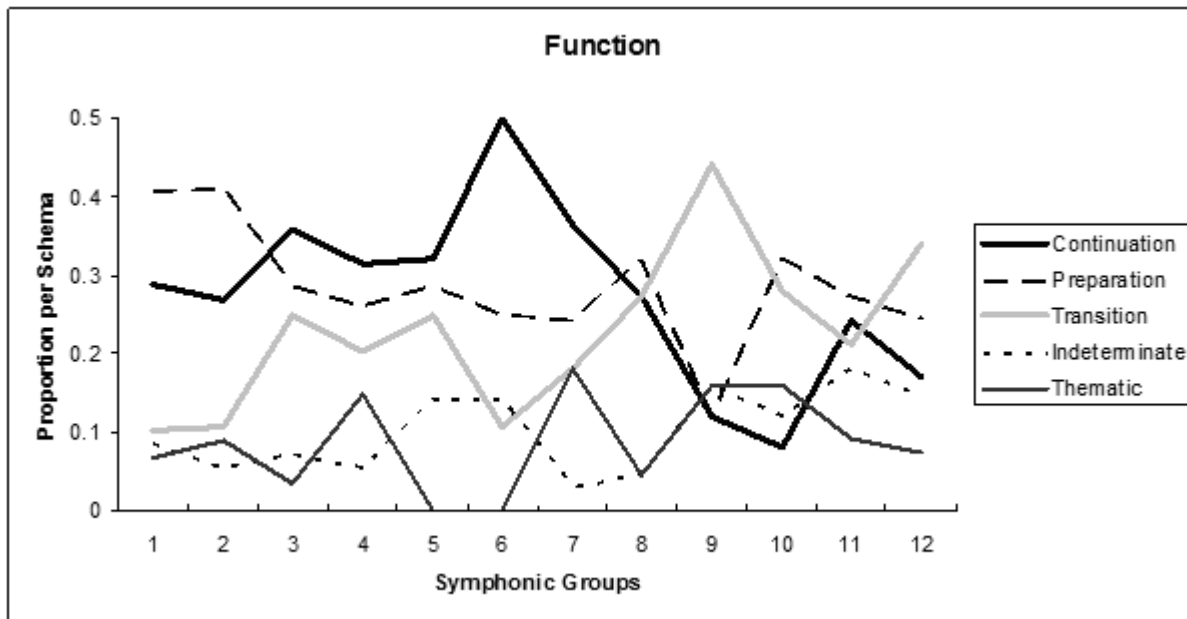
Chi-Square Results

Groups [1-12] $\chi^2 = 48.9$, $df = 33$, $p = 0.04$, $N = 432$

Groups [5-8]-[9-12] $\chi^2 = 16.8$, $df = 3$, $p = 0.001$, $N = 235$

Groups [1-7]-[8-12] $\chi^2 = 21.7$, $df = 3$, $p < 0.001$, $N = 432$

Spearman's Results

Groups [1-12]	Continuation	$r_s(10) = 0.55$, $p = 0.03$
	Transition	$r_s(10) = -0.73$, $p = 0.004$
Groups [1-7]	Continuation	$r_s(5) = -0.79$, $p = 0.02$
	Preparation	$r_s(5) = 0.79$, $p = 0.02$

Group Succession Results

Continuation	G6-G10	$\chi2 = 11.1$, $df = 1$, $p < 0.001$, $N = 53$
Preparation	G9-G10	$\chi2 = 2.9$, $df = 1$, $p = 0.08$, $N = 50$
	G2-G4	$\chi2 = 2.8$, $df = 1$, $p = 0.09$, $N = 110$
Transition	G6-G9	$\chi2 = 7.5$, $df = 1$, $p < 0.01$, $N = 53$
	G9-G11	$\chi2 = 3.5$, $df = 1$, $p = 0.06$, $N = 58$
Thematic	G4-G5	Fisher's exact test: $p = 0.04$, $N = 82$
	G6-G7	Fisher's exact test: $p = 0.03$, $N = 61$

Conclusions

(i)   There are significant differences in type distribution across G[1-12]. While the pattern of changes is complex, inspection suggests that trends for Continuation and Transition

across the middle groups are the most likely contributors, while contrary trends for Preparation and Indeterminate might play a smaller role.

(ii) There are significant differences in type distribution between groups G[5-8] and G[9-12]. Inspection suggests that the further decrease in Continuation and the increases in Transition and Preparation are mainly responsible for the result.

(iii) There are significant differences in type distribution between groups G[1-7] and G[8-12]. Inspection confirms that this result reflects the decrease in Continuation and increase in Transition noted in (ii), with a slight decrease in Preparation.

(iv) There are significant trend results for Continuation. This type shows moderate decrease across G[1-12], but strong *increase* across G[1-7]; indeed, inspection confirms that G6 represents a marked turning point for this type, with a steep decline to G10 before a revival in the last two groups. A graphs with regressions for G[1-6] and G[6-12] illustrates these changes clearly:
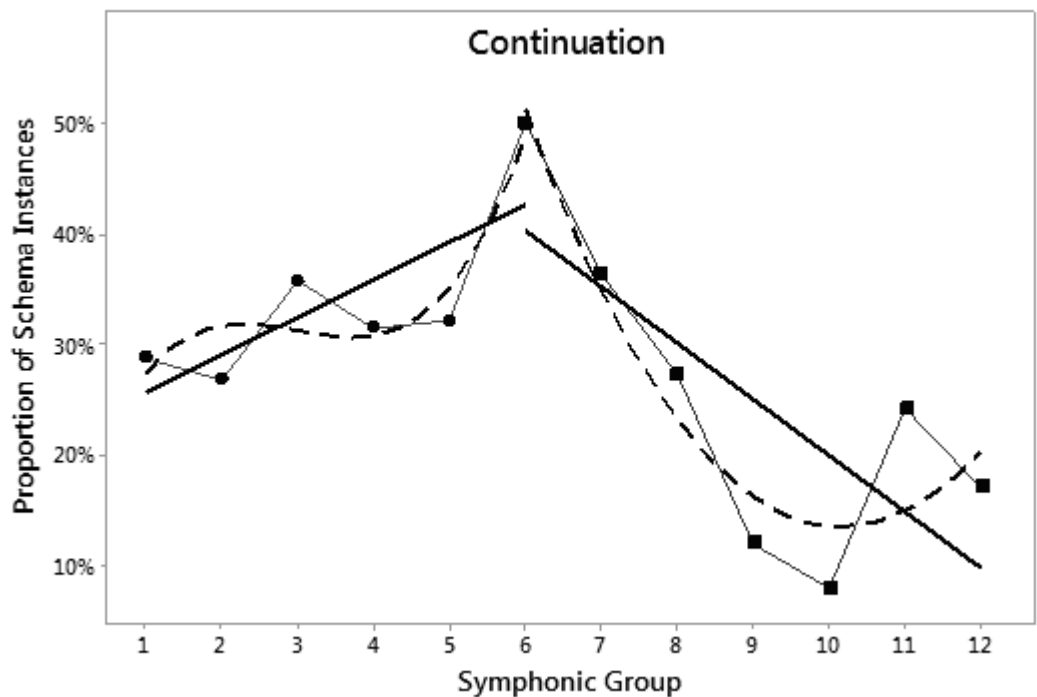
(v) There is a significant trend of strong increase for Transition across G[1-12]. Its graph reveals much fluctuation, within which the sustained increase after G6 and the sharp peak at G9 are the most salient features:
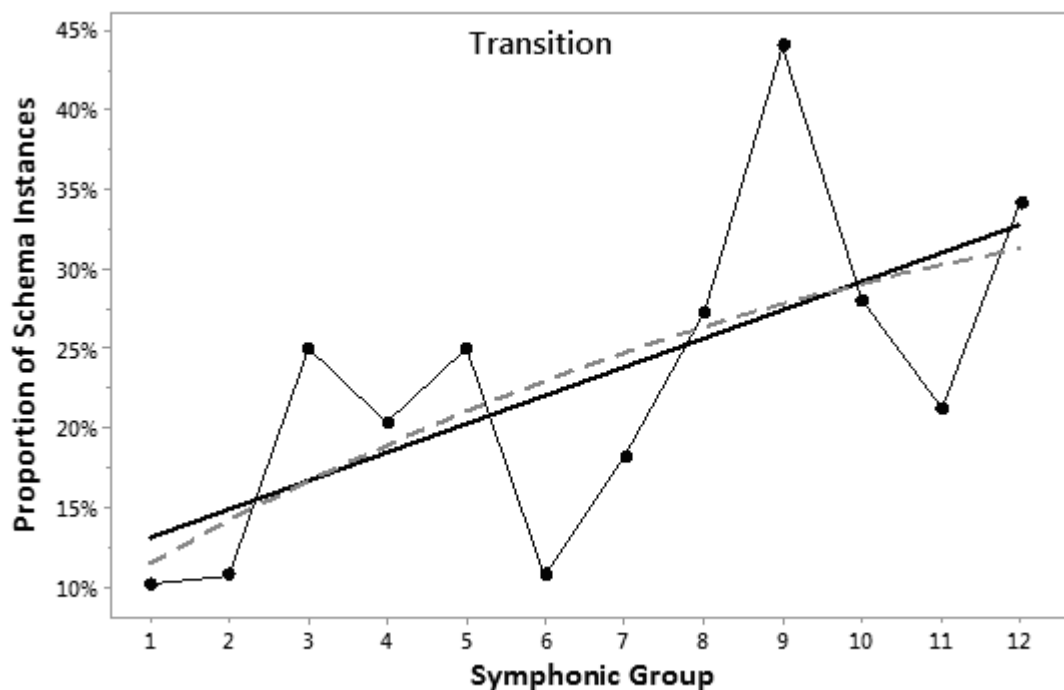
(vi)   There is a significant trend of strong decrease for Preparation across G[1-7]; its graph reveals a consistent decline with minimal variability:
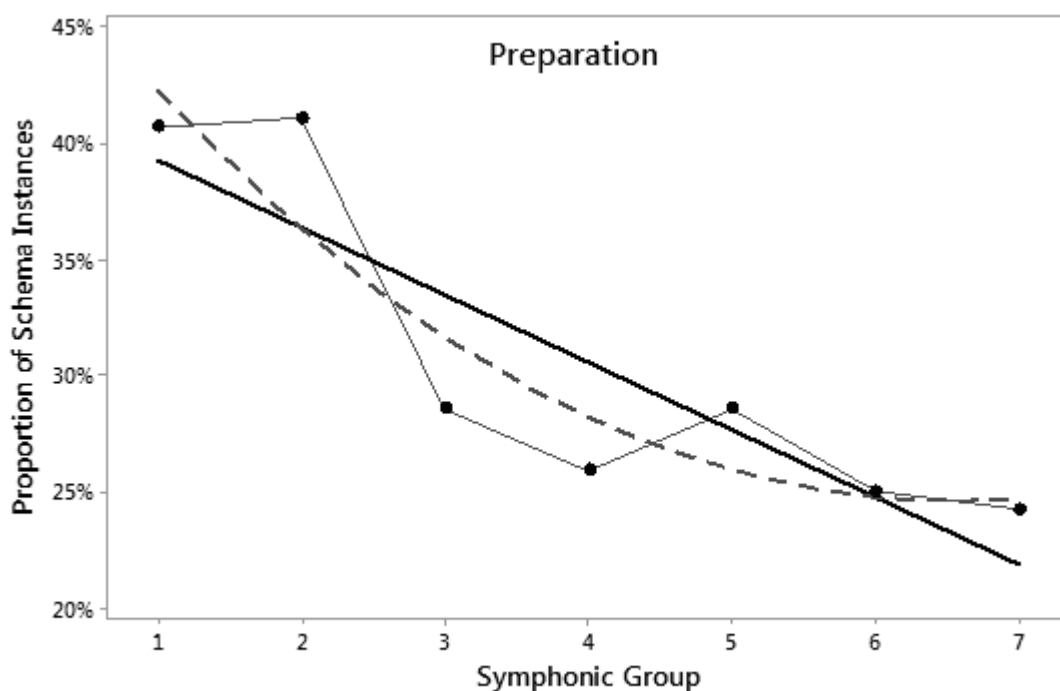
(vii)   Significant group succession trends for Continuation include decreases across G6-G7, G7-G8, G8-G9 and G9-G10.

(viii)   Significant group succession trends for Preparation include decreases across G2-G3 and

G3-G4, and increase across G9-G10.

(ix)   Significant group succession trends for Transition include increases across G6-G7, G7-G8 and G8-G9, and decreases across G9-G10, G10-G11 and G11-G12.

(x)   Significant group succession trends for Thematic include decrease across G4-G5 and increase across G6-G7.

THEMATIC CONNECTION

Graph

Thematic Connection
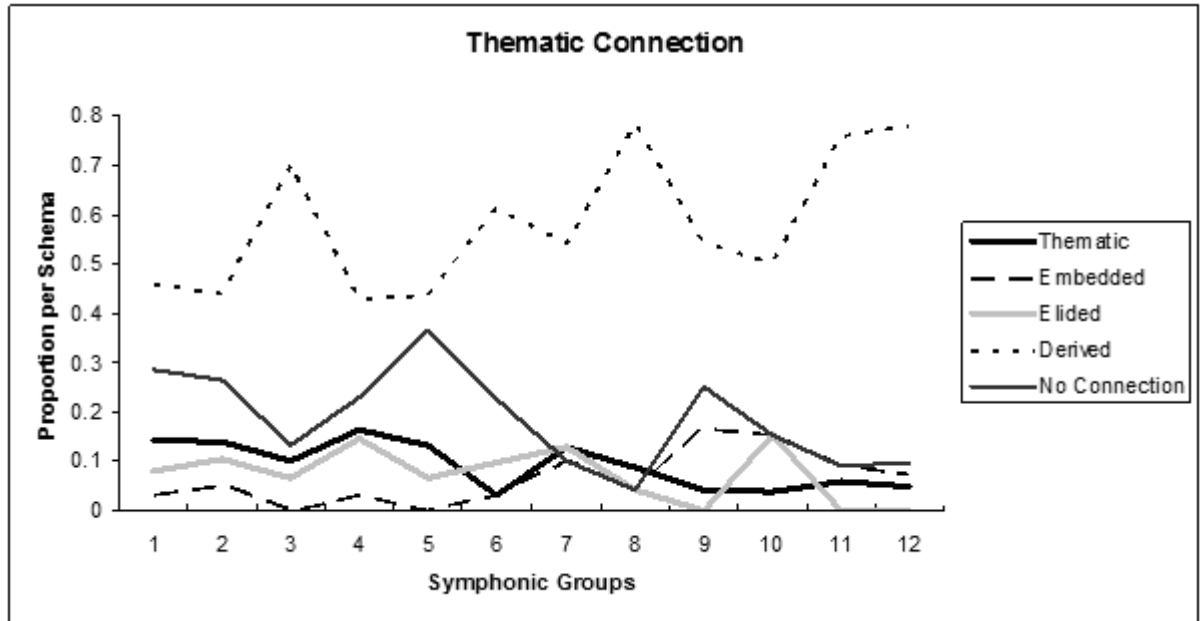
Chi-Square Results

Groups [1-12]	$\chi^2 = 45.5, df = 22, p = 0.002, N = 458$
Groups 3-4	$\chi^2 = 6.1, df = 2, p = 0.05, N = 91$
Groups [5-8]	$\chi^2 = 16.2, df = 6, p = 0.01, N = 123$
Groups [1-7]-[8-12]	$\chi^2 = 15.5, df = 2, p < 0.001, N = 458$

Spearman's Results

| Groups [1-12] | Embedded/Elided | $r_s(10) = -0.62, p = 0.02$ |

Group Succession Results

Thematic	G4-G6	Fisher's exact test: $p = 0.09, N = 92$
Elided	G10-G11	Fisher's exact test: $p = 0.03, N = 59$
Derived	G2-G3	$\chi 2 = 5.4, df = 1, p = 0.02, N = 87$
	G3-G4	$\chi 2 = 6.0, df = 1, p = 0.01, N = 91$

	G7-G8	$\chi 2 = 3.7$, $df = 1$, $p = 0.05$, $N = 62$
	G8-G9	$\chi 2 = 3.0$, $df = 1$, $p = 0.08$, $N = 47$
	G10-G11	$\chi 2 = 4.2$, $df = 1$, $p = 0.04$, $N = 59$
	G8-G10	$\chi 2 = 4.1$, $df = 1$, $p = 0.04$, $N = 49$
	G10-G12	$\chi 2 = 5.7$, $df = 1$, $p = 0.02$, $N = 67$
No Connection	G8-G9	Fisher's exact test: $p = 0.09$, $N = 47$
	G1-G3	$\chi 2 = 2.6$, $df = 1$, $p = 0.01$, $N = 93$
	G3-G5	$\chi 2 = 4.4$, $df = 1$, $p = 0.03$, $N = 60$
	G5-G8	$\chi 2 = 7.8$, $df = 1$, $p < 0.01$, $N = 53$

Conclusions

(i)   There are significant differences in type distribution across G[1-12]. Inspection suggests that rather than a pattern of interchanging prominence among the types, the progressive increase in Derived at the expense of all other types is mainly responsible. The graph shows that this relationship is especially evident from G5 onwards.

(ii)   There are significant differences in type distribution between groups G[1-7] and G[8-12]. Inspection reveals that the separation between Derived and other types is wider in the second of these combined groups; the relationship within G4 to G6 is interesting in view of the general pattern, since it suggests a greater contribution from No Connection, Thematic and Elided types.

(iii)   There is a significant trend of moderate increase in combined Elided/Embedded across G[1-12]. Its graph below is problematical, since the variance is so high and the linear regression shows only a slight increase; the significant Spearman's result clearly reflects the increasing rank, rather than proportional prominence, for these types:
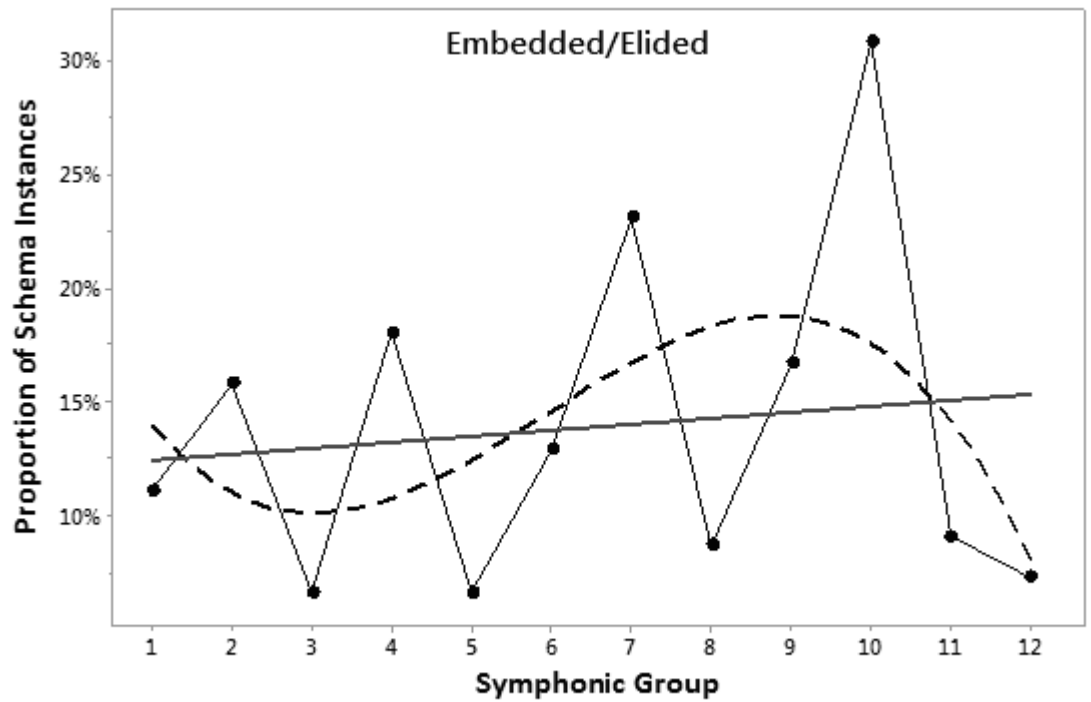
(iv)   Spearman's would not detect any significant trend for Derived since this type has the same rank throughout. Nevertheless, the observation in (i) suggests an increase from G5, so it is instructive to view the graph across this set of groups:
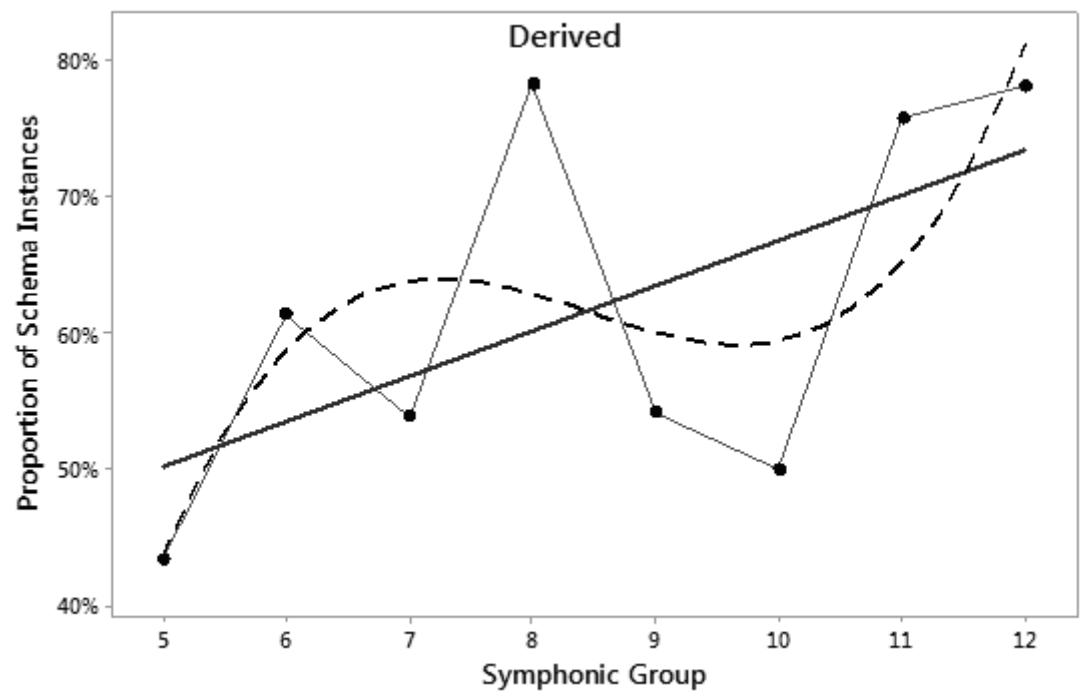
(v)   Significant group succession trends for Thematic include decreases across G4-G5 and G5-G6.

