AN EXAMINATION OF SEMIOTICS IN MUSICAL ANALYSIS:
THE NEAPOLitan COMPLEX IN BEETHOVEN'S OP. 131

DISSERTATION

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By

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A dissertation, like certain gases under the application of heat, tends to expand on its own accord. Unfortunately, in the case of dissertations, this expansion is frequently an unpredictable geometric one, where weeks expand into months, and months into years. During the process of researching and writing this document, I have incurred large debts that I can never pay back adequately; I hope that those people who have so willingly assisted me in this endeavor will accept the following words as recognition of my indebtedness.

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A NOTE ON TERMINOLOGY

Language differences during the incipient stages and subsequent development of semiotics have generated some confusion regarding how the discipline should be designated. To label the field they founded, Saussure employed the term sémiologie (semiology) and Peirce used the term semiotic; both versions appear frequently in the literature. This dissertation, following more or less standarized usage, employs semiotics as the noun form and semiotic as the adjectival form. Literal translations from French and some quotations from certain English-speaking authors, however, use "semiology" in deference to the original usage of the author; for all intents and purposes, the term is synonymous with "semiotics."¹

A NOTE ON GRAPHIC CONVENTIONS

Following procedures established by Eco,¹ this dissertation uses the following graphic symbols to discuss concepts, things, and words: single solidi (//) indicate a sign-vehicle or an expression unit; angle brackets (< >) indicate something intended as a referent or a content unit; double solidi (///) indicate actual objects. Thus, //horse/// is the actual object corresponding to the linguistic sign-vehicle /horse/ and both refer to the content unit <horse>. Square brackets ([ ]) indicate phonetic transcriptions.

All references to specific octave designations in this dissertation assume "middle C" as C⁴. A caret over a number indicates the particular scale degree (e.g., 2̂ reads "second scale degree").

INTRODUCTION

The value of a new discipline can partly be attributed to the questions it asks, the ways it asks them, and the concerns circumscribed by the answers it seeks: it molds a new way of thinking about the object under consideration. Either by reshaping a segment of our world or by bringing to the surface hitherto buried relationships, the discipline strives to illuminate an area previously shrouded in opacity. The new way of thinking, whether accepted or rejected, challenges, and thereby changes, the way we understand the world and ultimately ourselves.

No discipline emerges without precedents. To be sure, when a new framework is proposed, one essential and often difficult task for its proponents is to identify historical antecedents. The complex history of the interplay among ideas does not suggest that new problems are continually discovered as much as it suggests that new conceptual frameworks are developed to reexamine existent problems. These conceptual frameworks and their concomitant ramifications may then traverse the boundaries envisioned at their inception. By influencing and being influenced by other frameworks, a new discipline participates in the pervasive continuum of thought—that is, it helps define an era.
The search for the significance of syntactically ordered signs has been the object of unrelenting investigation since the earliest philosophers. The process whereby a thing, a sign, can refer to something else together with the rules governing this process have been discussed in many guises and under many headings—often eliciting arcane speculations in the writings of those concerned with the issue. That a discipline explicitly recognizing this process and its accompanying rules as its specific domain did not appear until this century is perhaps more surprising than is its emergence.

Proffered as the intensive study of sign-functioning, semiotics seeks to elucidate the complex relationships between signs and their meanings. Indeed, the dawning of semiotics on the horizon of contemporary scholarship has left few disciplines untouched by its illuminations. Several ostensibly diverse fields of study—including, among others, cinema, olfactory signs, animal communication (zoosemiotics), psychology, literature, paralinguistics, linguistics, and music—have been submitted to various forms of semiotic inquiry. Although each discipline is replete with its own problems and concerns, all have been amenable to investigation within a semiotic framework.

Yet despite, or perhaps because of, the all-encompassing nature of its objective, semiotics is still in the process of being defined; proponents are constructing its threshold while simultaneously projecting its insights onto the examination of sign-functioning in human experience. Thus it is premature to speak of a semiotic method. Instead, there is a common perspective and a shared objective in
viewing communication systems through the semiotic looking-glass. Currently, the semiotic framework admits several approaches to the study of sign-functioning, and the differences between these approaches are often dependent on the degree to which semiotics is considered a self-contained discipline—in other words, on where the thresholds for semiotics are located.

Because of both its subject matter and its broad range of possible and predicted applicability, semiotics has incorporated insights from many disciplines; consequently, it has valued interdisciplinary investigation as both input and output for its quest to explicate the nature of the sign-function. Since language is a universally accessible communication system, it is not surprising that many semioticians have turned to linguistics for models on which to base their semiotic principles, methodologies, or both.

Linguistics has enjoyed an almost unprecedented development in this century, and the results of this development have influenced several related disciplines in the "social sciences." A partial, but nevertheless significant, impetus for the growth of linguistics was the fervent desire on the part of linguists in the early part of this century to establish linguistics as a scientific field of study. These linguists openly oppugned the more traditional views of language structure, many of which had dated back to the Greeks. The key to the success of this new breed, though, was not simply rebelling against the traditional theories, it was tenaciously pursuing a scientific examination and description of language and language structures. The result
was a concerted attempt at careful and rigorous circumscriptions of the complex characteristics of natural language. The desire for scientific status introduced more than new methodologies, it introduced a new frame of mind.

The rise of both semiotics and linguistics has been somewhat parallel--indeed, one of the founders of semiotics was instrumental in defining principles essential to modern linguistics--and the congruence of the two disciplines has sparked some debate as to which is the prior theoretic perspective. The question whether semiotics (as the science of all communication systems) subsumes linguistics (as a manifestation of one such system) or whether linguistics (as the science of language, the communication system par excellence) subsumes semiotics (as the science of any other communication system) is one which elicits different responses depending on who was asked and how the answer is interpreted. While this dissertation cannot solve the issue on the global level, it does confront the question in the context of the debate's ramifications for music theory.

The last decade has witnessed an increasing amount of research in music theory devoted to developing a semiotics of music. To approach music as a communication system, however abstract and subjective its "meanings" might be, this research has adopted, in various forms, insights from several lines of semiotic inquiry in order to help ascertain the nature of syntactically ordered musical "signs" and its relationship to musical cognition. In addition, the adoption of this theoretic perspective has led musical semioticians to propose analytic
methodologies that reflect the semiotic way of thinking. Frequently these methodologies display a linguistic bent, and thus they reflect the more general influence of linguistics in semiotic research. Indeed, this linguistic orientation has led some authors to classify an analytic methodology under the semiotic heading if it merely hints at linguistic principles. While this classification is not entirely improper, its inequitable generality is avoided in this study; we are concerned only with analytic methodologies that have been explicitly proposed as approaches to a semiotics of music, whether they employ linguistic models or not.

But as music continued to be thrust further under the semiotic microscope, the principles underlying semiotics—its concerns, objectives, methods, history, and terminology—were frequently left undefined; hence, these principles were accessible only to that cabal already "in the know." In other words, the insights which could potentially be gleaned from the questions semiotics asks, the ways it asks them, and the concerns circumscribed by the answers it seeks, were in danger of being camouflaged by an argot that concealed them from the uninitiated. Semiotics appeared to be slowly gaining the status of an elitist "buzzword" which, when dropped during the course of an otherwise "normal" musicological discussion, was greeted with expressionless nods. A similar fate also seemed to be slowly enveloping analytic methodologies based on linguistic models. The pertinent and entirely forthright question as to what these interdisciplinary apparatuses mean in the respective fields for which they were developed is sometimes
left unanswered in the pursuit of more particularized details of application.

The dual nature of interdisciplinary research is partly responsible for this state of affairs. On the one hand, the crop of insights harvested from another field of study can be immensely important contributions to the existent store of knowledge in any discipline. A new way of looking at things generates new ideas, and consequently spurs development, by seeking potential correlations between two or more fields, or by shifting a particular emphasis to reveal some hitherto implicit relationship, or simply by asking questions differently. On the other hand, one of the pitfalls of interdisciplinary research is its tendency to introduce an ostensibly indecipherable terminology which can cloud the description of the essential concepts that constitute its domain, and it is this difficulty that faces the unwary musician when confronted with semiotics. The problem is not made any simpler by the fact that semioticians themselves often differ radically in defining their terms and thus in segmenting their conceptual fields. Indeed, the quandary can become even more befuddling when the concepts and terminology are applied to music theory—a field in which practitioners also have trouble reaching unanimous agreement on the meanings of some of their terms.

Thus, the purpose of this dissertation is to explore and explain semiotic principles with a specific emphasis on their applicability to music theory and musical analysis.
Chapter I develops a general semiotic perspective in which concepts necessary for subsequent examinations of musical applications are explained. In presenting this perspective, this chapter illustrates a semiotic way of thinking— that is, the problems semiotics sets for itself and how it goes about solving them. Throughout this chapter, attention is devoted to defining terms and concepts carefully, and to providing substantive illustrations for those definitions. While the primary purpose of Chapter I is to explain and explore semiotic concepts as a foundation for the examination of their relevance to the study of music, a significant by-product of this investigation is the observation that certain semiotic principles, when stripped of their sometimes dense terminological clothing, have already been assimilated by musicians. Thus, the attempt to apply semiotics to music might be reciprocated by what insights the study of music can offer semiotics.

Chapter II examines two streams of linguistic thought, structural linguistics and generative grammar. Because semiotics has been influenced by linguistic concepts and because various methodologies proposed for a semiotics of music have been based on linguistic models, it is valuable to examine these concepts and models in the context of their original linguistic formulations before turning to a discussion of the relevance of their musical translations and applications. Again, as in Chapter I, attention is devoted to defining essential terminology and to illustrating specific methodologies. When armed with the semiotic perspective presented in Chapter I and the linguistic concepts discussed in Chapter II, we can attack in a more informed
manner their realizations in the various approaches to a semiotics of music.

In the discussions of semiotics and linguistics, specialized terms are usually defined upon their first use. Nevertheless, the multitude of terms employed in the explanation of semiotic and linguistic principles, as well as the recurrence of these terms in subsequent chapters, can become somewhat burdensome. To help alleviate potential confusion, a glossarial index of specialized terminology is included as Appendix B. This appendix provides brief explanations of the semiotic and linguistic terminology used in this study, and it also refers the reader to the appropriate pages of this dissertation where the term is introduced.

In the presentation of the first two chapters I do not claim independent status as either a semiotician or a linguist. Rather, these chapters present in summary form the concepts and ideas pertinent to the specific content of the succeeding chapters. Thus, the semiotician may be chagrined to find no discussion of, say, Prieto's or Barthes's approaches to semiotics. Similarly, the linguist might consider the lack of any examination of the most recent trends in linguistic theory--such as, say, Montague grammar, Pike's tagmemics, or generative semantics--an unforgivable lacuna. Indeed, although "in summary form" perforce entails a frequent skimming of sometimes extremely complex issues, I have tried to avoid over-simplification by striking the often elusive balance between description and explanation so that musicians may better understand concepts and principles that
are increasingly appearing in theories concerning the analysis of their domain. In any case, throughout the references in these chapters, I continually acknowledge my debts, and thereby bow, to those people who know more about the subjects contained therein than I do.

Chapters III through V examine and evaluate systems of musical analysis that have been specifically proposed as approaches to a semiotics of music. The organization of each chapter is similar: first, the appropriate theoretic presuppositions governing the methodology are explained in relation to their semiotic and linguistic bases and in terms of their contribution to music theory; second, the particular methodology is evaluated in terms of what its results reveal about significant features of musical structure—after all, the ultimate value of an analytic methodology is what it tells us about some potentially perceivable aspect of musical organization.

The three analytic systems discussed in these chapters reveal an enormous diversity in theoretic viewpoints, analytic methodologies, and analytic results. In addition, the issues raised and the problems confronted by these systems are vital concerns for a semiotics of music, in particular, and a theory of music, in general. It is therefore necessary to take stock of the current state of semiotic research in music in order to determine what types of questions are raised and, more importantly, how effectively they are answered. By offering an inventory of this research, I hope that this dissertation will provide the reader with a solid acquaintance with musical semiotics and will simultaneously suggest fruitful lines of continued investigation.
Chapter VI examines the layers of directional references in music. Drawing on the semiotic perspective developed in Chapter I and the relevant ideas presented in other chapters, this chapter attempts to ground the oft-discussed notion of musical reference in a semiotic, music-theoretical, and perceptual framework. The results of this discussion are illustrated through an examination of the Neapolitan complex in Beethoven's *String Quartet*, Op. 131, both in terms of the general characteristics of the complex and its specific realizations in the quartet. By isolating this significant structural detail in the quartet and discussing it in terms of its directional references, I hope to show how many of the concepts developed throughout this study may be applied to the analysis of directional references in music.

The chapters of this dissertation can be read in various orders depending upon the particular perspective brought to them by the reader. Chapters I and II constitute a background for the examination of the frameworks proposed by the music theorists discussed in Chapters III, IV, and V. Specifically, the section on descriptive linguistics in Chapter II may be paired with the examination of the taxonomic-empiricist approach in Chapter III, and the section on generative grammar in Chapter II may be coupled with Chapters IV and V. Those readers familiar with general semiotic and linguistic principles, or just more interested in their musical applications, may turn to Chapters III, IV, and V first to find the necessary cross-references to earlier discussions of linguistic and semiotic principles. Or the reader may prefer to skip to Chapter VI immediately after Chapter I as
Chapter VI places the notion of directional references in music into the semiotic perspective by focusing and developing that perspective in terms of its potential applications to musical analysis. Nevertheless, many observations asserted in Chapter VI emerge from biases detailed throughout the discussions found in Chapters III, IV, and V. Finally, I suppose that a reader may simply wish to read this dissertation as it was conceived--from beginning to end.
CHAPTER I
SEMIOTIC FOUNDATIONS

Semiotics recognizes as its domain the study of communication systems, and its ultimate objective is the detailed examination of any manifestation of sign-functioning. To this end, it is specifically concerned with the complex relationships exhibited in the various interactions among sender, message, receiver, context, and code. As will become clear during the ensuing discussion, to define the science as "the study of sign-functioning," as opposed to a strict etymological definition of semiotics ("the science of signs," from the Greek sēmeion), is to depict more persuasively both the all-encompassing nature of the discipline and the nested set of relationships inherent in any communicational act.

This chapter does not present a critical examination of the plethora of works that have flown under the semiotic flag; such an objective would be hampered by the disparate and, at times, contradictory approaches that underlie the apparent homogeneity suggested in the phrase "the study of sign-functioning." Instead, this chapter explains and examines concepts and principles culled from the writings of selected semioticians in order to develop a serviceable semiotic perspective which will assist us in the examination of the various approaches to a semiotics of music discussed in Chapters III
through V and which will be employed in the analytic framework presented in Chapter VI.

As yet, a comprehensive history of semiotic thought has not been written.\textsuperscript{1} Precedents for the discipline, though, extend at least as far back as St. Augustine. Although removed from Augustine's prescholastic outlook, we cite his definition of the sign as an illustrative prelude to the detailed examination of more recent attempts to explicate the complex nature of sign-functioning. In his \textit{De doctrina Christiana}, Augustine defines a sign as "a thing which, apart from the impression that it presents to the senses, causes of itself some other thing to enter our thoughts."\textsuperscript{2} This definition, while laudable for its pithy simplicity, does not provide for the reticular layering of references that this "thing" might evoke. For example, to hint at subsequent discussions, whereas the sign-vehicle \texttt{/red light/} denotes \texttt{/stop/}, it may also connote many additional notions, such as, say, \texttt{/danger/}.\textsuperscript{3} Indeed, the potential for a layering of referents

\begin{itemize}
\item[3] For a description of the graphic conventions employed in this dissertation, see page xii above. Appendix B, pages 230-37 below presents a glossarial index of the specialized semiotic and linguistic terms used in this study.
\end{itemize}
receives painstaking attention by more recent semioticians as they try to cement their semiotic foundations.

Modern semiotics was announced independently by two contemporary theorists, the Swiss linguist Ferdinand de Saussure (1857-1913), originator of sémiologie, and the American philosopher/logician Charles Sanders Peirce (1839-1914), initiator of semiotic. While there are significant discrepancies between the scopes and emphases of each author's semiotic conceptions, both writers frequently reach parallel conclusions beginning from different underlying assumptions (e.g., their concurrence on the importance of arbitrary signs). In general, Saussure outlines a more practical approach to semiotics, ultimately grounding his semiotic conceptions in a linguistic framework. Peirce, on the other hand, strives to mold an autonomous semiotic discipline, and he often indulges in speculative taxonomic inquiry.

Saussure ushers in his new science with the following prediction:

A science that studies the life of signs within a society is conceivable; it would be a part of social psychology and consequently of general psychology; I shall call it sémiology . . . . Semiology would show what constitutes signs, what laws govern them. Since the science does not yet exist, no one can say what it would be; but it has a right to exist, a place staked out in advance. ⁴

⁴ Ferdinand de Saussure, Course in General Linguistics [1916], ed. Charles Bally and Albert Sechehaye, trans. Wade Baskin (New York: McGraw Hill, 1966), 16. (Subsequently, this work is referred to as the Course.) The Course has a unique genesis in that it was not
Peirce, with his emphasis on the connection between logic and semiotics clearly apparent, states:

Logic, in its general sense, is . . . only another name for semiotic, the quasi-necessary, or formal, doctrine of signs. By describing the doctrine as 'quasi-necessary,' or formal, I mean that we observe the characters of such signs as we know, and from such an observation, by a process which I will not object to naming Abstraction, we are led to statements, eminently fallible, and therefore in one sense by no means necessary, as to what must be the characters of all signs used by a 'scientific' intelligence, that is to say, by an intelligence capable of learning by experience.

Historically, Peirce was the first to codify most of his semiotic theory; nonetheless, the relatively slow dissemination of his ideas, compared to that of Saussure's concepts, is justification for an examination of Saussurean principles first.

actually put into manuscript form by Saussure; rather, it was posthumously published, and it represents a compilation of notes taken by several of Saussure's students and colleagues at Saussure's lectures in linguistics given at the University of Geneva between 1906 and 1911.

5 Charles Sanders Peirce, Collected Papers of Charles Sanders Peirce, 8 vols., Vols. 1-6 ed. Charles Hartshorne and Paul Weiss, Vols. 7-8 ed. Arthur W. Burks (Cambridge: Harvard University Press, 1931-1958), 2.227. (The references to these volumes are conventionally designated by the volume number and the paragraph number; thus 2.227 is volume 2, paragraph 227.) Also see Charles Sanders Peirce, Philosophical Writings of Peirce, ed. Justus Buchler (New York: Dover Publications, 1955), 98. (The Philosophical Writings is a more condensed and accessible collection of Peirce's writings. Throughout this dissertation, the reader is referred to, when applicable, this collection in addition to the appropriate reference in the Collected Papers.)
Saussure

Because most linguistic thought in this century—indeed much of so-called "Modernist" thought—owes its parentage to principles expounded in the Course, Saussure rightly deserves the oft-bestowed sobriquet, "father of modern linguistics." His concepts and principles have shaped the direction of semiotic research, and in that they have influenced a host of semioticians they have become thoroughly absorbed by the semiotic way of thinking. An overview of his series of dichotomies here illustrates their importance to the development of semiotic inquiry and also provides a partial framework for the examination of the taxonomic-empiricist approach to musical semiotics.\(^6\)

Saussure's most famous dichotomy is his distinction between synchronic and diachronic linguistics. This essential distinction, which had been either tacitly assumed or overtly ignored by earlier linguists, emerged as a reaction to the primarily historical (or philosophical) nature of linguistic investigations in the nineteenth century (particularly in the Neo-Grammadian School), and it subsequently gave rise to a predominance of descriptive linguistic studies in this century.\(^7\) Synchronic linguistics, on the one hand, constitutes the study of a language as a state-system, isolating it as a system of

\(^{6}\) See Chapter III below.

\(^{7}\) For more complete discussions of this distinction in relation to its general implications in both nineteenth- and twentieth-century linguistic studies see H.R. Robbins, *A Short History of*
communication operative at a specific time. Diachronic linguistics, on the other hand, examines language as an evolving system or from a historical perspective. Consequently, diachronic linguistics might be concerned with the evolution of, say, the English /father/ from the hypothesized Proto-Indo-European /pater/ through various stages of change (for example, the Proto-Germanic /fadar/ and the Old English /foeder/). Synchronic linguistics, then, might examine the word /father/ in relation to other words and elements in a language at a specific period of time (for example, the relationship between /father/ and /dad/ in the English of the present day). As Wittig observes, the significance of this dichotomy in Saussurean linguistics is that "only when the functional components of a whole system are described and their relationship to one another clearly defined can the synchronic, or state-system be understood--and only after that synchronic system has been described can the diachronic evolution of systems be discussed meaningfully."\(^8\) To reflect the flavor of this dichotomy, certain musical semioticians have included carefully defined synchronic and diachronic perspectives in their respective frameworks for musical analysis. These perspectives range, in scope and variety, from the

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formulation of the tripartition in the taxonomic-empiricist approach to Hatten's theory/history dialectic.9

The notion of "system," so crucial to the Saussurean perspective, is derived from the substance/form dichotomy. Saussure distinguishes between concrete objects or events and abstract entities which, because of the abstraction process, exist on the network-like plane of systems that are characterized by regular structures and rules. The (essentially) concrete phenomena are named substances, and the (more) abstract entities are called forms. Hervey notes that

the forms of systems provide the 'rationale' behind, and give a patterned appearance to, the essentially variable substances of 'reality'--forms are 'imposed on' substances; conversely, substances give concrete 'realisations' to forms. Without forms, substances would be amorphous, a hopeless jumble of senseless events; without substances, forms would be vacuous, and lacking in any kind of real practical applicability.10

This distinction has been illustrated through an analogy with the game of chess.11 In chess a knight is identified with reference to the system of rules which, through the constraints imposed by those rules, characterize its function in the game--for example, its initial

9 See Chapters III and V, respectively.

10 Sandor Hervey, Semiotic Perspectives (London: George Allen & Unwin, 1982), 10. Hervey's text is a highly informative and very useful summary of various lines of semiotic thought.