(vi)   A significant group succession trend for Elided is the decrease across G10-G11 (the
         increase across G9-G10 is not statistically significant)

(vii)   Significant group succession trends for Derived include increases across G2-G3, G7-G8,
         G10-G11 and G11-G12, and decreases across G3-G4, G8-G9 and G9-G10.

(viii)   Significant group succession trends for No Connection include decreases across G1-G2,
         G2-G3, G5-G6, G6-G7 and G7-G8, and increases across G3-G4, G4-G5 and G8-G9.

ZWITTER

This variant is discussed at length by Riepel, and since it may occur in conjunction with any of
the melodic or bass parametric types, the analytical framework classifies it as an independent
parametric qualifier: a regression analysis of proportion per schema instance against years elapsed
(≈ symphonic group) is therefore feasible and potentially revealing. The test produces the result
ß = 7.29, R^2 = 49.13%, $p = 0.01$, which confirms significance but also a large residual value
reflecting the wide fluctuations from G8 onwards. Nevertheless, we may confidently claim an
increase in *Zwitter* proportion across the symphonies, as shown in its regression graph:
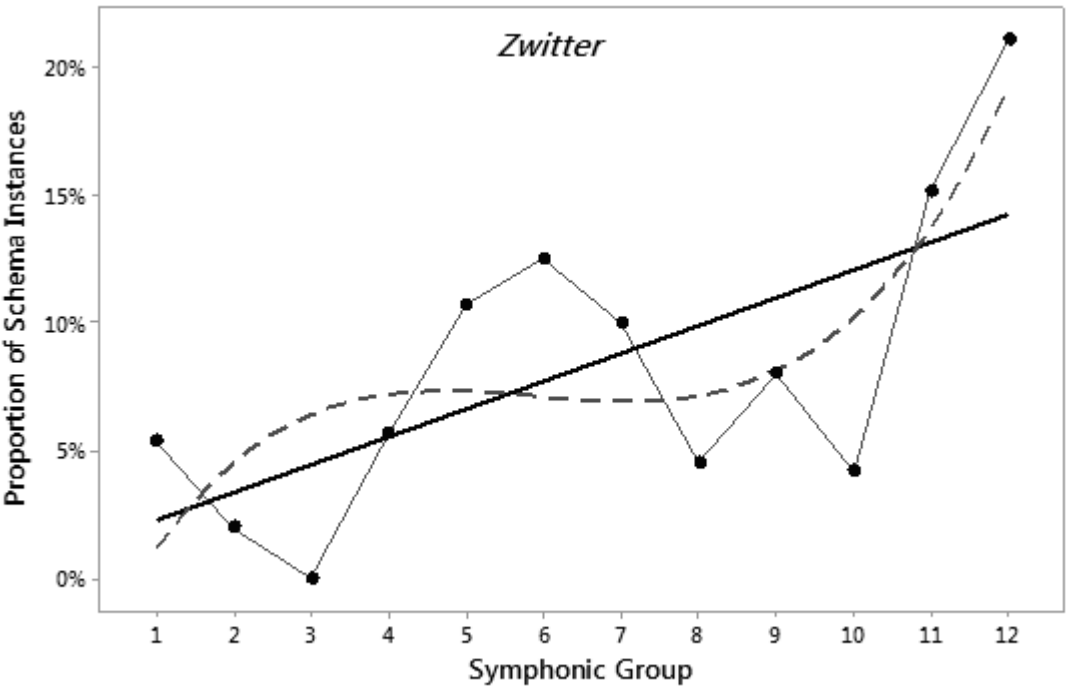
It will be helpful to consolidate all these results into a single table for ease of reference in the
interpretation section which follows. The columns in the table of Figure 191 summarise the
statistical results for differences in distribution, type rank trend, and group succession type trend,
with respect to the two schemata and each parameter for which a significant result was obtained.

The shaded cells represent significant distribution differences for the parameter, while ↓ and ↑ represent significant a increase or decrease for the relevant type.

Column groups: **Distribution differences** = [1-12], [1-4], [5-8], [9-12], [1-4]~[5-8], [5-8]~[9-12], [1-7]~[8-12]; **Type Rank trends** = [1-12], [1-7], [7-12]; **Group Succession proportion trends** = 1-2 … 11-12.

Category	Subcat.	[1-12]	[1-4]	[5-8]	[9-12]	[1-4]~[5-8]	[5-8]~[9-12]	[1-7]~[8-12]	[1-12]	[1-7]	[7-12]	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-11	11-12
Schema	Fonte	▓				▓	↑		↑				↓	↑	↑							
	Monte	▓				▓	↓						↑	↓	↓	↓	↓	↓			↑	↑
Melodic Degrees	❹-❸	▓	▓						↓			↑	↓	↓								↑
	❺-❹-❸	▓	▓										↑									↓
	❻-❺-❹-❸	▓	▓								↑				↑	↑			↑	↑	↑	↑
	❼-❶	▓												↑	↑							
	❻ present	▓							↓						↓	↓						
Bass Degrees	④-③							▓	↓		↓	↑		↑	↓	↓		↓	↓	↓	↓	
	⑤-①							▓		↓		↓										
	Other							▓	↑				↑									
Rhythm	Equal														↑		↓	↓				
	Quick-Slow												↓				↑	↑	↑			
	Slow-Quick												↑		↓		↑	↑				
Segment Length	1 bar									↓	↑	↓	↓	↓	↓				↑	↑	↑	
	4 bars										↓	↑		↑	↓							
	> 4 bars											↓	↓	↓	↑	↓	↓	↓				
Harmonic Rhythm	1:1											↑	↑	↑			↓	↑				↑
	Long:Short											↓		↓	↓	↓	↑	↓	↓	↓		↓
Harmonic Similarity	= H = V											↓										↓
	= V ≠ H											↑										
Melodic Similarity	Identical		▓									↓			↑							
	Closely		▓										↑	↓								
	Partial		▓									↑	↑	↓	↓	↑	↑					
Rhythm. Sim.	Partial											↑	↓	↓	↓							
Proportion	Equal																			↓	↓	↓
Fonte Prog.	vi-V							▓	↑					↑	↑		↑	↑	↑	↑		
Location	Start-Excursus	▓					▓	▓	↓	↑				↑	↑	↑	↓	↓	↓			

		Distribution differences							Type Rank trends			Group Succession proportion trends										
		[1-12]	[1-4]	[5-8]	[9-12]	[1-4]~[5-8]	[5-8]~[9-12]	[1-7]~[8-12]	[1-12]	[1-7]	[7-12]	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-11	11-12
	Mid-Excursus													↓								
	End-Excursus								↓	↓				↓	↓	↓	↓	↓				
	1st Reprise								↑								↓	↑	↑	↑		
	Post TR											↑	↑									
Function	Continuation								↓	↑							↓	↓	↓	↓		
Function	Preparation									↓				↓	↓					↑		
Function	Transition								↑								↑	↑	↑	↓	↓	↓
Function	Thematic															↓		↑				
Thematic Connection	Thematic														↓	↓						
Thematic Connection	Embed/Elided								↑												↓	
Thematic Connection	Derived												↑	↓				↑	↓	↓	↑	↑
Thematic Connection	No connection											↓	↓	↑	↑	↓	↓	↓	↑			

Figure 191: Statistical Results Table

Interpretation

Significant results across the full set of 12 symphonic groups G[1-12] reflect overall changes in Haydn's schematic style, as distinct from localised changes in response to specific musical or social factors: we may claim that they reveal evolving personal preference as regards treatment of the two schemata. We see in the results table the interesting confirmation that significant differences in type distribution and rank are restricted entirely to melodic and bass degrees, in the category of construction, and all three parameters in the category of context. In other words, the parameters of completion reveal no significant changes or trends across the 12 groups: the parameter of completeness is actually absent altogether from the table. The implication is that Haydn favours regular and symmetrical schematic completion throughout his career, and that his preferred parameters for alteration or manipulation are contrapuntal outline, location, function and thematic connection.

An increase in Fonte proportion is one of the significant trends across the full set. This result is entirely in accordance with the observations of Riepel and Koch on the relative currency of the two schemata, although as noted below we do find surprising localised increases in Monte within two late symphonic groups. The results also indicate decreases in the melodic degrees ❹-❸ and ❻ present. The corresponding decrease in bass degrees ④-③ show that we cannot claim any progressive preference for ❼-❶ over ④-③; in fact, the type graphs suggest strongly varying relationships for melodic degrees, with significant increases in combined ⑤-① and ⑥ present types for the bass degrees.

There are a remarkable number of significant results across the full set in the category of context. The increase of 1st Reprise locations is interesting, since neither schema is typically employed in this section; the corresponding declines in Start-Excursus and End-Excursus, which are the most typical locations, confirm a clear departure from normative schema placement. That these trends are demonstrated across the full set is striking evidence of Haydn's inclination for schematic variation throughout his symphonic career. Non-normative trends are evident too in the overall decrease for Continuation and increase for Transition. Finally, significant differences in type distribution were found for thematic connection, and the increase in embedded or elided types across the full set may indicate that schematic employment becomes ever more sophisticated.

The statistical results for combined groups are of particular interest in tracing possible stylistic changes within or between compositional phases. The type distributions within the three main groups are notable for the relatively few significant results they produce. Guided by the shaded cells in the results table, we find only variation in melodic degree and melodic similarity for

groups [1-4], perhaps reflecting early experimentation, and in thematic connection for groups [5-8]. That no other significant distribution differences appear in any of the three combined groups suggests relative type stability within each phase.

By contrast, the comparisons between successive combined groups reveal some striking results: the changing distributions of bass degree parameters between G[1-7] and G[8-12] is of interest, but it is with the parameters of context that we see the greatest number of differences. The results reveal clearly that schematic employment in relation to location and function, in particular, changes significantly between earlier and later combined group, whether regarding the last two career phases, or the pre- and post-publication symphonies. We note too that the Spearman's type rank trends corroborate the Chi-square distribution results closely, in relation to the three parameters of bass degree, location and function. Specifically, the bass types ④-③ and ⑤-① both decrease between G[1-7] and G[7-12]: the persistence of ⑦- ①, combined with the increased melodic

❻-❺-❹-❸ in the final groups, suggests a tendency towards more normative construction in the late symphonies. There are clearly strong changes in the treatment of contextual parameters between earlier and later sets, however, and the exact nature and implications of these changes are discussed below with reference to individual group succession trends and type graphs.

A primary aim of this statistical exercise is to assess evidence for stylistic preference or change with regard to the three groups G[1-4], G[5-8] and G[9-12], and to derive conclusions about trends within and between these combined groups from the variety of statistical results now available. The trends for groups G[1-4] span the symphonies from Haydn's formative works in Vienna to the last compositions as full *Kapellmeister* at Esterháza. We are particularly interested in results that may reflect the transition from smaller-scale and relatively simple *Italianate* works of 1757-63 to more complex *Sturm und Drang* symphonies culminating in 1772: a progression in other words from normative to more complex schematic usage.

The differences in distribution of melodic degree types within G[1-4] were noted above, and the groups succession trends indicate that they result from decrease in simple ❹-❸, together with increases in ❺-❹-❸ and ❼-❶; at the same time, two increases in bass degrees ④-③ are recorded. Together, these trends suggest a movement away from the normative contrapuntal pairing of ❹-❸ over ⑦-① to ❼-❶ over ④-③, a tendency confirmed by the relevant type graphs for G[1-4]. The decline in bass ⑤-① across G1-G2 is further evidence of a move towards the more dramatic inverted contrapuntal outline. Among other results which support a claim for less normative and more dramatic construction are increases in slow-quick rhythm and 4-bar segment length, but varied completion too is indicated by decreases in identical harmony and melody.

Some of these parametric trends are illustrated by the example in Figure 192. This passage, from the final *Adagio* section of the *Farewell* symphony, is effectively a Fonte of continuation after an implied double bar at b. 31. The four violins carry the expressive melodic line over simple repeated chords in the other parts, with the bass-line providing the ④-③ progressions. While the treble melody presents the salient ❼-❶ progressions, it also anticipates the bass ④ at the start of each segment, and in so doing outlines the descending tritones E-A♯ and D-G♯. More subtle and interesting, however, is the treatment of the viola line, since it produces a harmonic variation in S2:C1: for the Fonte to be exactly sequential, we require two F♮s in b.34, but instead we have F♯ and E, thus creating two different chords for P and C1; the most noticeable effect is that a diminished 7th chord in S1 is matched by a dominant 7th chord in S2. We can only speculate on why Haydn chose this substitution, which incidentally avoids a *Zwitter* in b.34.

Figure 192: Haydn Symphony 45, v *Adagio*

A more complex example of varied completion is shown in Figure 193. This passage is a classic Fonte of preparation, with schematic-thematic elision, yet its treatment of voice-leading is far from regular. The analytical framework would classify this instance as showing different voicing and harmonization, and in this case the divergences are more radical than in the mild example from No.45. Here, not only are the melodic degrees non-matching across the two Fonte segments, as ❹-❸ to ❼-❶, but the bass degrees too are irregular and altered, as ④-① to ⑦-①. Still more puzzling is the fact that the second violins and cellos together create the two progressions ④-③ and ⑦-① in the first segment. The seemingly chaotic voice-leading in this Fonte can only be partly explained by the need to match the opening of the elided theme, since this could be achieved with less disruption, as in the reworking of Figure 194; this version involves only a

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small melodic change in S2:C2. Haydn's choice of E♭ for the bass notes in b.78 seems inexplicable, and even suggests a careless disregard for correct voice-leading. An explanation begins to emerge, however, when we note that the entire excursus/development is dominated by the same Fonte ii-I progression, each with different voice pairings: directly after the double bar, we hear the Fonte with ❻-❺-❹-❸ over ⑦-① with the response ⑦-① over ❺-❶, while the Fonte at b.63 has a more regular ❼-❶ over ④-③ in both segments, but with melodic variation to create an added 9th at b.65. The excursus thus contains three diverse constructions for the same Fonte, and we must infer that Haydn is playing in this section with our expectations of standard voice-leadings for the schema.

Figure 193: Haydn Symphony 43, ii *Adagio*

Figure 194: Haydn Symphony 43, ii *Adagio* (reworked)

Chapter 6: Haydn's Symphonies: Statistical Investigation

The statistical results in fact indicate a reduction in schemata of preparation across G2-G3 and G3-G4, and by contrast, a strong increase in schema instances after the thematic return, or within the recapitulation: G1-G2 and G2-G3. An example of both trends appears in the *Allegro* of Figure 195. The main theme of this movement presents many archetypal features of *Sturm und Drang*: C minor tonality, rapid tempo, *forte e all'unisono* opening, wide melodic leaps, dissonant intervals and tremolo. The recapitulation of the first theme at b.109 is remarkable for predominant role within it of Fonte schemata. Thus, after five bars which are a literal repeat of those in the exposition, Haydn embarks on a daring tonal excursion which is initiated by a Fonte viii-vii! In other words, it effects an abrupt move from C minor to B♭ minor, as his chord degrees descend from b. 112 through i-vii-iv-III and then back to i at b.121. Part of this descent is a Fonte in the relative major, and its conclusion hints at a Fonte ii-I, where a repeated III arguably substitutes for the ii. If this interpretation seems too fanciful, we must bear in mind Riepel's 'elliptical progression' iii-I from Chapter 2, and note that an ellipsis of ii for Fonte in the minor key is far more essential than in the major key illustrated by Riepel. In any event, the main point here is that Haydn is employing Fonte significantly beyond its normal contexts, by making it such a strong feature of the recapitulation.

[I Allegro assai con brio]

Figure 195: Haydn Symphony 52, i *Allegro assai con brio*

The group succession trends across G4-G5 are extremely interesting, since this transition conventionally marks a simplification in Haydn's symphonic style. The results indicate many significant trends across the two groups within all three categories. The decrease in Monte frequency might indicate a concession to wider public taste: the views of both Riepel and Koch on the clichéd status of Monte have been noted frequently in this study, and it is entirely feasible that Haydn reduces his employment of this schema while still uncertain of his potential audience.

Two trends in schematic construction include increases in melodic ❻-❺-❹-❸ and ❼-❶, a somewhat puzzling mix of normative and non-normative tendency; the decline in ❻ present nevertheless supports a claim for greater melodic simplicity in G5, and the results for bass ④-③ confirm a decrease in inverted contrapuntal outline. Further evidence for more normative schemata includes the increases for equal rhythm, long:short harmonic rhythm and identical melody, although explanation for the sharp increase in > 4 bar segment length is problematical. Of interest in relation to context is the decrease of schemata with thematic content across G4-G5. The passage from a G5 symphony in Figure 196 shows a Fonte of strikingly normative contrapuntal construction, completion and context, with the melodic material having no thematic connection to the main theme. It is not unusual for melodic degrees to be re-ordered in their descent, in this case to ❹-❻-❺-❸, but the delay to bass ① in the first segment and the sequential continuation after the second segment does impart a slight asymmetry to the completion. Haydn also avoids the *Zwitter* inflection in b. 14 even though it strongly prepared by the C♮ of b. 12.

[III Menuet: Allegretto]

Figure 196: Haydn Symphony 57, iii *Menuet Allegretto*

Brown considers that the symphonies immediately following the *Sturm und Drang* phase have been rated unfairly as "a low point in [Haydn's] development as a symphonist", suggesting instead that these works reveal the composer "searching for an idiom suitable for a public wider than that of Prince Nikolaus Esterházy and his entourage".[225] In other words, the symphonies in group [5-8] represent a realignment of compositional aesthetic and intent, as Haydn turned his attention to publication for a wider, pan-European audience. If we accept this view, we might reasonably expect our statistical results to reflect elements of a consistent stylistic progression

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[225] Brown (2002:193-4).

across the 'Theatrical', 'Popular' and 'Entertainment' symphonies, and culminating in his 'First Symphonies for Publication', despite the enormous variety of styles they encompass.

The results table provides clues as to the components of this stylistic progression. Interestingly, there are no Chi-Square distribution differences reported for G[5-8], suggesting relative type stability within this combined group. However, the changes across G4-G5 discussed above are followed by further significant group succession trends between G5 and G8. The continued decline of Monte across G[5-8] is striking, and reinforces the impression that Haydn consciously reduces employment of this schema for ostensibly more cosmopolitan audiences. Melodic and bass degrees continue the trends noted across G4-G5, while quick-slow rhythm shows increases across all three group successions within G[5-8]; we also see marked decreases in > 4 bar segment length, and the type graph confirms compensating increases shared between the other types. The increases in Fonte vi-V instances continue a trend which started in G3, and is probably linked to the increases in Transition as thematic function. Significant results for location include the three increases in 1st Reprise location and three corresponding decreases in Start-Excursus. This appears to represent an elevation of status for the schemata, since they are now being employed more frequently in the opening section rather than just in the developmental section of the movement; the claim is strengthened by the opposing trends in G[5-8] between Continuation and Transition.

Figure 197 gives an example from a 'Serious Entertainment' symphony of a *quick-slow* rhythmic progression within the segment. This Monte appears within a rounded binary form, near the end of an excursus which develops the main theme in the tonic minor key; the utility of this schema is that it may have the same construction within the parallel major or minor keys, and in this case serves as preparation for the thematic return in G major, at b.51. While the *quick-slow* pattern is a commonplace across the entire corpus, its application here is somewhat pointed: the rhythmic feature is reinforced by the long tied bass note before the destination crotchet, and by the prominent dotted-note pattern in the melody, with staccato articulation also serving to heighten the sense of arrival on the second beat. Given the folksong-like nature of the theme, it is difficult not to hear this matter-of-fact and serious statement of the *Schusterfleck* as intentionally comical or ironic.

[II Andante]

Figure 197: Haydn Symphony 73, ii *Andante*

Figure 198 shows an example from the first movement of Symphony 73 of other significant trends within G[5-8], namely a Fonte vi-V with transitional function in the 1st Reprise. The melodic completion of the schema is noticeably varied, and indeed presents an unusual feature described by Riepel: the second segment starts intentionally with the 'wrong' note, since the listener expects an E rather than an F♯, which actually anticipates the ❻ of the normative melodic descent.

[IV Allegro]

Figure 198: Haydn Symphony 73, iv *Allegro*

The last combined group [9-12] represents a crowning achievement in Haydn's career, and indeed in the musical canon generally. It might seem inappropriate to perform statistical significance tests on these works, yet the method again yields valuable insights into local stylistic changes in schematic treatment which could otherwise remain hidden. It is interesting that we find only four

new group succession trends across G8-G9, suggesting that no clear shift marks an onset of the final symphonic phase in groups [9-12]. However, as discussed presently, numerous significant results were obtained within this combined group.

The contexts of commission and audience influence our empirical expectations from this set of symphonies. Two geographical centres dominate their production: Paris and London. The first set of 'Paris Symphonies' were commissioned by the Comte d'Ogny for performance at the Concerts de la Loge Olympique. Brown notes that Haydn was probably not aware that his works would be performed for an audience much larger than he had composed for previously, and thus failed to utilise fully the expanded resources available.[226] Moreover, while he included some national features in the symphonies, such as French overture dotted rhythms and local dance elements, the evidence for a specific adjustment to French taste or audiences is not strong: in Brown's opinion, "Haydn did not specifically compose for a Parisian audience".[227] This point reinforces more generally the problems in searching for correlations between any group of Haydn symphonies and the audiences for which they were assumed to be composed. Even the famous 'Oxford' symphony No.92 was composed not for an English audience, but as part of a second Parisian set for D'Ogny.

The sets of 1785-89 commissioned by either D'Ogny or Tost were followed by the 12 indisputably 'English' works for two successive visits: the London Symphonies I and II. In fact, 1791 represented the late start to Haydn's 'touring' career, which offered advantages not available when he was simply composing for a publisher or foreign patron. He was now able to explore at first hand the conventions and tastes of the local audience, take part in performances of the symphonies, and obtain direct feedback on the success or otherwise of particular works and techniques. It is well-documented that Haydn took every opportunity to understand English taste and preferences when composing his London symphonies.[228] With these works, therefore, we can have greater confidence in searching for connections between composition and intended audience.

It is worth noting first the increase in Monte between G9-G11, an unexpected revival of this schema late in the composer's career. Even though it fails to produce a significant difference result in comparison between earlier and later groups on account of a resurgence around G3, the renewed prominence of Monte in the late symphonies is a key statistical finding whose interpretation presents intriguing possibilities: perhaps the most attractive is that Haydn found listeners in Paris and London to be partial to Monte, and that he included more of them in order to better "amuse and please" his audiences; a second interpretation is that Haydn now felt so

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[226] Brown (2002:209).
[227] Brown (2002:209).
[228] A famous quotation from Mrs Papendiek's diaries reports that Haydn had "the opportunity of studying the taste of the English [so as to] both amuse and please the musical public". Quoted in Brown (2002: 243).

established as a composer, following the success of his recent published works, he had little concern about employing the *Schusterfleck* device; a third, more prosaic, interpretation is that Haydn simply liked the Monte schema and found it useful, and moreover its usage would not be questioned by enthusiastic London audiences.

Of the five new group succession trends across G8-G9, the most interesting is the increase in melodic degrees ❻-❺-❹-❸, which in fact continues across G[9-12]. The trend coincides with a continued decline in bass ④-③, so the characteristic contrapuntal outlines for the last group are predominantly ❻-❺-❹-❸ over ⑦-①, or ❻-❺-❹-❸ over ⑤-①. Since these results apply naturally to Fonte more than Monte, the first in particular reflects a return to the classic melodic formation emphasised by Gjerdingen and illustrated by Riepel. Another succession trend of interest is the increase in 1 bar segment length, which presents an intriguing problem for interpretation since this length is non-normative. A possible explanation is that such schematic instances have some kind of semiological significance, as almost token references to well-established but old-fashioned musical conventions; their brevity might also imply witty or ironic communication with the sophisticated listener. Finally, the results showing three successive decreases for Equal proportion of segments suggest new methods of varied completion, through phrase manipulation rather than merely melodic, harmonic or textural dissimilarity.

A simple and perhaps ironic example of both the classic contrapuntal outline and 1 bar segment is shown in Figure 199. This Fonte appears in the excursus of a minuet, initiating preparation for thematic/tonal return at b.31. It comes just after a brief and amusing Monte iv-V near the start of the excursus, and it shares the same fragmentary character. What is notable about the Fonte is that its melody and bass trace out the classic contrapuntal outline which comprises Gjerdingen's normative construction, namely ❻-❺-❹-❸ over ⑦-①, and moreover it does so without addition of any extraneous notes. Its completion and context are also completely regular, so Haydn is presenting here the Fonte in its simplest and most transparent possible form. This gesture within a late symphony for a sophisticated London audience surely hints at irony, which again could only be understood by a knowledgeable listener familiar with Fonte and its applications.

[III Menuetto Allegretto]

Figure 199: Haydn Symphony 93, iii *Menuetto Allegretto*

The significant increase in *Zwitter* across G[1-12] was noted earlier, and it is particularly remarkable to observe such a sharp increase within the London symphonies. We recall that Riepel did not like *Zwitter*, and in general Haydn too prefers the diatonic 6th, so this observation is somewhat puzzling. It is possible that Haydn simply learned from his discussions with musicians in London that audiences there were partial to *Zwitter* (we should assume from Riepel's lengthy concern with the matter that connoisseurs in London too had a view on it). A more speculative proposition is that Haydn was showing an influence of Mozart with regard to this specific practice, since a separate empirical study has shown that Mozart strongly favours the *Zwitter* in schematic completion.[229] At any rate, a delightful example of the device may be seen in the passage from the *Military* Symphony, shown in Figure 200. This Fonte appears within the *Adagio* introduction of the first movement, as continuation after a cadence in the dominant (QK). A noticeable feature of the passage is the quadruple reinforcement of ❸ in both segments, as though to compensate for the relegation of ❹-❸ to an inner part. However, the more interesting point relates to the *Zwitter* 6th in b.10, since it is quite optional in this context; unlike in previous cases, where the 6th appeared in a lower voice for example, the E♭ here could just as correctly be a diatonic E♮, to create the non-*Zwitter* form: Haydn's choice is entirely one of preference. Effective as the *Zwitter* is here, it is not immediately obvious why he should have preferred this inflection.

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[229] This was revealed by my indpendent study of Mozart's Piano Sonatas.

[I Adagio]

Figure 200: Haydn Symphony 100, i *Adagio*

The significant results for increase in 1st Reprise location between G6-G9 contain a particularly marked increase across G8-G9, suggesting both an elevation in status for the schemata and a play on expectation with the listener. A good example of this early placement appears in Figure 201, where the main theme employs a schema as its second phrase; this appearance of a Fonte ii-I so near the beginning of the movement would doubtless be perceived with some amusement by an attentive listener, who might also notice that the first phrase effects a premature and unusual modulation to ii, which is of course the chord for S1 of the Fonte. Haydn emphasises this local stasis by making the progressions across bb.3-4 and bb.5-6 audibly similar, thus creating a curious linkage between the first two phrases of the theme. In fact, the Fonte eschews the established 𝄢⑦-① line, adopting instead the stronger 𝄢⑤-①; the descending ❺-❹-❸ is stated or implied in both violin parts.

Figure 201: Symphony 86, iii *Menuet: Allegretto*

It is notable that there were no significant results for distribution differences within G[9-12], suggesting high relative stability of parametric types. By contrast, a large number of such results were produced for the combined group comparisons G[5-8]~G[9-12] and G[1-7]~G[8-12]. This is clear evidence for significant stylistic change between the earlier and last groups, at least in relation to schematic employment. The relevant construction parameters already discussed include melodic ❻-❺-❹-❸, bass ④-③ and 1 bar segments. As regards completion, we find that no parameters contribute to significant comparison results, but group succession results indicate significant decreases in Equal proportion across G9-G10, G10-G11 and G11-G12. This is clear evidence of greater schematic variation in the later symphonies, through a departure from sequential symmetry. A good example appears in Figure 202, which shows a Fonte within the *Vivace* section from the first movement of Symphony No.101. This Fonte ii-I of continuation occurs directly after a florid QA with *fermata*, and initiates a move to the dominant for the second

theme/period. S1 is extended to 6 bars via three harmonic alternations, the last of which, in bb.54-5, is over a pedal ①; S2 is shortened by having only two alternations, with the second again over a pedal. Although it is constructed on ⑦-① instead of ⑤-①, the salient melodic line ❻-❺-❹-❸ is employed in both segments. The contrasting melodic and rhythmic profiles of S1 and S2 contribute to the disruption of symmetry, and all these manipulations impart a somewhat wild and chaotic character to this transitional *gigue* passage.

Figure 202: Haydn Symphony 101, i *Presto*

The parameter of completeness is absent from the results table since the domination of Completed is so marked throughout. Nevertheless, the type graph indicates a slight increase in non-completion across G10-G12, and it is well worth considering an example of this schematic tendency in a late London symphony. It appears to represent some kind of play with schematic expectation that was not evident in earlier symphonies; no doubt the failure to complete what is clearly presented as the first segment of a schema would be detected by a sophisticated listener in the audience.

The passage in Figure 203 is an intriguing example of an incomplete Fonte, or more accurately a Fonte with delayed completion. It appears within the 'aristocratic' minuet of Symphony No.102, and its context for this schema is absolutely normative: directly after the double bar at the start of the excursus. Indeed, this location is one of the salient signals to the listener that a schema may appear; another is the A♭ which starts the section, then the F and finally the B♮, since these are the defining notes of a Fonte S1:C1. These repeated piano notes are violently interrupted by the *tutti* progression from b.23, which critically traces out the upper melodic ❻-❺-❹-❸ to confirm the statement of Fonte S1. What follows is clearly intended to puzzle the listener, first an incise to the remote A♭ major chord, and then another incise to a V^7/V in B♭ major, with an additional fermata to increase the suspense. These incises are technically appendices to the cadence at b.27, but counter to normal practice, they evade the C minor tonic chord. In any event, the V^7/V shifts directly to a prolonged V^7 as preparation for the thematic return at b.35. It seems therefore that the Fonte S1 remains uncompleted; yet an attentive and knowledgeable listener will be aware that the required harmonic progression V-I has indeed resulted from elision with the main theme, and moreover that a descending ❻-❺-❹-❸ has been traced out in the first violins, reaching its destination ❸ with the D of the theme; it is likely that Haydn's repeated emphasis of ❻ (G) in bb.28 and 30 would only be appreciated in retrospect, after the Fonte is finally completed.

[III Menuet: Allegro]

Figure 203: Haydn Symphony 102, iii *Menuet: Allegro*

The absence of any significant distribution difference results for groups [9-12] is supported by a lack of significant succession trends for individual types within these groups. The new trends reported include increases in Preparation and Derived types, and decreases in Transition and Embedded/Elided types. Only a few minor conclusions may be drawn from these changes: the increase in Derived, together with no significant increase in Thematic connection, is perhaps surprising, since we might expect greater schematic-thematic integration in Haydn's later symphonies. It may suggest that Haydn is no longer so interested in the kind of schematic-thematic play found at the *Finale* opening in Symphony No.62, for example, but that schematic instances should nevertheless sustain motivic consistency within a movement. The increase in Preparation at the expense of Transition possibly reflects a return to normative function in the late symphonies, and indeed this is reinforced by an increase in Continuation, not statistically significant but apparent in the type graph, across G10-G11; this graph incidentally confirms a reducing prominence for Thematic function. The decrease in Embedded/Elided completion might also imply a tendency towards more transparent and normative schematic application in the late

symphonies. Nevertheless, that this impression conveys only part of the picture, and that Haydn is now employing techniques somewhat opaque to empirical-statistical analysis, will be evident in several of the music-analytical case studies in Chapter 7.

To summarise the key findings from this statistical study, we recall that Chi-Square tests for Independence were performed across all groups, within combined groups representing successive phases in Haydn's symphonic career, and between these combined groups. The aim was to establish whether significant differences in parametric type distribution exist within or between any of these groups of musicological interest. A number of significant results were obtained: it was found that the relative proportion of Fonte and Monte varies across G[1-12], as do type distributions for the parameters of melodic degree, location, function and thematic connection. It was notable that few differences were confirmed within combined groups: melodic degree and melodic similarity within G[1-4], and thematic connection within G[5-8] were the only parameters with significant results; it was striking that no differences at all were found within G[9-12]. The comparisons between combined groups yielded interesting results, such as changes in schema proportion in G[1-4]~G[5-8] and bass degrees in G[1-7]~G[8-12]. The most revealing, however, were the large number of differences for parameters in the category of context, including location and function for G[5-8]~G[9-12], and location, function and thematic connection for G[1-7]~G[8-12]. It was possible from these results alone to infer relative parametric type stability within each of the successive combined groups; this result tends to support the musicological rationale for such partitioning of Haydn's symphonies. The results reveal minimal distribution differences between the first two combined groups, but by contrast many differences between the second two groups, and between the pre- and post-publications groups. We may therefore confidently claim significant and substantial chronological changes in that Haydn's schematic employment across his symphonies.

Spearman's rank correlation tests were performed on G[1-12], G[1-7] and G[7-12], to identify significant trends for individual parametric types across each group. Increases were reported across the full set for bass degrees other than ④-③ and ⑤-①, Fonte vi-V progression, 1st Reprise location, Transition function and Embedded/Elided formations. Decreases were reported for melodic degrees ❹-❸ and ❻ present, bass degree ④-③, Start-Excursus and End-Excursus locations, and Continuation function. Trends for other types found in the combined group [1-7] were decreases in bass degrees ⑤-①, 1 bar segment length, and Preparation function across G[1-7]; those in G[7-12] were increases in melodic degrees ❻-❺-❹-❸ and 1 bar segment length, and decreases in 4 bar segment length. The type rank trends thus indicated a general tendency towards more normative construction and less normative context, in particular for location and function.

Chapter 6: Haydn's Symphonies: Statistical Investigation

Parametric type trends across successive groups were identified through application of Chi-Square or Fisher exact tests. A large number of trends were reported with clear or marginal significance, and informed the discussion of stylistic progression within each combined group. The group succession results were especially useful for examining stylistic changes across the boundaries of combined groups, where musicological considerations might predict marked changes. The main observations across G4-G5 included a decrease in Monte frequency, increases in melodic ❻-❺-❹-❸ *and* ❼-❶, decrease in bass ④-③, and several trends suggesting more normative construction and completion of schemata, together with a reduction in thematic association. Results across G8-G9 included a further increase in melodic ❻-❺-❹-❸ and an increase in 1 bar segment length; that only these two new trends were identified suggests that changes responsible for the distribution differences between early and late groups occurred before the Paris Symphonies. It is revealing to compare the total numbers of significant trends reported within each category, and we find that of the 167 results, 47% relate to construction, 16% to completion, and 37% to context. This confirms the impression from statistical discussions above that Haydn is more likely to adopt normative schematic completion, reserving experimentation and manipulation for parameters of construction and context.

We recall that Chapter 5 presented indicative empirical results, while the present chapter has applied inferential statistical methods. The two types of observation are helpful in different ways: indicative statistics can suggest directions for more detailed study, or offer informal support for claims arising from other analytical activity; inferential statistics can provide more formal and reliable support for claims of distribution or trend across or within a particular corpus. There are limitations to empirical and statistical analysis, however. Some of these were discussed previously in connection with automated data extraction: features typically selected for corpus studies tend to be discrete, complete, transparent, and on the musical surface; more complex, relational observations rely on direct, and often subjective, analysis, while the subtleties of formal manipulation or cultural reference remain well beyond the capability of a parametrically-based analytical framework. For example, an empirical methodology can classify the main theme of a *Finale* as an elided *Zwitter* Fonte, or provide significant statistical results on the frequency of thematic schemata, but it cannot explain the sophisticated and witty manipulation and play with convention that may actually be the most salient feature of a passage or movement. To gain such insights requires the technical and conceptual skills of a musical analyst. The perspective of music-analytical investigation is accordingly the focus of the next chapter.

Chapter 7: Haydn's Symphonies: Music-Analytical Investigation

Introduction

The perspective shifts in this chapter from primarily empirical and formalist, to aesthetic and cultural; it is clear that the two perspectives are complementary and equally important to an understanding of Haydn's compositional method. In fact, critical reception of the composer's instrumental music since his own lifetime has tended to conflate them, through identifying the most prominent characteristics of his style and aesthetic as technical skill, originality, wit, humour and irony. Webster adds mastery, thematic integration and rhetoric as recurring motifs in the literature.[230] The effectiveness of Haydn's music results from his unfailing ability to strike the right balance between musical sophistication and popular appeal, qualities corresponding broadly to the distinction between connoisseur and amateur listener. The playfully reversible terms *kunstvolle Popularität* or *populäre Kunstfülle* ('artful popularity'/'popular artfulness'), first coined by Triest to sum up Haydn's aesthetic, are therefore perfectly fitting, confirmed in almost every example of schematic employment discussed in previous chapters, and central to the more detailed analyses which follow in this chapter.[231]

The critical writings on Haydn make it clear that he was always regarded as more than merely a composer of great skill and mastery. There is another element which emerges from discussion of his style and aesthetics, namely the intentional and disruptive manipulation of musical components as part of his strategies of communication with the listener. Of the leading composers from the age, perhaps only C. P. E. Bach compares with him in the application of analogous methods directed towards a similar goal. A critical ingredient often overlooked in discussion of Haydn's technical manipulations and associated wit or humour, is that communicative success relies entirely on the existence of well-established musical conventions, shared by composer and listener alike. Without such conventions, Haydn's celebrated originality would have no foundation in relation to which it could be assessed. It is essential therefore to expose in detail the variety of current musical and cultural conventions, in order to understand this originality and its likely effects upon the contemporary listener. As noted in the Introduction, recent analytical and critical studies focus on Haydn's manipulation of particular conventions as regards form, tonality, phrase or meter; the work of Levy, Wheelock and Mirka have been especially significant in these

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[230] Webster and Feder (2002:48-53).

[231] J. K. F. Triest was an amateur German music critic who coined these terms in an influential article of 1801. The translations are those of Bonds (2007:110).

areas. The present study seeks to emphasise the crucial but hitherto-overlooked contribution of schematic manipulation in Haydn's play with convention.

If we assume that Haydn's choice of words was likely to be as carefully considered as his choice of notes, then we might derive insight from his recorded desire to "both amuse and please the musical public", as these concepts refer to quite different kinds of musical response: amusement is arguably the more intellectual and detached, reflecting delight in achieving cognition (or *re*cognition); pleasure implies emotional response, or in the strict psychological sense connected with Meyer's ideas, that musical-emotional fulfilment arises from the eventual realisation of frustrated expectation. The schema theories discussed in Chapter 4 prove especially helpful in explaining a distinction between amusement and pleasure. The former derives from transparent cognition, essentially the identification of a sensory phenomenon as consistent (or patently inconsistent) with a stored schema, while the latter implies the delayed resolution of an initial cognitive confusion or uncertainty. An everyday analogy might be one's different responses to solving a crossword clue: the synonym type rarely exceeds simple amusement, while the cryptic type elicits actual pleasure (the *eureka* response or 'Aha' effect). Applied to musical schemata, we might thus expect a clear-cut Fonte with normative construction, completion and context to be received with the amusement due to facile recognition, while an elliptical Monte, of strange construction and puzzling formal function may prepare for the intense pleasure of solution when it reappears later in a more comprehensible guise. It might be added that the degree of derived pleasure increases in proportion to the complexity or obfuscation of the schema. Eighteenth-century musical communication at this extreme would clearly require an exceptionally skilful composer and an exceptionally perceptive listener. Such insights are certainly helpful in describing Haydn's schematic manipulation, and will be applied constantly in the analytical case studies of this chapter.

Before proceeding to the following selection of concise and extended case studies, it is worth noting that musical communication is of course a two-sided coin. The process involves not just the composer and artificially 'implied listener', so to focus solely, or even mostly, on the musical work in discussions of Haydn is simply not sufficient. This is highly problematical for the modern scholar, since an intimate understanding of the musical training, social context, listening habits and aesthetic expectations of the 'typical' eighteenth-century connoisseur or amateur will always remain elusive. Nevertheless, any research in this area is valuable, and can only inform our critical and analytical discussions for the better. Two complementary perspectives on this issue are represented by Riley's essay on *Aufmerksamkeit* (attentive listening) in the German Enlightenment and, perhaps more directly relevant for this study, Schroeder's article on Haydn's

relationship to his audience. It is worth quoting a passage here from this article, since it connects closely with much of the preceding discussion:

> Haydn appears to have had very definite expectations about what the listener could and should hear, and these expectations varied in relation to the sophistication of the listener…Haydn uses the term 'inexperienced listener' and 'connoisseur' to identify the extremes of listening potential.[232]

Schroeder specifically discusses Haydn's relationship with his London audiences, as reflected in his last works, noting that "he made these symphonies progressively more complex, challenging the listener in unheard-of ways";[233] and that, moreover, "following the complexities of [such] works was no doubt beyond the capabilities of the inexperienced listeners referred to by Haydn".[234] That the symphonies were received in London with such acclaim and enthusiasm demonstrates again Haydn's remarkable ability to combine sophisticated and popular elements in order to amuse and please all sectors of his audience.

Concise Case Studies

The examples in the previous chapter have served already to indicate many of the ingenious ways in which Haydn manipulates the Fonte and Monte schemata to produce varied construction or completion, or to apply the schema for formal or thematic function. Communication with the contemporary listener is of course implied with all these manipulations, but in the examples given so far it is more as an observer and connoisseur of technical skill, rather than a direct participant in a playful or witty exchange. The case studies in this chapter will show how Haydn applies a variety of means to elevate the schemata to perform precisely this latter function. Fonte and Monte therefore move into the foreground as well-known conventional devices whose manipulations may be perceived as witty or ironic; interestingly, the schema may well serve a valuable technical function at the same time, so its playful application need not merely be an extra-musical gesture with minimal compositional utility. It is significant too that an impartial search for suitable examples from the full set of symphonies, yielded only one (the minuet from No.25) which predates the *Sturm und Drang* period, strongly suggesting that Haydn's most extended 'playing' with these schemata dates from about 1770.

It is appropriate to begin with the sole early example discussed in this chapter, a passage from the *Presto* of Symphony No.25, shown in Figure 204. The short development section of this movement consists entirely of a Fonte, starting directly after the double bar. The construction is

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[232] Schroeder (2005:100).
[233] Schroeder (2005:103).
[234] Schroeder (2005:95).

notably dramatic, with a *Sturm und Drang* character which belies the early date of the composition. Here, the C1 part of each segment is presented as an angular motive marked by its descending ❻-❼, with canonic imitation between the first and second violins; S1:C2 comprises an equally dramatic *forte* unison incise. The more eccentric element, however, is the progression of Fonte to the tonic *minor* at b.58. This device was mentioned in Chapter 2, since Riepel has an example of it in his *Anfangsgründe*, and it is a fairly common practice for the Fonte of preparation to be formed ii-i, before the proper tonic is properly restored with the thematic return.[235] In this passage, Haydn does not supply a completed S2:C2, since he hovers on ❸ until the required melodic ❶ appears in the oboe part at b.62. The extension of C minor over a pedal keeps the listener in suspense up to the thematic return, and it might be argued that the Fonte is never actually completed, either in i or I. It is difficult to say whether this particular Fonte manipulation would have been considered skilful and effective, but its intention is clear: to amuse and please through having the entire development consist of a Fonte with eccentric construction and completion.

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[235] My own empirical study reveals this a favourite device for Mozart in his piano sonatas, where he typically progresses from i to an augmented 6th on VI before continuing to V and I.

[III Presto]

Figure 204: Symphony 25, iii *Presto*

The next example shows schematic manipulation whose purpose is arguably both technical and communicative. The passage in Figure 205 is from the *Finale* of a late symphony, and comprises a long Fonte of preparation for return of the main theme at b.231. The schema appears after the

development has settled on an extended unison D, implying V/vi but actually of quite uncertain continuation. The four bars following the caesura then suggest an evaded shift into E♭ major and a playful statement of the theme in that key. This expectation is thwarted, however, as a B♮ is introduced to retard the melody; in fact, this incise turns out to be the first part of a Fonte (S1:C1), whose conclusion is delayed following a long silence until b.217. This is an unusual bar, since it is so separated from the preceding dominant 7th chord, yet is also not part of the next phrase. A well-versed listener might well hear it as the necessary but understated completion of a Fonte first segment. Haydn then proceeds to tease the ear still further: S2:C1 is stated in bb.218-221, and matches the first segment, but its completion is delayed to almost breaking point through characteristic 'liquidation' to a repeated two-note motive, before the elided thematic return finally provides the tonic chord completion of the Fonte. In terms of the contrapuntal degrees, essentially the ❹ is prolonged until the ❸ on the tonic chord in b.232. It is problematic in a passage like this to determine if the schematic manipulation is mainly technical, and its somewhat humorous effect incidental, or if there is indeed an intention to foreground the witty or ironic function of the Fonte. The listener would probably understand it as a mixture of both.

Figure 205: Symphony 98, iv *Presto*

The thematic use of schemata is particularly interesting, and implies wit simply by the disturbance of normative formal context: a Fonte is 'meant' to be used for continuation,

preparation or transition, rather than providing the main theme in the first movement of a symphony. This is precisely what happens in the *Vivace assai* section after the introductory *Adagio* from the 'Surprise' symphony. As Figure 206 shows, the gigue-like principal theme of the main section consists entirely of a Fonte and its modified inversion. It is a disarmingly simple construction, whose only slight irregularity is the melodic continuation from ❸ to ❶, thereby creating the effect of elision between S1:C2 and S2:C1 at bar 18. This dancing Fonte recurs in several guises throughout the movement; indeed, it is almost as though Haydn is giving a demonstration of how to vary Fonte construction, since apart from literal repeats in bb.39 and 154 (the recapitulation), it occurs in III of the tonic minor at b.54, in inversion at b.195, re-voiced and over a pedal at b.200, in *tutti* unison at b.204, in root position at b.218, and with an added 6^{ths} at b.222. There is no attempt at excessive sophistication or tonal surprises with which to impress his London audience: these gestures can only represent a celebration for composer and listener of this well-loved musical convention.