11 Analogies with chess are popular with semioticians (as well as with investigators in other fields). The particular analogy paraphrased and developed above is found in Saussure, Course, 88-89; and Hervey, Semiotic Perspectives, 11-12.
placement on the board, its peculiar L-shaped move in any direction, and its ability to leap pawns and other pieces. The knight is a particular value in a system of other values, oppositionally and uniquely defined and identified without recourse to any specific chess set; it is a form in the system of chess. The substance, or material reality, of a knight may vary considerably (e.g., black or white color, wood or ivory construction, traditional or modern design). Nonetheless, when a particular form is arbitrarily and conventionally imposed on any given substance, that substance can then function as a knight in chess.

A consequence of the foregoing analogy is that form and value have essentially become synonymous insofar as the value of any form is established by its opposition to other values operative in a particular system at a given (synchronic) time. Opposition is the process through which co-existing forms are contrasted to one another; as such it is a criterion for determining value. A system, then, is the organized network of forms that provides an order for the potentially unlimited instancing of varied substances. Saussure believes that the nature of a particular system is most efficiently understood by examining it at an arbitrarily fixed point in time; for example, to belabor the chess analogy, on a local level the constraints imposed on the knight vary from move to move—a new positioning of the knight, coupled with the placement of pawns or other pieces on previously "accessible" squares, alters the possible moves of the knight during the game under
consideration. The emphasis on an examination of a system at a particular synchronic time is not to deny the significance of diachronic studies, as they illustrate the important processes of change in the system. Saussure's insistence on a synchronic-diachronic dichotomy is intended to justify the need for a careful circumscription of synchronic "time-slices" in order to facilitate subsequent diachronic studies.

Saussure is specifically interested in semiotic systems, or systems of communication, and their dependence on arbitrary signs. Arbitrary signs are relational identities that consist of two separate (but inseparable) parts—the signified (signifié) and the signifier (signifiant). (This segmentation of the sign-function into a twofold entity has become the prototype for subsequent inquiry into the

12 This particular chess analogy is admittedly stretched since on a global level the system of chess subsumes and accounts for the various constraints placed upon the knight in all possible game situations (but it does not predict these situations). I hope the looseness of the analogy is strengthened by its continuity with the earlier chess analogy.

13 Some critics of Saussurean thought contend that synchronic-diachronic analyses are often static because they do not allow for any historical change, and that synchronic and diachronic linguistics can never be fused. For example, see Fredric Jameson, The Prison-House of Language: A Critical Account of Structuralism and Russian Formalism (Princeton: Princeton University Press, 1972), 5-22.

14 This conception is the basis for Nattiez's notion of seriation ("mise en série"), and ultimately for his stylistic characterization of pertinent traits in certain compositions by Debussy. His methodological inconsistencies (see Chapter III), however, tend to weaken many aspects of this characterization. See Jean-Jacques Nattiez, Fondements d'une sémiologie de la musique (Paris: Union Générale d'Éditions, 1975), 357-68.
correlational characteristics of sign-functioning.) For Saussure, the signified constitutes the conceptual aspect of the sign-function while the signifier embodies the more physical aspect (Figure 1). As Saussure observes, in this formulation the "sound-image" is not the actual material sound, but "the psychological imprint of the sound, the impression it makes on our senses."15 Conversely, "concept" refers to the mental image evoked by the signifier. Thus Saussure's sign-function is a Janus-like form which mediates between the world of thought, on the one hand, and the world of sound-images, on the other (both of which are substance-like).

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15 Saussure, Course, 66. This distinction attempts to account for non-physical processes of communication as in, say, mentally "talking" to ourselves. In music, an analogous situation arises when we mentally "listen" to a composition.
The emphasis on the arbitrary nature of sign-functioning reflects the dominant influence natural language exerts in Saussure's semiotic perspective. Most linguistic sign-vehicles are conventional or unmotivated, and therefore arbitrary, in that no natural connection obtains between signifier and signified. For example, /cow/, and its physical (spoken) realization in English [kaw], lacks an inherent or motivated correspondence to the concept <cow> or to any physical object //cow//; instead, the relationship is established entirely by social and cultural conventions and needs. Saussure ultimately believes that those "signs that are wholly arbitrary realize better than the others the ideal of the semiological process."\textsuperscript{16} Culler, in his excellent monograph on Saussure, places the significance of this dichotomy into its proper perspective, observing that the arbitrariness in a sign-function is also an attribute of the signified.\textsuperscript{17} That is to say, the signifier is not simply assigned to a preexisting and fixed concept, but the signified emerges from a potentially infinite continuum of concepts and ideas. Consequently, a particular language develops a unique manner of organizing or "filtering" the world; for instance, certain Innuit (Eskimo) languages employ four separate and distinct words to segment the conceptual field represented by the English word /snow/.

A more radical and contested dichotomy, which is nonetheless central to Saussure's view of communication systems, is the difference

\textsuperscript{16} Saussure, Course, 68.

between langue (language) and parole (speech). Langue is the abstract system underlying any particular speech act (parole), and because it exists abstractly within a collective community, it is not perfect or complete in any speaker. Parole, on the other hand, is the individual speech act itself, with all its variants in the particular idiolect (e.g., intonation). Saussure believes that the object of linguistics should be to describe language in terms of the units and their combinations which constitute the systematic aspects of langue.  

Lastly we turn to Saussure's distinction between paradigmatic and syntagmatic relationships (Figure 2, next page). A paradigmatic relation arises between a unit (e.g., a word) and its similarity to or association with other elements of the system at the level of the signifier, signified, or both. Linguistic examples of paradigmatic equivalents at the level of the signifier include homonyms, or words with identical prefixes or suffixes; examples at the level of the signified include synonyms or antonyms; and examples at both levels

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18 Saussure's objective for linguistics as described above is translated into one of the objectives for the taxonomic-empiricist approach to musical semiotics; see, for example, page 94 below.

Saussure's emphasis on langue as a social phenomenon is probably influenced by the then newly-conceived discipline of social psychology, and more specifically by the theories of Durkheim and his emphasis on the "collective mind." See Emile Durkheim, The Rules of Sociological Method, ed. Steven Lukes, trans. W.J. Halls (London: The Macmillan Press, 1982). For further discussions of this connection, see Sampson, Schools of Linguistics, 43-56; and Culler, Saussure, 73-81. Indeed, the tendency to examine individual experience in terms of systems of collectivities is also evident in the roughly contemporaneous writings of Marx (social ideologies) and Freud (structures of the unconscious). The point here is not to establish a genealogy for Saussurean thought, but to illustrate the importance of relational systems to modern thought as well as to the semiotic view.
include the words /relation/ and /connection/ by virtue of their suffix (signifier) and their similar meaning of <bond> (signified). Saussure observes that paradigmatic relationships are always presented in absentia: "Their seat is in the brain; they are a part of the inner storehouse that makes up the language of each speaker."\footnote{Saussure, \textit{Course}, 123.} Syntagmatic relations, on the other hand, obtain between a unit and its contiguity with all other elements surrounding it. Thus a syntagmatic relation exists between a word and its relation to other words of a sentence, or between an article of clothing and other articles of clothing worn together.

The notion of paradigmatic and syntagmatic relationships are nothing new to music theorists, although they are typically not ensconced in this terminology. As a simple example, in traditional
Roman-numeral analysis, a paradigmatic relation exists in the group of notes or segment of music described by the placement of a specific Roman numeral under it and all similar segments receiving the same Roman numeral. By extension, then, observations relating to progression and function are dependent on the syntagmatic relationship because of their emphasis on contextual relations and contiguous connections.

In general, as an outline for a semiotic theory, Saussure's Course is more programmatic than systematic, more suggestive than substantive; yet its abundant content provides a useful paradigm for approaches not only in semiotics, but also in linguistics and other areas of investigation. Nonetheless, throughout the treatise, Saussure consistently tries to establish linguistics as a scientific discipline with its own autonomous object; an object rigorously defined as a system of forms whose laws and relationships are potentially amenable to objective investigation.

Peirce

The sheer breadth of Peirce's semiotic conceptions and the complexity of his taxonomic speculations were the impediments that for many years discouraged and inhibited those researchers interested in

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20 For example, Levi-Strauss's concept of structuralism, and consequently the structuralist movement as a whole, was particularly influenced by Saussure's ideas. See Simon Clark, The Foundations of Structuralism: A Critique of Levi-Strauss and the Structuralist Movement (Totowa, NJ: Barnes and Noble, 1981).
tackling his voluminous writings on the subject; indeed, explication of
the intricate evolution of Peirce's concepts is still a pressing
problem in Peircean research. The all-encompassing breadth of his
semiotic perspective is a product of Peirce's concern with anything
that can be taken as a sign, and the complexity of his taxonomic
categories of signs reflects his concern with the ontological status of
the sign within a hierarchic network of trichotomies. These two con-
cerns, in turn, emerge from his attempt to ground the theoretic basis
of semiotics within a carefully partitioned scientific realm.

Peirce views science as a broad-ranging activity whose pur-
pose is, as Hervey summarizes, "to learn whatever can be learned, by
whatever means that are available and appropriate." 21 This expansive
conception underlies Peirce's approach to philosophic thought, and his
desire to detail the ramifications of that view occupies the bulk of
his comments.

To systematize the first half of his view of science--"to
learn whatever can be learned"--Peirce categorizes apparently diverse
fields of scientific inquiry into a highly elaborate and intricate
typological and architectonic scheme. 22 For our purposes it is suffi-
cient to note that Peirce locates semiotics within the domain of

21 Hervey, Semiotic Perspectives, i8.

22 For Peirce's discussion of each branch of scientific
inquiry, see Peirce, Collected Papers, Vol. I; and Peirce,
Philosophical Writings, 60-73. For a critical discussion of these
segmentations, see Douglas Greenlee, Peirce's Concept of Sign (The
Philosophy (along with other "social sciences" such as linguistics). Peirce labels this class of sciences cenoscopic. Cenoscopic sciences generally encompass the analysis of events within the range of ordinary experience where the actual perception of the events is frequently obscured because of the way they permeate experience. The emphasis is on a highly trained and skilled observer and the observer's perceptive mentality as opposed to the "instruments" of more particularized measurement (microscopes, telescopes, statistical measures) used in idioscopic sciences (e.g., physical sciences).

The cenoscopic/idioscopic distinction, though, contains certain anomalies in its segmentation. According to Peirce, cenoscopic observation implies reflective consideration and evaluation of data without the aid of "instruments"; consequently, it is distinguished from idioscopic sciences by its method of observation. But the specialized observations of a trained observer are mediated by the particular observer's powers and capabilities to perceive and organize; as such, the process of mediation is an apparatus or instrument. Greenlee, after reviewing this conceptual dilemma, suggests a distinction between cenoscopic observation and cenoscopic data wherein the latter encompasses the type and availability of data. Now the cenoscopic/idioscopic differentiation does not necessarily assume a particular type of observation for its foundation; rather, the foundation is based on the types of data obtained in each branch or

23 Greenlee, Peirce's Concept of Sign, 20-22.
approach. Cenoscopic investigation is not commonly employed to enlarge the existent fund of data in the same way idioscopic investigation is, but instead is used to select certain particulars from those data and shed new light on them with an apparatus (conceptualization) not as readily accessible to idioscopic investigation.\footnote{This distinction still does not entirely remove the emphasis from the method of observation, since "shedding new light" on data ultimately serves to enlarge the fund of data, an infinite regress which probably cannot be eliminated.}

To systematize the second half of his conception of science—"by whatever means are available and appropriate"—Peirce identifies three reasoning processes, or methods, through which conclusions are reached (Figure 3). The major division is between explicative inferences, or those inferences in which the conclusion necessarily follows from the premise (e.g., if P, then Q), and ampliative inferences, in which the conclusion expounds upon or amplifies what is

\begin{figure}[h]
\centering
\begin{tikzpicture}
  \node {Inferences};
  \begin{scope}[every node/.style={anchor=west}]
    \node (a) {explicative};
    \node (b) [below of=a] {ampliative};
    \node (c) [below of=b] {inductive (classificatory)};
    \node (d) [left of=c] {abductive (explanatory)};
    \node (e) [left of=d] {deductive (analytic)};
  \end{scope}
  \draw (a) -- (b);
  \draw (b) -- (c);
  \draw (b) -- (d);
  \draw (b) -- (e);
\end{tikzpicture}
\caption{Peirce's Delineation of Inferences}
\end{figure}
stated in the premise. Ampliative inferences are subdivided into either *inductive* or *abductive* inferences. Induction is the method whereby an investigator adopts a general conclusion from a representative body of samples. As Fann states, "in induction we generalize from a number of cases of which something is true and infer that the same thing is probably true of a whole class."25 Abduction is the method whereby an investigator provisionally adopts a hypothesis under the stipulation that at some point it can be verified or falsified. Again as Fann describes it, "in abduction we pass from the observation of certain facts to the supposition of a general principle to account for the facts."26 In general, induction classifies, abduction explains.

The understanding of the ontological nature of the sign in Peirce's semiotic perspective requires a short detour through his somewhat recondite hierarchy of trichotomies. Peirce identifies three categories of phenomena, generically designated by the ordinal numbers *first*, *second*, and *third*. Briefly, "Firstness" is "the mode of being of that which is such as it is, positively and without reference to anything else."27 In other words, firsts are qualities or feelings


26 Ibid., 10. The significance of the abductive process to music theory and its correlation to theories proposed by Popper and Neisser are examined in Chapter VI.

immediately experienced without cognitive analysis; they are potentially independent of time or of realization (i.e., qualia). "Secondness" is "the mode of being of that which is such as it is, with respect to a second but regardless of any third."\(^{28}\) A second is anything that acquires a meaning beyond its qualities of "firstness" because of its intrinsic relation to some other thing; in other words, an experience that exists as a spatio-temporal object or event. Most important for our purposes, though, is Peirce's concept of thirdness. "Thirdness" is "the mode of being of that which is such as it is, in bringing a second and a third into relation to each other."\(^{29}\) Thirds are characterized by mediation wherein a thing brings into meaningful relation two (or more) further things. By emphasizing the process of mediation resulting in meaningful relationships as the salient feature of thirds, Peirce has crossed the semiotic threshold.

Nested within this spacious trichotomy are several levels of additional trichotomies which generate Peirce's classes of signs.\(^{30}\)

\(^{28}\) Peirce, Collected Papers, 8.328. See also Peirce, Philosophical Writings, 87-91.

\(^{29}\) Peirce, Collected Papers, 8.328. See also Peirce, Philosophical Writings, 91-93.

\(^{30}\) In examining Peirce's philosophical system, one encounters a striking fondness on his part for the number "three" and divisions into sets of three. In fact, to stave off anticipated charges of system based on a procrustean bed of trichotomies, Peirce offers the following disclaimer (Peirce, Collected Papers, 1.568-69):

I fully admit that there is a not uncommon craze for trichotomies [in my writings]. I do not know but psychiatrists have provided a name for it. If not, they should... it might be called triadomany. I am not so
Ultimately Peirce segments ten lower-level trichotomies, and this hierarchy spawns sixty-six classes of signs (along with their accompanying neologisms). Be that as it may, only three of them (icon, index, and symbol) have been influential, and these classes of signs are discussed in the section treating sign typologies at the end of this chapter.

For Peirce, signs exemplify the concept of thirdness par excellence because they participate in a triadic relationship; that is to say that signs are mediators between two other correlates. Sign-functioning in the Peircean scheme arises when a sign (or representamen) mediates between an interpretant and an object (or referent). Peirce described this three-part relation (Figure 4, next page) with the following:

A sign, or representamen, is something which stands to somebody for something in some respect or capacity. It addresses somebody, that is, creates in the mind of that person an equivalent sign, or perhaps a more developed sign. That sign which it creates I call the interpretant of the first sign. The sign stands for something, its object.31

By way of simple example, let us analyze, in Peircean terms, the sign-function of a red light at an intersection. The sign-vehicle /red light/ requires a driver to recognize that an intersection is (or

afflicted; but I find myself obliged, for truth's sake, to make such a large number of trichotomies that I could not [help but] wonder if my readers ... should suspect, or even opine, that I am a victim of it ... I have no marked predilection for trichotomies in general.

31 Peirce, Collected Papers, 2.228.
may be) busy and is potentially dangerous to enter; this is the object in the sign-function. In such a situation, the driver (assuming a conscientious one), because of a culturally established rule (code), will stop; this is the interpretant in the sign-function.

This simple illustration clearly involves the use of a conventional sign-vehicle within a code specifically designed for unambiguous and instantaneous communication, and in this respect it is similar to the specialized sign-vehicles that transmit information to groups of people not sharing common languages (e.g., as in chemical and mathematical symbols and cross-cultural signs used in international travel terminals). Although these more straightforward instances of the semiotic process are easily subsumed in Peirce's theory, the complex examples require additional explication.

The seed for an expanded communication model is planted in Peirce's description of sign-functioning by the definition of the interpretant. Recall that a characteristic of the interpretant is its ability to burgeon into "a more developed sign" in the mind of the interpreter. This chain of reactions, as it were, is typically called
unlimited semiosis (Figure 5). Returning to our basic traffic example, we can now conjecture that /red light/, in addition to eliciting the behavioral response "stop," might also evoke in the mind of the driver the notion of "ticket" (for failure to stop) and accompanying notions of "police," "monetary loss," "court," and so on. Thus, as Eco

![Diagram](image.png)

etc.

\[ S = \text{Sign-Vehicle} \]
\[ I = \text{Interpretant} \]
\[ 0 = \text{Object} \]

Figure 5. Unlimited Semiosis.

observes, interpretants can be "highly complex discourses which not only translate but even inferentially develop all the logical possibilities suggested by the sign."\(^{32}\)

Charles Morris (1901-1979), who was strongly influenced in his semiotic perspective by behavioral tenets, introduced some

\(^{32}\) Umberto Eco, A Theory of Semiotics (Bloomington: Indiana University Press, 1976), 70. Also see the discussion of denotative and connotative codes below, pages 38-39.
pertinent distinctions between and emendations to Peirce's semiotic categories. For Morris, the sign-function is

\[ \text{a five-term relation} - \text{~}_w, x, y, z - \text{in which} v \text{ sets up in} v \text{ the disposition to react in a certain kind of way,} x, \text{ to a certain kind of object,} y, \ldots, \text{ under certain conditions,} z. \text{ The} v's, \text{ in the cases where this relation obtains, are signs, the} w's \text{ are interpreters, the} x's \text{ are interpretants, the} y's \text{ are the significations [objects], and the} z's \text{ are the contexts in which the signs occur.} \]

The z component is significant in that it represents the inclusion of a contextual component in the formulation of the sign-function; the relevance of contextual features to semiotic analyses is examined below.\(^\text{34}\)

Morris also identifies and codifies the three dimensions of semiotic inquiry: **semantics, pragmatics, and syntactics.**\(^\text{35}\) Semantics examines the relations of signs to the objects they signify; pragmatics studies the relations of signs to their interpreters; syntactics studies the formal relations and systematic connections of signs to one another. To the extent that semiotics is concerned with the

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33 Charles Morris, *Signification and Significance*, in *Writings on the General Theory of Signs* (The Hague: Mouton, 1971), 401-2. *Writings* is a useful one-volume compilation of all of Morris's previously published works on semiotic theory. All references to Morris's works in this dissertation identify the original work containing the appropriate citation, but the cited page numbers refer to the edition published in *Writings*. For publication information on the original editions the reader is referred to the bibliography.

34 See pages 41-43 below.

relationships among sender, receiver, message, context, and code, all three dimensions are evident in semiotic analysis.

In his later writings, Morris carefully segments the broad notion of "sign" into "sign" and "sign-vehicle." 36 Basically, a "sign" is the complex relationship manifested among the components of the semiotic act (i.e., all of Figure 4), and it is synonymous with the term "sign-function" as understood in the present study and defined in more detail below. A "sign-vehicle," on the other hand, represents the actual physical entity that stands for or refers to something else (i.e., the "S" in Figure 4). The distinction between process and entity is useful; we employ the term "sign-vehicle" to designate the entity in the same manner.

Peirce compares the infinite regress in his conception of the sign-function to the realm of thought itself, and he ultimately argues that man is a sign. 37 This metaphysical leap illustrates strikingly the difference in scope between Saussure's conception of semiotics and that of Peirce's. This difference notwithstanding, both authors have earned their place in the history of ideas for the intellectual climate that they helped create. Through the expansion, refinement, modification, and critical evaluation of their constructs and ideas,

36 See Morris, Signs, Language and Behavior, in Writings, 96.

37 Peirce, Collected Papers, 5.313-14; Peirce, Philosophical Writings, 249.
semiotics emerged as a self-sufficient discipline capable of providing a viable framework for the investigation of communication systems.

Eco

The semiotic perspective developed by Umberto Eco is a descendant of both Saussurean and Peircean traditions; indeed, the perspective assimilates the ideas of several authors into a cogently organized theoretic design for semiotic investigation while simultaneously evaluating and reinterpreting commonly held notions about the goals of semiotics. The result is a comprehensive paradigm for semiotic research that is eminently capable of providing a foundation for more specific applications.

Eco asserts that the epistemological assumption underlying his theoretic perspective is that semiotics, in general, should be concerned with "a social phenomenon subject to changes and restructuring, resembling a network of intertwined partial and transitory competences rather than a crystal-like and unchanging model." 38 The implications of this statement are cultivated in many of Eco's constructs, particularly in his formulation of sign-functioning, his definition of the code, and his discussion of contextual and circumstantial analyses; each of these aspects of his theory of semiotics is discussed below.

38 Eco, A Theory of Semiotics, 28-29.
For Eco, a sign-function obtains when an element from an **expression plane** (or in Saussure's terms, the signifier) is conventionally correlated to one (or more) elements of a **content plane** (or signified). The expression and content planes consist of abstract elements (or forms) which organize more concrete elements (or substances). In addition, both planes contain **purport**, or those elements with which semiotics is not concerned but which may become a content plane for another semiotic system (Figure 6). A comparison of Eco's conception of the sign-function to that of Saussure's illustrates that Eco's differs primarily in its degree of specificity.39

<table>
<thead>
<tr>
<th>Content Plane</th>
<th>(purport)</th>
<th>substance</th>
<th>form</th>
</tr>
</thead>
<tbody>
<tr>
<td>Expression Plane</td>
<td>form</td>
<td>substance</td>
<td>(purport)</td>
</tr>
</tbody>
</table>

Figure 6. Eco's Conception of Sign-Functioning.