Figure 206: Symphony 94, i *Vivace assai*

An impressive example of Fonte employed thematically occurs in the *Finale* from the 'Oxford' Symphony, as an extended preparation for the recapitulation. As we see from Figure 207, the Fonte begins at b.200, as completion of a sequence through VI and IV from b.197. The segment S1 is first stated as a short incise (shown as *a*) in bb.200-2, tracing out the normative contrapuntal pairing ❺-❹-❸ over ⑦-①. However, Haydn then extends the C2 part by means of several further incises and repetitions to increase its length to 11 bars! His phrase extension skilfully mutates the C2 into a preparation for the main thematic return, first by liquidating the E and A (*b*), then inverting them to a rising A → E (*c*), and finally adding D♯ to this motive (*d*), in order to resemble still more the main theme. The C1 of S2 is constructed from inversions and elaborations of *c*, thus maintaining extreme motivic consistency. The tension is eventually released when, after an imitative flute ascent and one-bar caesura rest, completion of the Fonte occurs through elision with a resumption of the main theme at b.221. The ear readily connects the thematic return to the

earlier motive *d* from the Fonte, where the characteristic rising semitone appoggiatura was almost obsessively repeated. The listener cannot fail to be impressed by this ushering in of the recapitulation through phrase extension of a Fonte. The complementary facets of Haydn's wit are evident in this passage: his skill and intelligence in effective motivic transformation within a conventional Fonte, and his achievement in recapitulating the rustic drone-based theme as an elided completion of the Fonte, an effect which is genuinely humorous and delightful.

[IV Presto]

Figure 207: Symphony 92, iv *Presto*

The next example illustrates wry wit through the very opposite means, namely extreme contraction of the schema. The passage in Figure 208 shows the entire minuet excursus from the first version of Symphony No.63 ('La Roxelane'). It is hard to imagine a more compact Fonte than this, while the symmetry between segments is exact, even to the internal *Zwitter* A♭ in b.15. The slurred descending 5th motives across the bar line combine with off-beat accompanying chords to produce an almost mocking quality to the mini-excursus; Haydn may also be testing the rule-aware listener with his irregular melodic voice-leading, since consecutive 5ths are actually avoided through tritones. This Fonte is thus rich in communicative significance, since even the novice listener would recognise the schema straight away, and doubtless be 'amused and pleased' by its engaging simplicity and tiny proportion. We recall that the 4-bar schema in Riepel's minuet appears within a total length of 16 bars, compared with the 34 bars of this Haydn's minuet. The minimal dimension of this schema thus complements its pointedly naïve construction to enhance its ironic effect.

[III Menuet: Allegretto]

Figure 208: Symphony 63, iii Menuet

An entirely different manipulation of Fonte appears in the *Largo* from Symphony No.64, a celebrated example of unusually eccentric phrase structure, even for Haydn. The work was originally entitled 'Tempora Mutantur' ('Times have Changed'), and it seems clear that rhythmic dislocations were destined to be a feature.[236] The slow movement is particularly fragmented and even at times disintegrative, as "musical caesuras are further underlined by their incomplete cadences, which heighten the tension of the silences into the next utterance".[237] Although Haydn does not include section markers in the score, the movement is in rounded binary form, with the second reprise starting at b.33; the first part of the excursus, directly after the implied double bar,

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[236] Mirka (2012) provides an insightful analysis of this movement, including a discussion of the Fonte.
[237] Brown (2002:146-7).

is shown in Figure 209. While the excursus of the previous example comprised a simple solitary Fonte, this *Largo* remarkably consists entirely of a repeated Fonte, whose complex construction is even more broken up than the main theme itself. In fact, it is possible to trace the curious incise and phrase distortions of this Fonte to Koch's basic illustration of the schema, as a three-part phrase containing incidental modulation, shown in Figure 210.[238] This figure shows the *Vierer* from which the *Sechser* is expanded, and that the last incise progresses to a QA.

[II Largo]

Figure 209: Symphony 64, ii Largo

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[238] See Chapter 3.

Figure 210: Reduction from Symphony 64, ii *Largo*

Haydn's construction follows this model precisely, although with an extension of the QA incise, and with multiple internal dislocations. The first segment of this ❼-❶ over ④-③ Fonte is actually quite regular, apart from the extremely short duration of the melodic destination ❶. The third bar is chaotic, however, with the initial arrival on an unaccompanied D♮ explicable only to the connoisseur listener who recognises it as an appoggiatura to C♯. This resolution is delayed to the end of the bar, after a non-matching rest on the second beat, where it is duly harmonised to serve as S2:C1. Although the Fonte is then completed regularly in the next bar, the schema has been severely ruptured by the events of b.35; the strange caesura on the second beat creates here not so much an 'incomplete cadence' as the deceptive implication that D♮ has completed the opening incise, when in fact this was achieved by the preceding E, which we expect to be followed by a dotted minim C♯. It is significant that the specific nuance of this disruption could not be perceived this way unless we knew this was an unfolding Fonte. The disruption of phrase structure is not over yet, since Haydn's arrival on the destination QA in b.38 is understated to an extreme degree; this bar employs the same technique as b.35 in falsely implying phrase completion on the first beat, when it is actually delayed to the last beat after a caesura. Finally, the treatment of the incise extension is equally curious, with the melodic F♯ in the repeated $^6_4$ chord rising to an octave G, instead of dropping to E as expected on the third beat: its resolution is placed mysteriously in the low viola register. Although the entire phrase is technically complete, by Koch's definition, Haydn has conspired to make it sound as incomplete as possible.

Before moving on from this remarkable passage, it is worth asking whether Haydn's curious treatment of the Fonte might have some hidden meaning. If the underlying theme of the movement relates to changing times, and by implication changing mores,[239] then is it somehow significant that the entire excursus comprises the repetition of a current musical convention in a

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[239] Brown reproduces Foster's translation of John Owen's epigram as:
The Times are Chang'd, and in them Chang'd are we:
How? Man, as Times grow worse, grows worse, we see.
(Brown 2002:146).

state of complete disintegration? There is little doubt that this movement strives to represent the temporal disruption implied by the symphony's title; but perhaps Haydn has also specifically chosen Fonte, as a musical analogue of social convention, to convey the sense of decay expressed in the epigram. While analytical recourse to cultural hermeneutics might seem fanciful, there is clearly a serious and hidden message in Haydn's manipulation of the Fonte in this movement; if wit is his intention, there is certainly no humour attached to it here.

By contrast, the next example reveals rumbustious humour in Haydn's ingenious jesting with schematic construction and context. The passage in Figure 211, from the minuet of Symphony No.76, shows the juncture of the first and second reprises. In fact, this is an appropriate point to revisit the schema construction which was described in previous chapters as a 'reversed' Fonte or Monte. While it was problematical to assert with confidence that this represents a manipulation of the normative schema, or indeed is related in any way to it, the minuet example here presents it an entirely different context. Whereas the typical 'reversed Fonte' forms successive incises on I and ii to create an incomplete phrase, the progressions in the example occur *across* the double bar. This proves that Haydn is not seeking here to create a single phrase, but rather restates the cadential I-incise which ends the first reprise as an initial ii-incise to start the second reprise. Since this is the typical location that we expect to hear a proper Fonte of continuation, it seems clear that Haydn is playing with the conventional application of the schema in this formal context. His dynamics reinforce the point that a cadential ii incise is a surprise here, and there is no doubt that an attentive listener will realise that the normative Fonte has been reversed, or to put it another way, the correct completion of the Fonte initiated after the double bar has already been achieved before it! Significantly, the 'corrected' schema appears in due course, as a Fonte ii-I of preparation at b.16: a witty deviation restored prosaically to order.

[III Menuet: Allegretto]

Figure 211: Symphony 76, iii *Menuet*

The conclusion to Haydn's 'Farewell' symphony contains one of the most celebrated examples of humorous wit, as the musicians leave the stage one by one, until only two violinists remain. Chapter 6 discussed the Fonte of continuation after the implied double bar in this final *Adagio* movement; we now examine a much more interesting play with the schemata near the end of this movement, indeed as preparation for the witty concluding section. The passage from bb.58-69, which comes after a thematic recapitulation in the tonic A major, is shown in Figure 212. The question addressed in the following analysis concerns how Haydn is able to link the mutually remote keys of A major and F♯ major, which is the tonic major key of this *Sturm und Drang* symphony.

Figure 212: Symphony 45, v Adagio

The first phrase of this passage sends clear signals of Fonte, since it is constructed in B minor (ii) and presents the classic contrapuntal pairing ❻-❺-❹-❸ over ⑦-①. The listener could only confidently expect a Fonte ii-I here, as a brief excursion from the tonic key, since ii cannot move naturally to any other schema in A major. The surprise ahead is that Haydn is preparing for a different key altogether, F♯ major, and the ii established in bb.58-61 can indeed play a schematic role in this key, by changing function to become S1 in a Monte iv-V. The crucial harmonic shift occurs in b.61, and even to the listener who recognises the unfolding of a Monte, its intention and destination would be very puzzling. It is only with the arrival of the main theme in F♯ major at b.68 that the schematic pun is resolved: Fonte mutates to Monte to effect a modulation to the remote submediant major key. Recognition that this is also the tonic major key of the symphony overall would immediately follow. A reduction for the normative unfolding of both schemata is shown in Figure 213.

Figure 213: Reduction from Symphony 45, vi *Adagio*

Extended Case Studies

This chapter concludes with two extended case studies, to provide contrasting perspectives on schematic application in the symphonies. The first example is the minuet from Symphony No.56: drawing substantially on the phrase and composition theory of Koch, a detailed and multi-faceted analysis of this movement will provide insight into Haydn's remarkable manipulation of schematic construction, completion, and location, in the service of both formal function and sophisticated communication. The final example considers the advanced manipulation of Fonte and Monte in Haydn's last symphony: this great work contains an exceptional profusion of

schematic instances, and is argued here that it also represents a culminating homage to the two schematic conventions.

The minuet from Symphony No.56. provides an excellent case study for extended analysis, since a discussion of it relies on much of the material presented in the previous chapters, in particular schematic construction, completion and context, techniques of phrase extension, models for small composition, and elements of clever and humorous manipulation. Fonte serves as a focal point in the analysis, so this example illustrates the value of examining a full range of technical and cultural factors relating to eighteenth-century composition as we seek to approach a more historically informed appreciation of this music.

For reference, the complete minuet section is given in Figure 214, without pre-emptive analytical annotation to influence the reader's interpretation. It is worth attempting to hypothesise a contemporary listener's response to this piece, as the first phrase unmistakably announces a vigorous *Ländler* minuet. Playful dynamic contrast follows, with repeated piano fragments interrupted by the bold rhythmic drive to a cadence, more quiet fragments, and finally the *forte* cadential chords. This is merry music, more or less suitable for dancing, and characteristic of Haydn's 'popular' style after the *Sturm und Drang* works. The more acute listener might perhaps delight in the somewhat remote modulation in the middle of the second reprise, before a flurry of Riepel's *Rauscher*, or Koch's *passaggio*, leads to a restatement of the main theme in the wrong key! A puzzling little transition then sets the scene for the main thematic return in the correct key, before the minuet proceeds as expected to the strong cadential closure. If closely attentive, the listener might also have noticed that the soft fragment repetitions before the final flurry were not present in the first reprise, and moreover have a particular significance relevant to the movement as a whole: they comprise a repeated compressed Fonte.

Figure 214: Symphony 56, iii *Menuet*

It was noted above that the minuet is only 'more or less' suitable for dancing, and this results from the prolific use of phrase extension, which expands the total length of this small composition to 72 bars. As discussed in Chapter 3, Koch describes techniques of phrase extension in Section 4 of his *Anleitung*. Indeed, he includes the entire *Andante cantabile* movement from Haydn's Symphony No.42 as a model example of how "melody is extended by means of repetition".[240] That piece illustrates many of the techniques Koch intends to discuss, including incise repetition, *Absatz* or *Kadenz* appendix, transposition, parenthesis and phrase interpolation; the repeated incise and punctuation appendix are perhaps the most commonly used of these. Sisman notes that a similar model for the analysis of phrase extension appears in the *Anfangsgründe*, but considers that "Koch's three expansion techniques [repetition, appendix and expansion of complete melodic sections] are not only more detailed than Riepel's, but also more

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[240] This is Koch's description for his 'Exercise 1' (*Anl* III:4, §47 ff.); Haydn's movement appears within §53 as Example 324.

nearly reflect late eighteenth-century compositional practice".[241] She proceeds to analyze melodic extension in selected works by Haydn, using similar annotation to that which will be adopted here. This study will go somewhat further: it reduces the minuet to its minimal phrase structure, to reveal how Haydn develops his 72-bar version from it; it clarifies the type and case of Koch's compositional model on which the minuet is based; it illustrates the prominent role of Fonte throughout the composition; and it shows how Haydn employs a schematic manipulation at a specific point for a critical formal function.

Figure 215 presents the melody from the minuet, with detailed annotations to indicate the techniques of phrase extension or linkage that Haydn applies. We note that each of the six phrases in this piece is extended after the punctuation by means of repeated incises. It is interesting that all the main phrases (bb.1, 9, 21, 35, 45, 53) begin strongly on the down-beat while the appendix extensions are mainly anacrustic (bb.4, 16, 28, 38, 48, 68), although one set is on the down-beat (bb.13, 57) and the remaining set is ambiguous (b.61). Moreover, the rhythm chosen for b.6 results in elision, with C serving as both up-beat and down-beat simultaneously. This variety of rhythmic beginnings for incises increases the sense of disorientation at the critical hiatus within the second reprise which is discussed in detail below. Note also that the cadential appendix in the first reprise is extended further in the second reprise through insertion of a new Fonte motive.

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[241] Sisman (1982: 452).

[III Menuet]

Figure 215: Analysis of the melody from Symphony 56, iii *Menuet*

Fonte is prominent in this minuet. We see that the second phrase is a Fonte vi-V proceeding to a QA, which is then extended by incise repetitions to a cadence in the dominant at b.16. This cadence itself has a 4-bar appendix. Brief 'passing modulations' follow the double bar, settling in the remote key of ii; incise repetition gives way to a florid triplet *passaggio*, before the main theme appears transposed to D minor at b.35. The appendix to its *Absatz* is the most interesting passage in the minuet, since it simply continues after a 1-bar rest to a thematic return at b.45 in the main tonic key. The next phrase matches the first reprise, but this time with Fonte ii-I, while the following cadence is extended by a *codetta*-like insertion of a repeated compressed Fonte, before the final drive to cadential restatement.

If the preceding description suggests relatively unremarkable formal construction for the minuet, this would be misleading, for Haydn performs skilful and subtle manipulation of phrase and formal construction in this piece, with Fonte playing a central role. In fact, the schema is declared already in the second phrase of the first reprise, so the listener may well expect even at this early stage that it will feature strongly in the movement. Indeed, the modulation to D minor in the second reprise would be perceived as an ideal tonal preparation; although the literal statement of the main theme in this key at b.35 is a bold departure from expectation, an alert listener will process this gesture as perhaps eccentric preparation for a Fonte ii-I before thematic return. This is certainly what follows, but in a manner that surely few listeners would predict. Haydn follows the main thematic statement with incise repetition in D minor, which thus provides the S1 of an S2 that was presented in the opening phrase! Of course, it also invites completion now with an S2 in C major, before order is restored with a proper thematic return in the tonic. However, as will be revealed presently, it is here at b.43 that Haydn performs the masterstroke of the entire movement.

We have seen so far that Haydn's minuet provides an excellent illustration of Koch's methods for phrase extension, and also confirms Sisman's observation on the application of these techniques for clarification of phrase function, rather than merely symmetry. Koch's own remark in this connection, that "a melodic section worthy of repetition either already contains much of the feeling to be expressed, or that in the repetition new material must be given for the expression of the feeling",[242] seems almost a perfect description of this minuet. We note moreover that Haydn does not seek to create any irregular phrases, such as *Fünfer* or *Sechser*; his basic *enger Satz* is always 4-bars in length, and phrase extension arises only from appendices with incise repetition. In addition to matters of phrase extension, we have also seen the application of the Fonte to perform characteristic formal functions, namely transition to the dominant, preparation for thematic return in the tonic, and within a 'coda'; these functions are often found in larger movements, but they are concentrated here in a small form. It is worth now examining the model

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[242] *Anl* IV:3, §47.

for the small form Haydn actually adopts, to assess whether it conforms to any of those described by Koch, and importantly to see if it may offer insights into the curious events around b.43.

Figure 216 shows a suggested reduction of the minuet to its basic phrases, including the punctuation destination for each phrase. Although the techniques of phrase extension found in this minuet appear fairly transparent and cause little analytical disagreement, the extraction of its basic phrases is admittedly more subjective. If the reductions here of phrases **2** and **6** seem strange, it should be recalled that they reflect exactly Koch's explanation of the Fonte or Monte schema, namely as resulting from an inserted repetition of the first incise, in order to extend a *Vierer* to a *Sechser*.[243] It follows that reduction of the schema phrase should omit the repeated incise and proceed directly to the *Absatz*. A further objection may be raised against the compaction of the 2-bar incises in b.21-26 to 1-bar incises, with the original dotted minim beginnings reduced to grace notes, and the final punctuation represented by a single note. This is however the only logical way to extract a 4-bar phrase to an *Absatz* on A in b.28, making it necessary to view each 2-bar incise as an expansion by rhythmic augmentation of a 1-bar incise.[244]

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[243] See Chapter 3.

[244] Koch states that sometimes "a complete incise of two measures is changed by extension of metrical units into a segment of three measures" (*Anl* IV:3, §51). While his discussion relates to expansion of a complete incise, it seems entirely feasible to apply his rule to the augmentation of an incomplete 1-bar incise to form a complete 2-bar incise, in order to account for the expanded 4-bar phrase in b.21-28.

Figure 216: Phrase Reduction of Symphony 56, iii *Menuet*

The small composition model which matches this minuet is Type 4 Case II, which we recall from Chapter 3 has the following generalised form, where * represents a free choice of *Absatz*, and X is a phrase containing one or more passing modulations:

1_____ * **2**____QK or K/III :‖: **3**_____X **4**____QA **5**, **6**_____GK :‖

Supplying the punctuations and keys actually employed in this minuet, the model is therefore:

1___GA **2**_____QK :‖: **3**___(iv, ii)___QA/ii **4**_____GA/ii **5**____GA **6**_____GK :‖

The minuet conforms to Koch's model exactly, apart from one important detail: it has GA/ii rather than the required QA as preparation for the thematic return in **5**. In fact, the entire minuet movement remarkably contains not a single QA/I! An examination of Haydn's punctuations shows that he has chosen thematic and complete-incise constructions which convey a rustic, *pesante*, quality to the melody as a whole. Its particular technical implication, however, is that it creates a problem in preparing for an effective thematic return in the second reprise. As the following discussion reveals, Haydn overcomes this problem in the most irregular yet ingenious manner.

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We have seen that Haydn presents the main theme in D minor at b.35, followed by repeated incises that invite the completion already heard in bb.4-8. This would effectively produce a 16-bar Fonte, and return the movement to C major, but its S2 would then constitute the main theme, and to produce thematic return in this way would be extremely ineffective; two changes are therefore required: to reduce the size of S2, preferably without any reference to the main theme, and to create a suitable harmonic preparation for the proper thematic return. Figure 217 shows the reduction possibilities, starting from equal segment proportion (1:1) and moving in stages to Haydn's solution, with the proportion 8:1.

Figure 217: Derivation of Fonte proportion in Symphony 56, iii *Menuet*

The reduction at stage 2 avoids the thematic material, but still produces a GA ending which would not link well with thematic return; the same is true at stage 3. Haydn therefore decides in stage 4 to omit the second part of the final incise, leaving an open incomplete incise. This does finally provide the required QA preparation, but we cannot fail to notice that an extra bar of silence is inserted before the main theme successfully returns. This critical bar actually serves to

conceal the trick that Haydn performs: our ear instinctively fills this bar with the completing incise, but the sound is not realised! If it were, it would defeat the purpose of the incise omission, namely to avoid arrival on a C; schematic-thematic elision is impossible here, since the theme begins on the down beat. This technique of having a musical event heard in the mind but not in reality, in order to create the false impression of avoiding a particular consequence, is not only subtle but disorienting, as mentioned earlier. In other words, the melody has not actually created a QA instead of a GA, but has only given the impression of doing so. Yet, even if a rule is being violated here, the result is perfectly good, and the main theme even benefits from arriving after such a significant silence.

The tiny fragment in bb.43-4 may therefore be claimed to represent the 'connoisseur' moment of the piece, since only the most refined listener would be able to process, in real time, all the implications of Haydn's manipulation at this juncture. The implied complete incise was sounded earlier in bb.5-6, so attentive listening would spot the deceptive omission of the completing incise at b.44. This calls upon the faculty of retrospective listening; the complementary process of expectation is also initiated by the orphaned incise, and when it is not fulfilled in the next bar, the appearance of the main theme instead implies its later realisation at b.50, now stated in full. Heard as a gesture destined for future completion, the 1-bar incise thus has the nature of parenthetic anticipation, a specialised technique of impulsion not discussed by Koch. It is doubtful that a contemporary listener would describe bb.43-4 in these terms, but their formal function clearly incorporates both concepts: b.43 could be omitted to produce a symmetrical, if clumsy, linkage of the two Fonte phrases, but it would then lose its qualities both of parenthesis and of anticipation.

It is typical of Haydn that even once order is restored with the thematic return and its expected extensions, a further surprise is in store. As though to tease the listener again with an incise problem, and offer a reminder of the solution, he inserts a repeated Fonte at b.61 to underscore the incise that was missing in b.44. The minuet has now presented the schema in three distinct S1:S2 proportions: 2+2, 4+4, and 1+1. There is time for just one more hidden manipulation, and it relates to the contrapuntal lines embedded within this last Fonte. Figure 218 shows how the 4-bar passage in bb.61-4 contains the ❻-❺ as its primary melodic line, with ❼-❶ as its secondary line, with ④-③ in the bass. The rising Fonte S1 motive in b.65 then supplies a melodic ❹, and its octave, whose progression to ❸ is however completed by an inner part, while the top part continues to ❼-❶. Playful exchanges on ❹-❸ are a salient feature of this 8-bar passage, and again an attentive listener would likely be aware that it was pre-empted by earlier events, since the Fontes at bb.9 and 53, their respective appendixes, and the modulatory incises directly after the double bar all strongly emphasise the ❹-❸ melodic progression.

Figure 218: Closing Fonte in Symphony 56, iii Menuet

Schematic manipulation, whether of construction, completion or formal function, plays a more prominent role in this minuet than first impressions might suggest. The piece certainly offers delight and amusement to the amateur as a lively, rustic *Ländler*, highly danceable and with attractive melodic turns. For the connoisseur, however, its presentation and solution of a subtle formal problem might elicit more intense pleasure. In either case, Haydn has once again elevated this small dance form to a high level of sophistication and wit, whose appreciation requires a corresponding degree of skill and attentiveness in the listener.

The statistical distribution charts in Chapters 5 and 6 revealed an unusually high incidence of Fonte and Monte in the final set of London symphonies, in particular No.104, and we conclude this section with a close examination of Haydn's specific application of these schemata. It was noted in previous empirical discussions that their high incidence in the London symphonies is surprising in view of remarks by both Riepel and Koch that Monte is well past its peak as a convention, while Fonte too is something of a *Schusterfleck*. Haydn's continued employment of these devices in these late works indicates his clear fondness for them, his confidence as an established composer to apply whatever devices he wishes, their undoubted compositional utility, and perhaps most of all their status as well-known conventions highly amenable to manipulation. Nevertheless, it is also apparent from study of the Symphony No.104 that Haydn's relationship to the schemata and their meaning has assumed a more personal and even esoteric quality, expressed in quite different forms of manipulation from those previously encountered. The following discussion mentions all of his schematic instances in the symphony, but focuses on three in particular, from the first and last movements.

That schemata will feature prominently in this symphony, together with trick manipulations to be solved, is evident to the listener from the start. Figure 219 shows the schema which appears in the famous passage from the introductory *Adagio* and reveals the manipulation of both proportion and degree of completion in the most ingenious way. This Monte is of course derived motivically

from the main theme, its dotted rhythm from the opening fanfare, and its melodic contour from the incise repetitions that follow. The passage shown in the figure occurs after the theme has modulated to III, reinforced by a second *forte* fanfare. What occurs in the next bar is highly significant, since it presents ❻-❺-❼-❶ of the subdominant: combined with the preceding caesura and contrasting *piano* dynamic, these degrees provide the clear signals of Monte. Yet the expected harmony at b.10 fails to appear, and instead the contrapuntal signals from the previous bar are sounded one step higher. Again the expected destination is absent, and the phrase apparently continues on to V^7-i regardless. The listener is therefore aware of the Monte-like location and function, even though this schema has not been fully constructed or completed! The solution to this puzzle lies in recognising that the Monte has applied a double ellipsis, through the omission of the C2 chords in each segment. It is effectively a contraction of the more regular Monte shown as a reworking in Figure 220. Thus bb.9-10 do not represent merely a 'dramatic' juxtaposition of dominant 9th chords, but rather an elliptical Monte serving to double the rate of forward movement at this point. Quite how many of Haydn's listeners would have recognised this sublime transition as a chromatic Monte with double ellipsis of its C2 chords is impossible to say; it is a manipulation without precedent in any of the composer's previous symphonies. It is clear that No.104 intends to present difficult challenges for the connoisseur, in addition to the many popular features it offers for the amateur. In any event, the analysis of its *Adagio* has already unearthed a highly sophisticated variation of the *Schusterfleck*, which may well represent Haydn's homage to the schema early in the opening movement of his final symphony.

Figure 219: Symphony 104, i *Adagio*

Figure 220: Symphony 104, i *Adagio* (reworked)

Schemata are prominent too in the *Allegro* section, which employs two distinct and recurring Fontes. The first of these is a disarmingly simple and transparent Fonte vi-V at b.108, inserted within the closing theme of the exposition, and apparently superfluous to it: it is a purely decorative reference to the convention, with no function in this context of continuation, preparation or tonal transition. It makes a much more interesting reappearance in the development, at b.150, where it is applied with pedal construction as a triple descent to link the equally remote keys of C♯ minor and E major. This Fonte plays no further part in the movement, and the more interesting schema, to be discussed here, is the other Fonte whose motivic material is completely derived from the main theme of the *Allegro*. Figure 221 shows this opening theme, with significant motives labelled *a* and *b*.

Figure 221: Symphony 104, i Allegro

Haydn plays games with the formal placement of the derived Fonte. Thus, he implies its entry at the start of the development, as shown in Figure 222. This is the classic location for a Fonte of continuation, and bb.124-5 certainly present the salient contrapuntal degrees ❻-❺,❹-❸ in the upper voices over ⑦-① in the bass, to signal a Fonte vi-V. However, Haydn now frustrates the listener's expectation by completing only the first segment; the phrase actually proceeds to tonal destinations quite inconsistent with the Fonte, and indeed arrives at the C♯ minor region noted previously as initiating the triple Fonte. The schema of continuation directly after the double bar is the only example found in the symphonies of a patently incomplete Fonte, so this manipulation too is new for the London audience. In fact, Haydn has a delightfully humorous gesture in store, since this solitary S1 eventually finds completion in the tonic later in the movement.

Figure 222: Start of Development in Symphony 104, i *Allegro*

We must wait until the middle of the recapitulation for this witty resolution; Figure 223 shows the passage from b.228, with the Fonte entering at b.238. The Fonte motive *a* is clearly derived from

the theme, but the intriguing problem posed here is that it does not serve the typical function of continuation, transition or preparation. Its appearance is seemingly even more superfluous than with the Fonte discussed earlier: it simply appears from nowhere, like a *Schusterfleck* designed to poke fun gently at the main theme. The larger context is included in the figure, since there is an element of anticipation generated by the incomplete phrase preceding the Fonte. We note that its descending $^6_3$ chords are derived from motive *b*, so that Haydn employs both responding incises from his main theme to construct this almost parenthetical passage. The descending chords are rhythmically stretched as the incomplete phrase simply fades into a typically Haydnesque silence, only to be resumed again with the playful *fauxbourdon* Fonte entirely constructed with the same type of $^6_3$ chord.

Figure 223: Fonte in Recapitulation from Symphony 104, i *Allegro*

An attentive listener might observe that Haydn reverses the motives *a* and *b* from his main theme to form this passage. He is also mindful to insert a *Zwitter* B♭ for extra poignancy, before the suspenseful 2-bar silence. Instead of some dramatic resolution, however, we receive calculated bathos: a naively simple harmonic progression to complete what Koch would likely describe as a

long compound phrase. This a quite perplexing juncture in the movement, and one might wish that Griesinger had asked Haydn exactly what his intentions were in placing this Fonte here. Of course, we have seen already how he fashioned an ingenious Monte within the *Adagio*, so it is tempting to view this as another schematic homage. It should be remarked that this interpolated Fonte has the quality of being 'underlined', as though Haydn is marking it out as clearly as possible for the audience; there is perhaps an extra London connection of which we are unaware. In any event, its character is elusive: as much reflective as witty, wistful as humorous.

The second movement spares the listener any further schematic challenges, but Fonte is prominent in both the minuet and trio which follow. While detailed analysis of these instances is not attempted here, it is worth noting that the excursus of the well-known minuet begins, as in the first movement, with an expansive Fonte vi-V gesture, and this time it is indeed completed at b.26, through a much varied second segment. Some would dispute classification of this passage as a Fonte, but its formal location and tonal construction are strong positive indicators, while our experience of this symphony so far leads us to expect complex and non-normative employment of the schemata. The excursus of the *Trio* begins similarly with a gesture clearly implying Fonte ii-I; here, the schema receives delayed completion in the brief and wittily normative restatement at b.74, as preparation for thematic return. It is surely significant that Haydn employs a Fonte of continuation after the double bar in both minuet and trio, but that each is sufficiently deformed to render its identification less than straightforward for the listener.

One of the most interesting examples of schematic deformation in the symphony appears in the *Finale* movement, within a section of formal and tonal transition rich in technical sophistication and communicative resonance. The schema in question is first introduced in the exposition, at b.84 as a Fonte ii-I in the dominant of A major, as preparation for the closing theme. As Figure 224 shows, its construction and completion are fairly normative, although the long note values and imitation in the two lower strings and solo bassoon impart a quality of archaic counterpoint to this passage. We note that the melody in particular presents the salient Fonte degrees ❻-❺-❹-❸, with the entire motivic arch also outlining ❼-❶. This Fonte provides a smooth and peaceful interlude after the frenetic rhythmic activity which precedes it. The complex and sophisticated schematic manipulations based on this Fonte are reserved for the end of the development, as the immediate preparation for thematic return in the recapitulation. Figure 225 shows this passage between bb.167-195; close analysis reveals that it is replete with schematic reference.

[IV Finale: Spiritoso]

Figure 224: Fonte in the Exposition of Symphony 104, iv Finale

Figure 225: Fonte and Monte in the Development of Symphony 104, iv *Finale*

The key of B minor is strongly established in bb.137-165 of the development, and the preparatory schematic passage occurs after a QA in this relative minor key, followed by a one-bar general pause. Since the corresponding Fonte signalled the closing theme in the exposition, its re-appearance in b.167 of the development might suggest to the listener that its function here is to prepare for the recapitulation. This expectation is indeed realised, but not before some remarkable twists and turns, in which both Fonte and Monte play central roles. Haydn begins this transition with a fairly normative Fonte ii-i ending in B minor (bb.167-74); the first violins and cellos extend S2 through motivic imitation, over the sustained i harmony. The double bass presents the schema motive again in b.178, but proceeds unexpectedly to a D♯; this inflection is significant, since it strongly implies a chromatic shift to V/iv. An alert listener might very plausibly identify this event as S1:C1 of Monte iv-V in B minor, with the motive suspended tantalizingly on the 'dominant ninth' for two complete bars (bb.181-2). However, instead of the Monte S1:C2, the harmony shifts to an implied augmented 6th and $^6_4$ chord over C♯ in bb.183-6. Remarkably, the schema motive is then simply restated as the Monte S2:C1: as in the *Adagio*, the first segment of the Monte has not been completed!

A further twist follows, since the second segment too fails to complete. Haydn simply shifts directly to a D major chord at b.193, which is VI rather than the expected V. In a gesture of wonderful simplicity, the two bars bb.193-4 sustain this chord, recalling the drone which starts the *Finale*, and the main theme enters without further preparation. The Monte manipulation in this passage contrasts with that of the *Adagio* in employing evasion rather than ellipsis of the second segments, since bb.183-6 and bb.193-4 produce deviation from the expected tonal destinations. It should be emphasised that the confirmation of Monte becomes evident to the listener on comparing the tonal placements of the motives *c* and *d*, highlighted in the reduction shown as Figure 226.

Figure 226: Reduction of the schematic passage in Symphony 104, iv *Finale*

The theme of schematic innovation in the 'London' symphony No.104 is further strengthened by this example, since the technique of Fonte or Monte evasion has not appeared in any previous symphony. While arguably many of Haydn's connoisseur listeners might be aware that this complex passage contains schematic manipulation, it is likely that relatively few would identify the transformation from Fonte to Monte, and the subsequent double C2 evasions as an ingenious way to introduce the recapitulation. It is surely not too fanciful to consider this sublime section from his last symphonic movement as nothing less than an apotheosis of the Fonte and Monte schemata. Haydn not only successfully integrates both conventions within the passage, but also adheres to Riepel's recurring dictum, that Monte should be 'varied', while Fonte need not be. Haydn's 'variation' of the Monte here is of course ingenious beyond any example in the *Anfangsgründe*, which makes no mention of ellipsis or evasion for this schema.

An interesting observation in relation to the Fonte schema in the passage just described is that it is 'framed' by two immeasurably more normative applications of it, the first in the exposition and the second in the recapitulation. The Fonte ii-I in the dominant key was shown earlier as Figure 225, and it will be apt to round off this discussion by showing the second Fonte ii-I in the tonic key. Almost as if to dissolve the complexities of the schematic transition from the development, Haydn merely restates the original Fonte without much alteration to serve a corresponding function in the recapitulation. As the excerpt in Figure 227 reveals, the main enhancement of his Fonte is the addition of a pastoral element through diatonic solo flute scales; after the tonal and schematic tensions in the development passage, a sense of order and calm is again restored.

Figure 227: Fonte in the Recapitulation of Symphony 104, iv *Finale*

Conclusion

This study has accompanied Fonte and Monte on an extended and fruitful expedition. Stimulated by Gjerdingen's seminal work on galant schemata, and motivated by the immense scope for study of their employment and manipulation in Haydn's instrumental works, the journey has taken a variety of directions: an initial historical trajectory, from *partimenti* and *solfeggi* manuscripts to the treatises of Riepel and Koch, led to explorations of psychological schema theory, and from there to the development of a detailed analytical framework for classification and description of Fonte and Monte; finally, empirical corpus study of these schemata in Haydn's symphonies was followed by music-analytical study of relevant passages from these works. Multiple complementary strands were thus combined to gain insights into Haydn's schematic manipulation.

Valuable results emerged from each of these research strands. The concept of galant schemata evidently existed in the *Satzmodelle* of German music theory before Gjerdingen introduced it more widely to eighteenth-century music scholarship. His book also focused attention on the Italian pedagogical traditions which cultivated and disseminated schematic practice across Europe. The study here sought to explore this repertory in more detail with specific reference to Fonte and Monte. It emerged that these two schemata express some of the main rules of *partimenti* distilled by Sanguinetti. Nevertheless, the study also revealed that the size and contrapuntal construction of many schematic instances in the manuscripts diverge from the normative galant formations described by Gjerdingen, while the observation of irregular phrase length, elision and *Zwitter* revealed that schematic variation has a longer history than one might have assumed. This study also showed how the earlier 'block' schemata, often of considerable length, gave way to more concise structures to meet galant requirements for concise and logical phrase construction.

The extensive survey of Fonte and Monte in Riepel's *Anfansgründe* was indispensable for the study. As the only historical treatise which specifically identifies these schemata and describes their application in detail, it is the primary reference source for their normative and variant formations in the late-eighteenth century. Their particular importance as galant schemata was famously declared by Riepel himself, and further confirmed by their recurrence across several of his volumes. The *Anfangsgründe* also provided unique insights into the nature of Fonte and Monte as historical conventions, the former still current, and the latter past its peak. Its presentation of their construction, completion, phrase formation and formal function are unmatched in any other contemporary treatise. Moreover, Riepel clarifies that 'variation' of schemata is necessary to maintain their freshness and utility: we infer the tacit accord between composer and listener concerning the treatment of schemata, and understand better the role and extent of schematic manipulation in Haydn's communicative strategy. In fact we discover that

Conclusion

many of the techniques applied with much greater sophistication in the symphonies are discussed or mentioned by Riepel: examples of modal exchange, elision, ellipsis, irregular proportion and formal relocation are all found in his volumes.

Close study of Koch's *Anleitung* was equally valuable for different reasons. Although he does not retain Riepel's names for Fonte and Monte, he specifically describes the phrase-forming function of each schema. His explanation of their normative application, as means for extending a *Vierer* to a *Sechser*, is curious and at odds with Riepel. As might be expected, his descriptions of phrase- and period construction, and his models for small and extended compositions, were confirmed well in the analyses of Haydn's minuets, with examples illustrating a variety of Koch's formal types and cases. Moreover, the study demonstrated the versatility of Fonte and Monte as functional phrase constructors within almost all of these compositional models. It is interesting that Koch is apparently not a devotee of the two schemata, even though he includes many examples of them in his treatise. Yet the observation is revealing in itself, for it demonstrates the inherently mutable currency of any musical convention, requiring a composer to judge carefully whether its normative application is still acceptable, or whether it must be varied or manipulated to avoid offending the listener's taste. The expectation to conform with convention while also altering it in some way presents a finely-balanced problem for the eighteenth-century composer.

The survey of schema theory in cognitive psychology and artificial intelligence clarified the theoretical foundation for musical schema theory. The connections between spatial and temporal schemata as understood in general cognition, and the construction and unfolding of musical schemata, are remarkably persuasive. Fonte and Monte are ideal exemplars, since they exhibit sets of characteristic features in their construction, and their sequential nature implies well-defined expectations of progression or completion. The concept of 'scripts' is particularly relevant to schematic unfolding, while the higher-level concept of 'stories' has direct application to schematic function and location; both have implications for the listener's affective response arising from the realisation or frustration of expectation. Proceeding from these abstract concepts to more tangible principles of schematic recognition and classification, the psychological models of feature evaluation, prototype formation, exemplar reference and body-orientation metaphor were all found to have application to musical schemata. They were also important for constructing the analytical framework which comprised a central element of this study. The empirical and statistical investigations of the subsequent chapters would not have been possible without the precision it affords when accounting for details of construction, completion and context. The logical and consistent structure of the framework also helped to support the more discursive and music-analytical commentaries on Haydn's schematic manipulation. It offers some further advantages: the methods employed here could well be adapted to create an analogous

framework for the analysis of other schemata, while its data structures lend themselves well to application in computer-based analysis and statistical application.

The study overcame the methodological difficulties often encountered in empirical corpus research. Its solution was to establish clear principles for dealing with schematic complexity, classificational ambiguity, indistinct boundaries, and analytical subjectivity. It emphasised moreover the essentially indicative nature of the empirical findings, whose purpose is to identify possibilities for closer direct examination, and to evaluate analytical claims which otherwise remain speculative. It was remarkable that so many Fontes and Montes were found across the entire chronological span of Haydn's symphonies; an average of more than one schema per movement proves that the composer in no way regarded them as *Schusterflecke*, to be avoided in serious works; Monte is prominent even in the Paris and London symphonies. It is interesting that many or most of Haydn's schematic techniques were anticipated already in the *Anfangsgründe*, and it could be argued that his methods of construction and completion are fairly conservative. Thus, he does not indulge in the kind of chromatic embellishment that we often find in Mozart, for example, or indeed in the *sonderbare* Fontes and Montes described by Riepel's pupil in Volume VI. Haydn's most imaginative and challenging manipulations arise instead in relation to formal context and function. The frequency distributions for formal location show his readiness to employ a schema within the first reprise of a minuet, or within any of the main sections of a larger movement, while thematic usage is also prominent in his later symphonies, notably the examples of Fonte to start a movement, or embedded in the main theme of a movement. The corpus study offers the advantage of objective clarity when making or assessing claims about Haydn's schematic methods. Thus, a hypothesis that he employs opaque or complex construction, for example, or that he often leaves schemata incomplete to surprise the listener, may be quickly refuted from the empirical observations. By contrast, the proposal that he frequently manipulates schemata in relation to formal placement or function can indeed be empirically supported.

The more ambitious challenge attempted was to proceed beyond indicative findings and assess whether formally significant results might be obtained from applying methods of inferential statistical testing to the corpus data. Of particular interest was the prospect of discovering local or general trends across the symphonies in relation to schematic construction and usage. The exercise proved successful, yielding numerous valuable and interesting insights. Once again, the analytical framework revealed its utility in enabling us to identify significant changes in parametric distribution and type trends within all three schematic categories. While informal trends for each parameter were clearly evident in the result charts, the most important single product of the study was the statistical trend table, showing statistically significant changes for each parameter, across the full set of symphonies, between and across selected chronological

symphonic groups, and across successive symphonic groups. It was possible from this table to identify stylistic changes, through the specific lens of schematic employment, within established phases in Haydn's compositional career.

The study revealed a progression from normative to more complex usage, and indeed an increasing application of schemata, between his early symphonies and the culmination of his *Sturm und Drang* period. The next group of symphonies represents a simplification in Haydn's style associated with his 'popular' and theatrical works, and his first works for publication. Again the results from the statistical table confirm a progression towards more regular, flowing and dance-like schematic construction, combined with more normative formal function for schemata. They also show that Haydn introduces greater variation in his schematic completion, exactly in accordance with Riepel's recommendation. Finally, some remarkable trends were observed in Haydn's last group of symphonies, those composed for Paris and London. One of the most striking was the increase in frequency of Monte, the interpretation of which has fascinating implications. These symphonies also reveal the composer employing unexpectedly normative construction, an increasing use of *Zwitter*, varied, delayed or subverted completion, and fewer thematically-connected schema than might be expected. It was satisfying as well to identify significant trends across the entire set of symphonies, particularly in relation to parametric distribution for schematic type, melodic degrees, location, function and thematic connection.

The music-analytical investigation was the final stage of this study. Its aim was to enhance the preceding empirical and statistical observations through closer examination of specific examples from Haydn's symphonies, informed by cultural and aesthetic considerations, and with an emphasis on the communicative implications of his schematic manipulation. The qualities of wit, humour and irony so closely associated with his instrumental music clearly cannot be identified by parametric-based corpus study; nevertheless, such study clarifies the musical conventions whose manipulation serves to express those qualities. The examples discussed in the final part of this study are significantly almost all from later symphonies, and reveal some of the intriguing methods with which Haydn plays on the schematic expectations of his listeners, and in particular of the connoisseurs he seeks to challenge, impress and please. The ingenuity and sophistication of his play with schematic convention is remarkable, whether in stretching schematic completion to breaking point, inserting a Fonte as the entire excursus, switching Fonte to Monte to effect a surprise modulation, or perplexing the listener with ellipsis or evasion.

We return as promised to the puzzle from the Introduction, the curious opening of the *Finale* from Symphony No.62. We are finally in a position to analyse the passage in schematic terms, with familiar annotation (Figure 228).

Figure 228: Fonte opening of the *Allegro* finale from Symphony No.62

Thus the mysteries of this passage are resolved. Our experience of non-normative schemata suggests that the construction of Haydn's Fonte is not particularly eccentric, and certainly not 'shifting', 'oblique' or 'strange'. In fact, the contrapuntal pairing is clear: ❼-❶ over ④-③, with an added 6th which even acquires a *Zwitter* inflection in the second segment. A knowledge of schematic construction helps explains the irregular voice-leading into the main theme, since this is the only way to complete the Fonte symmetrically while also starting the theme in root position. The other feature to challenge the listener is that Haydn shortens the Fonte to six bars through elided completion of each segment, naturally producing schematic-thematic elision with the main theme, and also avoiding the regular but dull alternative shown in Figure 229.

IV Allegro

Figure 229: 'Normalised' Fonte opening of the *Allegro* finale from Symphony No.62

As in the overture, Haydn repeats his opening theme at b.29, but with a more elaborate Fonte passage, whose re-voicing and imitation in the first violins seems to emphasise the two elisions. Unfortunately, Wheelock completely misses the Fonte ii-I of continuation to start the development section, even though this is so important to the schematic permeation in this movement (Figure 230).