If one were to analyze the sign-functioning of an analog gas gauge in an automobile under these tenets, one would say that the expression plane is 1) the oscillating indicator arm pointing to "E" as the expression substance, and 2) an abstract system of oppositionally

39 See pages 20-22 above.
defined positions (empty as opposed to full, or the relevant increments in between, or both) as the expression form.\textsuperscript{40} The content plane, then, consists of 1) the low level of gas as the content substance and 2) an abstract system organizing the various levels of gas that might concern a driver as the content form. The content purport might be the chemical components of the gas, and the expression purport might be the mechanics of the arm indicator and buoy. (On a different semiotic level, the content purport and expression purport might become substances studied by, say, a chemist and a mechanic, respectively.) A sign-function obtains between the expression form and content form, and the complex mechanism that correlates the two planes is called the code.\textsuperscript{41}

To circumvent potential terminological ambiguities, Eco identifies different types of codes involved in semiotic acts. The above example represents a \textit{denotative} code. Frequently, though, there arises a signification based on a previous signification wherein the content and expression planes of one semiotic level become the expression plane for a further content—for instance, in addition to \textit{<insufficiency>}, the arm indicating "E" can elicit the response of filling the tank. This type of code is called \textit{connotative} (Figure 7, next page). As Eco

\textsuperscript{40} "Opposition" is used here in the same sense as defined earlier, see page 19 above.

\textsuperscript{41} This description of Eco's circumscription of sign-functioning necessarily represents only an adumbrated version. For the complete discussion, which includes many careful segmentations and definitions, see Eco, \textit{A Theory of Semiotics}, 32-58.
"E" denotes insufficiency connotes fill tank

Figure 7. Denotative and Connotative Codes.

points out, the difference between denotative and connotative codes is not the difference between univocal and vague significations; instead, the stability or instability of the connotation is a function of, and therefore directly proportional to, the strength of the connotative code that establishes it. This tiered network of connotative codes, as in Peirce's chain of interpretants (from which it is clearly derived), can continue ad infinitum.

Eco also distinguishes between the higher-level coding correlations described above and lower-level codes as structures, or s-codes. According to him, s-codes "are made up of finite sets of elements oppositionally structured" in which "every value is established by positions and differences." The study of an s-code constitutes an examination of a code independent of the other coding

42 Eco, A Theory of Semiotics, 38.
systems to which it might be correlated (as in, say, the study of the phonemic level in linguistic analysis). The strict structural examination of an s-code, though, is ideally subsumed in the higher semiotic levels (i.e., denotation and connotation).

Hatten observes that an example of an s-code in music that can be submitted to a structural description is the major scale, and it is informative to summarize and develop that observation to illustrate the relationship between s-codes and higher-level coding correlations. A description of the major scale in terms of its interval vector (2 5 4 3 6 1) makes apparent properties concerning its interval distribution (e.g., each interval occurs with unique multiplicity) and its variance or invariance at certain transposition levels (e.g., maximum variance at six semitones; maximum invariance at five or seven semitones). Browne suggests that the "rare intervals" (the

43 Robert Hatten, "Toward a Semiotic Model of Style in Music: Epistemological and Methodological Bases," (Ph.D. Dissertation, University of Indiana, 1982), 133-35. In many respects, Hatten's survey of semiotics is complementary to the one presented here. In addition, he explores and evaluates relevant concepts from an impressive number of other disciplines in developing his model of style in music. The model itself and its proposed methodology are examined in Chapter V.

44 These properties of the major scale and their relation to transpositional invariance are discussed in Milton Babbitt, "The Structure and Function of Music Theory," in Perspectives on Contemporary Music Theory, ed. Benjamin Boretz and Edward T. Cone (New York: W.W. Norton and Co., 1972), 10-21. Maximum variance at six-semitones is true only in a tonal context assuming a lack of functional enharmonic equivalence (that is, where E-sharp does not equal F-natural); in a twelve-note equally tempered collection (where E-sharp equals F-natural), which for these purposes would be a strict index for maintenance of content under transposition, the six semitone category would be doubled.
tritone and semitones) inherent in the collection of the major scale are strong clues for the aural perception of a tonal center for the collection.\(^{45}\) Butler and Brown have subsequently tested this hypothesis, and their results show that the identification of a tonal center is strongly determined by the rare intervals and their relationships within the set.\(^{46}\) Thus, an s-code has been correlated to a higher semiotic code wherein a six-semitone interval plus one other note from the collection denotes a tonal center because of a cultural coding convention (tonality).

Contextual and circumstantial considerations play significant roles in Eco's semiotic framework, and their relevance to coding correlations is extensively explored in his compositional analyses.\(^{47}\) The complex interactions between context and code may be illustrated by paraphrasing Eco's discussion of the sign-vehicle /whale/. In a medieval context, /whale/ denoted fish (not mammal), and it frequently connoted other attributes (e.g., a representation of the

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Devil). Indeed, the more allegorical connotations have been exploited during subsequent centuries through their symbolic expression in literature. A marine biologist, on the other hand, would obviously interpret /whale/ in an entirely different manner (e.g., as a large marine mammal of the Cetacea order). The modern layman's interpretation would most likely incorporate aspects of both views--an interpretation that is influenced by the context in which the sign-vehicle is encountered (e.g., a pamphlet describing migratory patterns versus Melville's Moby Dick).

Undoubtedly, contextual considerations are of paramount importance in music. The perception and analysis of a specific musical passage are dependent on an indefinite number of decisions based on contextual determinations. These determinations emerge from the relationships the passage (which is understood as a generic label for any musical phenomenon an analyst might be interested in--e.g., a note, chord, phrase, rhythm, texture, and so on) has with what preceded it and with what might follow it in the composition, with the historical context in which the composition was written, and with the personal style of the particular composer, among other things. In other words, context is determined not only by the idiosyncratic traits exhibited in the composition and which constitute the composition, but also by the knowledge of the more systematic considerations which constrain, and thus are somehow appropriate to, the composition in question. This complex interaction of composition and system, which loosely mirrors Saussure's concepts of parole and langue, is addressed from different
viewpoints by the theorists examined in subsequent chapters of this dissertation, and it is developed more explicitly in the theoretic and analytic framework presented in Chapter VI.

Eco's treatise encompasses a broad range of ideas and its contribution to the semiotic literature cannot be understated. His ideas, as outgrowths of and complements to Saussure's and Peirce's concepts, constitute both a framework in which to examine approaches to musical semiotics and a broad foundation on which to construct our semiotic edifice.

On Sign Typologies

As was alluded to earlier, the etymology of the term semiotics might imply that the discipline is primarily concerned with identifying and classifying the types and modalities of signs that constitute semiotic phenomena. But as the foregoing discussion illustrates, a "sign" is only one component of a complex network whose constituent parts interact in highly intricate ways; consequently, semiotics must be concerned with the process of "sign-functioning" rather than "the study of signs." Indeed, the term "sign," in and of itself, is rarely employed in the above survey of semiotic principles; instead, it is used as a formative for more specialized terms (i.e., sign-function, sign-vehicle). These terminological qualifications, though, are difficult to apply consistently, and in many cases they are unnecessarily laden with tints of pedantic over-sophistication. In the semiotic literature (which includes this study), the term "sign"
sometimes refers to the entire communicational act and as such, may be understood as a metonym of "sign-functioning."

Nevertheless, not all types of sign-functioning are identical, and this observation has induced many authors to develop systematic classifications for the different modalities associated with particular sign-vehicles. The most famous typology is Peirce's tri-chotomy of icons, indexes, and symbols. In Peirce's scheme, an icon denotes its object through some shared physical similarity (i.e., Firstness) between the sign-vehicle and the object. Typical examples are onomatopoeic words, pictures, maps, or diagrams. An index denotes its object by virtue of a dynamic connection (i.e., Secondness) to the object. Typical examples are lightning or thunder denoting an impending storm, symptoms denoting a particular illness, or a weather vane indicating the direction of the wind. Finally, a symbol denotes its object by virtue of a rule or a convention (i.e., Thirdness). This category includes arbitrary signs or codes established by cultural convention, and it therefore encompasses natural languages.

In practice it is difficult, if not impossible, to maintain a uniform distinction between these categories. Moreover, there is no real consensus as to the definition of these, or any other, classifications. For instance, a map is typically labeled iconic, but its scale and the lines employed to represent roads are ultimately

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48 Terminological ambiguity arises when comparing this category to Saussure's typological scheme; Saussure called these types of sign-vehicles "symbols."
established by cultural convention, and in this sense all maps contain features associated with arbitrary sign-vehicles. Analogously, the words /typewriter/ (combining "type" and "write"), /blackbird/ (combining "black" and "bird"), and "housekeeper" (combining "house" and "keep") are more motivated than other examples of arbitrary sign-vehicles. Thus, Peirce's typological scheme cannot be understood as a plea for absolute categories; rather, it is a proposal for relative and overlapping categories wherein one trait dominates over other traits.

There have been attempts to classify sign typologies in music. Coker, for example, employs categories similar to those of Peirce's.49 An icon is important to Coker for his formulation of con-generic (i.e., musical) and extragenic (i.e., extramusical) meanings. An index in Coker's perspective directs or focuses attention, indicating the structure of a musical gesture (e.g., high and low notes, longest and shortest durations, and so on). A logical sign-vehicle serves to connect, or indicate the relation of, various sign-vehicles to each other (e.g., pauses or cadential formulae). Although Coker's typological scheme is of little relevance in this study, his notions on the directionality of temporal references are important, and they are discussed in Chapter VI.

Because of the general complexities and ambiguities involved in classifying the types and modalities of sign-vehicles, and in light of the specifically outlined conception of sign-functioning presented

above, we intentionally eschew any attempt to define unequivocally a typology of sign-vehicles in music. Thus we accept a broad definition of a sign-vehicle as something that refers to something else (aliquid stat pro aliquo); any distinction made between different types of sign-functioning is based on their functions in relation to the system of directional references that is detailed in Chapter VI.
CHAPTER II
THE LINGUISTIC CONNECTION

Semiotics is a new discipline, and one result of this relative youthfulness is that its advocates are currently engaged in trying to define its scope and intent. But throughout this definition process, the discipline has been applied to and influenced by different fields; consequently, the perspectives brought to both the definition process in particular, and semiotic thought in general, have been injected with many interdisciplinary influences. Since the ultimate goal of semiotics is the study of communication systems and since language is an excellent example of a complex communication system, many semioticians have turned to linguistics for models to support the formulation of their semiotic constructs and methodologies.

This chapter explores linguistic theories and methods as the prologomena for the examination of approaches to musical semiotics. It is not a comprehensive history of linguistic research in the twentieth century. The intent here is to summarize the currents of linguistic thought and methods of language analysis that have directly influenced musical semioticians in the development of their particular analytic frameworks and methodologies. This overview of linguistic concepts and methods will permit a clearer explication of the linguistic bases employed in musical semiotics in terms of how they relate both to
linguistics and to semiotics; moreover, it becomes possible to demonstrate in a more forthright manner what the translation of linguistics into music theory actually says about the organization of music opposed to what its translators contend it says.

The Influence of Linguistic Theories

During this century, linguistics has been established as an autonomous science, rigorous in both its definition and its methods. In rallying for autonomy, linguists advocated an objective examination of language processes unencumbered by the shackles formed by commitments to either traditional views of language or biases inherited from other disciplines. Linguists have aspired to develop theoretic frameworks and analytic methodologies that are germane to and dictated by the features of their object; thus, these frameworks and methodologies are ideally independent of any ultimate connection which might (or might not) exist between language and other complex modes of human behavior—although these connections, should they be made, are highly valued. Through its penetrating inquiry into its problems, the ways it attempts to seek solutions to these problems, and the actual solutions obtained, linguistics has emerged as an exemplar for several of the so-called social sciences.

Semiotics has not been unaffected by the attractiveness of linguistic principles. Indeed, the part linguistics should play in semiotics has sparked a continuing controversy as to which discipline
is to be cast as the governing theoretic perspective, and we can loosely summarize the two opposing outlooks vying for the starring role as follows:

1) Semiotics is an autonomous discipline wherein linguistics is a sub-discipline. As it is concerned with the analysis of a specific communication system—natural language—linguistics develops its methods and concepts to describe its own domain. But as the science of all communication systems semiotics is the prior theoretic perspective.

2) Linguistics is the guiding discipline which subsumes semiotics. Since the study of natural language encompasses the study of the most complex communication system, semiotics should attempt to analyze all other communication systems by borrowing or adapting methods and concepts used in linguistics.

The position endorsing linguistics as the meta-discipline is currently in vogue. Its allure is that natural language is a non-pareil communication system; consequently, the isolation and analysis of the properties of languages must be applicable to any other systematic form of communication because these other forms of communication can only approximate the richness and complexity of language. Indeed, this view is not new as it sprouted from roots planted in Saussure’s prediction for a science of signs. After the quotation cited above, Saussure adds that "linguistics is only a part of the general science of semiology; the laws discovered by semiology will be applicable to linguistics, and the latter will circumscribe a

1 For further discussion of the ramifications of these two outlooks, see Hervey, Semiotic Perspectives, 5-8.

2 See page 14 above.
well-defined area within the mass of anthropological facts."³ Later he states that "linguistics can become the master-pattern for all semiology although language is only one particular semiological system."⁴ More recently, Barthes apparently inverts Saussure's original intention by asserting that "linguistics is not a part of the general science of signs, even a privileged part, it is semiology which is a part of linguistics,"⁵ and the attitude exemplified in this statement has induced some semioticians to elevate language to the status of a "primary modeling system" which subsumes other systems of signification under the guise of "secondary modeling systems."⁶ For example, Metz, with a questionable and tenuous appeal to the more "advanced" state of linguistics, observes that "in name, linguistics is only a part of semiology; in fact, semiology is constructed from linguistics. In a sense this is quite normal: essentially semiology has yet to be developed whereas linguistics is already very advanced."⁷

³ Saussure, Course, 16.
⁴ Ibid.
⁷ Christian Metz, "Les Sémiotiques ou sémies, Communications, 7 (1966); cited in Nattiez, Fondements, 33. "En droit, la linguistique n'est qu'un secteur de la sémiologie. En fait, la sémiologie se construit à partir de la linguistique. C'est, en un sens, très normal: la sémiologie, pour l'essentiel, reste à faire, alors que la linguistique est déjà bien avancée."
But while discussing the implications of this subordination to a semiotics of music, Orlov argues for a more careful evaluation of the evidence, and accordingly his comments reflect the first outlook that was described above:

it seems somewhat improbable that a concept [or method] formed on the basis of linguistics should have an immediate explanatory power outside of its original boundaries .... To assume a priori that music as sound, like natural speech, is a text generated by certain models, whatever truth there may be to it, is not enough. Those unknown models have to be reconstructed from the respective text and not hypostatized in the image and after the likeness of another kind of model only because the latter is known better. The thing we have lost and are looking for does not necessarily lie in the best-lit place.

Actual correspondence between language and music has been difficult, at best, to explicate, and it is doubtful whether this can or should be the overriding goal for a semiotics of music. The point is not that relevant observations obtained by a transference of linguistics to music cannot assist musical theorizing, but that linguistic concepts and methods cannot be blithely translated without careful consideration of the goal of music theory—which is, after all, to describe and formalize musical processes. Chomsky, the linguist, states (albeit with uncharacteristic qualification) that "in general, the problem of extending concepts of linguistic structure to other cognitive systems seems to me, for the moment, in not too promising a

state, although it is no doubt too early for pessimism.\textsuperscript{9} Keiler, the musician, states that "the question of transferring concepts and methodologies from one discipline to another is particularly problematic when contemporary linguistics becomes the source. Its rationalist foundation and the technical nature of much of the work have led to misinterpretation and misuse."\textsuperscript{10} Indeed, the pitfalls involved in a direct transference are strikingly illustrated by Bernstein's well-known attempt at a literal translation of linguistic concepts into serviceable musical models.\textsuperscript{11} Keiler has shown how the translation is faulty both on linguistic and musical grounds,\textsuperscript{12} and it is no doubt significant that Bernstein's most astute musical observations occur after he drops strict linguistic analogies.

Insights gleaned from interdisciplinary research are immensely important for development of any field (indeed, one objective of this study is to illustrate the relevance of semiotics to music theory). The ultimate goal of this endeavor, though, must be what these insights reveal about the object under consideration. This goal is achieved not by reshaping the object into a form better suited to

\textsuperscript{9} Noam Chomsky, \textit{Language and Mind} (New York: Harcourt, Brace and World, 1968), 60.

\textsuperscript{10} Allan Keiler, "Bernstein's The Unanswered Question and the Problem of Musical Competence," \textit{The Musical Quarterly} 64 (1978), 197.


\textsuperscript{12} Keiler, "Bernstein's The Unanswered Question," 195-222.
investigation by another discipline, but by retaining the problems peculiar to the object and asking what potential solutions are offered by the new discipline. To recast an object into the context of another discipline, solely for the purpose of literally translating the concepts of the discipline to the object, is to ascribe, however tacitly, priority to the discipline and thus to obscure, however subtly, the characteristics of the original object. If music, with all of its seemingly intractable complexities, is the object, then the test of interdisciplinary investigation is the degree to which it isolates and illuminates musical problems.

In the following overview of two linguistic schools of thought, specific attention is accorded to an explanation of both the methodology and the conceptual framework of each. The musical semioticians who adopt these schools as the paradigms for their respective approaches to musical semiotics adopt not only the methodological characteristics of the schools, but also their frame of mind.

**Structural or Descriptive Linguistics**

The structural or descriptive linguistic tradition was developed in the early part of the twentieth century, and it is primarily associated with Leonard Bloomfield (1887–1949). Although

13 The terms "structural" and "descriptive" are both used to categorize this school of linguistic thought, and although some authors, for various reasons, prefer one to other, no consensus has been reached. The problem is compounded because "structuralism" is a trendy term that has found its way into disciplines with different
there are significant differences in the writings of various proponents, the entire era is typically referred to as the "Bloomfieldian" era.\textsuperscript{14} As is shown in Chapter III of this study, descriptivist tenets form the nucleus for the theoretic perspective and methodology proposed by the taxonomic-empiricist approach to musical semiotics.

In forging a scientific cast for linguistics, the descriptive linguistic school, specifically Bloomfield, was strongly influenced by the logical positivist movement launched in the 1920's and 1930's by Russell, Wittgenstein, the Berlin School, and the Vienna Circle. Logical positivists feel that all scientific knowledge should be based on immediate reports of sensory data, and thus their position derives from the empiricist philosophies espoused by Locke, Berkeley, and Hume. Because language is a form of directly observable human behavior, linguistic theories can be empirically verified by direct observation of the phenomena (i.e., language acts). Consequently, introspection and subjectivity are unacceptable theoretic primitives because data gathered from them are not observable; thus, they are ultimately un-testable and insolubly metaphysical. Therefore, structural linguists concentrate on concrete occurrences of speech acts and not on what users think about those speech acts. Furthermore, language is viewed approaches and objects (for example, anthropology and literary criticism). This dissertation uses the terms synonymously.

as a stimulus-response pattern that can be studied as a series of inputs and outputs, and the linguist's task is to describe in a rigorous manner the objective relations inherent in the object.

This behavioristic view of the communication process can be illustrated by paraphrasing Bloomfield's famous anecdote: Jack and Jill are strolling down a road when Jill spies an apple on a tree beside the road. The sight of the apple coupled with the secretion of her gastric juices (stimulus) might cause Jill to ask Jack to retrieve the apple for her (response). Jack, upon receiving the verbal stimulus emitted by Jill, climbs the tree and returns with the apple (response). This little example is diagrammatically represented by the following:

\[ S \rightarrow r \ldots s \rightarrow R \]

Here (\ldots) represents the physical sound itself, and Bloomfield feels that a linguist can only be concerned with the part of the diagram encompassed by \( r \ldots s \). Obviously, though, we speak about apples without one necessarily being present. Bloomfield calls this situation "displaced speech" wherein a speaker responds "to some obscure internal stimuli of a type which was associated at some time in


16 Bloomfield's communication model is the basis for the taxonomic-empiricists' tripartition, see pages 76-86 below.
[the] past with the stimuli of an apple."17 Nonetheless, speech acts involving displaced speech are more common than ones that do not.

Without belaboring the point (as it is an issue a strict structuralist would not necessarily be concerned with), a semantic theory constructed from this view of linguistic investigation would be tenuous. Outside of strictly controlled laboratory situations, there are no formally explicit or consistent ways to determine either stimuli or responses since a stimulus (in behavioral terms) is recognized as such only because it elicits a response.18 Bloomfield, in fact, unabashedly recognizes that semantics is "the weak point in [his view of] language study, and will remain so until human knowledge advances very far beyond its present state."19 In general, the Bloomfieldians did not substantively contribute to semantic theory; rather, they intentionally focused on describing and classifying the significant units of phonology and syntax according to their similarities and differences and their rules of combination and succession without regard to semantic considerations.

The descriptivist tradition first emerged from the writings of Franz Boas (1858-1942), an anthropologist who studied American

17 Bloomfield, Language, 143.
18 For a critique of behavioral linguistics, and behaviorism as a whole, see Noam Chomsky, review of Verbal Behavior by B.F. Skinner, Language 35:1, 1959, 26-58. These considerations led Morris to define the interpretant in his semiotic theory not as a strict "response" but as a "disposition to respond." See Morris, Signs, Language, and Behavior, in Writings, 85-87; also see pages 33-34 above.
19 Bloomfield, Language, 140.
Indian languages. Because the histories of these languages were essentially lost, Boas, independently of Saussure, had to develop a methodology that concentrated on synchronic relations. Boas also conjectures that there is no "ideal" (in the Platonic sense) language or language categorizations that real languages strive to imitate—that is, he argues that any distinction between "primitive" and "civilized" languages is arbitrary and unnecessary. As a consequence, Boas feels that all languages are potentially capable of developing a vocabulary and a syntax that can effectively express concepts and things that are germane to the cultural context of their speakers, and that the properties of every language are equally amenable to rigorous linguistic inquiry.