Figure 230: Start of the development in the *Allegro* finale from Symphony No.62

Haydn even supplies a complex variation of Fonte ii-i within the development of his second theme (bb.87-97), and a passing Fonte ii-I in F major (bb.106-9) before his culminating Fonte links the development and recapitulation. It requires a modern analysis of this work to identify the subtle implications of the schema entry at b.123: the normative Fonte of preparation is a phrase which clearly *ends* the development section, and the subsequent main theme is therefore identified immediately as starting the recapitulation; in this case, however, the Fonte is actually an integral part of the main theme itself! The listener thus experiences a confusion of formal function at b.123, which can *only* be resolved through knowledge of the Fonte convention. If the listening were still more attentive, it would also be noticed that Haydn's construction differs from the opening statement in one critical respect: Haydn has re-voiced the Fonte to place its melody in the bass, thus replacing the original irregular elision ❼-❶ over ④-①, with the much smoother ❻-❹-❸ over ⑦-①.

Wheelock notes that the first *Allegro* movement from this symphony reuses material from an existing work by Haydn, his operatic Overture Hob.I:7. However, the fact she is unaware of Fonte leads her to overlook some critical features in both the original and revised movements. Thus, while she observes correctly that "the original Presto's three-bar phrases are expanded to five in the Allegro", she does not notice that Haydn has actually inserted a simple repeated incise hinting at a Fonte ii-I after the opening flourish, to expand the phrase (Figure 231).

Figure 231: Opening bars of *Presto* Hob.Ia:7 and Allegro finale from Symphony No.62

Conclusion

More significantly, a salient feature of the original *Presto* is the 2-bar Fonte vi-V embedded within the second theme of the exposition (Figure 232):

Figure 232: Second theme from *Presto* Hob.Ia:7

The important point here is that the second theme of the *Allegro* does *not* contain a corresponding Fonte. It is surely reasonable therefore to conclude that Haydn compensates for this absence by applying Fonte elsewhere in the movement. In fact, his compensation is intensive, since he not only inserts a Fonte fragment into the opening theme, but also makes the schema a pervasive feature of the *Finale*, which as Wheelock points out is closely linked to the *Allegro*. In other words, the Fonte 'idea' has migrated from the original *Presto*, via the *Allegro*, to the *Finale*! Our knowledge of schemata enables us to understand its referential role at the start of the final movement in No.62: the Fonte serves as a conscious link to its origins in the original overture.

This final discussion of an intriguing Fonte confirms how awareness of galant schemata can even help to clarify the meaning of a passage or entire movement. The example certainly illustrates how Haydn expresses ingenuity and wit through a play with convention which is only now becoming fully appreciated. Future analyses of galant & classical music must surely take into account schematic manipulation, not only as an agent of wit, humour or irony, but also for the display of skill, imagination or charm. Whatever the specific intention, the employment of schemata is a central component in eighteenth-century communication, and its close study can only enhance our understanding of the historical listener.

Appendix A

Empirical Results from *Partimenti* and *Solfeggi*

A listing with comments of all Fonte and Monte instances found in the *Partimenti* and *Solfeggio* collections discussed in Chapter 1. The entries for *solfeggi* also indicate the punctuations before and after the schema.

PARTIMENTI

Francesco Durante (1684-1755)	
Partimenti numerati (57 *partimenti*)	
4:24-31	Fonte ii-I over ⑦-①; long, preparation for TR
5:34-39	Monte IV-V over ④-③; non sequential
5:40-50	Monte (or reversed Fonte) V-vi over ⑤-①; expanded
5:75-89	Monte IV-V with long C1 over ④-③/composite bass; expanded
6:21-25	Monte IV-V over ④-③/composite bass; after caesura
7:19-23	Fonte ii-I over ④-③; clear dyadic structure
11:28-29	Fonte ii-I over ⑦-①; expanded
12:4-8	Fonte ii-I/R over composite bass; with alternation
14:47-64	Fonte ii-I over composite bass; expanded C1
16:18-19	Fonte ii-I over ⑦-①; after caesura
16:33-34	Monte IV-V over ⑦-①; clearly corresponds to Fonte above
20: 26-29ff	Fonte vi-V over ⑦-①; continued sequentially
20:46-49	Monte IV-V over composite bass; preparation for final cadence
21:8-11	Fonte ii-I over ⑦-①; as preparation for TR
23:12-14	Fonte vi-V over ⑦-①; moving to iii and then TR
Partimenti diminuiti (103 *partimenti*)	
1:11-14	Fonte vi-V over ⑦-①; with alternation
6:26-29	Fonte ii-I over ⑦-①; brief
9:14-16	Fonte ii-I over ⑦-①; with alternation and elision to TR
10:24-26	Monte IV-V over ⑦-①
11:17-18	Fonte ii-I over ⑦-①; as preparation for TR
12:13-17	Monte (or reversed Fonte) V-vi over ⑦-①
13:45-52	Fonte ii-I over ④-③; C2 longer than C1
18:34-37	Monte (or reversed Fonte) V-vi over ⑦-①; as preparation for TR
25:5-8	'Triple' Monte IV-V-vi over ⑦-①; as preparation for TR
33:8-83	Fonte ii-I/R over ⑦-①; uses motive derived from previous sequence
40:1-9	'Triple' Monte to I then V over ⑤-①; possible '4th up 3rd down'

	sequences
45:17-20	Fonte vi-V over ⑦-①; proceeds to V/V
51:14-15	Fonte vi-V over ⑦-①; with syncopation and continued sequentially
53:8-11	Fonte ii-I over ⑦-①; after a caesura and continued sequentially
53:23-26	Monte IV-V over ⑦-①; shortened S2
60:5-7	Fonte ii-I/R over ⑦-①, with alternation
65:26-28	Fonte ii-I over ⑦-①
65:38-30	Monte IV-V over ⑦-①
69:8-9	Fonte ii-I/R over ⑦-①; with full perfect cadence to I; also bb.16-18
70:14-15	Monte Iv-V over ⑦-①; also bb.20-21
75:17-20	Fonte ii-I/v over ⑦-① with alternation; unusual tonal context for Fonte
83:5-6	Fonte vi-V over ⑦-①; also bb.12-13 and 18-19
83:29-35	Fonte vi-V over ⑦-①; expansion of earlier Fonte ii-I; preparation for TR
85:11-14	Fonte ii-I/vi over composite bass; irregular construction and key
90:18-19	Fonte ii-I over ⑦-①; continued sequentially and settles in iii
91:26-27	Fonte ii-I/R over ⑦-①
92:8-14	Fonte ii-I over composite bass; long 'block' Fonte; also bb.23-29 Fonte vi-V as preparation for TR
95:28-29	Fonte ii-I/VI over ⑦-①; unusual degrees in minor key
96:14-15	Fonte ii-I/R over ④-③; large 'block' Fonte
101:24-33	Fonte ii-I over composite bass; ; large 'block' Fonte

Fedele Fenaroli (1730-1818)	
Libro primo (16 *partimenti*)	
3:9-16	Fonte vi-V over ⑦-①
4:21-23	Fonte ii-I/R over ⑦-①; metrical displacement
5:14-17	Fonte vi-V over ⑦-①
6:9-14	Monte IV-v over ⑦-①; unusual progression to dominant minor
8:14-25	Monte IV-v over ⑦-①; unusual progression to dominant minor
9:40-47	Monte iv-V over ⑦-①; elision to TR
10:14-28	Monte IV-v over ⑦-①; long, varied with progression to dominant minor
11:14-16	Fonte iii-ii-I over ⑦-①; at end of sequence
12:13-16	Fonte ii-I/R over ⑦-①
13:26-28	Fonte ii-I over ⑦-①; brief
13:30-32	Monte IV-V over ⑦-①; brief
14:18-29	Monte IV-v over ⑦-①; elision to TR
15:32-39	Monte IV-V over ⑦-①; with alternation
Libro secondo (14 *partimenti*)	
1:12-21	Fonte ii-I over ⑦-①; long, complex 'block' segments
2:18-33	Fonte ii-I/R over ⑦-①; expanded, 'block' segments
2:45-52	Fonte ii-I over composite bass; bass has ④-③ then ⑦-①
2:60-71	'Triple' Monte IV-V-vi/III over ⑤-①-⑦-①; 'block' segments; unusual key
3:19-25	Fonte ii-I over ⑦-①; with alternation

5:19-25	Fonte vi-V over ⑦-①; expanded
5:36-52	Fonte ii-I over ⑦-①; expanded
6:28-49	Monte IV-v over ⑦-①; expanded, with progression to dominant minor
7:26-37	Fonte ii-I over ⑦-①; expanded
8:38-49	'Triple' Monte in relative major over ⑦-①; rare placement
9:13-16	Fonte vi-V over ⑦-①; with alternation
10:16-23	Fonte ii-I/R over ⑦-①; with alternation
11:45-48	Fonte ii-I/IV over ⑦-①; unusual tonal context
12:19-32	Fonte ii-I/R over ⑦-①; expanded, with alternation
13:52-67	Fonte ii-I over ⑦-①; expanded, with alternation
14:14-24	Monte IV-v over ⑦-①; expanded, with progression to dominant minor
14:25-32	Fonte ii-I/R over ⑦-①; expanded
Libro quatro (44 *partimenti*)	
1:11-16	Fonte ii-I over composite bass; with alternation, bass starts ④-③
3:15-25	Fonte ii-I over composite bass; 'block' segments
4:19-20	Monte IV-V over ⑦-①; simple prototypical example
8:39-45	'Triple' Monte iv-V-vi over ⑤-①
10:35-42	Fonte ii-I over ⑦-①; with alternation, ellipsis at b.42
12:38-62	Fonte ii-I over composite bass; long 'blocks', sequence within segment
12:63-70	Monte IV-V over ④-③-⑦-①; directly follows preceding Fonte
13:22-35	Fonte ii-I over ⑦-①; varied Fonte, with alternation
13:26-43	Fonte vi-V over ⑦-①; expanded, with alternation
19:25-32	Fonte ii-I over ⑦-①; with alternation
21:41-44	Fonte vi-V over ⑦-①; unusually follows a caesura on III
30:15-21	Fonte ii-I of irregular construction; elision to TR
33:22-28	Fonte ii-I over ⑦-①; C2 much longer than C1, elision to TR
35:12-19	Fonte ii-I over 6-5-④-③; irregular bass degrees
36:32-34	Fonte ii-I/R over ⑦-①; followed by cadence repetition
37:35-42	Fonte ii-I over ⑦-①; with alternation
41:18-21	Fonte ii-I over ④-③; elision to TR
Libro quinto (27 *partimenti*)	
Themes	
1:16-22	Fonte ii-I over ⑦-①; C1 much longer than C2
1:26-35	Monte IV-V over ⑦-①; expanded, irregular, preparation for TR
4:22-27	Fonte ii-I/R over composite bass; 'pedal' Fonte
5:21-27	Fonte ii-I over composite bass; with alternation
5:31-35	Monte IV-V over ⑦-①
Preludes I	
1:16-25	Monte iv-v over composite bass; flattened 6th present in bass
2:6-9	Monte iv-v over composite bass
4:21-24	Fonte ii-I over ⑦/⑤-①
11:9-12	Fonte vi-V over ⑦-①/composite
Preludes II	
1:7-8	Fonte ii-I over ⑦-①; metrical displacement

Libro sesto (24 *partimenti*)	
Preludes I	
11:9-12	Fonte vi-V over composite bass
11:14-19	'Triple' Monte IV-V-vi over ⑦-①
12:26-30	Fonte ii-I over ⑦-①
Preludes II	
25:18-25	Fonte ii-I/R over ⑦-①
26:4-7	'Triple' Monte IV-V-vi over ⑦-①
31:4-5	Fonte ii-I over ⑦-①; *Zwitter* in S2
Selected *Partimenti*	
32:42-45	Monte vii-viii over ⑦-①; highly irregular degrees
33:24-25	Fonte ii-I over ⑦-①
33:37-40	'Triple' Monte IV-V-vi over ⑦-①
34:20-22	Fonte ii-I/R over ⑦-①
38:22-23	Fonte ii-I over ⑦-①
A Tour	
40:244-61	'Triple' Monte IV-V-vi over ⑦-①
40:287-96	Fonte ii-I over ⑦-①; speculative instance at end of sequence

SOLFEGGI

Carlo Venturini (fl.1720s)		
6 *Solfeggi* (Gj5501-Gj5506)		
5:17-18	Fonte ii-I over ⑦-①	GA-F-QA
6:62-69	Fonte ii-I over composite bass	QA-F-QK

Antonio Bernacchi (1685-1756)		
36 *Solfeggi* (Gj5601-5636)		
4:24-25	Fonte ii-I/R over ④-③; brief	GK-F-GA+K/R
7:28-32	Monte VII-I over ⑤-⑦-①; strange chromatic section with Fonte on the tonic major	GK-F-QA/vi
9:14-21	Monte IV-V over ⑤-⑦-①	QK-M-GA
11:28-37	Monte IV-V over ⑤-⑦-①; 5+5 bar Monte	QK-M-(SEQ)-QA
11:48-57	Fonte ii-I/♭III over ④-⑦-①; strange degrees and bass	-
12:8-11	Monte IV-V over ⑦-①; hemiola Monte	QK-M-(SEQ)
13:16-21	Monte IV-V over ⑤-⑦-①; 3+3 bar Monte	QK-M-GA
13:42-48	Fonte ii-I over ⑦-①; varied S2	GK/iii-F-QA
15:10-13	Monte IV-V over ⑤-⑦-①; preparation for TR	QK-M-GA (TR)
31:11-13	Monte IV-V over ⑦-①; S1-S2 metrical interplay	QK-M-GK
34:11-28	'Triple' Monte IV-V-vi over composite; 'blocks'	GK-M-(SEQ)

Leonardo Leo (1694-1744)

24 *Solfeggi* (Gj5001-Gj5024)

1b:20-23	Monte IV-V/V over ⑤-⑦-①; minuet	GA-M-GA/GK
1b:77-80	Fonte ii-I over ⑦-①	K/vi-F-QA
2b:44-47	Monte IV-V over ⑦-①	GK-M-GA
3a:21-22	Monte IV-V over ⑦-①	GA-M-GA
3b:49-52	Fonte ii-I over ⑦-①	GA-F-A/vi
4a:5-7	Fonte vi-V over ⑦-①	QA-F-QA/V
4a:15-17	Monte IV-V over ⑤-⑦-①	GA-M-GA/GK
5b:62-65	Fonte ii-I over ⑦-①	QK-F-QA
7a:7-10	Fonte ii-i/iv over ⑤-①; unusual key and degrees	GA-F-QA/R

Johann Hasse (1699-1783)

6 *Solfeggi* (Gj5251-Gj5256)

2:52-58	Fonte ii-V over ⑦-①; complex, deviates after I to V	A/iii-F-QA
6:34-37	Fonte II-I over ⑦-①; major C2 in S1; occurs in 'coda'	K/vi-F-QA

Carlo Broschi "Farinelli" (1705-82)

16 *Solfeggi* (melody only) (Gj5301-Gj5316)

4a:5-7	Fonte ii-I/R over ⑤-⑦-①	QA-F-K/R
5b:21-25	Monte IV-V/V over ⑤-⑦-①	QA-M-GA (/V)
6b:36-46	Fonte ii-I over composite bass	QA-F-QA
7a:7-14	Fonte ii-I over ④-③-⑦-①	QA-F-GA
7b:13-20	Monte IV-V over ⑦-①	QA-M-QK
8a:12-13	Monte IV-V over ⑦-①	QA-M-GA

Giuseppe Aprile (c.1709-85)

35 *Solfeggi* (Gj5401-Gj5435)

3:21-24	Fonte ii-I over ⑦-①	QK-F-QA
5:16-19	Fonte ii-I/R over 6-5-④-③; varied S2	GK-F-QA
6:25-28	Fonte ii-I over ⑦-①	QK-F-QA
8:45-52	Fonte ii-I over composite bass	QA-F-QA
12:18-21	Fonte ii-I over ①	QK-F-QA
15:39-46	Fonte ii-I over ⑥-⑤-⑦-①	QK-F-K/vi
16:17-20	Fonte ii-I over composite bass; irregular voicing	QK-F-QA
18:41-48	Monte IV-V over ⑦-①	QA-M-GK
23:19-22	Fonte ii-I over composite bass; varied	QK-F-QA
24:9-12	Monte IV-V/V over ⑦-①; rare tonal context	QA-M-GA
24:42-46	Monte IV-V over ⑦-①	GK-M-GA

27:39-46	Monte iv-v over ⑥-⑤-⑦-①; expanded	K/R-M-QA
28:15-18	Fonte ii-I over ②-③-⑦-①; irregular voicing	QK-F-GK
30:6-8	Fonte ii-I/R over ④-③	GK-F-QA
31:24-27	Monte iv-V/v over ⑦-①; Monte in dominant minor	QA-M-QA
34:14-17	Monte IV-V over ⑥-⑤-④-③; minor key Monte, bass *Zwitter*	K/R-M-QA

Niccolò Jommelli (1714-74)

6 *Solfeggi* (Gj5201-5206)		
1:16-19	Fonte vi-V over ⑤-⑦-①	GK-F-QA (/V)
5:29-34	Monte IV-V over ⑦-①; after caesura, varied S2	QA-M-(SEQ)

Giovanni Paisiello (1740-1816)

42 *Solfeggi* (Gj5801-Gj5842)		
1:11-14	Fonte ii-I over ⑦-①	QK-F-GK
5:15-17	Fonte ii-I over ⑥-⑤-④-③; preparation for TR	QK-F-QA
6:6-7	Fonte ii-I/R over ⑦-①; after caesura	QA-F-K/R
6:14-16	Fonte v-iv over ⑥-⑤-④-③; irregular degrees with *Zwitter*	-
7:13-15	Fonte ii-I over ⑦-①	QA-F-K/vi
8:41-45	Fonte ii-I over ⑦-①; preparation for TR	QA/R-F-(TR)
9:15-18	Fonte II/ii-I over ⑦-①; modal play in S1, preparation for TR	GA-F-(TR)
19:9-10	Monte IV-V over ⑦-①; varied S2	GA-M-GA/GK
20:45-48	Fonte ii-I over ⑤-①; possibly circle of 5ths; preparation for TR	QA-F-QA-(TR)
21:12-13	Monte IV-V over ⑦-①	GA-M-GA/GK
21:22-24	Fonte ii-I over ⑦-①; preparation for TR	QA-F-QA
22:16-19	Monte IV-V/V over ⑤-①-⑦-①; varied S2	GA-M-GA-GK (/V)
22:38-42	Fonte ii-I over ⑤-①; preparation for TR	QA-F-QA
23:61-66	Fonte ii-I over ⑥-⑤-⑦-①; voice exchange	QA-F-QA
23:71-74	Monte IV-V over ⑦-①; treble has 6-5-④-③	QA-M-GA
24:49-52	Fonte ii-I over ⑦-①; Fonte repeated bb.58-59	QA-F-QA
25:18-19	Fonte ii-I over ⑦-①	QA-F-QA
26:48-51	Fonte ii-I over ⑦-①	QA-F-QA
27:20-21	Fonte II-I over ⑦-①; major C2 in S1	QA-F-QA
28:62-69	Fonte ii-I over ⑦-①	QK-F-QA
29:20-24	Fonte ii-V over composite bass; unison, deviation to V	QK-F-QA(-TR)
30:38-41	Fonte ii-I over ⑦-①	QA-F-QA
31:7-9	Monte IV-V over ⑦-①	QA-M-QK

31:24-27	Fonte ii-I over ⑦-①	QA-F-QA
33:19-21	Fonte ii-I/R over ⑤-⑦-①	GA-F-QA
34:16-19	Fonte vi-V over ④-③	QA-F-GA (/V)
35:48-53	Fonte ii-I over ⑥-⑤-⑦-①; shorter S2	QA-F-QA
37:41-44	Fonte ii-I over ⑦-①	QA-F-QA
38:28-35	Fonte ii-V over ⑦-①-⑤-①; 'deviated' Fonte to V	QA-F-QA
40:6-9	Fonte ii-I over ⑦-①; repeated, embedded Fonte	QA-F-QK
41:20-24	Monte IV-V over ⑦-①	GA-M-GK (/V)
41:52-59	Fonte ii-V over ⑦-①; deviation to V	QA-F-QA
W.A.Mozart (1756-91)		
4 *Solfeggi* (Gj5351-Gj5354)		
1:35-44	Fonte ii-I over composite bass; 5+4 bar Fonte	QK-F-GA
4:108-11	Monte IV-V over composite bass	GA-M-GK

Appendix B

Riepel's *Anfangsgründe zur musicalischen Setzkunst*

CONTENTS WITH SPECIAL REFERENCE TO FONTE AND MONTE[245]

Volume 1 **De Rhythmopoeia oder von der Tactordnung** (1752). [On Rhythmic Construction]

This volume deals primarily with the treatment of rhythm and meter in melody and phrase construction. The minuet serves until later in the volume as the preferred means to demonstrate these principles. Riepel's famous statement "In terms of design and execution, a minuet is no different from a concerto, aria or symphony" appears on the second page.[246] Interestingly, this volume contains several musical examples of Monte and Fonte, although the patterns are neither named nor referenced in the text.

Volume 2 **Grundregeln zur Tonordnung insgemein** (1755) [On General Principles of Tonal Construction]

This volume deals primarily with aspects of pitch organisation. Its topics include: keys, intervals and scales; definitions and rules for phrase segments and punctuations, expansion of melodies via repetition (*Wiederholung)*, expansion (*Ausdehnung*) & insertion (*Einschiebsel*), permutations and condensed key plan (*Noten-Miniaturen*). It also introduces the Fonte, Monte and Ponte, and provides an extensive discussion of each schema. This is the most frequently cited volume in scholarly discussions of Riepel and schemata.

Volume 3 **Gründliche Erklärung der Tonordnung insbesondere** (1757) [On Special Principles of Tonal Construction]

This volume deals with particular or 'special' aspects of pitch organisation. Its topics include: progression to different scale degrees, melodic permutation, bowing and slurring, thematic openings, forms of the three diminished seventh chords, rules

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[245] The index in Emmerig (1996) lists only appearances of the actual terms Fonte and Monte in the text, and is still not quite complete, since many occurrences in the text are not recorded in the index. An exhaustive search through all volumes was necessary to identify each and every reference Riepel makes to Fonte and Monte. It included the numerous musical examples containing Fonte and Monte, where the schemata are not specifically named or singled out for discussion in the text.

[246]. "*Da aber ein Menuet, der Ausführung nach, nichts anders ist als ein Concert, eine Arie, oder Simpfonie*" (*Anf* I:2).

of voice-leading, and a theory of chord construction. Of particular interest is the inclusion of some important passages on variations of Fonte and Monte.

Volume 4 **Erläuterung der betrüglichen Tonordnung** (1765) [An Explanation of Deceptive Tonal Construction]
A variety of topics related mostly to tonal manipulations is discussed in this chapter. Of most relevance here is the extensive discussion of schema variation, in particular through alternative progressions for the second segment of Fonte or Monte. The volume also contains some revealing passages on the current status of the schemata, especially Monte.