This relativistic view of language entails a new focus for the analytic method: because Indian languages are not descendants of Indo-European languages (and thus they cannot be analyzed with "traditional" categories), the linguist, while examining and cataloging these languages, must discard all presuppositions about language categories—presuppositions that are ultimately based on a priori commitments to and knowledge of European languages. By eschewing these predispositions, the linguist ideally becomes an unbiased observer whose task is to "discover" the structure of each language at the phonological, morphological, and syntactic levels. The structural

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description of an individual language, then, is achieved by a set of mechanically applied procedures that emerge from an inductive methodology. These procedures, and the accompanying methodology, avoid any reference to either the subject or the analyst (and thus they might be performed by a computer); consequently, they elicit results that are thought to inhere in the object (i.e., the r... s). The description becomes an end in itself; a necessary preliminary to examining the larger cultural characteristics of the community. The results of these "discovery procedures," as well as the procedures themselves, are continually subjected to strict empirical verification.21

This outlook was first used in the description of previously unanalyzed languages, but it rapidly gained currency in the analysis of all languages. Indeed, the introduction of these methodological principles charted a new direction for linguistics: a linguist, rather than being adept at the description of a few languages, can now use a methodology based on non-intuitive principles that are potentially applicable to the description of any corpus or body of data. Some of these "universal" principles are exemplified by the analysis of utterances in terms of their immediate constituents (ICs).

IC analysis entails either the segmentation of a larger whole (or constitute) into successively smaller constituents or the building up of smaller units into successively larger ones. By identifying and classifying these units, the linguist creates a taxonomy or catalogue.

21 This goal is also reflected in Ruwet's and Nattiez's analytic methodology, see Chapter III.
The method operates on the phonological, morphological, and syntactic levels of language analysis, and it assumes that the organization of each level is both linear (i.e., syntagmatic) and hierarchic. For example, a phoneme can be analyzed as a single element, as a combination of smaller elements (distinctive features), or as part of a larger unit (morpheme). Similarly, a morpheme can be analyzed in terms of its constituent parts (phonemes), or in terms of how it is connected to other morphemes when forming words and sentences. Although both approaches (from smaller units to larger units and vice versa) are employed in descriptive analyses, and although each is equally useful in segmenting the data, this discussion assumes movement from large to small.22

The segmentation procedure that pares larger units into smaller ones is based on the distribution of each element (and thus the method is sometimes called "distributionalism"). For example, in the sentence "John ran," the segmentation occurs between the words John and ran (e.g., John/ran). By invoking either the expansion or the substitutability operation, the distributional niche occupied by "John" can be filled by "the young man" and still retain a grammatical relationship of nominal expression followed by verbal expression. Similarly, "ran" can be expanded into the phrase "hit the ball with a

22 Both directions are contained in Nattiez's analysis of Brahms' Intermezzo, Op. 119, No. 3. This analysis is examined on pages 98-101 below.
bat," and then these constitutes can be segmented into their respective constituents (Figure 8).  

\[
\text{The young man hit the ball with a bat.}
\]

or

\[
\begin{align*}
\text{The young man} & \mid \text{hit the ball with a bat.} \\
\text{The young man} & \mid \text{hit the ball with a bat.} \\
\text{The young man} & \mid \text{hit the ball with a bat.} \\
\text{The young man} & \mid \text{hit the ball with a bat.} \\
\text{The young man} & \mid \text{hit the ball with a bat.}
\end{align*}
\]

Figure 8. Immediate Constituent Analyses

Our relatively simple example cannot illustrate the criteria that have been developed by linguists to assist the examination of more

23 The analysis in Figure 8 shows two ways among many in which IC analyses are typically illustrated. For an examination of other modes of illustration, see Ann Harleman Stewart, *Graphic Representation of Models in Linguistic Theory* (Bloomington: Indiana University Press, 1976).
complicated examples of sentence structures. These often complex criteria are advanced in order to justify the choice of one particular segmentation over other potentially valid alternatives. Nevertheless, the objective of IC analysis is to segment a constituent without reference to pre-established categories; all attempts to label and classify various segmentations culled from the utterance follow the application of the segmentation process. Hence, the descriptivists believe that, with respect to unknown meanings, their methodology is a scientifically well-founded one because it avoids all a priori language categorizations and because it is carried out according to rigorously defined procedures.

But the structuralist approach, even with its methodological emendations, cannot account for many internal syntactic relations evident in certain sentence constructions. For instance, to cite a well-known case, although the surface structures of "John is eager to please" and "John is easy to please" ostensibly indicate that the two sentences would share similar IC analyses, the grammar of each sentence is distinct: in the former, "John" is the subject of the verb phrase "to please"; in the latter, "John" is the direct object of the verb phrase (i.e., It is easy [for Jane] to please John). An analysis based

on descriptivist principles does not have a convenient tool to illustrate these differences without invoking *ad hoc* deviations from established analytic practices.

The descriptivist approach, and its basis in positivism, has been soundly criticized for both linguistic and philosophic inconsistencies. Two of these problems, pertinent to the examination of Chomsky's theories and the taxonomic-empiricist approach to musical analysis, are summarized here.

First, the descriptivist's resolute insistence on the corpus of all utterances as the object of linguistic analysis implies that language presents itself in a unsullied form to the analyst. Clearly, though, there are factors (e.g., lapses of memory, solecisms) that must be "filtered" before any analysis, and this filtering process is a common practice in descriptivist analysis. But the value of any theory (linguistic or musical) is determined and governed by its view of the nature of the object that it is trying to explain, and one goal of a theory should be to express and segment that view precisely. Popper asserts that "observation is always selective. It needs a chosen object, a definite task, an interest, a point of view, a problem. And its description presupposes a descriptive language with property words; it presupposes similarity and classification, which in its turn presupposes interests, points of view, and problems."\(^{25}\) Similarly, Neisser states that "the amount and kind of processing that a stimulus is

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assumed to undergo necessarily depends on related assumptions about the nature of that stimulus; that is, on how the theorist chooses to describe it.\textsuperscript{26}

Second, the inductive methodology espoused by the descriptivists can only be concerned with that body of data presented directly to the analyst. Since not every utterance can be analyzed, the method is ultimately unable to account for the creative potential a language evinces—a potential to produce an infinite body of utterances. This is a problem Chomsky addresses and tries to alleviate in his theoretic formulations.

Transformational-Generative Grammar

The hegemony of structuralist theories of language and structural methods of linguistic analysis was overturned by the publication of Chomsky's books.\textsuperscript{27} Indeed, as has been frequently noted, the intellectual revolution associated with the appearance of Chomsky's Syntactic Structures is similar to one detailed by Kuhn. According to

\textsuperscript{26} Ulric Neisser, \textit{Cognition and Reality} (San Francisco: W.H. Freeman, 1976), xii.

Kuhn, scientific revolutions occur when a paradigm, or prevailing way of thinking, is continually challenged by data which are not explained by or which contradict the established theory; consequently, a new paradigm emerges to account for the counterexamples. It was the growing amount of troublesome data met in structural approaches that led Chomsky to formulate the principles of a transformational-generative grammar.

Chomsky (b. 1928), as a student of Harris, is well-schooled in the structuralist tradition, and his break from that tradition is based on a thorough knowledge of the limitations inherent in descriptive procedures. The position Chomsky advocates is that "a linguistic theory should not be identified with a manual of useful procedures, nor should it be expected to provide mechanical procedures for the discovery of grammars"; rather, linguistics and linguistic analysis should include "intuition, guess work, all sorts of partial methodological hints, reliance on past experience, etc."29

In the Chomskyan perspective, the object of linguistic study is linguistic competence (as opposed to the infinite corpus of utterances presented to the descriptivists), and to this end the linguist must furnish the finite set of rules that generates all and only the grammatical sentences of a language. These rules are discovered by


29 Chomsky, Syntactic Structures, 55-56. It is useful to compare this prescription for an analytic methodology to Peirce's notion of the abductive method; see pages 164-67 below.
adopting a hypothetico-deductive scientific framework in which an investigator proposes hypotheses, deduces the empirical consequences of the hypotheses, and then tests the results against the data. Searle contrasts the Chomskyan perspective with structuralist perspective as follows (Figure 9): 30

<table>
<thead>
<tr>
<th>Structuralism</th>
<th>Generative Grammar</th>
</tr>
</thead>
<tbody>
<tr>
<td>Subject Matter</td>
<td>corpus of utterances</td>
</tr>
<tr>
<td>Goal</td>
<td>classification of the elements of the corpus</td>
</tr>
<tr>
<td>Methods</td>
<td>discovery procedures</td>
</tr>
</tbody>
</table>

Figure 9. Chomsky's Break with Structuralism, after Searle

By rejecting the corpus of utterances as the subject matter for linguistics and by concentrating on linguistic competence, generative grammar necessarily eliminates discovery procedures. To develop an appropriate methodology, the linguist must now conjecture about the underlying structure of utterances, and then test these

conjectures against the evidence supplied by native speakers. In Chomskyan linguistics, the corpus of utterances becomes examples of linguistic performance (i.e., actual speech acts), and as such it may contain instances of ungrammatical elements (emerging from, say, a loss of concentration). Hence, the linguist hypothesizes about the structure of the innate ability of speakers (i.e., competence) that allows speakers to produce and understand utterances never before spoken or heard. The methodological emphasis is on procedures that evaluate or test various hypotheses, not on procedures that mechanically process data.

Chomsky's philosophic commitments are allied with rationalism, a way of looking at the world that was prominent in the seventeenth- and eighteenth-century philosophies of Descartes and Leibniz. These philosophers contend that there is knowledge that is innate and thus prior to experience. This innate knowledge determines and shapes the types of new knowledge that can be gathered from experience; consequently, the mind is not, as empiricists believe, a tabula rasa that assimilates new knowledge only through experience—that is, either through associating ideas or through stimulus-response patterns.

To account for a speaker's ability to understand and recreate (under an indefinite number of guises) the internal structures of sentences, Chomsky's syntactic theory first posits a set of rules which generates grammatical utterances ("generate" is used here in its mathematical sense as "according to explicit principles"). These
phrase-structure rules provide the means by which an element may be "rewritten" or expanded into a string of other elements. Figure 10 (next page) illustrates a simple version of these rules and their application to the analysis of a sentence.

The phrase-marker analysis contained in Figure 10 does not substantially differ from the immediate constituent analysis of the same sentence illustrated above. Indeed, phrase-structure rules are at least implicit in structural descriptions. But Chomsky's contribution to this type of syntactic analysis is twofold: first, he offers a formalized system of rules according to which the various strings can be generated; second, he recognizes that phrase-structure grammars are ultimately constrained in that, although the phrase-structure rules can generate a large number of sentence structures, they do not adequately account for the syntactic structure of the potentially infinite number of grammatical sentence constructions. Thus, the phrase-structure rules summarized above are unable to provide a meaningful analysis of our syntactically homologous structures ("John is easy to please" and "John is eager to please").

The more complex sentence constructions led Chomsky to propose another type of rule, called a transformational rule, which transforms a previously generated phrase marker (essentially the "tree structure" of Figure 10) by adding, deleting, or rearranging specified elements. Transformational rules are distinct from phrase-structure

31 See Figure 8, page 60 above.
a) Phrase-Structure Rules (elements enclosed in parenthesis are
considered optional "rewrites")

(1) S $\rightarrow$ NP + VP
(2) VP $\rightarrow$ Verb + (NP)
(3) NP $\rightarrow$ (T) + (Adj) + N + (PrepP)
(4) Verb $\rightarrow$ (Aux) + V
(5) PrepP $\rightarrow$ Prep + NP
(6) T $\rightarrow$ \{the, a, ...\}
(7) N $\rightarrow$ \{man, ball, bat, ...\}
(8) Prep $\rightarrow$ \{with, if, ...\}
(9) V $\rightarrow$ \{hit, run, ...\}
(10) Adj $\rightarrow$ \{young, small, ...\}

b) Phrase-Marker Analysis

```
   S
  / \   /
 /   \ /   /
NP    VP
 /
T  Adj  N  V
 /
NP
 /
T  N
```

The young man hit the ball with a bat.

c) Key to abbreviations

- S = Sentence
- NP = Noun Phrase
- VP = Verb Phrase
- PrepP = Prepositional Phrase
- T = Determiner
- N = Noun
- Prep = Preposition
- V = Verb
- Adj = Adjective
- Aux = Auxiliary
- $\rightarrow$ = "Rewrite as"

Figure 10. Phrase-Structure Rules and Phrase-Marker Analysis,
after Chomsky
rules because they operate on the entire string; that is, they transform the final result of the phrase-structure rules. By way of example, we can invoke a passive transformational rule in order to convert an active phrase marker into a passive one, and thus we can illustrate the underlying structural similarity between the active mood in the sentence "The man hit the ball" and the passive mood of "The ball was hit by the man" (Figure 11).

a) Transformational rule

\[ NP1 + V + NP2 \rightarrow NP2 + be + en + V + by + NP1 \]

b) Phrase-marker analyses

The power of Chomsky's transformational rules emerges from their ability to illustrate explicitly the structural similarities between different surface realizations. For example, given our sample
sentence as an underlying string and without detailing the complexities involved, we find that the application of various transformational rules makes it possible to relate several different sentence constructions to one another:

a) The man hit the ball.
b) The man did not hit the ball. (Negative transformation)
c) Did the man hit the ball? (Interrogative transformation)
d) The ball was hit by the man. (Passive transformation)
e) Didn't the man hit the ball? (Negative and Interrogative transformations)
f) Was the ball hit by the man? (Interrogative and Passive transformations)
g) The ball was not hit by the man. (Negative and Passive transformation)
h) Wasn't the ball hit by the man? (Negative, Interrogative, and Passive transformations)

With all this, though, we still have not provided a tool to account for syntactically homologous structures. The analysis of these constructions is most efficiently handled through the notion of embedding. The concept of embedded sentences permits a layering of sentence structures within a prior syntactic structure. Thus, a specific constituent (say, the VP) may be rewritten at a subsequent level as a complete sentence construction (S). For example, in the sentence "Mary convinced John to marry Jane" the prior sentence ("Mary convinced John" as an NP and VP) would embed as part of its VP an additional sentence ("John to marry Jane" as NP and VP). The embedding process can theoretically be carried out ad infinitum.32

32 Embedded-like constructions are the basis for Keiler's approach to the analysis of harmonic prolongation, see Chapter IV below.
To illustrate this principle graphically, we return to our example of syntactically homologous phrases, "John is eager to please" and "John is easy to please." It will be recalled that in the latter, "John" is the object of the verb phrase, and the subject is understood (i.e., It is easy [for Jane] to please John). The embedded structure that results is roughly depicted in Figure 12.

![Figure 12. Analysis of an Embedded Sentence Construction](image)

In *Syntactic Structures*, Chomsky was most immediately concerned with formalizing a syntactic theory irrespective of its potential relationships to semantic considerations (and thus he was perhaps influenced by his structuralist heritage). But in *Aspects*, Chomsky tries to submit the meanings of sentences to the same type of systematic study as he developed for the analysis of syntactic structures. This desire entailed a redefinition of the function of certain
components in his theoretic model. In this more comprehensive view, which is loosely illustrated in Figure 13, the base rules (roughly equivalent to phrase-structure rules) are the foundation for both the

![Diagram]

Figure 13. Chomsky's Model for Grammar after *Syntactic Structures*

semantic and syntactic components of the model, and they generate deep structures. From deep structures emerge both the surface structures (after an application of transformational rules) and the consideration of meaning; thus, the deep structures are the relevant input for a
theory of semantics. The linguist's goal becomes one of explicitly codifying the characteristics of the boxed components of the model as these components encompass the internal competence of a native speaker.33

Chomsky's linguistic principles have been submitted to extensive critical evaluation and revision by Chomsky and his followers as well as by linguists advocating other streams of linguistic thought--indeed, these other streams of thought usually emerge from, either through agreement or disagreement, Chomskyan principles.34 But his research into an innate knowledge of language and into the possibility that the structure of this knowledge mirrors other forms of cognitive structuring has furnished an appealing perspective for the study of other complex forms of human activities, and consequently Chomsky's fertile contributions to linguistic theory have influenced the nature of theorizing in many disciplines.

33 Recently, the framework for linguistic investigation shown in Figure 13 has been revised. These important revisions are not addressed here because they are not crucial to the purposes of this overview.

An additional point is that the notion of an innate ability or linguistic competence is somewhat similar to Saussure's concept of langue (see pages 22-23 above). I do not want to push the correlation too far, though, as many authors, including Chomsky, argue against a one-to-one correspondence between the two. As for knowledge being based on prior experience, Neisser makes a similar commitment, although not in such global philosophic terms; see pages 168-70 below.

34 For an overview of some of these revisions, and for a discussion of the critical attacks against transformational-generative grammar (including an extensive bibliography listing important sources), see Bruce L. Derwing, "Against Autonomous Linguistics," in Evidence and Argumentation in Linguistics, ed. Thomas Perry (Berlin: Walter de Gruyter, 1980), 163-89.
CHAPTER III
SEMIOTICS AND MUSICAL ANALYSIS I: THE TAXONOMIC-EMPIRICIST APPROACH

This chapter and the following two chapters examine and evaluate three distinct strategies for developing a semiotics of music. Each strategy, to varying degrees and in varying ways, is indebted to the semiotic framework presented in Chapter I, one of the schools of linguistics discussed in Chapter II, or both, and the nature and extent of this debt detailed in each chapter. The overall organization of these chapters is identical: first, the appropriate underlying semiotic, linguistic, and musical commitments are exposed; second, the analytic methodology employed in the respective approach is examined.

The taxonomic-empiricist approach has been almost exclusively developed by French theorists, and it has been extensively outlined by Jean-Jacques Nattiez. Although unwieldy and often inconsistent, Nattiez's *Fondements d'une sémiologie de la musique* presents the most complete exposition of the taxonomic-empiricists' theoretic framework and analytic methodology; therefore, his treatise is the springboard for the examination and evaluation of the taxonomic-empiricist approach in this dissertation.¹

Nattiez envisions a semiotic method applicable to music in all cultures, and consequently, he speaks of musical semiotics in its broadest sense: "musical semiotics should not be limited to a type of production bound by an a priori definition; rather, it must, in respect to each phenomenon recognized as music in a culture, take into consideration the totality of phenomena that are attached to it." Indeed, this expansive conception (which mirrors the descriptivists' "corpus of utterances") becomes tangibly evident in taxonomic analyses that range from a Yoruba melody to Xenakis's Nomos Alpha. Although the approach has been successfully applied to the analysis of non-Western musics, we examine it here with an emphasis on its implications for the analysis of Western (tonal) music.

The taxonomic-empiricists view language as a "primary modeling system," and they contend that linguistic concepts and methods should be adapted to musical analysis. The archetypal branch of approach to musical semiotics, "taxonomic-empiricist," was first applied by Keiler in his examination of their tenets. Its aptness, as will be seen, is reflected in this group's taxonomic methodology and empiricist outlook. See Keiler, "Two Views of Musical Semiotics," in The Sign in Music and Literature, ed. Wendy Steiner (Austin: University of Texas Press, 1981), 138-68.

2 Nattiez, Fondements, 109. "La sémiologie musicale ne saurait donc se limiter à un type de production délimité par une définition a priori: elle doit, au contraire, par rapport à chaque phénomène reconnu dans une culture comme musical, prendre en charge la totalité des phénomènes qui lui sont attachés."

linguistics for this sémiologie comparée, as Nattiez calls it, is structural or descriptive linguistics, and Nattiez hopes to construct a rigorous semiotics of music through the selective appropriation of structural principles. 4

The Tripartition

The tripartition is the foundation on which the taxonomic-empiricist approach is built, and its formulation supports the most important pillar in this perspective: the analyst must shed all analytic presuppositions and predispositions. While the concept of a neutral and objective analysis partly derives from both descriptivist principles and Saussure's concept of a rigorously maintained synchronic study, it is the tripartition that affords the means through which the musician can attain this goal. Indeed, the formulation of the tripartition envelopes many complex and crucial issues; therefore, to avoid clouding the treatment of these issues by mixing explanation with evaluation, this section describes the principles which characterize the tripartition before it addresses them critically.

4 An overview of the principles of structural linguistics is presented in Chapter II, pages 53-63. The acceptance of language as a "primary modeling system" clearly affiliates the taxonomic-empiricists' semiotic perspective with the second outlook that was described on pages 48-50 above.
Nattiez's Formulation

The conceptual process wherein music becomes symbolic (i.e., meaningful) for composers, performers, listeners, and musicologists is depicted by Molino's tripartition.\(^5\) The tripartition consists of three poles, poétique, neutre, and esthésique, and these three poles approximate a simple communication model (i.e., sender, message, receiver). By embracing this framework, the taxonomic-empiricists hope to separate a global diachronic analytic approach from a local synchronic one, but in addition, they have theoretically allied themselves with Bloomfield's communication model—compare, for example, their poétique pole with his S\(\rightarrow\), their niveau neutre with his r\(\ldots\) s, and their esthésique pole with his \(\rightarrow\) R.\(^6\)

The poétique pole is defined as the analysis of the strategies of production (i.e., the attributes of the sender). According to Nattiez, these strategies "govern the musical composition from its conception to its realization, including the philosophical, sociological, psychological, historical, aesthetic, and material states

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5 Jean Molino, "Fait musical et sémiologie de la musique," Musique en Jeu 17 (1975), 47. The terms poétique and esthésique used below to designate two of the poles of the tripartition do not readily translate into English; they are not the French equivalents of "poetic" and "aesthetic." Rather, they have been borrowed from the writings of Gilson and Valery who coined them to avoid potential etymological confusion with the words poétique and esthétique. This dissertation employs the original French throughout (except when quoting English-speaking authors) to retain the original spirit of the neologisms.

6 For a description of Bloomfield's communication model, see page 55 above.
which motivate or condition the creator until the work is considered finished.\(^7\)

In general, the poïétique pole is equated with historical approaches to musical analysis, such as the study of sketchbooks and notebooks, the history of forms, and the "conventional matrix." For Nattiez, the latter "gives an account, although not in explicit fashion, of the possibilities, both positive and negative, toward which a composer might be disposed at the time he sat down to write."\(^8\) Molino provides a useful description of this matrix; according to him it

is a virtual matrix that has never been explicitly presented to the mind of the creator. But there are things that are prohibited which are frequently more important than those things allowed because they permit a segmentation of the field of possibilities: one can then see what the strategy of creation has been and the degree to which the producer has taken into consideration the conventional matrix at his disposal.\(^9\)

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7 Nattiez, *Fondements*, 52. "Dans notre cas, relève du domaine poïétique tout ce qui conduit de la conception à la réalisation de l'oeuvre musical: les conditions philosophiques, sociologiques, psychologiques, historiques, esthétiques, matérielles qui motivent ou conditionnent le créateur jusqu'à ce que l'oeuvre soit considérée comme achevée."

8 Nattiez, *Fondements*, 70. "... l'approche historique rend compte même si c'est de façon peu explicite, de l'ensemble des possibilités, positives et négatives, dont un compositeur disposait au moment où il s'est mis à écrire."

9 Jean Molino, "Les Maximes de La Rochefoucauld," paper presented to the faculty of music of the University of Montreal, 1975; cited in Nattiez, *Fondements*, 70. "Il est clair que cette matrice est une matrice virtuelle qui n'a jamais été présente de manière explicit à l'esprit du créateur. Mais il y a des choses interdites, souvent plus
The point to be made here by the taxonomic-empiricists is that analytic practices resulting in broad stylistic characterizations, ranging from the description of forms to the identification of twelve-tone rows, are governed by poétique concepts because these characterizations are, at least implicitly, production oriented. Nattiez does not deny the value of these inherited "theoretical filters" (filtres théoriques), but he suggests that analysts usually invoke these potentially artificial grids without formally recognizing their inherently poétique biases. Taxonomic-empiricists contend that the nature and relevance of concepts applied in a diachronic (i.e., historical) sense can only be understood after synchronically examining the applicability of these concepts; thus, Nattiez believes that one goal for musical semiotics is "to provide sufficiently rigorous [synchronic] descriptions so that the meaning of the received [diachronic] concepts becomes more precise."  

The esthésique pole subsumes the determinants in the perception of the object, including its reception by listeners and its interpretation by musicologists, theorists, performers, and critics.

importantes que les choses permises car elles permettent de délimiter le champ de possibilités: on peut voir alors quelle a été la stratégie de création et la direction dans laquelle le producteur a mis en question la matrice conventionnelle qui était à sa disposition."

While Nattiez identifies several difficulties in esthésique considerations, he mainly asks whether it is possible to describe explicitly that which is understood in the perceptual process. Because perceptual judgments are subjectively grounded in introspective knowledge, their inclusion in a rigorous semiotic methodology would constitute an unacceptable bias.

Nattiez observes that confusion among the poétique and esthésique poles might arise. According to him,

theoretic knowledge plays a role in the perception of the composition, and in particular those elements of the poétique that include, for example, the rules of counterpoint and the scheme of sonata form. The situation is complicated by the fact that the musicologist comes post festum, from the same side as the listener with both poétique and historical knowledge as well as an esthésique competence that is exercised here and now.11

The above citation requires some critical comment here because its implications are crucial to the arguments below and to the analytic framework proposed in Chapter VI. The poétique/esthésique dichotomy is a complex set of relationships nested within many levels of interaction. For example, composers are the first "listeners" of their compositions, excluding certain types of compositions (such as aleatory), and their esthésique reactions may generate new or altered

11 Nattiez, Fondements, 409. "... les connaissances théoriques jouent leur rôle dans la perception de l'oeuvre, et en particulier ces éléments de poétique que sont, par exemple, les règles du contrepoint et le schéma de la forme-sonata. La situation se complique du fait que le musicologue vient post festum, du même côté que l'auditeur, avec tout un savoir poétique et historique, mais aussi une compétence esthésique qui, elle, s'exerce bien hic et nunc."
poïétique considerations of the work; consequently, this fundamental compositional process must be assimilated in a higher-order poïétique—granting, of course, that a distinction between the two operations can be made and that it is necessary to make it. Analogously, a listener's poïétique understanding of sonata principles must influence the esthésique interpretation of Beethoven's Piano Sonata, Op. 10, No. 2, where, in the recapitulation, the main theme returns in D major rather than the "expected" F major. Clearly, a strict separation of poïétique knowledge and esthésique competence will be difficult to maintain consistently, Nattiez's proviso for "confusion" notwithstanding.

Nevertheless, Nattiez believes that an analytic methodology must be cleansed from the influence of these two poles in order to obtain an unsullied objectivity in its results; it is the task of the neutral level to purge these poïétique and esthésique taints in order to support a rigorous methodology.

The most important component of the tripartition is the niveau neutre (neutral level) because it admits analysis of the material object itself. Nattiez predicts that this level "is undoubtedly the one that will cause the most debate."¹² and it is difficult not to admire the perspicuity of that premonition. In any case, the formulation of the niveau neutre and the isolation of its theoretic

function receive extensive treatment in the development of a taxonomic-empiricist approach to musical semiotics.

The neutral level is synonymous with a propaedeutic level (niveau propédeutique) because its purpose is to provide the preliminary data for the examination of the poétique and esthésique poles. As Nattiez describes it, "the neutral level is a level of analysis where one does not decide a priori if the results obtained by an explicit method are pertinent to the esthésique or poétique or both . . . . 'Neutral' here means that one proceeds until the application of a given procedure is completed, independently of the results obtained."\(^{13}\)

While the three poles of the tripartition (Figure 14, next page) embody the theoretic framework governing the methodology proposed by the taxonomic-empiricists, it is the neutral level that specifically supports the analytic method. By strictly enforcing neutrality, an analysis undertaken within the confines of tripartition can shear itself from the web of terminological ambiguity enveloping other musical analyses—a web spun by an imprecise use of terms in less objective musicological discourse. Nattiez, after citing several definitions of terms typically found in conventional melodic analysis (e.g., motive, cell, figure, theme, and phrase), shows that the definitions are

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13 Nattiez, *Fondements*, 54-55. "Le niveau neutre est un niveau d'analyse où on ne décide pas a priori si les résultats obtenus par une démarche explicite sont pertinents du point de vue de l'esthésique et/ou de la poétique . . . . 'Neutre' signifie ici que l'on va jusqu'au bout de l'application d'une procédure donnée, indépendamment des résultats obtenus."
inconsistent at best; as a result, he concludes that analyses based on these definitions will be intuitive—that is, it is the preconceived idea (i.e., "theoretical filter") of what these terms are supposed to mean that becomes the criterion for the specific segmentation of melody regardless of any evidence to the contrary that might be contained in the actual data.

Nattiez categorically rejects attempts at defining the analytic terms more precisely as a goal for his semiotic system, and he ultimately contends that natural language is too vague to serve as a language for a rigorous musical science. He suggests replacing natural language with a collection of abstract symbols that can be strictly defined in a lexicon. Thus, for example, the musical time-segment, or
is labeled \( a \) (or \( A \) or \( \alpha \)), and any quarrel as to its being, say, a cell or a motive is settled. Moreover, all \( a \) units would possess similar characteristics that are defined by their distinctive features, and the identification of these features allows an analyst to compare the unit to other segments of the composition; thus the method also generates a taxonomic hierarchy based on paradigmatic relationships obtained among the various melodic units. Nattiez states that musical semiotics should strive to develop "a formal, artificial, explicit language which can take into account all the units one can find in music and their combinations. In other words, musical semiology should invent a vocabulary and a syntax that would enable it to show how a work or set of works results from the combination of units varying in nature and size."\(^{14}\)

As a peroration for this overview, we summarize Nattiez's theoretic perspective and the function of musical analysis within that framework. Nattiez believes that

\[\text{from the taxonomic segmentation, based on a precise methodology, musical semiology, at the neutral level, has for its task the definition of a metalanguage capable of expressing the combinative relations between units. If it succeeds in this task, it will have bestowed a new scientific consistency on the analysis. Based on an explicit and reproducible segmentation, it tends toward exhaustiveness (which is never}\]

\(^{14}\) Nattiez, "Linguistics: A New Approach," 64. See Saussure's plea for a focus on the elements of \textit{langue} as discussed on page 23 above.
attained) by not excluding any interesting phenomenon beforehand; it thus respects the ancient Cartesian principle of complete enumeration from which it can make apparent an order, that is, a hierarchy among the inventoried elements that it has occasioned to class ... Moreover, this classification is combinative; that is, it shows, in the form of tables or by systems of rules, the relationships that each trait or each unit maintains with its neighbors.  

What Nattiez advocates, then, is a neutral preanalytic description, as it were, of the musical object that by its very nature avoids poétique or esthétique considerations; thus, the description is objective. The neutral level is a methodological artifact hovering between production and perceptual modes of musical behavior, and an analyst operating on this level must disregard insights which are potentially gleaned from the other poles. Implicit in this conception is that an analyst has the ability to recognize when poétique or esthétique considerations influence analytic decisions and that the analyst is able to expunge these influences. Laske, adding vocational support to this framework, asserts that "the musicologist has the

15 Nattiez, Fondements, 103-4. "A partir de segmentations taxinomiques, fondées sur une méthodologie precise, la sémiologie musicale, au niveau neutre, a donc pour tâche de définir un métalangage capable d'exprimer les relations combinatoires entre les unités. Si elle réussit ce programme, elle aura donné une consistance scientifique nouvelle à l'analyse: fondée sur un découpage explicite et reproductible, elle tend vers l'exhaustivité (jamais atteinte) en n'excluant pas a priori tel ou tel phénomène intéressant; elle respecte ainsi le vieux principe cartésien des dénombrements complets à partir desquels elle peut faire apparaître un ordre, c'est-à-dire une hiérarchie entre les éléments inventories qu'elle est amenée à classer ... De plus, cette classification est combinatoire, c'est-à-dire qu'elle montre sous forme de tableaux ou de systèmes de règles, les relations que chaque trait ou chaque unité entretient avec ses voisins."
professional obligation of strictly separating the three poles in order to avoid the systematic confusion created by the traditional music theorist and critic alike who never state explicitly exactly what relationships, neutral, poietic [poïétique], or aesthetic [esthésique], they are dealing with at a given moment.\textsuperscript{16}

The specific methodology supported by a neutral level of analysis is explicit and reproducible, and therefore rigorous. The units and the relationships circumscribed by the method are assigned abstract symbols which, insofar as the symbols are unburdened by theoretic preconceptions and terminological ambiguities, form an artificial scientific metalanguage. Only from this initial neutral analysis can poïétique and esthésique relevance be determined— that is, if either exists—and the units and relationships culled from the segmentation process are the bases for these higher-level decisions. Consequently, the status of the neutral level is one of description and classification.

Critical Evaluation

Because the tripartition is the theoretic baggage carried to musical analysis by the taxonomic-empiricists, and because of the number of crucial issues with which it attempts to deal, it is reasonable at this point to examine exactly what value the tripartition

\textsuperscript{16} Otto Laske, review of Fondements d'une sémiologie de la musique by Jean-Jacques Nattiez, \textit{Perspectives of New Music} 15:2 (1977), 222.
brings to a theory of musical semiotics. Although the bulk of this section explores the ramifications of the neutral level, the remaining two poles are not ignored—indeed, as will become apparent, the neutral level must be concerned with poiétique and esthésique elements.

The quintessential objective in the quest for a taxonomic-empiricist approach to musical semiotics is the strict theoretic formulation of the neutral level. This goal is not attained. Part of the problem is that Nattiez, regardless of his insistent remarks to the contrary, equivocates on the actual purpose of the neutral level. For example, after his description of the function of the neutral level, Nattiez immediately obscures the purpose of that function with an apparent non sequitur: the "tools" employed in neutral analyses are systematically exploited until their ultimate consequences, and they are replaced only when new hypotheses or new difficulties lead to the proposal of new ones . . . . The descriptive tools are not, therefore, neutral in the absolute . . . . [Rather,] the neutral level is continually agitated; it is revised and transformed each time new information leads to the introduction of new descriptive variables and to the reorganization of previous segmentations into new configurations.

When this quotation is coupled with the preceding discussion of the

17 Nattiez, Fondements, 54-55. "... sont exploités systématiquement jusqu'à leurs ultimes conséquences, et ne sont remplacés que lorsque de nouvelles hypothèses ou de nouvelles difficultés conduisent à en proposer de nouveaux... ne sont donc pas neutres dans l'absolu... Le niveau neutre est perpetuellement bouleversé: il est remanié et transformé à chaque fois que de nouvelles informations conduisent à introduire de nouvelles variables descriptives et à réorganiser en nouvelles configurations les découpages antérieurs."
neutral level, we find that there are, in fact, two objectives for the neutral level.

The first objective is to construct a level of analysis where the analyst is not prejudiced by poïétique or esthésique concepts. But if the value of isolating the neutral level as a preanalytic artifact is ultimately dependent upon the information imparted by its results to the other analytic levels, then one must assume that its results are pertinent within the entire tripartition. Consequently, a potential for poïétique and esthésique relevance is inherent in the conception of the neutral level and the accompanying methodology. Nattiez apparently recognizes this dilemma, and he states that his methodology is not "neutral in the absolute" since it provides "a point of anchorage for subsequent poïétique and esthésique analyses."18 In addition, he points out (and by so doing he seemingly obfuscates the entire concept of neutrality) that "it is absolutely false to claim that the process of classification [i.e., the methodology] ... makes no appeal to either intuitions or to hypothesis."19 Unfortunately, when these emendations are compared to Molino's observation that the neutral level is "doubly neutral because it consists of a description of phenomena where one does not consider the conditions of production and reception of the

18 Nattiez, Fondements, 55. "Le outils de la description ne sont donc pas neutres dans l'absolu ... ils fournissent un point d'ancrage pour les analyses ultérieures, poïétiques et esthésiques."

19 Nattiez, Fondements, 256. "... il est absolument faux de prétendre que la démarche classifiericatrice ... ne fait appel ni aux intuitions ni aux hypothèses."
message, and where one does not question either the validity of the transcription or the tools utilized order to carry it out, it is apparent that agreement as to the theoretic function of this level is less than unanimous.

To assume a neutral level of analysis is to deny the significance of musical experience and its applicability to analysis (and, for that matter, the significance of analysis to musical experience). A neutral description of an object can only be achieved if procedures are developed that do not take into account intuitions derived from poétique and, more crucially, esthésique, or perceptual, modes of musical behavior. This assumption, in turn, necessarily implies that the view of musical organization upon which these procedures are based must also be free from such intuitions. This formulation of the analytic process is completely untenable in music. From the outset, a theory of musical analysis must consider the conceptual relevance of what its methods are to discover, both in relation to the theory itself and to the complexity of the object under consideration. For an analytic method to be relevant to musical objects, and therefore informative in a meaningful way about the nature of those objects, it must be grounded, either explicitly or implicitly, in a frame of reference. This framework governs and is governed by the results of the analysis,

20 Molino, "Fait musical," 58. "Niveau doublement neutre puisqu'il consiste en une description des phénomènes dans laquelle on ne fait pas intervenir les conditions de production et de réception du message, et dans laquelle on ne met en question ni la validité de la transcription ni les outils utilisés pour en rendre compte."
and it is ultimately derived from past encounters and associations with other musical compositions— it thus assumes both *poétique* and *esthésique* competencies.\(^{21}\)

Furthermore, if it is to be pertinent to musical procedures, a framework for musical analysis cannot ignore the significance of *poétique* or *esthésique* factors in the determination of analytic judgments. Indeed, an analytic framework must overtly acknowledge that analytic judgments emerge from and are imbued with a nesting of these factors. The nesting of *poétique* and *esthésique* elements is not mutually exclusive: an analyst approaches a composition from the *esthésique* side, and *poétique* knowledge is assimilated in *esthésique* competence. Also, although *poétique* knowledge is ultimately limited—for example, it is impossible to determine what a composer may have intended (apart from what is produced)—we nonetheless have the product, and we can thus assume *poétique* competence on the part of the composer.\(^{22}\)

If an analyst is located on the *esthésique* side, and if theoretic assumptions and analytic judgments are ultimately *esthésique*

\(^{21}\) Compare these concepts to the citations from Popper and Neisser on page 62 above. In a context closer to immediate concerns, Ruwet (after abandoning his original position—see note 26 below) stated that "any taxonomy assumes a preexistent theory, either implicitly or explicitly." Nicolas Ruwet, "Théorie et méthodes," 15. ". . . toute taxinomie suppose une théorie préexistante, implicite ou explicite."

\(^{22}\) For related discussions, see the examination of both Keiler's concept of musical competence in Chapter IV and Hatten's semiotic perspective in Chapter V. In addition, these assertions are developed in the theoretic perspective outlined in Chapter VI.
in nature, then an analytic framework must account for perceptual modes of musical behavior—after all, these modes of behavior are the embryo of analytic observations. Perception is a dynamic process wherein sound stimuli are continually evaluated and reevaluated by the analyst/listener in relation to the organization and presentation of the object and the knowledge of the analyst/listener. The value of an analytic framework is the degree to which it succeeds in correlating the results of its methodology to that dynamic process. The development of a framework wherein a methodology may or may not be applicable to the perceptual process is not sufficient. Cone states that "true analysis works through and for the ear" and the greatest analysts "are those with the keenest ears; their insights reveal how a piece of music should be heard, which in turn implies how it should be played." In addition, Babbitt observes that

the hearing of music is always organized perceptually according to some analytical conception, be it verbalized or not, and the test of the validity of Schenker's [or any other analyst's] conceptions is not whether "one hears that way" but whether, after having become aware of these conceptions, the listener does not find that they enrich his perceptive powers by making listening more efficient and meaningful, by "explaining" the formerly "inexplicable," and by granting additional significance to all degrees of musical phenomena.

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The second objective for the neutral level of analysis that emerges from Nattiez's formulations is one of developing an explicit artificial metalanguage free from terminological ambiguities. A concern for imprecise correlations between observed data and descriptive language is well-founded, and the issue has been addressed recently by many theorists and musicologists. Certainly, a rigorous and consistent use of carefully defined terminology is a necessary concomitant of formalized analytic discussion.

But at this point the purpose of the neutral level has shifted from an analytic method free from poétique and esthésique intuitions to an analytic vocabulary free from contradictory presuppositions. Since the problems and concerns of one complement those of the other, the two goals are entwined. But the shift of emphasis, coupled with Nattiez's continual fluctuation between the two, is detrimental. An analytic methodology devoid of perceptual or production insights has been precluded by the above discussion of the first objective for a neutral level; an analytic vocabulary devoid of a priori restrictions or terminological ambiguities is possible, but it is more appropriately attained through rigorous definitions and consistent applications. In this regard, we agree with Schneider, who feels that

Nattiez can pursue a legitimate critique on the inaccuracy of the conceptual definitions which he cites; it is nevertheless a fallacy to assume that the replacement of natural speech with an abstract system of symbols would solve this problem. Were one to proceed in this manner, then the task poses a specific problem: The question "What is a motive, a period,
and so on," however, is not answered any better. ... The problems natural speech raises are not resolved by circum-
venting them.25

The Methodology

The analytic methodology employed by the taxonomic-empiricists consists of the segmentation and taxonomic classification of melodic units. The methodology was codified by Nicolas Ruwet who used it as a tool for his analyses of melodic structures in monodies.26 Its historical restraints have has since been loosened, and it is now the basis for taxonomic analyses of melodic structures in music of all

25 Reinhard Schneider, Semiotik der Musik: Darstellung und Kritik (Munich: Wilhelm Fink, 1980), 230. "Nattiez kann berechtigte Kritik an der Ungenauigkeit der von ihm zitierten Begriffsbestimmungen üben, es ist jedoch ein Fehlschluss, anzunehmen, dass die Ersetzung der natürlichen Sprache durch ein künstliches Symbolsystem diese Probleme lösen würde. Wollte man so verfahren, wäre dies die Aufgabe einer bestimmten Fragestellung: Die Frage 'Was ist ein Motiv, eine Periode usw.? Väre dann nicht mehr beantwortbar.... so dass man die Probleme, die die natürliche Sprache aufwirft, nicht lösen kann, indem man sie umgeht.'

Schneider's text is an informative and wide-ranging summary of many semioticians. His musical focus, though, is primarily aimed at the taxonomic-empiricist approach, and his conclusion is essentially that a semiotics of music, in specific, and semiotics, in general, cannot add anything new to musical analysis if they adhere to Ruwet's and Nattiez's principles.

periods. The description of the entire methodology, together with a translation, is provided in Appendix A of this study.

Ruwet identifies two different semiotic approaches that can explicate the relationship between message and code: the first approach proceeds from the code to the message, and it is analytic; the second proceeds from the message to the code, and it is synthetic. Taxonomic-empiricism is concerned with the former, as is illustrated by Ruwet's observation that "the job of the analyst consists of breaking up and manipulating the corpus (the given totality of messages) in various ways so as to extricate the units, classes of units, and their rules of their combinations which constitute the code. The crucial problem here is the discovery procedures; that is, the criteria of the analysis." Thus, discovery of the code comprises two related components: 1) the inventory of the parts of the message, and 2) explicating the rules of their combination. Each component emerges from the application of an inductive methodology, or the "discovery procedures."