Volume 5 **Unentbehrliche Anmerkungen zum Contrapunct** (1768) [Essential Observations on Counterpoint]
An introduction to counterpoint, after the manner of Fux, but with an emphasis on melodic figuration. The volume has no references to Fonte or Monte.

Volume 6 **Vom Contrapunct** (1768) [On Counterpoint]
A discussion of further topics in counterpoint, with an emphasis on chords, voice-leading and consecutive parallels. The volume also contains an unexpected and extended passage on Monte and Fonte melodic variation.

Volumes 7 and 8 **Baßschlüssel, das ist, Anleitung für Anfänger und Liebhaber der Setzkunst…** (1768) [Bass Clef…Instructions for adding a Bass to a melody]
These volumes offers guidance on adding a bass to a melody, demonstrated mainly through the harmonisation of short melodic fragments. It contains no mention or examples of Fonte or Monte.

Volumes 9 and 10 **Der Fugen-Betrachtung erster Teil / zweyter Teil** (1768) [Study of Fugue, Part I / Part II]
These volumes deal with a variety of advanced topics on Fugue, and contain no references to Fonte or Monte.

Appendix C

Schema Instances in Haydn's Symphonies

Instance	Hoboken	Reference	Schema
1	A	3:27-8	Fonte
2		3:41-2	Fonte
3	B	2m:10-4	Fonte
4		2t:42-4	Fonte
5	1	1:52-4	Fonte
6	2	2:46-48	Monte
7		1:121-8	Fonte
8	3	1:75-80	Fonte
9		2:39-42	Fonte
10		4:75-80	Fonte
11	4	1:50-53	Fonte
12	5	4:1-4, 45-47	Fonte
13		2:31-37	Reversed
14	10	2:48-53	Monte
15	11	1:42-3	Fonte
16		2:81-6	Monte
17		3m:21-3	Fonte
18		4:13-6	Monte
19		4:45-9	Fonte
20	14	3t:41-8	Fonte
21		4:40-5	Fonte
22	15	1:74-81	Fonte
23		2t:47-56	Fonte
24		4:69-72	Fonte
25	17	1:72-74	Fonte
26		1:80-92	Fonte
27		2:39-44	Monte
28		2:47-52	Fonte
29		2:61-7	Monte
30	18	2:49-51	Monte
31		2:58-62	Fonte
32		3m:9-12	Fonte
33		3m:17-20	Monte
34		3t:51-5	Monte
35	19	1:53-8	Monte
36		2:9-11, 44-46ff	Fonte
37		2:22-7	Monte
38		3:58-61	Fonte
39	20	1:66-72	Fonte
40		2:48-53	Fonte
41		3m:18-20	Fonte
42		4:50-4	Reversed

Appendix C: Schema Instances in Haydn's Symphonies

Instance	Hoboken	Reference	Schema
43	25	2m:15-8	Monte
44		2m:15-8	Fonte
45		3:47-58	Fonte
46	27	1:47-51	Monte
47		3:84-88	Fonte
48	32	2t:43-8	Monte
49		4:39-50	Reversed
50	33	1:112-4	Monte
51		3m:10-2	Fonte
52		4:1-8	Reversed
53	36	1:84-95	Fonte
54		2:20-2	Reversed
55		3m:12-6	Monte
56		3t:45-8	Fonte
57		4:86-115	Fonte
58	37	1:21-4	Monte
59		1:101-9	Fonte
60		2m:11-3	Fonte
61		3:29-33	Monte
62		4:6-8	Fonte
63		4:33-44	Fonte
64		4:56-8	Monte
66	6	1:94-107	Reversed
65		3t:53-54	Fonte
67	7	1:99-103	Fonte
68		2b:25-6	Fonte
69		3m:17-8	Fonte
70		4:75-8&104	Fonte
71	8	2:59-66	Fonte
72		2:117-9	Fonte
73		3m:9-12	Fonte
74		3t:55-8	Fonte
75		4:83-9	Fonte
76	9	1:71-5	Fonte
77		2:36-8	Fonte
78	12	2:28-36	Fonte
79		3:61-67	Fonte
80	13	1:53-7	Fonte
81		2:17-21	Fonte
82	16	1:1-4	Reversed
83		1:9-12	Fonte
84		1:54-57	Fonte
85		2:37-46	Fonte
86		3:45-7	Fonte
87	21	4:57-9	Fonte
88	22	1:41&56	Fonte
89		2:39-45	Fonte
90		2:64-7	Fonte

Instance	Hoboken	Reference	Schema
91		4:91-95	Monte
92	23	1:92-6	Fonte
93		2:61-5	Fonte
94		4:36-39	Fonte
95	24	1:37-44	Reversed
96		3m:15-8	Reversed
97		3m:23-6	Monte
98		4:35-40	Reversed
99		4:52-8	Fonte
100	28	3m:21-4	Fonte
101		4:90-2	Monte
102	29	1:88-94	Reversed
103		2:48-51	Fonte
104		3m:13-20	Fonte
105	30	3m:40-4	Fonte
106		3m:60-4	Fonte
107	31	1:71-85	Monte
108		2:67-8	Monte
109		2:23&67	Reversed
110		3m:17-28	Fonte
111		4:9-12	Fonte
112	34	1:60-3	Monte
113		2:63-6	Fonte
114		4:17-20	Monte
115		4:41-52	Reversed
116	40	1:15-7, 104-5	Fonte
117		1:52ff	Fonte
118		1:62-5	Fonte
119		1:67-9	Monte
120		1:82-9	Fonte
121		2:46-57	Reversed
122		3m:17-20	Fonte
123	72	2:31-4	Fonte
124		3m:24-25	Fonte
125		4:9-12	Monte
126	26	3m:20-8	Monte
127	35	1:27&143	Monte
128		1:69-72	Fonte
129		1:121-6	Monte
130		2:1-8, 84-85	Reversed
131		2:48-9, 77ff	Fonte
132		2:94-7	Monte
133	38	3m:17-20	Monte
134		3t:39-43	Fonte
135		4:92-4	Monte
136	39	1:51-61	Reversed
137		1:74-82	Monte
138		2:45-8	Fonte

Appendix C: Schema Instances in Haydn's Symphonies

Instance	Hoboken	Reference	Schema
139		2:43-62	Monte
140		3m:20-4	Monte
141	41	1:27&153	Fonte
142		1:80-6	Fonte
143		2:41-4	Fonte
144		2:45-9	Monte
145		4:87-90	Fonte
146	42	1:26-33	Monte
147		4:9-12	Fonte
148		4:29-32	Monte
149	43	1:99-105	Reversed
150		1:126-129	Monte
151		2:12-6	Fonte
152		2:50-5	Fonte
153		2:63-6	Fonte
154		2:77-80	Fonte
155		3m:22-6	Fonte
156		3t:39-42	Fonte
157	44	3:67-70	Monte
158	45	4:109-14	Monte
159		5:32-5	Fonte
160		5:58-67	Monte
161	46	1:26-29	Fonte
162		1:102-5	Fonte
163		1:109-14	Monte
164		2:28-37	Monte
165		2:52-55	Fonte
166		3m:10-1	Fonte
167		4:89-95	Fonte
168	48	1:115-8	Fonte
169		2:55-7	Monte
170		2:62-4	Fonte
171		3m:8ff	Fonte
172	49	3m:19-26	Fonte
173	51	1:28-34	Fonte
174		1:145-8	Fonte
175		3t:22-3	Fonte
176		3t:25-6	Monte
177		3t:27-30	Fonte
178		4:9-12	Monte
179		4:73-6	Monte
180		4:97-100	Monte
181	52	1:100-5	Monte
182		1:112-5	Fonte
183		1:118-9	Fonte
184		2:85-94	Fonte
185		2:114-7	Fonte
186		2:128-34	Monte

Instance	Hoboken	Reference	Schema
187		2:166-9	Fonte
188		3m:12-8	Fonte
189		3t:47-50	Fonte
190		4:19-23	Fonte
191		4:93-100	Fonte
192	58	1:58-63	Reversed
193		1:90-6	Fonte
194		1:110-3	Monte
195		2:61-4	Fonte
196		4:45-49, 146-50	Fonte
197		4:72-83	Monte
198	59	1:16-19	Reversed
199		1:56-61	Monte
200		2:121-7	Monte
201		2:80-3	Fonte
202		3m:12-7	Reversed
203		3t:55-7	Fonte
204	64	1:90-2	Monte
205		1:100-2	Fonte
206		1:108-11	Fonte
207		2:33&45	Fonte
208		2:75-81	Fonte
209		3m:8-11	Fonte
210		4:52-60	Fonte
211	65	1:87-9	Fonte
212		2:19-31, 104 ff	Fonte
213	50	1:62-5	Fonte
214		1:102-5	Fonte
215		3t:86-92	Monte
216	53	1:218-20+	Fonte
217		2:25-8	Monte
218		3m:9-12	Monte
219		3t:50-4	Reversed
220		4:111-14	Fonte
221	54	1:54-7	Fonte
222		4:18-25	Fonte
223		4:95-8	Fonte
224	55	1:24-7	Fonte
225		1:173-6	Fonte
226		2:16&24	Fonte
227		3m:8-16	Fonte
228		3m:24-8	Monte
229		3t:50-4	Fonte
230		3t:67-8	Monte
231		4:9, 55, 142	Fonte
232		4:16, 63, 150	Fonte
233		4:111-26	Fonte
234	56	2:111-4	Monte

Appendix C: Schema Instances in Haydn's Symphonies

Instance	Hoboken	Reference	Schema
235		3m:38&48	Fonte
236		3m:53-6	Fonte
237		4:84-8	Fonte
238	57	1:118-22	Fonte
239		1:132-41	Fonte
240		1:187-91	Monte
241		2:7-8	Fonte
242		3m:11-7	Fonte
243	60	4:82-100	Fonte
244		6:41&51	Fonte
245		6:72-7	Monte
246	61	1:85-90	Fonte
247		1:128-35	Fonte
248		1:168-71	Fonte
249		4:9-11	Fonte
250		4:33-44	Fonte
251		4:52-8	Monte
252		4:149-86	Fonte
253	62	1:107-10	Fonte
254		2:44-48	Fonte
255		3m:9-12	Fonte
256		4:1,29,123	Fonte
257		4:74-9	Fonte
258		4:89-96+	Fonte
259	63	1:100-5	Fonte
260		2:9-12	Monte
261		2:65-9	Fonte
262		3m:12-6	Fonte
263		4:155-8	Fonte
264	66	3m:9-16	Fonte
265		3t:44-8	Reversed
266		4:196-9	Fonte
267	67	1:149-53	Fonte
268		1:182-87	Monte
269		1:188-91	Fonte
270		4:113-15	Fonte
271		4:170-2	Fonte
272	68	1:77-82	Monte
273		2m:16-20	Fonte
274		3:59-62	Monte
275		4:13, 67	Reversed
276		4:99-102	Fonte
277		4:175-8	Monte
278	69	2:51+	Reversed
279		3t:41-2	Fonte
280		4:9-12	Fonte
281		4:153-69	Fonte
282	70	1:83-92	Fonte

Instance	Hoboken	Reference	Schema
283		1:129-32	Monte
284		4:15-22	Monte
285	71	1:1, 13 &c	Reversed
286		2:11-15	Fonte
287		2:108-12	Fonte
288		3m:9-12	Fonte
289		4:56-69	Reversed
290		4:107-11	Fonte
291		4:108-10	Fonte
292	73	1:39-42	Fonte
293		1:126-7	Fonte
294		2:45-8	Monte
295		3m:12-4	Fonte
296		3m:17-20	Fonte
297		4:154-57	Fonte
298	74	1:118-25	Fonte
299		4:1,23,60,87	Fonte
300	75	2:9-11	Fonte
301		3t:37-8	Fonte
302		4:11-4	Reversed
303		4:34-8	Monte
304	76	1:38-42	Monte
305		3m:7-10	Fonte
306		4:9-10, 17-18, &c	Fonte
307		4:66-8	Fonte
308	77	1:116-9	Fonte
309		1:146-50	Fonte
310		2:17, 33	Fonte
311		2:71-74	Fonte
312		2:81,121	Fonte
313		4:56-64	Fonte
314		4:100, 117	Fonte
315		4:125-30	Fonte
316	78	1:76-9	Fonte
317		2:43-6	Fonte
318		2:74, 76	Fonte
319	79	4:133, 149	Fonte
320		4:164-68	Fonte
321	80	2:21-23	Fonte
322		4:46-9	Fonte
323		4:169-74	Monte
324	81	3t:52-60	Fonte
325		4:69-76	Fonte
326	82	1:49-50	Fonte
327		2:13-16	Fonte
328		2:44-8	Fonte
329		3m:21-5	Fonte
330		3t:39,71	Fonte

Appendix C: Schema Instances in Haydn's Symphonies

Instance	Hoboken	Reference	Schema
331		4:200-3	Fonte
332	83	1:83-86	Fonte
333		1:97-104	Fonte
334		3m:9-12	Fonte
335		3t:54-6	Fonte
336	84	2:14-15, 42,&c	Fonte
337		4:20-8	Fonte
338		4:132-35	Monte
339	85	3m:9-16	Monte
340		4:28-32	Fonte
341	86	1:22-5	Fonte
342		1:54, 177	Fonte
343		1:86-91	Fonte
344		2:13-4	Monte
345		3m:4-8	Fonte
346		3m:28-33	Fonte
347		3m:55-8	Fonte
348	87	1:19,152	Fonte
349		1:153-6	Fonte
350		2:28,78	Fonte
351		4:32-5	Fonte
352	88	2:25,61	Fonte
353		3m:2,34	Fonte
354		4:45-8	Fonte
355	89	1:28-31	Fonte
356		1:108-111	Fonte
357		1:114-7	Fonte
358		2:17-8	Fonte
359		3m:4-6	Fonte
360		3m:16-22	Monte
361		4:57-60	Fonte
362	90	1:42-4	Fonte
363		2:26-9	Monte
364		3m:39-42	Monte
365		4:130-42	Fonte
366	91	1:120-123	Reversed
367		1:143-6	Fonte
368		4:55,200	Fonte
369		4:85-91	Monte
370		4:130-134	Fonte
371		4:167-71	Fonte
372	92	1:47-50	Fonte
373		1:91-4	Fonte
374		2:25, 37, 92	Fonte
375		4:178-93	Monte
376		4:200-22	Fonte
377	93	1:33-5	Fonte
378		1:108-11	Fonte

Instance	Hoboken	Reference	Schema
379		1:173-6	Monte
380		3m:17-9	Monte
381		3m:25-7	Fonte
382		3t:78-82	Monte
383		4:51-8	Fonte
384	94	1:10-2	Monte
385		1:17, 154	Fonte
386		1:54-56	Fonte
387		1:195,200,218,222	Fonte
388		3m:9-18	Monte
389		3m:32-5	Monte
390		3t:71-75	Monte
391		4:41-4	Fonte
392		4:156-9	Fonte
393		4:164-7	Monte
394	95	3m:23-6	Monte
395	96	1:139-143	Fonte
396		2:9,50	Fonte
397		2:78	Fonte
398		3m:26-7	Fonte
399		3t:61-4	Fonte
400		4:79-86	Monte
401	97	1:10-1	Fonte
402		1:44-6	Fonte
403		1:137-43	Fonte
404		3m:20-22	Monte
405		4:17-24	Fonte
406	98	1:47-51	Fonte
407		2:17,23,63,67	Fonte
408		3m:21-4	Fonte
409		3t:69-72	Fonte
410		4:212-32	Fonte
411		4:244-51	Fonte
412	99	1:38-43	Fonte
413		1:64-6	Fonte
414		3m:8-12	Fonte
415		4:189-91	Monte
416	100	1:9-10	Fonte
417		1:52-7	Fonte
418		1:170-3	Fonte
419		1:174-7	Fonte
420		3m:36-8	Fonte
421		4:9-17	Fonte
422		4:26-30	Reversed
423	101	1:18-20	Monte
424		1:48-59	Fonte
425		1:201-11	Monte
426		1:306-9	Fonte

Appendix C: Schema Instances in Haydn's Symphonies

Instance	Hoboken	Reference	Schema
427		2:52-6	Monte
428		2:82-3	Fonte
429		3m:34-8	Fonte
430		3t:114-7	Fonte
431		4:17-8	Fonte
432		4:170-80	Monte
433	102	1:47-50	Fonte
434		1:298-300	Fonte
435		3m:22-35	Fonte
436		4:90-7	Fonte
437	103	1:59-63	Fonte
438		1:112-18	Reversed
439		1:118-20	Fonte
440		2:11-16	Monte
441		2:183-6	Monte
442		4:13-18, ff	Fonte
443		4:53	Fonte
444	104	1:9-11	Monte
445		1:108-11	Fonte
446		1:124-5	Fonte
447		1:238-41	Fonte
448		3t:65-7	Fonte
449		3t:74-5	Fonte
450		4:84,247	Fonte
451		4:167-72	Fonte
452		4:187-90	Fonte

Appendix D

Guidelines and assumptions for statistical tests

(i) Chi-Square tests are based on a comparison of observed and expected values in the cells of two samples; they become less reliable if the number of low-count expected cells exceeds about 5, so it is necessary to minimise these or exclude them altogether from the test. A standard solution is to consolidate types with small counts into a single 'Other' type. This study examines only those parameters for which this method produces a low-count proportion of $\leq 10\%$, else the type is excluded as ineligible.

(ii) Spearman's Correlation Test is employed in this study in preference to the more powerful Pearson Product-Moment Correlation Test, since it is considered more appropriate for testing monotonic (potentially non-linear) correlation between ordinal values rather than linear correlation between continuous values.

(iii) The Spearman's test requires that frequency counts are first converted into ranks; equal counts become lowered and shared in rank, giving rise to decimal ranks in the data table.

(iv) Regression Analysis to propose a mathematical equation for a parametric type trend is inappropriate for interval or ordinal data. Graphs based on count proportion vs. time elapsed are plausible, however, and are included to illustrate significant Spearman's results.

(v) Results for statistical tests in this study are reported as in the following examples:

Chi-Square Test $\qquad \chi^2 = 20.5, df = 9, p = 0.02, N = 222$

where χ^2 is the calculated Chi-Square value, df represents degrees of freedom, p is the probability of this result if the null hypothesis is true, and N is the sample size; low cell counts proportions are always less than 10%.

Fisher's Exact Test $\qquad p = 0.01, N = 84$

where the sample is a 2x2 contingency table, p is the probability of this result if the null hypothesis is true, and N is the sample size.

Spearman's Test $\quad r_s(10) = -0.83, \rho = 0.001$

where r_s is the Spearman's rank correlation coefficient, showing the strength and direction of correlation change, the number in parentheses shows the degrees of freedom, and p is the probability of this result if the null hypothesis is true.

(vi)   In accordance with the standard convention for statistical testing, the criterion for significance adopted in this study is $p < 0.05$. It is relaxed only for the group succession tests (see (vii)), where valuable information could otherwise be lost; in these cases, results for $0.05 < p < 0.1$ are included as indicative although not significant findings. Nevertheless, many of these results also have $p < 0.05$.

(vii) The data for group succession tests is effectively a 2x2 contingency table. A Chi-Square test is applied if there are no low-count expected values; if such values arise, then the Fisher's exact test is applied instead; in either case, each result with $p < 0.1$ is recorded in this study.

(viii) The statistical tests and regression graphs were performed in the Minitab 17 software package.

Example

PARAMETER: LOCATION

Graph

The first step is to present a graph showing the distribution of proportional prominence for each parametric type across the full set of symphonic groups. This graph not only clarifies the formal statistical results which follow, but also serves for the important process of post-hoc inspection to reveal further detail within each result. The graph for Location is:
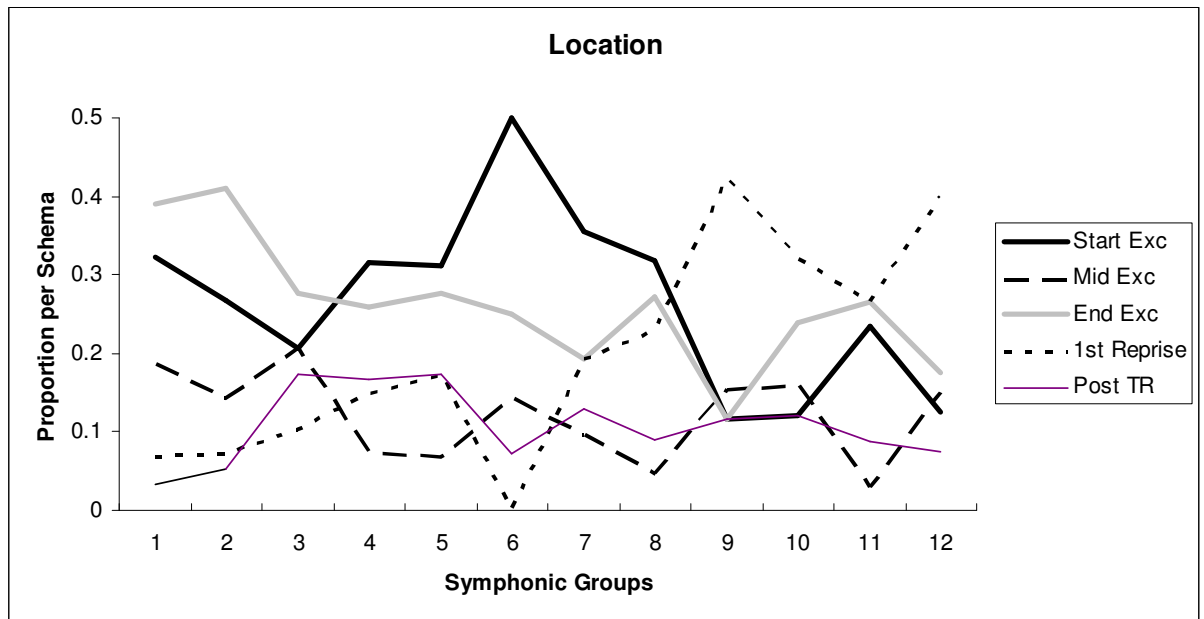
Chi-Square Tests

To prepare the data for these tests, we begin with the type counts from the frequency table:

	G1	G2	G3	G4	G5	G6	G7	G8	G9	G10	G11	G12
start Exc/Dev; after DB	19	15	6	17	9	14	11	7	3	3	8	5
mid-Exc/Dev	11	8	6	4	2	4	3	1	4	4	1	6
end Exc/Dev/pre-TR	23	23	8	14	8	7	6	6	3	6	9	7
1st Reprise/Exposition/Intro	4	4	3	8	5	0	6	5	11	8	9	16
post TR/Recapitulation	2	3	5	9	5	2	4	2	3	3	3	3
Coda/closing theme	0	2	1	2	0	0	0	0	1	0	1	3
thematic return	0	1	0	0	0	0	0	0	0	0	0	0
Other/indeterminate	0	0	0	0	0	1	1	1	1	1	3	0

Since the number of small values in this table yields too many low-count expected cell values, it is necessary to consolidate the data into just four parametric types:[247]

	G1	G2	G3	G4	G5	G6	G7	G8	G9	G10	G11	G12
start Exc/Dev; after DB	19	15	6	17	9	14	11	7	3	3	8	5
end Exc/Dev/pre-TR	23	23	8	14	8	7	6	6	3	6	9	7
1st Reprise/Exposition/Intro	4	4	3	8	5	0	6	5	11	8	9	16
Other	13	14	12	15	7	7	8	4	9	8	8	12

We now perform a Chi-Square test on the full set G[1-12], to produce the result:

Groups [1-12]: $\chi^2 = 69.0$, $df = 33$, $p < 0.001$, $N = 433$

---

[247] Clearly, if the corpus size were much larger, we might not need to exclude subsidiary types such as in this example, or to consolodiate them into a single composite group.