A basic application of this methodology is illustrated by Ruwet's analysis of a fourteenth-century Geisslerlied (Example 1, next page). Ruwet's analysis (Example 2, next page) isolates the levels of pertinent segmentations (i.e., those segmentations based on the explicit criteria detailed in the methodology), and the letter notation

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27 Ruwet, "Méthodes," in Langage, musique, poésie, 100. "Le travail de l'analyste consiste alors à décomposer et manipuler le corpus (l'ensemble donne de messages) de diverses manières, de façon à dégager les unités, classes d'unités et règles de leurs combinaisons, qui constituent le code. Le problème crucial est ici celui des procédures de découverte, c'est-à-dire des critères d'analyse."
Example 1. Geisslerlied

Example 2. Ruwet's Analysis of the Geisslerlied
represents the hierarchic ordering of the segmentations. In addition, the graphic depiction of the analysis preserves the composition's syntagmatic (i.e., temporal) relationships on the horizontal axis while simultaneously illustrating paradigmatic (i.e., associative) relationships among nonadjacent segmentations on the vertical axis.\textsuperscript{28}

Nattiez translates this analysis into a table (Figure 15, next page) wherein a system of rewrite rules accounts for the segmentations culled by the methodology.\textsuperscript{29} This table graphically illustrates the similarity between the taxonomic-empiricist approach to

\textsuperscript{28} This analysis is similar to that found in Ruwet, "Méthodes," in \textit{Langue, musique, poésie}, 116. The analysis in Example 2 can be confusing because it presents two complete applications of the analytic procedures (i.e., the two levels indicated by upper and lower case letters) and hints at a third application (i.e., the units indicated with a numerical subscript). Ruwet eventually completes the third application. Incidentally, Ruwet never mentions the rhythmic transformation of the $A'$ eighth notes of b into the $A''$ quarter note of b'.

The analysis of this Geisslerlied has become somewhat fashionable in semiotic circles (not unlike the analysis of the opening measures of Mozart's \textit{Piano Sonata}, K.331 in other analytic circles). For example, Arom's analysis of this "flagellant song" tries to eliminate the blank spaces in the syntagmatic plane of Ruwet's presentation with transparent overlays. In addition, by "translating" the musical notation into a simple numerical notation, Arom illustrates, in 24 tables, the melodic and rhythmic similarities and differences among the various levels of units. Arom's cumbersome, but unique, graphic method, however, is only applicable to monodies, and many paradigmatic associations are highly questionable. See Simha Arom, "Essai d'une notation des monodies a des fins d'analyse," \textit{Revue de musicologie} 55:2 (1969), 172-216.

\textsuperscript{29} The table and accompanying rule system shown in Figure 15 are similar to those found in Nattiez, \textit{Fondements}, 258-59. On the diagram presented in the \textit{Fondements}, however, $A'$ is erroneously indicated by a b c d on level II (instead of a b c b). Also, c is shown as $c_1$ and $c_2$ (instead of $c_1$ and $d_1$). The correct interpretations are given in Figure 15.
Thus,

\[\text{GL} \rightarrow A \rightarrow A' \rightarrow B \rightarrow B\]
\[A \rightarrow a \rightarrow b \rightarrow c \rightarrow b'\]
\[A' \rightarrow a \rightarrow b \rightarrow c \rightarrow b\]
\[B \rightarrow d \rightarrow b'\]
\[a \rightarrow a_1 \rightarrow a_2\]
\[b \rightarrow b_1 \rightarrow b_2\]
\[b' \rightarrow b_1' \rightarrow b_2'\]
\[c \rightarrow c_1 \rightarrow d_1 \rightarrow d_1\]
\[d \rightarrow d_1 \rightarrow d_1\]

\[a_1 \rightarrow \text{[music symbol]}\]
\[a_2 \rightarrow \text{[music symbol]}\]

and so on.

Figure 15. Nattiez's Analytic Table for the Geisslerlied
music and the descriptivist approach to linguistics. The hierarchic
levels and rewrite rules shown above, as in descriptivist analyses, are
decided after the application of the methodological procedures.\(^{30}\)

The analysis of the Geisslerlied is considered to be 1) both
rigorous and scientific because the criteria of selection and hier-
archic organization are explicit and reproducible (thus making it
possible for all subsequent analysts to determine how each decision was
made); 2) unencumbered with ambiguous and ill-defined terminological
constraints (which is simply to say that all "abstract" labels are
eventually defined by concrete musical notes); and 3) neutral (that is,
it refers to neither poiétique nor esthésique factors).

Nattiez adopts these analytic principles without reservation,
and, after grounding them in the tripartite framework, they become the
methodology for neutral level. Although Nattiez's goal is to apply
these procedures to all music, we must be content with an examination
119, No. 3.\(^{31}\) The multi-voiced Intermezzo, though, presents a slight
difficulty to an apparatus designed to analyze melodic constructions;

\(^{30}\) Compare this discussion to the one presented in con-
junction with the structural analysis of the sentence "The young man
hit the ball with a bat" on pages 59-60 above.

\(^{31}\) Nattiez also presents an extensive analysis of Debussy's
Syrinx carried out according to these procedures. As an analysis of a
monophonic composition (flute solo), though, it cannot address the
important issue of how these principles are applied to homophonic or
polyphonic compositions. See Nattiez, Fondements, 330-54; and Nattiez,
"From Taxonomic Analysis to Stylistic Characterization: Debussy's
Syrinx," in Proceedings of the 1st International Congress on Semiotics
consequently, before applying the methodology, Nattiez asserts that there must be a strict separation of both the melody from the accompaniment and the melodic parameter from the other parameters (e.g., rhythmic or harmonic). In other words, since the methodology is only concerned with melodic analysis, rhythmic and harmonic considerations are potential obstructions to an objective examination of melodic units (and thus, we have a low-level melodic neutrality, as it were).

Nattiez proposes two approaches to a taxonomic analysis of the melodic units of the composition. Each approach is equally valid within the methodological procedures, and each illustrates particular points of analytic significance. The first approach, from large to small ("de haut en bas"), begins with the larger units (usually eight to twelve measures) and progressively wends its way to smaller ones (i.e., those at the beat level). The second, from small to large ("de bas en haut"), begins with smaller units (usually a beat) and works to the larger units of the first approach. While both approaches ultimately obtain identical structures at larger levels, they reveal complementary results at smaller levels (Example 3, next page).32

One point the two approaches reveal is that the E4 of measure 3 can be analyzed differently: 1) as the concluding note of segment Γ shown in Analysis I, and 2) as the beginning note of segment α shown in Analysis II (Example 4, next page). Nattiez maintains that this

32 Example 3 is from Nattiez, Fondements, 311. Analysis I represents a segmentation from "large to small"; Analysis II from "small to large."

Example 4. Detail of Analyses I and II in Measure 3
ambiguity (i.e., is $E^4$ a beginning or an end of a unit?) is justification for different esthésique interpretations of the passage because it was discovered by a neutral melodic analysis.\textsuperscript{33}

Be that as it may, for all the polemical verbiage surrounding neutral analysis and strict separation of parameters, Nattiez apparently succumbs to his knowledge of metrical considerations in these analyses. For example, neither analysis identifies A – G – E (see measures 2, beats 2 through 4) as a unit. This melodic detail is at least as significant as the other units (e.g., see measures 1 and 3), and it can even be taxonomically related to other units (e.g., as a "retrograde" of $\alpha$). Moreover, it is a melodic feature that recurs throughout the composition (e.g., see measures 25-32). Thus, in a taxonomic segmentation that strictly separates parameters, the fact that it occurs over a weak beat should not be a consideration.

The analyses contain additional flaws, both in their melodic segmentations and in their questionable paradigmatic equivalencies, and these flaws have been addressed elsewhere.\textsuperscript{34} Our concern is with three of the underlying assumptions which govern the methodology in the analysis of this particular melody.

\textsuperscript{33} Nattiez cites a performance by Julius Katchen as indicative of Analysis I, and a performance by Walter Klein as representative of the interpretation in Analysis II. See Nattiez, Fondements, 326.

\textsuperscript{34} See, for example, Jonathan Dunsby, review of Fondements d'une sémiologie de la musique by Jean-Jacques Nattiez, Perspectives of New Music 15:2 (1977), 230.
First, Nattiez’s circumscription of the "melody" in the Intermezzo is ineluctably troublesome: there are simply no criteria offered in order to define what constitutes the melody. In his analysis of this primarily homophonic Intermezzo, Nattiez apparently assumes that the voice which is notationally separated from the other voices by different stem directions is the melody. Nonetheless, the notational crutch, as it were, is not always evident (e.g., measures 33–34 and measures 37–40). Without explicit criteria that unequivocally separates the melody from the surrounding fabric, taxonomic analyses of complex polyphonic compositions will contain inconsistent or ad hoc applications of the procedures.\(^{35}\)

\(^{35}\) Although Ruwet cautioned that "it would evidently be very difficult to apply the same procedures [i.e., his methodology] to represent polyphonic structures" (Ruwet, "Méthodes," in Langage, musique, poésie, 117. "Il serait évidemment très difficile d'appliquer le même procédé à la représentation des structures polyphoniques"), there have been attempts to apply it. For example, see Elisabeth Morin, "Problèmes de l'analyse sémiologique des œuvres polyphoniques," in A Semiotic Landscape: Proceedings of the First Congress of the International Association for Semiotic Studies, Milan, June 1974, ed. Seymour Chatman, Umberto Eco, and Jean-Marie Klinkenberg (The Hague: Mouton, 1979), 1010-14; and Celestin Deliege, "Théorie et pratique de l'analyse musicale," in Proceedings of the 1st International Congress on Semiotics of Music, ed. Gino Stefani (Pesaro, Italy: n.p., 1975), 151-71. Morin’s analysis simply presents a strict taxonomic segmentation of the three voices of a Bach fugue. By superimposing the paradigmatic blocks revealed in each voice, she presents an overview of the structure of the fugue with some unusual results—e.g., the "subject" is considered a "small introduction" and the first section begins with the entrance of the second voice. Deliege, on the other hand, is not overtly concerned with solving the problems of a polyphonic taxonomic analysis, but his analysis of a section of the Brahms Haydn Variations illustrates the incongruities faced in such an analysis—e.g., the problem of a syntagmatically prior unit preceding its paradigmatic "head." This dilemma is examined in more detail below.
Second, generating a transformational hierarchy of paradigmatic equivalencies from the strict syntagmatic presentation of its units is questionable. In the above analyses, each paradigmatic block does not necessarily reflect a constant set of transformational procedures. It follows, then, that the alphabetical nomenclature assigned to paradigms does not signify a specific type of transformation—that is, the relationship between, say, a and a' is not necessarily the same as between b and b' (e.g., one may be a transposition, the other a rhythmic permutation). The problem, though, is that the first syntagmatic appearance of a unit in the paradigmatic block is called the "head of the paradigm," and all other units in the paradigm are described in terms of their transformational derivations from that original unit—thus implying that the first statement of the unit is conceptually prior to its subsequent transformations. While this formulation does not contradict the most broadly defined concept of the developmental process, it does ignore a fundamental compositional procedure wherein a unit may be said to "emerge" into its "conceptually prior" form. Indeed, the notion that an abstract prior form may not even be stated in the composition is one which cannot be entertained in this approach. An early syntagmatic appearance of a unit, simply

36 See, for example, Mozart, Symphony No. 38, first movement, transition to second theme, measures 95–97; Beethoven, Symphony No. 1, opening of fourth movement; Beethoven, Piano Concerto No. 5, transition between second and third movements; Schubert, Symphony No. 9, II:1–16, particularly measures 3–4 and measures 8–9; Brahms, Symphony No. 4, II:1–6; Tchaikovsky, Symphony No. 6, all of third movement, and Prokofiev, Symphony No. 7, II:44–53.
because of its temporal placement, does not necessarily guarantee its paradigmatic priority.

Third, the taxonomic-empiricists' methodology is ensconced in a segmentation of melodic units based on purely surface repetitions, and it can only illustrate a limited set of melodic transformations (e.g., augmentation, diminution, fragmentation, retrograde, or inversion); it therefore makes no provision for melodic transformations whose surface features are distinct but whose background characteristics are similar. This predicament would have to be faced in the taxonomic analysis of a set of variations, where surface details often differ radically between a theme and its subsequent variation(s). Consequently, in a taxonomic analysis, the more elaborate variations in, say, Beethoven's Diabelli Variations or Brahms's Paganini Variations would have to be examined separately from the particular melodic paradigms established in each variation: at no point within the analytic process can correlations between a complex variation procedure and its derivation(s) from the theme be illustrated.  

Although the methodology is specifically concerned with the analysis of melodic constituents, Nattiez has offered a neutral harmonic analysis of the first twelve measures of the Intermezzo.  Briefly, the analysis consists of two distinct divisions: 1) a

37 Vincent d'Indy's Istar Variations, although an unusual treatment of the variation form, would be particularly problematical for this method of analysis because the most complex variation appears first; the theme does not appear until the end of the composition.

38 Nattiez, Fondements, 320-26.
"macroanalysis," which basically represents a standard chordal analysis that accounts for nonchordal tones, and 2) a "microanalysis," which analyzes every vertical sonority as a chord or possible chord. It is unclear how the harmonic analysis fits into the taxonomic approach, especially since it is a basic application of typical Roman-numeral analysis. Nevertheless, Nattiez's main point is to illustrate harmonic ambiguity in the opening measures, and his neutral analytic "levels" reveal that these measures can be analyzed in either C major or A major-minor. 39 Without belaboring the questionable value of the observation and the incongruities in both analyses, 40 we note that the analysis is not accorded great significance by Nattiez; indeed, its only purpose seems to be a stab at analytic thoroughness.

39 Nattiez does not entertain the possibility that at least the first three measures can be analyzed in G major and E minor in addition to C major and A major-minor. (Indeed, measures 6 and 7 make as strong a hint at G major as later measures do at A major-minor.) The determination of a tonic or possible tonics plagues him elsewhere; for example, he apparently interprets the passage as an unequivocal indication of a C major tonality. But the information presented would also admit G major, A minor, or E minor as possible choices for tonal centers. See Nattiez, Fondements, 211.

40 For example, in the macroanalysis of measure 6 the first beat (i.e., the three eighth notes) is analyzed as a I chord in C major and the a is passing. But in the macroanalysis of the first beat of measure 5, b, in the same metric and melodic position as the a of measure 6, is considered part of the chord (vii0); thus, according to the criterion established by the analysis of measure 5, the first beat of measure 6 should be analyzed as a vi chord. See Nattiez, Fondements, 323.
Nattiez's intent in the *Fondements* is to develop a foundation for the science of musical semiotics, and the scope of the book attests to the tenaciousness with which he pursues this overriding goal. Nonetheless, the theoretic framework and analytic methodology are fraught with irreconcilable difficulties, both in principle and in practice. A semiotics of music cannot be concerned with neutral descriptions that do not explicitly assume a potential for esthésique and poïétique relevance, or that intentionally avoid insights gleaned from musical experience. Moreover, a semiotics of music cannot embrace an inductive methodology that tries to capture the complexity of the musical object by merely slicing a musical surface according to its melodic repetitions.
CHAPTER IV
SEMIOTICS AND MUSICAL ANALYSIS II: THE GENERATIVE APPROACH

As indicated in Chapter II, the development of a transformational-generative grammar launched a reorganization of the linguistic field: it irrevocably altered how the language process was described and, consequently, how this process was understood to function. But linguistics has not been the only discipline affected by the development of a generative grammar. The desire to correlate generative principles to other complex modes of cognitive behavior has spawned significant attempts to incorporate the results of generative grammar into disciplines investigating other aspects of human cognition.

Not unexpectedly, music theory—a discipline exploring musical cognition—has absorbed valuable insights from music theorists who have shown more than a passing interest in generative principles and their potential applicability to musical concerns. Indeed, the results of these interdisciplinary contributions have been clothed in many guises depending on both the linguistic and musical designs of the specific theorist. By shrouding their generative proclivity in musical apparel, these theorists have illustrated several important connections between current linguistic thought and problems of musical analysis.
Before turning to an examination of the use of generative principles in a semiotic approach to musical analysis, it is appropriate to discuss briefly the suggestion of an analogical link between Schenker's theory of musical structure and Chomsky's theory of language structure. The possibility of such a link has been proposed frequently, and the search for an exact correlation between the two theories might seem enticing: both theories attempt to show through hierarchic levels and transformational procedures the relationship of a particular surface to its corresponding "deep" structure. Nevertheless, the analogy, if it is to be pursued, must be advanced with trepidation. Schenker's theoretic principles have not been submitted to the type of formalization demanded in generative grammar, and while this lack of formalization does not demean Schenker's analytic observations, it suggests that attempts to graft specific principles of generative grammar directly onto the Schenkerian model may be untenable. Rather, the overriding concern should be attending to the conceptual frameworks underlying both models--that differing manifestations of human creativity are hierarchic in nature, and that complex surface realizations can be better understood through their relationships to simpler and more abstract universals. Schenkerian theory and Chomskyan theory are cousins, as it were, kin by a prior relationship: there is no need to impose or transplant the distinct personality of one on the other. As the "personality" of each becomes more clearly understood, we will be better equipped to approach the
intricate nature of the more distant relationship as well as any atavistic traits evident in other modes of cognitive behavior.¹

It is clear, though, that Schenker's theories play a prominent role, at least as a point of departure, for approaches to musical analysis derived from generative linguistics. The prominence of this role is indicative of at least two facts: first, as discussed above, the proposal of correspondence between Schenker's and Chomsky's theories; and second, the importance of Schenker's theories in current research in music theory—that is, many descriptions of tonal music (and of "nontonal" music) tend to define themselves in terms of their relationship to Schenkerian principles. In adopting principles of generative grammar, then, theorists generally have to explicate their association to the now-fashionable Schenkerian paradigm. Indeed, this explication process is normal. If an analytic framework based on generative principles (or for that matter, any analytic framework) is to be considered a viable means of analysis, it must articulate what it intends to illustrate about musical processes that could not be as easily illustrated through more "traditional" analytic frameworks—in other words, how its insights contribute to a more complete understanding of the complex nature of musical objects.

¹ For further discussion of the Schenker-Chomsky analogy see Allan Keiler, "The Empiricist Illusion: Narmour's Beyond Schenkerism," Perspectives of New Music 17:1 (1978), 174-88; and Fred Lerdahl and Ray Jackendoff, A Generative Theory of Tonal Music (Cambridge, Mass.: The MIT Press, 1983), 111-13. Also see the succeeding chapter (pages 141-43) where Narmour's attempt to translate a Schenkerian analysis into a Chomskyan model is examined.
Recently, an approach to a semiotics of music, influenced by both generative linguistics and Schenkerian theory, has been developed by Allan Keiler. Keiler's objective is to illustrate hierarchical chordal relations based on their harmonic prolongations, and his framework and method are the subject of this chapter.

Another attempt to employ generative principles and a broad Schenkerian model is found in the writings of Fred Lerdahl and Ray Jackendoff. Whereas there are surface similarities between the approaches of Keiler and Lerdahl and Jackendoff, specifically in the use of tree-structure diagrams to illustrate analytic results, the respective theoretical perspectives are distinct, although they are not necessarily mutually exclusive. Keiler, though, proposes his methodology as an approach to a semiotics of music, and Lerdahl and Jackendoff do not. Consequently, the ensuing discussion assumes Keiler's model as its basis. This restriction, however, is not to suggest that the model proposed by Lerdahl and Jackendoff does not address semiotic issues. Indeed, as indicated in the Introduction and discussed in Chapter II of this study, the mere use of linguistics as a paradigm might suggest to some authors that Lerdahl and Jackendoff's model is semiotic. Nevertheless, by concentrating on Keiler's model we simply wish to remain consistent in our examination of methodologies explicitly proposed as potential approaches to a semiotics of music, and thus we leave the discussion of related models on the periphery.

2 Lerdahl and Jackendoff, *A Generative Theory*. 
Keiler's Framework

This summary and examination of Keiler's model is based on four articles in which Keiler furnishes the basic principles of his system. In extracting the relevant observations pertaining to this system, though, we recognize that Keiler, at least at the time of the present writing, has not offered a formalized exposition of his principles. Thus, as is shown below, a distinct evolution of crucial concepts is apparent over the span of the articles—an evolution that is sometimes not explicitly discussed by Keiler (or at best submitted to only cursory treatment by him). These changes, which can create some confusion in the application of the analytic system, would perhaps be explained more thoroughly in a systematic presentation of the methodology—an explanation which could alleviate the discrepancies noted below. It is with these qualifications in mind that the articles are treated as a complete text that explicates both the framework and the methodology for a generative approach to musical semiotics.

Keiler's point of departure is the distinction between musical competence and musical performance. He suggests that a meaningful theory of music must attend to the area of musical competence while

simultaneously hypothesizing about the nature of musical performance. It is worth quoting at some length Keiler's conception of musical competence for the passage's value in clarifying his theoretic framework. According to Keiler,

theories of musical competence are concerned with formalizing the internalized knowledge that listeners bring to music which allows them to organize musical sounds into coherent patterns. This internalized musical knowledge underlies the most diverse musical activities. It is reflected, for example, in the ability of a listener to identify examples as belonging to a certain style, to make judgments about appropriateness, and, in general, to superimpose a structure on the input stimulus that corresponds in some way to his understanding of how a given musical system works. Surely all analytic techniques presuppose, whether or not they are made explicit, a given system of parameters and relationships which constrains the ways in which perceptual judgments are made about pieces of music.4

The relationship of the above citation to Chomsky's notions of linguistic competence should be clear in that both Keiler and Chomsky are concerned with the internalized knowledge of native "speakers" of their respective "languages."5 In addition, though, Keiler's emphasis on analytically describing and theoretically formalizing musical competence immediately separates him from the theoretic framework of the taxonomic-empiricist approach and their

4 Keiler, "Bernstein's The Unanswered Question," 203-4. Incidentally, Lerdahl and Jackendoff suggest a similar framework, but they use "musical intuition" in place of Keiler's "musical competence"; see Lerdahl and Jackendoff, A Generative Theory, 1-5.

5 For an overview of Chomsky's notion of linguistic competence, see pages 70-73 above.
their attempt to purge all esthesique influences from the neutral level of analysis. 6

Keiler defines his distinction between musical competence and performance further by delimiting the relationship of his concept of a general musical competence to his broadly defined notion of musical performance. For him, a theory of a general musical competence would include an understanding of those grammatical constraints that define tonal music as a coherent musical language, as well as properties that reflect more specific stylistic distinctions. The consequence of the distinction of musical competence and performance in analysis should therefore be reflected in the ability of any theory of tonal music to specify for any possible piece in that domain what is universal about the choices that make up its tonal language and what is idiosyncratic. . . . The need to construct a theory of a (tonal) musical structure that provides a clear way of making such a distinction, whatever the content of such a theory may prove to be, . . . lies at the foundation of any meaningful theory of musical style or, what is at the moment even more intractable, theories of musical value. 7

Here, musical "performance" is not simply the particular composition itself or any performance of the composition; rather it is defined by its relation to and usefulness in theories of musical analysis. The interaction between competence and performance is important for music theory because it suggests two simultaneous areas of investigation: 1) a concern for systematic relationships, and 2) a concern for more "piece-specific" or idiosyncratic relationships.

6 The framework for the taxonomic-empiricists is examined on pages 76-83 above.

7 Keiler, "Bernstein's The Unanswered Question," 205.
Stated differently, Keiler's separation attempts to account for why we might decide a composition is, say, tonal and why we might wish to identify that composition as a specific entity, wonderfully unlike any other composition. As will be illustrated, Keiler is primarily interested in detailing the systematic syntactic aspects of harmonic prolongation within a tonal context. But the implications of his distinction between competence and performance are reflected and explored in Hatten's methodological dialectics discussed in Chapter V and the analytic framework presented in Chapter VI.8

Keiler's conception of musical competence and musical performance and their relation to musical analysis has further widened the gulf between his strategy and the taxonomic-empiricists'. In the taxonomic-empiricists' conception of musical analysis, analytic procedures are based solely on the repetition of melodic elements, and they are potentially applicable to all musics. The pertinent question as to how tonal music may or may not differ from other types of music is never addressed; indeed, Nattiez's emphasis on a "global" semiotic method for musical analysis may not even admit the question.9

Keiler's use of linguistic principles is strictly an analogical one--his primary objective is to bring into sharper focus an inherently musical problem. He does not attempt a literal transference

8 For a discussion of Hatten's methodological dialectics, see pages 133-35 below. Also see the theoretic perspective developed in Chapter VI, pages 161-78 below.

9 Nattiez's hope for a global semiotic method in music is cited on page 75 above.
of substantive linguistic categories or techniques to the analysis of
music. Thus, he appears to believe that the initial step in a semiotic
investigation of music is understanding the nature of musical com-
petence and performance before correlating it to semiotic concerns.
The outlook is a useful one. By not excluding insights which can
potentially be gleaned from both semiotics and linguistics, the
theorist is able to select or adapt those insights or techniques that
are relevant to the examination of musical systems.10

Keiler borrows the general form of the tree structure from
linguistics as a means of illustrating his conception of harmonic
prolongation in music. Specifically, Keiler is concerned with the
notion of "embedded" structures in examining the syntactic structure of
harmonic prolongation, and to this end, he employs a tree structure
similar to the embedded tree structure discussed in Chapter II.

The Methodology

As noted above, Keiler's primary goal is to develop a means
whereby the syntactic nature of constituent chordal relationships,
isolated from any specific voice-leading considerations or realiza-
tions, can be made apparent on various hierarchic levels. This overall
goal stems from Salzer's distinction between chord grammar and chord
significance which, in its turn, was rooted in Schenker's concept of
Stufe or scale-step.

10 See Keiler, "Two Views of Musical Semiotics," 164.
Salzer identifies two systems of chordal analysis: 1) those that describe the vertical and grammatical status of isolated chords, and 2) those that attempt to reveal how grammatically identical chords can sometimes function differently in a larger context. As Salzer describes it,

chord grammar denotes the usual type of analysis [e.g., traditional Roman numeral analysis] in which separate designations and labels are assigned to triads, seventh chords, etc. It is a purely descriptive means of registering and labeling each chord and relating it to different key centers. . . . The study of chord significance, on the other hand, reveals the meaning of a chord and the specific role it plays in a phrase or section of a work, or in the work in its entirety. Chord significance, since it discloses the function of a chord, goes far beyond grammatical description by pointing out the special, architectonic purpose of a chord within a phrase.\(^1\)

The impetus for Salzer's distinction comes from Schenker's concept of scale-step—a concept of central importance to Schenker's theories.\(^2\) For Schenker, the scale-step constitutes an abstract entity that subsumes and summarizes independent vertical sonorities; consequently, the abstract entity, by virtue of the abstraction process, is accorded a prior or more hierarchically significant status than any particular surface realization. As Keiler aptly summarizes, a scale-step "is subject to further elaboration before it reaches a level


in the derivation of some piece where it is directly represented in terms of surface phenomena."\textsuperscript{13}

The notion of hierarchy, then, is implicit in Schenker's conception of the scale-step. But Schenker did not explicitly explore the possible ramifications of the characteristics of this hierarchy. Instead, he was more concerned with the prolongation of scale-steps in terms of their contrapuntal or voice-leading characteristics. Keiler's objective, though, is to formulate the hierarchic nature of chord significance; thus, he hopes to provide a means to examine constituent chordal relationships in relation to their syntactic ordering on various levels without regard to the specific voice-leading configurations on any particular level.

In Keiler's analytic system, I - V - I is posited as a syntactically minimal harmonic structure. Keiler's tree-structure representation of this harmonic motion (Figure 16, next page)--clearly influenced by Schenker's \textit{Ursatz} patterns--schematically illustrates the different functional natures of the surface tonic chords (level e). The latter I chord, although possibly identical in construction to the initial I chord (i.e., chord grammar), is derived from the TC node of level b, whereas the initial tonic chord is derived from the TP node of level b. The graphic representation of this difference in musical function might be compared to the graphic representation of the

\textsuperscript{13} Keiler, "The Syntax of Prolongation," 6.
differences in linguistic function shown earlier. In the linguistic tree structure, the different lexical items, "the (young) man" and "the ball," were properly identified according to their specific contextual relationships—that is, a NP that functions as subject or object, respectively.

Returning to Keiler's tree structure, we observe that the dominant chord on level e, because of its paradigmatic relationship to

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14 See Figure 10 and the accompanying discussion, pages 66-68 above.
the TC category, enters into a closer constituent relationship with the tonic which follows it than it does with the initial tonic. The linking of the dominant to the final tonic necessitates the segmentation of an "extra" level of generation (i.e., the DP category of level c). Keiler's earlier presentations of this diagram show the T categories of level d on level c,15 and although Keiler does not detail the reasons for the change, it might be assumed that the later version visually attempts to relegate the three syntactically minimal events to the same level of generation (level d) while simultaneously retaining an independent DP level that can be submitted to elaboration at subsequent levels.

Generation of events at later levels is effected by two ostensibly related procedures. The first operation, although not specifically named by Keiler, might be called expansion. Expansion permits an elaboration of, say, the DP category by a lower-level D to T constituent relationship (Figure 17, next page). The diagram given below illustrates that the immediate syntagmatic relationship of the II – V progression is an expansion (or prolongation) of the background DP category. In addition, although the I chord and the II chord are contiguous elements in the syntagmatic chain, they are assigned different paradigmatic categories (TP and TC, respectively).

15 See Keiler, "The Syntax of Prolongation," 16-17. Figure 16 is similar to examples presented in Keiler, "Bernstein's The Unanswered Question," 214; and Keiler, Two Views of Musical Semiotics," 153.
Consequently, the lower-level chord succession is conceptually separated by its more abstract syntagmatic relationships.

![Diagram]

Figure 17. Expanded DP Category and Constituent Structure, after Keiler

But Figure 17 also illustrates two crucial anomalies in Keiler's system. The first problem arises when examining the specific level of generation for the surface events. In this diagram the (apparently) subordinate D to T expansion of the DP category is assigned a hierarchic status commensurate to the first and last tonic categories. These tonic categories, though, are parts of the original configuration; consequently, the second T on level d, as a lower-level expansion of the DP category, appears to be equivalent to the T's of the TP and
TC categories. The first and last T's, however, do not require the 
"extra" level of generation (i.e., level c).^{16}

Perhaps the reason for the obfuscation of levels in Figure 17 
emerges from the attempt to maintain graphic consistency with the 
levels of syntactically minimal harmonic motion as illustrated in 
Figure 16. This extrapolation notwithstanding, both views cannot be 
consistently maintained, and the graphing technique, with its inherent 
predilection toward binary divisions of each node, might be incapable 
of adequately showing three harmonic events that are apparently derived 
from the same level.

The second anomaly in Figure 17 is the choice of D and T 
categories to indicate an expanded DP category. Although a II – V 
progression suggests root movement by descending fifth, a progression 
such as IV – V cannot suggest, in any meaningful sense, a D to T 
relationship.^{17} Moreover, on a broader scale, the analytic constraints 
imposed by a restriction to D and T categories make any progression in 
thirds (e.g., I – VI – IV – V – I) difficult to subsume in the analytic 
system. Consequently, some type of subdominant category is required. 
Keiler, apparently aware of the inconsistency, has included an S 

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^{16} Keiler, in earlier versions of this diagram, placed the 
initial and final T categories on level c, thereby more clearly indi-
cating the subsidiary nature of the D to T relation within the DP 
category; see Keiler, "The Syntax of Prolongation," 17. Figure 17 is 
similar to examples presented in Keiler, "Bernstein's The Unanswered 

^{17} Keiler, in fact, has analyzed a IV^6 – V progression as D 
to T expansion of the DP category. See Keiler, "The Syntax of 
category as a possible expansion for the DP node in his more recent analyses (see Example 6 below); the reasons for including this category, however, are only briefly considered, and the specific characteristics of the subdominant node can only be gleaned from the examples. 18

The second operation that generates subsequent levels is called embedding. For Keiler, embedding "is the process by which a syntactic category is replaced by a complete syntactic structure." 19 This operation allows a previously generated syntactic category to be prolonged at the next level by an entire syntactic unit. The recursive process, which is indebted to Schenker's notion of transferring Ursatz forms to lower levels, is illustrated in Figure 18 (next page). 20 Here the original TP (level b) is prolonged by a complete TP - TC syntactic unit on level c, thereby making apparent, in Keiler's opinion, that "the first dominant chord (V\(^6\)), for example, is described as hierarchically less important than the last, which belongs to a more fundamental TC." 21 Although this assertion is musically unassailable, the accompanying tree-structure diagram does not unequivocally depict the


19 Keiler, "Two Views of Musical Semiotics," 154. Compare Keiler's use of embedded structures to its linguistic counterpart as shown in Figure 12, page 71 above.

20 Figure 18 is similar to examples found in Keiler, "Bernstein's The Unanswered Question," 215; and Keiler, "Two Views of Musical Semiotics," 154.

Figure 18. Embedded Harmonic Structure, after Keiler

relationship. The analysis of the passage curiously locates the TC of the original TP + TC configuration on level c. Thus the (apparently) prior TC is shown at the same level as the embedded TC, thereby rendering the graphic representation of "more fundamental" chords ambiguous. The imbroglio created by associating original configurations with embedded structures is not present in Keiler's other examples of embedded structures, yet its occurrence here, coupled with the ambiguity in the levels of generation that was discussed in
preceding paragraphs, obscures the notions of level and hierarchy in the graphic manifestations of this analytic system.

Keiler applies his methodology to the analysis of harmonic syntax in the opening measures of Handel's Courante (Example 5). This analysis helps elucidate, albeit in a somewhat straightforward manner, the basic tenets and operations of Keiler's system.


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22 This example is taken from Keiler, "Bernstein's Unanswered Question," 217. A similar analysis of this same composition was presented and discussed in Keiler, "The Syntax of Prolongation," 18; and Keiler, "Two Views of Musical Semiotics," 155. Incidentally, in his analysis of this passage, Salzer, who is concerned with both motivic and harmonic relationships, argues that the descending-fifth harmonic relation ends in measure 9 with the appearance of the structural II chord, and that an analysis of later measures should not be concerned with the descending-fifth harmonic relations. See Salzer, Structural Hearing, I:165-66 and II:121.
Embedded structures prolong the various TP categories, and expansion-like operations prolong the DP and D categories. In the harmonic sequence of descending fifths (measures 5-11), each T is subsumed in a higher-level D which, in turn, enters into a constituent relation with the following T. In all of Keiler's examples of expansion-like structures (and most embedded structures), the constituent under the right branch of each node is considered hierarchically more important because it manifests a constituent relation on the immediately prior level.\textsuperscript{23}

A more complex constituent analysis of harmonic syntax is shown in Example 6 (next page).\textsuperscript{24} In his comments accompanying this analysis, Keiler, because of space limitations, avoids a thorough discussion of many of the intricacies presented by this passage and their relation to his analytic system. Unfortunately, the deferral is disconcerting because the application and nature of certain previously codified operations appear to change substantially.

The subdominant category (S) that appears in this analysis is an important and necessary addition to the categories of harmonic syntax. Although the introduction of this node receives only brief notice, it should be evident that its inclusion provides greater scope

\textsuperscript{23} Keiler has noted that the representation of the descending-fifth harmonic sequence is analogous to the so-called "left branching" in analyses of certain adjectival phrases (e.g., "very clearly constructed bridges") in linguistics. See Keiler, "Two Views of Musical Semiotics," 160-64.

\textsuperscript{24} Example 6 is taken from Keiler, "Two Views of Musical Semiotics," 157.

and clarity to the system than did the more restricted T and D categories. But the introduction of this category, once its nature is formalized, could substantively revise many of Keiler's earlier formulations. For example, S and T can now be expanded constituents of the TP or TC categories (as in I - IV [I] progressions or plagal cadences, respectively), or the S category, as part of an expanded DP category, could be prolonged by embedded structures (as in, say, a V⁷/IV - IV - V [-I]). In addition, the II⁶ chord of the DP of measures 3 and 4 of Example 6 might be more appropriately analyzed through an S configuration.
Returning to the analysis in Example 6, we find that the entire excerpt is governed by a TP which is expanded on the subsequent level by two TP categories; the first TP category governs measures 1-4, the second measures 4-8. This analysis is different than the examples of expansion procedures examined above as the higher-level TP node is subdivided on a lower level into two identical TP categories. Keiler points out that this labeling is simply a means to avoid discussing the complex relationship that these phrases obtain in the overall harmonic syntax of the entire Gavotte. Nevertheless, the division of a higher-level TP into two lower-level TP categories may indicate that an embedded or expanded structure need not appear on the level immediately subsequent to its initial generation. This seems to be the case in the present example. The two parallel phrases, each with cadences on the dominant, reflect two different levels of half cadence in the overall formal design of the Gavotte: consequently, the latter half cadence, and accompanying modulation, can be shown as hierarchically more important than the first.

Keiler is primarily interested in the last measures of this example, specifically with respect to the modulation in those measures. Indeed, the analytic treatment of the modulation merits careful attention because it introduces graphic conventions which appear to stretch the analytic system.

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The analysis of measures 6-8 essentially retain the commonly accepted notions of modulation. The pivot chord is indicated by the bifurcated branches emerging from the $VI^7/II^7$. The $VI^7$ is part of the $S$ node and ultimately relates to the $TC$ in the original key; the $II^7$ is part of the $DP$ node and ultimately relates to the $TC$ in the new key. The new key is indicated by the constituents embedded in the highest $D$ node—that is, the $D$ category graphically changes function in mid-air, as it were, becoming the $TC$ of the dominant key.\textsuperscript{26} Although the apparatus is entirely capable of treating this modulation, a modulation to the relative minor or, if in a minor key, a modulation to the relative major would be difficult to illustrate with the present categories of harmonic syntax. Indeed, I - VI or I - III progressions (in either major or minor) that occur outside of the context of a descending-fifth harmonic sequence are going to be problematic for the methodology—once again suggesting that a restriction to this set of categories cannot take into account important systematic and idiosyncratic relationships found in tonal music.

Keiler's analytic method is a valuable means of illustrating certain aspects of the syntactic nature of harmonic prolongation, and

\textsuperscript{26} Keiler equivocates in his description of the status of the $D$ category. In one case he states that "whatever is dominated by the $D$ is realized according to the scale degrees of the dominant key, not the tonic" (emphasis mine), but later he says that "the $D$ and its embedding are organized [in terms of] the dominant key, but in their turn part of a DP that is governed by the original key" (emphasis mine). It must be assumed that he understands the $D$ category as related to the tonic, otherwise the $D$ has no meaning in this context. See Keiler, "Two Views of Musical Semiotics," 156 and 158, respectively.
his analyses are frequently revealing in identifying constituent chordal relationships in terms of their particular hierarchic significance. In addition, Keiler's framework, as a plea for distinguishing between musical competence and performance, suggests a theoretic perspective that can embrace both the systematic aspects of a musical style and their unique realizations in compositions.

But the model proposed by Keiler, as it currently stands, is incomplete in many respects. Additional development of the methodological principles will have to address the analytic inconsistencies arising from the paucity of harmonic categories, and it will also need to formulate more clearly the nature of hierarchic associations within the analyses. Once completely codified, this system, with its focus on the various correlations manifested in harmonic syntax, can greatly assist a semiotic examination of harmonic prolongation.
CHAPTER V

SEMIOTICS AND MUSICAL ANALYSIS III: THE IMPLICATION-REALIZATION MODEL

The preceding chapters examined two methods of musical analysis; each was formulated within a semiotic framework and explicitly proffered as the analytic techniques most representative of an approach to a semiotics of music as advocated by its proponents. In addition, each methodology was linked, in varying degrees, to the linguistic principles and practices described in Chapter II. The method of musical analysis examined in this chapter, though, was not originally formulated within a semiotic framework, nor is it explicitly based on linguistic models; rather, it largely emerged as an alternative to linguistically oriented methods in musical analysis, and it has only recently been grounded in a semiotic framework.

The foundation for the implication-realization model was laid by Leonard B. Meyer, and subsequent development of the model has been carried out by Eugene Narmour.¹ Narmour proposes the implication-realization model as an alternative to the Schenkerian model—a model he finds too rigid and dogmatic because of its basis in hierarchic levels predetermined by an axiomatic whole (Ursatz). Although Narmour's framework and methodology are not yet, by his own admission,

¹ Leonard B. Meyer, Emotion and Meaning in Music (Chicago: The University of Chicago Press, 1956); Music, the Arts, and Ideas
completely formulated, it is his description of the principles of the implication-realization model that is examined in this chapter, both in terms of the context in which his observations arise and the specific applications of this methodology to musical analysis.

The justification for an examination of the model in this paper, though, is predicated on Hatten's adoption of the implication-realization model as the methodology most appropriate for an inspection of the semiotic nature of musical style. Thus, before turning to specific applications of the methodology, this chapter explores Hatten's formulation of style in music and the significance and utility of the implication-realization methodology within his framework.

Style as Semiotic

Hatten's concept of style in music is eminently rich and highly suggestive as a paradigm for stylistic investigation. Reflecting his interest in the value of integrating interdisciplinary pursuits, Hatten examines and incorporates an impressive array of relevant contributions from several disciplines, including linguistics, philosophy of science, perceptual theory, biology, evolutionary theory, literary theory, aesthetics, and semiotics. Any pertinent insights

gleaned from these (sometimes distant) fields, though, are tempered by, and judged according to, their efficacy for a theoretic basis of musical style; thus, his interdisciplinary forays reflect judicious discrimination rather than wholesale adoption. The summary which follows cannot do justice to each aspect of Hatten's overall model; rather, it illustrates how the implication-realization model is located within his larger semiotic framework as a prelude to the examination of the methodology.

Hatten seeks to develop a "meta-model" of style which can ideally support the definition and description of any specific style. Consequently, Hatten views style not as a personal trait of any specific composer, but as an abstract communication system which is inherently amenable to semiotic inquiry. The circumscription of the qualities associated with the system and the description of the nature of semiotic inquiry are the overriding objectives for his semiotic framework. Understandably, though, given the broad underpinnings that this framework requires, many of his epistemological formulations are general enough to support several methods of musical analysis.²

One goal of Hatten's global stylistic model is to integrate historical (diachronic) change with a given (synchronic) state, and thus, by trampling the boundaries that have been somewhat arbitrarily

² But many of his commitments effectively eliminate the literal application of a "scientific" approach to musical analysis. See Hatten, "Toward a Semiotic Model of Style," 64-84. Also see Chapter III of the present study for an examination of the "scientific" objectives of the taxonomic-empiricist approach.
erected by our academic heritage, to furnish theorists and historians with a mutual objective. Indeed, this pervasive desire to balance theoretical and historical methods of investigation into the nature of musical style is what ultimately leads Hatten to suggest the implication-realization model as the methodology most appropriate for his semiotic framework.

For Hatten, semiotics, as a means of musical investigation, "mediates" between the explanatory resources provided by metaphysics, philosophy, and aesthetics on the one hand, and mathematics, acoustics, psycho-acoustics, and psychology on the other. Semiotics mediates because it can potentially pool the insights from the former more "holistic" disciplines and the latter more "atomistic" disciplines while simultaneously providing a perspective for a critical examination and interpretation of their respective contributions. Stated differently, and with obvious over-simplification, if the more holistic disciplines tend to interpret music as an event in time, as a total entity within an entire spectrum of such events, and the more atomistic disciplines tend to view music as sound in time, with an eye towards rigorous and empirical explanation, then, as Hatten observes, semiotic investigation "bridges and reconciles the two sides by justifying the sign process [or the sign-function] whereby sound becomes a meaningful event."³ This observation is not to suggest that a semiotics of music

³ Hatten, "Toward a Semiotic Model of Style," 99.
should ignore the insights imparted by other disciplines to the justification of the sign process as, for example, empirical psychological testing can be directly relevant to specifying an aesthetic formulation.

Within this general semiotic picture, musical style is specifically depicted as both a composer competence and a listener competence (Figure 19, next page). According to Hatten, "to understand a musical style is... to understand, or share, the competency possessed by the composer and assumed by the composer to be possessed by his audience (not always contemporaneous, perhaps ideal)."