Appendix D: Statistical Tests for Comparison of Symphonic Groups

This significant result, like those from all other statistical tests, is discussed later in the Conclusions. For now, we proceed to Chi-Square tests on the combined groups G[1-4], G[5-8] and G[9-12], which in this case produce no significant results. The further tests for comparisons of combined groups do however produce two strong results:

Groups [5-8]-[9-12] $\chi^2 = 22.3$, $df = 3$, $p < 0.001$, $N = 235$
Groups [1-7]-[8-12] $\chi^2 = 38.5$, $df = 34$, $p < 0.001$, $N = 433$

Spearman's Tests

The Spearman's test does not require us to eliminate low-count cells since it is concerned with ranks rather than actual values. However, it is reasonable to exclude types with consistently small counts, since they are clearly of less importance and could potentially distort the results. We therefore retain five parametric types from the original frequency table for Location and derive a ranked table as follows:

Group	start-Excursus	mid-Excursus	end-Excursus	1st Reprise	Recapitulation
1	2	3	1	4	5
2	2	3	1	4	5
3	2.5	2.5	1	5	4
4	1	5	2	4	3
5	1	5	2	3.5	3.5
6	1	3	2	5	4
7	1	5	2.5	2.5	4
8	1	5	2	3	4
9	4	2	4	1	4
10	4.5	3	2	1	4.5
11	3	5	1.5	1.5	4
12	4	3	2	1	5

We perform Spearman's test on each parametric type for the full set of groups G[1-12], and obtain three significant results:

Groups [1-12]   Start-Excursus $r_s(10) = 0.56$, $p = 0.03$

                   End-Excursus $r_s(10) = 0.51$, $p = 0.04$

                   1st Reprise $r_s(10) = -0.84$, $p = 0.003$

We next perform Spearman's on each parametric type for the combined groups G[1-7] and G[7-12], with the following results:

Groups [1-7]   Start-Excursus $r_s(5) = -0.78$, $p = 0.02$

                   End-Excursus $r_s(5) = 0.92$, $p = 0.002$

It is often helpful to view the trend graph for a parametric type which reports a significant Spearman's result: for this example, we examine the graph showing G[1-12] for End-Excursus:
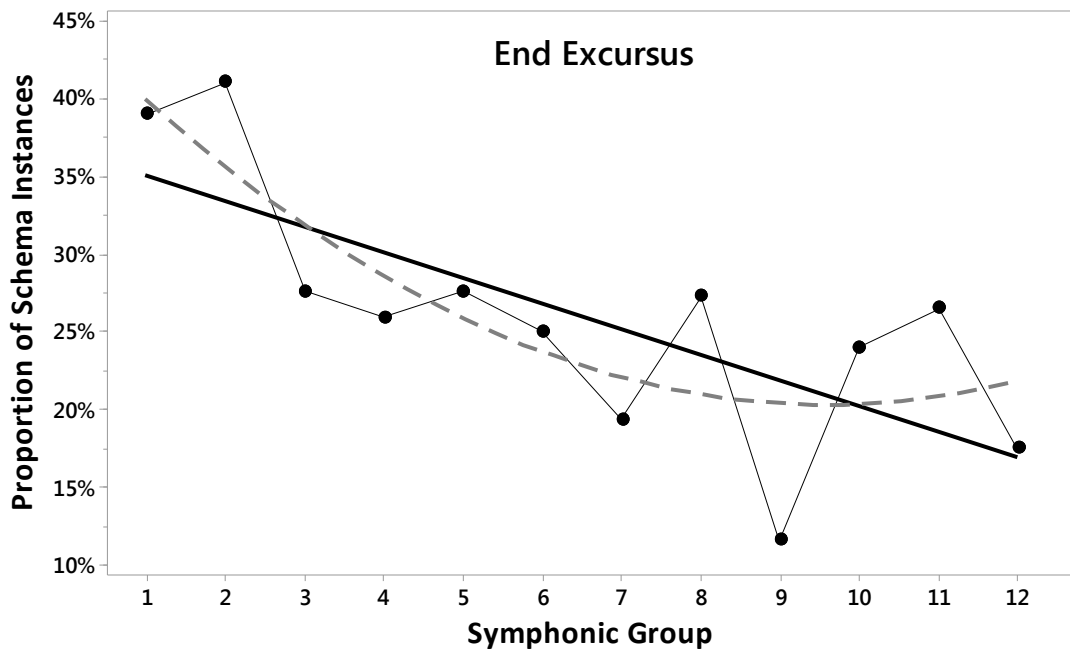
The graph includes both the linear and non-linear regressions calculated by the statistical software: the straight line may be interpreted as a singular trend indicator, while the curved line attempts to model a changing trend.

Group Succession

The tests for parametric type distribution produce two significant results:

Groups 5-6: $\chi^2 = 8.1$, $df = 3$, $p = 0.04$, $N = 57$

Groups 6-7: $\chi^2 = 8.6$, $df = 3$, $p = 0.03$, $N = 59$

The test on individual parametric types is illustrated here with 1st Reprise, whose data is first calculated as a table:

	G1	G2	G3	G4	G5	G6	G7	G8	G9	G10	G11	G12
1st Reprise	4	4	3	8	5	0	6	5	11	8	9	16
Other	55	52	26	46	24	28	25	17	15	17	25	24

Appendix D: Statistical Tests for Comparison of Symphonic Groups

We next perform Chi-Square or Fisher's tests (as appropriate) on each successive pair of groups, followed by the same tests on outer groups where each intervening group has a change in the same direction; the type graph clarifies that the two candidates are G1-G5 and G6-G9. We obtain three significant results:

1st Reprise   G5-G6   Fisher's exact test: $p = 0.05$, $N = 57$

                         G6-G7   Fisher's exact test: $p = 0.02$, $N = 59$

                         G6-G9 $\chi2 = 14.9$, $df = 1$, $p < 0.001$, $N = 54$

Since prominence in G6 and G9 is significantly different; we infer significant differences across G6-G7, G7-G8 and G8-G9. Note however that the test result rejects the increase from G1 to G5 as significant.

Conclusions

This section presents conclusions from the preceding significant results, and inferences derived from post-hoc analysis. Only a sample listing is given below, since a complete description appears in the results for Location in Chapter 6:

(i)   There are significant differences in type distribution across the full set G[1-12]. Inspection reveals that this results mainly from a decrease in end-Excursus, an increase in 1st Reprise, and fluctuations in Start-Excursus.

(ii)   There are significant differences in type distribution between groups G[5-8] and G[9-12]. Inspection reveals that this results mainly from a decrease in start-Excursus and an increase in 1st Reprise.

(iii)   There are significant trend results for Start-Excursus. This type shows moderate decrease across G[1-12] and strong increase within G[1-7]. As the graph reveals, the latter increase would be even more pronounced if not for the initial decline across G[1-2].

(iv)   There are significant Chi-Square results for group successions. The trend results for 1st Reprise confirm a decrease across G5-G6 and increase across G6-G7. Moreover, they confirm a sustained increase from G6 to G9, so we may infer significant increases for 1st Reprise across G6-G7, G7-G8 and G8-G9.

Appendix E

Data Sets for Inferential Statistical Tests

	Group:	G1	G2	G3	G4	G5	G6	G7	G8	G9	G10	G11	G12
	Number of Symphonies	21	18	7	12	6	6	7	6	6	5	6	6
SCHEMATA	Fontes	39	41	14	36	22	18	25	20	23	18	22	30
	Montes	17	9	12	17	6	6	5	2	2	6	11	8
MELODIC DEGREES	❹-❸	20	28	11	12	7	5	9	4	7	3	11	7
	❺-❹-❸	6	2	5	10	3	4	2	4	2	7	3	3
	❻-❺-❹-❸	14	11	6	9	6	8	8	4	6	6	11	17
	no ❹-❸	1	0	0	1	0	1	0	1	0	0	1	1
	❼-❶	16	14	5	20	11	9	12	7	7	8	6	9
	❻ present (dim 7th)	6	4	4	13	2	1	3	1	0	1	2	0
	other	2	1	1	2	1	1	1	2	3	0	1	4
BASS DEGREES	⑦-①	33	36	18	27	14	16	17	9	12	15	20	22

	⑤-①	16	5	2	3	4	2	3	3	6	2	5	8
	④-③	7	11	5	18	7	6	8	4	5	3	3	4
	②-①	0	2	0	2	0	2	1	0	0	0	0	0
	②-③	0	0	0	1	0	1	1	2	1	3	2	4
	⑥ present (dim 7th)	0	0	0	3	1	1	2	1	2	1	4	4
	pedal ⑤ or ①	1	1	0	1	2	1	2	2	1	2	2	1
	other	2	1	3	3	1	0	1	2	1	1	2	0
RHYTHM	Equal	26	24	14	21	17	16	13	6	12	8	18	19
	Quick-Slow	30	32	10	26	11	11	14	14	11	12	14	17
	Quick-Quick	0	0	0	0	0	0	0	0	0	0	0	0
	Slow-Quick	3	0	4	7	0	1	5	2	2	4	1	4
	Slow-Slow	0	0	0	0	0	0	0	0	0	0	0	0
SEGMENT LENGTH (S1)	< 1 bar	1	0	0	1	0	1	0	0	0	0	0	0
	1 bars	12	10	2	2	1	2	3	2	5	5	10	8
	2 bars	27	27	16	30	17	13	18	12	12	12	15	18
	3 bars	1	0	1	1	0	1	0	2	0	0	0	3
	4 bars	10	13	6	17	4	6	7	6	7	4	5	7
	> 4 bars	8	6	3	2	6	4	4	0	1	3	3	4
	[repeated incise/progression]	8	3	2	1	1	1	3	2	0	4	1	2

HARMONIC RHYTHM (C1:C2)	1:1 (equal proportion)	37	39	21	43	20	24	19	18	17	17	17	31
	Long:Short (<=3 : 1)	14	7	4	7	3	1	9	3	3	2	10	4
	Very Long:Short (>3 : 1)	3	6	1	2	3	2	1	0	1	0	0	2
	Short:Long (1 : >1)	5	4	2	2	2	0	3	1	4	5	6	3
	[alternation]	5	6	3	7	5	3	3	4	2	3	1	0
HARMONIC SIMILARITY	ident harmony & voicing	52	40	21	38	23	21	27	14	20	17	27	25
	ident harmony/diff voicing	2	3	1	1	0	1	0	2	2	1	1	3
	ident voicing/diff harmony	2	8	4	7	4	4	3	1	3	4	2	6
	diff harmony & voicing	2	2	0	5	0	0	2	2	0	2	1	1
	[diff register/instrumentation]	0	3	0	1	0	0	1	2	0	0	0	3
MELODIC SIMILARITY	identical	50	35	18	31	23	21	22	13	21	16	24	25
	closely matching	2	5	2	13	1	2	4	4	2	3	2	6
	partial matching	3	10	6	5	0	3	5	2	1	3	4	3
	non-matching	3	4	0	3	3	0	1	0	1	2	1	0
	[Ornamented S2]	0	0	0	0	0	0	1	0	0	0	0	0
	[Zwitter]	3	1	0	3	3	3	3	1	2	1	5	8
RHYTHMIC	identical	49	42	20	43	24	23	26	18	23	19	28	29

Appendix E: Data Sets for Inferential Statistical Tests

SIMILARITY	closely matching	4	3	3	3	1	1	1	2	1	2	0	2
	partial matching	2	7	3	1	0	1	4	0	1	1	3	3
	non-matching	3	2	0	5	2	0	1	0	0	2	0	0
PROPORTION (S1:S2)	equal	52	46	23	44	22	22	29	16	25	22	25	29
	longer S2	2	2	1	1	2	1	0	0	0	0	2	2
	shorter S2	5	5	2	7	2	2	2	2	0	2	3	4
FONTE MAJOR PROGRESSION	ii-I	29	32	14	31	14	16	17	14	15	11	14	19
	vi-V	3	4	0	5	6	1	4	5	7	6	6	11
	ii-V	1	3	0	0	2	1	0	0	0	0	0	0
	II-I	0	2	0	0	0	0	1	0	0	1	1	0
	ii-i	2	0	0	0	0	0	2	0	1	0	0	0
	ii-I +	0	0	0	0	0	0	0	0	0	0	0	0
	iii-ii-I	3	0	0	0	0	1	1	0	0	0	1	0
	reversed (I-ii, V-vi)	2	4	1	0	0	1	1	1	0	0	0	1
	in Relative Major	2	3	2	3	1	1	0	1	2	0	0	0
	in other key	2	3	1	4	0	2	2	4	3	0	1	2
MONTE MAJOR PROGRESSION	IV-V	7	6	5	7	4	2	1	2	2	2	5	2
	iv-V	1	0	0	0	0	0	1	0	0	1	4	0

	IV-V-vi	5	3	4	5	2	2	0	0	0	2	1	0
	iii-IV-V	0	0	0	0	0	0	0	0	0	0	0	0
	IV-I	0	0	0	0	0	0	0	0	0	0	0	0
	in other key	2	0	0	1	0	2	0	0	0	1	0	0
MONTE MINOR PROGRESSION	iv-V or IV-V	3	0	0	5	0	2	3	0	0	1	1	6
	iv-v	0	0	2	1	0	0	0	0	0	0	0	0
	V-IV (reversed)	2	2	1	0	0	2	1	0	0	0	0	1
	iv-i	0	0	0	0	0	0	0	0	0	0	0	0
	triple	3	0	0	0	0	0	0	0	0	0	0	0
	in other key	0	0	3	2	0	0	0	0	1	0	0	0
COMPLETENESS	completed	47	46	24	46	26	22	30	19	24	23	29	33
	sequence continued	6	2	2	2	0	0	1	1	0	0	0	0
	at end of sequence	1	1	0	2	0	1	1	0	1	1	2	0
	delayed/non contiguous	1	1	0	2	1	0	0	0	0	0	0	1
	non-completion	2	4	2	2	1	1	0	2	0	0	2	5
	Other	2	2	0	0	0	0	0	0	0	0	0	0
LOCATION	start Exc/Dev; after DB	19	15	6	17	9	14	11	7	3	3	8	5
	mid-Exc/Dev	11	8	6	4	2	4	3	1	4	4	1	6

	end Exc/Dev/pre-TR	23	23	8	14	8	7	6	6	3	6	9	7
	1st Reprise/Exposition/Intro	4	4	3	8	5	0	6	5	11	8	9	16
	post TR/Recapitulation	2	3	5	9	5	2	4	2	3	3	3	3
	Coda/closing theme	0	2	1	2	0	0	0	0	1	0	1	3
	thematic return	0	1	0	0	0	0	0	0	0	0	0	0
	Other/indeterminate	0	0	0	0	0	1	1	1	1	1	3	0
FUNCTION	continuation	17	15	10	17	9	14	12	6	3	2	8	7
	preparation to TR/PT	24	23	8	14	8	7	8	7	3	8	9	10
	cont. and prep.	3	4	0	1	0	0	0	1	0	1	0	1
	transitional (key/theme prep)	6	6	7	11	7	3	6	6	11	7	7	14
	indeterminate/closing/other	5	3	2	3	4	4	1	1	4	3	6	6
	'thematic' usage	4	5	1	8	0	0	6	1	4	4	3	3
THEMATIC CONNECTION	thematic	9	8	3	10	4	1	5	2	1	1	2	2
	embedded/part/entire theme	2	3	0	2	0	1	4	1	4	4	3	3
	elided	5	6	2	9	2	3	5	1	0	4	0	0
	derived/pre-existing motive(s)	29	25	21	26	13	19	21	18	13	13	25	32
	no clear connection or new	18	15	4	14	11	7	4	1	6	4	3	4

Glossary

The glossary was compiled with assistance from two principal sources: Hill (2014) and Baker (1983), for clarifications of Riepel and Koch respectively. Koch's *Musicalishes Lexicon* (1802) was also consulted.

Absatz. The weaker type of ending-formula used typically to produce a phrase that creates a resting point over the tonic or dominant chord; the term is also used to describe a phrase which ends with such punctuation. Koch considers the *Absatz* an internal phrase, which cannot complete a period, and requires a subsequent closing phrase.

Cadenz. The stronger type of ending-formula (cadence) used to end a closing phrase; its function is to establish a strong sense of closure, usually in the tonic or dominant key. The final chord of the cadence normally falls on a strong beat, with the melody progression ❷-❶ (or ❼-❽) over a bass ⑤-①.

Caesura. The point of division between separate melodic sections; it is created by a punctuation to form an incise, *Absatz* or *Cadenz*; It ends on the caesura note, which Koch states must fall on the downbeat of the bar.

Complete. Reflecting the full closure achieved by an *Absatz* or *Kadenz*. Riepel applies the term to describe melodic punctuation, where the progression ❸-❷-❶ is considered more complete than ❼-❽. Koch applies the term frequently in connection with phrases, where a complete phrase requires no further musical continuation to reach closure.

Compound Phrase. Term used by Koch to describe the larger phrase which results when an incomplete phrase is connected with its completing phase. In his theory, Fonte or Monte form the first phrase of a compound phrase.

Delayed completion. Refers to cases where a melodic segment might be perceived as completing an earlier incomplete schema.

Ellipsis. Refers to cases where the conclusion of a segment or complete schema is omitted, although without reducing the sense of schema completion.

Excursus. Refers to the section of a small form directly after the double bar in the second reprise, serving a brief digression before tonal or thematic return.

Glossary

Evasion. Refers to cases where the completion of an schema evaded through melodic or harmonic means.

Fonte: A melodic-harmonic structure in a major key comprising two melodic segments (incises), which produces a progression from bass degrees 2 to 1. The first segment uses the lowered 7th in the melody and raised tonic in the bass, moving to the minor chord on degree 2; the second segment repeats the pattern (most often sequentially) one degree lower (using either the diatonic or lowered 6th degree), thus arriving on the tonic chord. The schema will therefore always contain one or more altered notes. Later theory would describe the phrase in terms of localised or secondary dominants, as outlining the progression $[V^7$ (or variant)/ii – ii] – $[V^7$ (or variant)/I – I].

Grundabsatz (**GA**). A complete melodic section which ends as an *Absatz* on a note from the tonic chord; it may also refer to the punctuation itself.

Grundkadenz (**GK**). A complete melodic section which ends as a cadence on a note from the tonic chord; it may also refer to the punctuation itself. The term is not used by Riepel or Koch, and this study adopts it from Budday to represent the designation K/I.

Incise. Baker's translation for Koch's *Einschnitt*, the incise may be complete (typically a 2-bar fragment) or incomplete (typically a 1-bar fragment).

Incise repetition. An important technique for phrase expansion described by Koch; in the schematic context of this study it refers to the literal repetition of a smaller melodic segment within a Fonte or Monte.

Incomplete. Reflects the absence of closure in an *Absatz* or *Kadenz*. Riepel applies the term to describe melodic punctuation, where the progression ❼-❽ is considered less complete than ❸-❷-❶. Koch frequently applies the term to describe an incomplete phrase, which requires a further connecting phrase to reach closure; Fonte and Monte are phrases of this type, and combine with the completing phrase to form a larger compound phrase.

Incomplete schema. Refers to cases where the first incise or segment of a schema is stated, but never completed.

Monte. A melodic-harmonic structure in a major key comprising two melodic segments (incises), which produces a progression from bass degrees 4 to 5. The first segment uses the lowered 7th in the melody in moving to the major chord on degree 4; the second segment repeats the pattern (most often sequentially) one degree higher with raised 4th in the bass, to arrive on the dominant chord. Each half of the schema will therefore contain an altered note in relation to the main key.

Later theory would describe the phrase in terms of localised or secondary dominants, as outlining the progression $[V^7$ (or variant)/IV – IV] – $[V^7$ (or variant)/V – V].

Parenthesis. A method of phrase expansion described by Riepel and Koch, who describes it as the insertion of a superfluous melodic section between two segments of a phrase.

Period. The larger melodic section arising from the succession of two or more phrases, the last of which ends in a cadence. Koch also describes it as a musical section which gives the impression or feeling that an 'idea' has been brought to completion.

Satz. General term for a phrase, defined as a self-contained and essentially complete melodic unit; eighteenth century theory distinguishes between many phrase-types, according to their tonal or thematic function.

Ponte. The third prominent schema described by Riepel in addition to Fonte and Monte. It is usually employed directly after the double bar, as a prolongation of the dominant chord.

Punctuation. The type of ending-formula for a phrase; this is either an *Absatz* or *Cadenz*, most often on the tonic or dominant chord; the three principal types identified by Koch are *Grundabsatz*, *Quintabsatz* and *Cadenz*.

Quintabsatz (**QA**). A complete melodic section which ends as an *Absatz* on a note from the dominant chord; it may also refer to the punctuation itself. Koch also describes this punctuation as a *Halbcadenz* (half-cadence).

Quintkadenz (**QK**). A complete melodic section which ends as a cadence on a note from the dominant chord; it may also refer to the punctuation itself. The term is used in this study to represent the designation K/V (see *Grundkadenz*).

Reprise. A common term in eighteenth-century theory for each half of a small composition, such as a minuet. The first reprise ends with a double bar, after which the second reprise may have a brief excursus before tonal or thematic return.

Reversed schema. This refers to cases where it appears that the tonal centres for each schema segment have been reversed, eg. Fonte I-ii instead of Fonte ii-I.

Schematic manipulation. Refers in this study to any of numerous techniques applied to vary the normative or standard form of the schema, either for purely technical reasons, or to engage in imaginative or witty communication with the listener.

Schlußsatz. A closing or completing phrase which ends with a cadence to form a period. Its function thus contrasts with that of the *Absatz*, an internal phrase which cannot complete a period.

Succession. A sequence of two or more punctuation formulas. Correct order and formation of adjacent punctuations (*interpunktische Form*) was an important part of eighteenth-century theories of melodic construction.

Triple Monte. A standard Monte continued sequentially to the 6th degree. Riepel considers this merely a deceptive reference to the schema, but its connection to Monte is so clear that it must be accepted as a frequent variant.

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