Hatten's model is immediately richer than the tripartition proposed by the taxonomic-empiricists as it stands the areas circumscribed by the three poles on their sides, as it were. Significantly, Hatten's conceptual model posits, at the outset, a shared competence between composer and listener. This competence must be explicitly indicated if the conception of music as a communicative (i.e., semiotic) phenomenon is to have any content. Moreover, in extracting and reconstructing this abstract competence, it is clear that the theorist as historian can readily account for observations imparted by the theorist as listener—a "bias" not sanctioned in the taxonomic-empiricist view.

4 Figure 19 is similar to one found in ibid., 95.
5 Ibid., 89.
6 For a detailed examination of the tripartition, see pages 76-93 above.
Figure 19. Hatten's Model of Composer/Listener Competence

Hatten does not assume a naïve *tabula rasa* for the theorist/historian in selecting a methodology appropriate for stylistic investigation; thus he avoids the potential stagnation of a stylistic *niveau neutre*. Rather, he suggests a series of dialectics that are proffered in order to strike the necessary balance between more universal principles (i.e., system) and more piece-specific realizations (i.e., composition).\(^7\) Three of these dialectics are theory/history,

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\(^7\) For a discussion of Keiler's distinction between musical competence and musical performance--a distinction which is implicit here--see pages 111-14 above.
style/strategy, and system/usage. The first dialectic emerges from, and is essentially equivalent to, Saussure's distinction between synchronic and diachronic approaches, and this distinction has been discussed earlier in this document. Because the goals of the second and third dialectics overlap, we can summarize them together.

Regarding his style/strategy dialectic, Hatten states that a theory of style "must embrace both the information-carrying aspects and the aesthetic or expressive aspects of a work of music." The global stylistic component, though, continually interacts with the local strategy component. Strategies are the relationships manifested in a particular composition; as such they serve either to invoke or to change styles. One purpose of this dialectic in Hatten's model is to include a more productive means to investigate stylistic change than that offered by the distinction between stylistic norms and stylistic deviances. For example, a "deviance," such as a deceptive cadence, that becomes "normative" does not forsake its expressive value by becoming more or less expected or possible within the style. Rather, as Hatten notes, the deceptive cadence can be more appropriately labeled "a strategy of evasion semiotically encoded in a style... [and] it is the operation [or process] of evasion, not

8 Hatten does discuss several other dialectics. For a summary of some of them see Hatten, "Toward a Semiotic Model of Style," 189-92.

9 For the examination Saussure's dichotomy between synchronic and diachronic studies, see pages 16-18 above.

10 Hatten, "Toward a Semiotic Model of Style," 114.
deviance, which enters into a higher level semiosis (often highly personal) as to the emotion to be associated with that evasion.\textsuperscript{11}

It seems that if the meaning of the phrase "semiotically encoded" is to be clear, then the style/strategy dialectic is dependent upon the system/usage dialectic. For Hatten, a system constitutes "the construction, discovery, and exploitation [by the competent composer/listener] of a coherent, 'systematic' organization of materials or processes which can underlie individual works and provide a common network of functions or specified relations."\textsuperscript{12} Usage, on the other hand, emerges from the "habit, practice, [and] frequency of instancing a principle, process or resulting structure."\textsuperscript{13}

These two dialectics essentially reflect a further segmentation and sharper definition of elements contained in Saussure's substance/form dichotomy.\textsuperscript{14} In addition, they provide a means through which style change may be examined and described--for example, certain novel strategies (e.g., third-related modulations or enharmonic tonal equivalence), as realizations of possibilities afforded by more systematic constraints, may become stylistic. Styles are not necessarily

\textsuperscript{11} Ibid., 120. Hatten is basically challenging Meyer's linking of "emotion" to "expectation" wherein expectation emerges as a product of the probability of the expected consequent given a set of perceived data.

\textsuperscript{12} Ibid., 129.

\textsuperscript{13} Ibid.

\textsuperscript{14} For a discussion of Saussure's distinction between substance and form, see pages 18-19 above.
systems, but rather they exploit aspects of systems; and novel strategies, through usage, can transform both a style's systematic aspects and the style itself.

Because the way in which constraints are semiotically encoded in a style is dependent upon the system/usage dialectic, this dialectic is a significant consideration in selecting an adequate methodology. System is loosely equated with the s-codes discussed earlier, and it should be clear from that discussion that there are various types (e.g., rhythmic, harmonic, melodic, and so on) and levels (e.g., local or global) of s-codes in music. A system subsumes the theoretic notion of "function" in that, as Hatten states, "a function is built upon a network of underlying relationships and exists in terms of other functions." Usage, on the other hand, is associated with the term implication; it is through usage that implications are established. In this framework, then, the task of an adequate methodology must be to explicate the more systematic aspects and the more "piece-specific" (i.e., usage) aspects.

The Methodology

Hatten feels the implication-realization model is best suited as a methodology for musical analysis within his semiotic framework

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15 S-codes are discussed on pages 39-41 above.

16 Hatten, "Toward a Semiotic Model of Style," 145. Compare these concepts to of Saussure's conception of opposition (page 19 above); Hatten, though, would probably not associate value with opposition as value would be reserved for his concept of style.
because it "addresses both the potential for expression and meaning in the \textit{strategic timing} [time elements in the use of the system—not the diachronic change] of realizations of implications, and the richness of meaning which grows from examining what actually happens in terms of what might have happened.\textsuperscript{17} In addition, he believes that the implication-realization model is "critically sensitive because of the need to justify how implications are \textit{earned}, and [to determine] whether those implications exist in the \textit{style} or are brought to bear by \textit{strategies} of the work itself.\textsuperscript{18} The latter observation is a particularly poignant statement about stylistic investigation, and although it is questionable whether the implication-realization model meets these requirements, the statement nonetheless reflects a methodological commitment that could generate crucial insights into the nature of style given further development. In any case, the implication-realization model is assumed to capture better the reticulated structure of music across its hierarchic levels, as opposed to the static and pre-determined structural hierarchies imposed by more generative models.

As noted above, the implication-realization model was developed by Meyer and Narmour. Although both authors recognize that their formulations are less than fully developed, it is Narmour's \textit{Beyond Schenkerism} that presents the most detailed description of the

\textsuperscript{17} Ibid., 146.
\textsuperscript{18} Ibid., 157.
theoretic framework and analytic methodology. In addition to exploring the principles and applications of the implication-realization model, though, Narmour asserts that concomitant objectives of his book are "to refute the principal beliefs of Schenkerian theory and to dispute many of the analytical practices of its followers." To be sure, most of Narmour's theoretic principles and analytic observations emerge from the refutation process. This chapter does not review each issue that Narmour finds problematic in Schenkerian theory, much less provide the detailed argumentation commensurate with the subtleties involved in such a review. Instead, the salient points of his critique are summarized in order to illustrate the viewpoint and bias from which the implication-realization model emerges.

19 The Phoenix edition of Narmour's book (see note 1) is more than just a reissue of the original. In the later edition, Narmour not only corrects misspellings and misprints (although there is still a still a missing F-sharp in Example 26, page 82, and the \( \frac{3}{4} \) figured-bass analysis in Example 51, page 160, should read \( \frac{3}{4} \)), but he also includes substantive textual alterations. One change merely reflects a more accurate translation of a passage from Schenker's Der freie Satz (see page 53 in both editions). A more crucial change, though, occurs in the discussion of his contested harmonic analysis of the excerpt from Beethoven's Bagatelle, Op. 119, No. 11, (see Example 7, page 147 below). Without detailing the entire argument, the text of the Phoenix edition tries to "correct" his earlier interpretation (although the "corrected" version is unconvincing--see page 69 of both editions). Nevertheless, Narmour misses the point of the correction as on page 101 (of both editions) he states that the B-flat in question (second beat of measure 1) is "dissonant against a V chord." For a complete (and not too complimentary) discussion of Narmour's error, see John Rothgeb, review of Beyond Schenkerism by Eugene Narmour, Journal of Research in Music Education 26:4 (Winter 1978), 481-86.

20 Narmour, Beyond Schenkerism, ix.
Narmour's overall critique of Schenkerian theory is inconsistent, and one example of this unevenness is the exact status of Schenker's theory. Narmour begins by stating that Schenker's recognition of the importance of harmonic process in tonal music, his symbolization of it through the formulation of the Ursatz and the U rlinie, and particularly his concept of harmonic transformations on various levels all clearly remain among the most consequential achievements of music theory in this century. 21

He also concedes that Schenker's analyses are often illuminating because they reveal and identify salient features of musical organization. 22 Indeed, the intransigence of Narmour's position is hardly to be expected from the approbation reflected in these remarks. Nevertheless, couched within the more general accolades are assertions that Schenker's voice-leading principles produce "patently indefensible" analytic results through processes amounting to "legerdemain," and consequently these principles often yield explanations that are described as "far-fetched." 23

Another inconsistency is evident in trying to determine the focus of the critique. Ostensibly Narmour is evaluating Schenker's theories and analyses. But within the broad field of "Schenkerian theory" Narmour identifies a "Schenkerian" school and a "neo-Schenkerian" school, and the former is apparently segmented into

21 Ibid., 1.
22 See, for example, ibid., 89, 201, 202, and 214.
23 See ibid., ix, 81, and 64.
"ardent disciples" and "true believers." Neither an explanation for the distinctions among these schools and segmentations nor a description of the pertinent characteristics of each are offered. Moreover, the distinctions, however nebulous, are not consistently applied; Salzer, for example, is called a "direct disciple" at times, and a "neo-Schenkerian" at others. 24 The point is not without consequence: it is usually Salzer's analyses that are scrutinized by Narmour. As is well-known, however, Salzer does not simply apply Schenker's theory directly and specifically to tonal music; instead, he frequently generalizes certain principles of Schenkerian theory, carrying them beyond the constraints of "common-practice" music. 25 Consequently, many of Schenker's notions about prolongation are more broadly defined by Salzer in order to illustrate the applicability of these concepts to a larger historical context.

Narmour's criticisms essentially trace two overlapping lines of objection. The first is that Schenkerian theory is guilty of ill-defined formulations of theoretic principles; the second is that crucial analytic observations are frequently slighted in Schenker's analyses because his theory demands that the voice-leading parameter assume priority over other parameters (e.g., rhythm, meter, melody).

Both of Narmour's objections and their concomitant extensions have been examined elsewhere in some detail, and each has been shown to

24 Ibid., 26 and 45, respectively.

be questionable in some specific regard.\textsuperscript{26} Briefly, as to the second objection, we note that Narmour is not alone in charging that Schenker's apparent predilection to assimilate melodic, rhythmic, and formal aspects in harmonic-contrapuntal analysis is an egregious flaw in Schenker's formulations. Indeed, this criticism is invoked by many authors to impugn Schenkerian theory, usually with the tacit assumption that the theory is weakened because it does not account for the other parameters. Aside from the fact that Schenker does comment extensively on these relationships in the remarks that accompany his analyses, it is strangely misguided to reject the entire output of Schenkerian theory—which is overtly concerned with illustrating hierarchic pitch relationships in the context of harmonic prolongation—simply because it does not codify every component of the musical phenomena. Indeed, this criticism is rarely the basis for rejecting other theories concerned with pitch relations.

Narmour's methodology emerges as a corrective for the faults he identifies in Schenkerian methodology. According to Narmour, the task for a Schenkerian analyst is apparently one of determining the first tone of the \textit{Urline}; from then on, as he describes it, the analyst "has only to follow the proper assimilation schemes in making the analytical reductions."\textsuperscript{27} Consequently, Narmour links the Schenkerian apparatus to a box of mechanical descriptive tools, and by using these

\begin{footnotes}
\item[26] See Rothgeb, review of \textit{Beyond Schenkerism}, 481-86; and Keiler, "The Empiricist Illusion," 161-95.
\item[27] Narmour, \textit{Beyond Schenkerism}, 43.
\end{footnotes}
tools the analyst can "conceptually verticalize all motion into chordal harmony, [and] then reduce all stepwise relationships to voice-leading connections between these chords."28 Where Narmour finds Schenker's analyses "incredible" or "preposterous" is typically when "no such manifest lines [i.e., the voice-leading connections] exist in the music."29 Indeed, he concludes that a viable methodology would not "ignore the contiguous relationships on the printed page in order to understand the music."30

While the above citation is the foundation for his methodological principles, the italicized phrase within it represents the basic flaw in many of Narmour's disputes with Schenkerian principles. Schenkerian analysis is not a process of blithely subtracting notes from a musical surface in order to obtain the hierarchic levels of the analysis. Rather, the levels in Schenker's analyses are abstracted versions of the more complex musical object and do not represent note-to-note correspondences. Furthermore, the levels are not the composition itself, nor are they any more or less important than the composition from which they derive and which they attempt to describe (not prescribe). The simple and complex versions coexist in a mutually definable relationship. The Ursatz is an abstract pattern that is minimally indicative of tonality (whereas the even more abstract "chord

28 Ibid., 73.
29 Ibid., 201.
30 Ibid. Emphasis mine.
of nature" is not), and each subsequent level represents the comparison or relationship of each level to that more generalized concept and to the composition itself. The process is not unidirectional. Schenker states that

the concept of the fundamental structure [and of the various transformations] by no means claims to provide specific information about the chronology of creation; it presents only the strictly logical precision in the relationship between simple tone-successions and more complex ones. Indeed, it shows this precision of relationship not only from the simple to the more complex, but also in reverse, from the complex to the simple . . . . Thus, a simple element lies at the back of every foreground. The secret of balance in music ultimately lies in the constant awareness of the transformation levels and the motion from foreground to background or the reverse. 31

Proctor succinctly summarizes this crucial relationship with the following:

Schenker didn't make reductions. To him, the only real musical fact with respect to a piece is the piece itself, its surface . . . . All remoter levels of structure are not the piece, but are intellectual constructs derived from our sense-making apparatus . . . . Every surface is associated with a model . . . . [And Schenker] perceived the difference between pitches, which comprise a surface, and the idea of pitches, which comprise an evaluative stage connecting the simple with the complex. 32

Consequently, Narmour's strenuous objections to a representation of


notes in a Schenkerian analysis which are not actually present on the musical surface are simply misplaced.\textsuperscript{33}

Before turning to the methodology itself, we note that Nar- mour explores the possible relationship between Schenkerian theory and theories generative-transformational grammar in contemporary linguistics. As was discussed earlier, this basis for this relationship is tenuous at best.\textsuperscript{34} Keiler presents a pointed critique of Narmour's attempt to map, as it were, a Schenkerian analysis of Mozart's D minor Fantasy onto a Chomskyan tree structure, and his observations adequately illustrate the theoretical and practical inconsistencies in the transference.\textsuperscript{35} Here we briefly examine similar problems in Narmour's "tree-like parsing" of Salzer's analysis of the opening measures of a Bagatelle by Beethoven. More significant for our immediate discussion, though, is the value obtained by contrasting the Schenkerian analysis of this passage to Narmour's analysis (see Example 9) as the differences between the two methods can become more readily apparent.

The opening measures of the Bagatelle and Salzer's melodic analysis are given in Example 7 (next page), and Narmour's translation

\textsuperscript{33} The criticism is a particularly curious one when followed to its logical consequences as it would necessarily eliminate, if on no other grounds, Rameau's \textit{basse fondamentale}, Tartini's difference tones, Kirnberger's and Marpurg's discussions of harmonic progression, Piston's notion of an incomplete dominant-seventh chord, and so on. Keiler, "The Empiricist Illusion," 170-72, has made a similar point.

\textsuperscript{34} For additional discussion of the Schenker-Chomsky connection, see pages 108-9 above.

\textsuperscript{35} Keiler, "The Empiricist Illusion," 174-88.

Andante ma non troppo.

of the analysis into its "tree structure" is shown in Example 8 (next page). 36 It is informative to compare Narmour's tree structure with the linguistic phrase-marker analysis illustrated above because there are several incongruities between the musical and linguistic applications. 37 For example, there is no linguistic corollary to the arched lines (slurs?) in Narmour's tree structure, lines which can apparently "generate" notes on an equivalent level (e.g., the F⁵ "outside voice") or on a different level (e.g., the "inside voices"). Also puzzling, at least when strictly compared to the form of the linguistic model, is that these arched lines, in and of themselves, are more "background" events surface events (i.e., the passing tones). In Schenkerian terms,

36 Salzer's analysis in Figure 7 is from Salzer, Structural Hearing, II:8. Figure 8 is from Narmour, Beyond Schenkerism, 99.

37 Figure 10 is shown on page 68 above.
on the other hand, the first two beats of the second measure as analyzed in the tree display are questionable—do we read down the tree structure from $F^5$ on the first beat of measure 2 to obtain the neighboring tone ($G^5$) and then back up the graph to get the $F^5$ passing tone, or do we read down from the E-flat$^5$ passing tone to the $F^5$ "passing tone" to obtain the neighboring tone? In this case, repetition is the prior contrapuntal operation wherein $G^5$ appears as a scalar adjacency
between the attack points of the two $F^5$'s; there is no particular necessity to invoke the $E$-flat$^5$ to generate the passing $F^5$ and neighbor $G^5$.\endnote{38}

The basic value in adopting the implication-realization model is that the methodology allows an analyst to account for the characteristic implications, or implicative patterns, of each individual parameter. An implicative relationship, according to Meyer, is one in which a musical event "is patterned in such a way that reasonable inferences can be made both about its connections with preceding events and about how the event itself might be continued and perhaps reach closure and stability [i.e., realization]."\endnote{39} The goal of the implication-realization model, then, is to make apparent all implicative patterns and illustrate their realizations or potential realizations—not every implication must be realized.

Two essential observations are implicit in this brief characterization of the implication-realization model. First, the methodology is applicable to all elements of the musical fabric—harmony, melody, rhythm, form, and texture; second, there must be specific criteria for determining what constitutes an implication and its resultant or potential realization.

\begin{footnotes}
39 Meyer, Explaining Music, 110.
\end{footnotes}
Neither Narmour nor Meyer professes to having codified the criteria necessary for analyzing all aspects of the musical fabric with an implication-realization methodology. Rather, melody is the parameter where the implicative criteria are most developed, and consequently its characteristics receive the bulk of the analytic attention.40

Narmour posits three implicative patterns in tonal melodies: 1) motion by step, either ascending or descending, implies continuation by step in the same direction; 2) a melodic leap (gap) implies either partial or complete filling; and 3) a triadic arpeggiation implies continuation in the same direction with additional pitches from that triad. Levels, or parts, are Janus-faced because they contain elements of both closure and nonclosure. The closure or nonclosure of a specific level is determined internally; that is, without recourse to "higher" levels or parts. Thus the analysis is erected from the bottom up (i.e., from the notes on the page to the levels), and the characteristic implications associated with each parameter (melody, in this instance) are asserted as analytic presuppositions. In addition, because there is no requirement that each level be closed (and therefore the entire composition ultimately remains open, permitting subsequent

40 In fact, it has been convincingly argued that Narmour ascribes to melody the status of "dominant parameter" in his analytic system, thereby weakening his frequent vituperations against Schenkerian theory for elevating harmonic prolongation to a preferred position. See Keiler, "The Empiricist Illusion," 168–69.
realizations which may engender style change), discontinuous realizations of implicative patterns can be illustrated more adequately than in analyses based on closed levels (e.g., Schenker's or Keiler's analyses). An implication-realization analysis of the melody of the opening measures of the Beethoven Bagatelle is shown in Example 9 (where $\longrightarrow$ indicate implications, $\rightarrow$ realizations).

The top two staves of Narmour’s analysis do not contradict, or add any substantive clarification to, Salzer’s analysis of these


41 Example 9 is from Narmour, Beyond Schenkerism, 100.
same measures (compare to Example 7). The third staff, though, clearly shows an ascending line from B-flat to D as an important component of the opening measures. Indeed, this ascent mirrors a similar ascent in the bass in measures one and two. Nevertheless, the passing C must first associated with a partial fill of the B-flat to E-flat gap on the fifth staff and then with the initial note of a gap which is completely filled (shown on the fourth staff). In other words, the C laboriously emerges as a passing tone only after it is first accounted for in its immediate contextual surroundings (i.e., "on the printed page").

But this "passing" C also becomes an incomplete neighbor on the third staff, and although the relationship of the "incomplete neighbor" C to the "passing" C is never discussed, the entire notion of "incomplete neighbors" seems to lie outside of the analytic sphere of the methodology. For example, in this analysis the two incomplete neighbors on the third staff, G₅ and C₅, form a boundary for the linear motion on the fifth staff; thus, the fifth staff appears to indicate a passing descent from G to C. Yet the fourth staff also shows a passing descent, this time from F₅ to C₅. The question why G₅ is called an incomplete neighbor when Narmour is apparently unwilling to decide whether G₅ or F₅ is the boundary for the passing motion is not answered.

These ad hoc analytic associations illustrate the crucial problem with the methodology as it is now formulated. The three "criteria" for melodic implication are basic constructs of voice-leading principles, and they are espoused in innumerable contrapuntal manuals.
All tonal melodies exhibit triadic outlines, stepwise motion, and gaps which are continued, partially filled, or completely filled somewhere in the composition. If proponents of the implication-realization model wish to pursue the analysis of these characteristics, they must develop criteria for a meaningful selection of melodic relationships; in other words, the model does not yet possess an adequate apparatus that allows an analyst to discriminate significant structural melodic relationships from relationships obtained by arbitrary connections of typical surface features.

Hatten's application of the implication-realization model avoids some of the inconsistencies noted above simply by not accepting all of Narmour's theoretic principles. Instead, Hatten is more concerned with the nature of hierarchic relationships that are established in the implication-realization model; that is, the model shuns the notion of a predetermined whole, and it tries to examine and illustrate the interaction of actual realizations with possible realizations. Hatten employs the implication-realization model in the analysis of the opening measures of Beethoven's *String Quartet*, Op. 59, No. 3 (Example 10, next page). This analysis is offered as an alternative to Katz's quasi-Schenkerian analysis of the same measures, and Hatten intends to

42 This criticism is similar to a criticism made in connection with the taxonomic-empiricist approach (see page 104 above), and it may also be applied to the theory of melodic degree- and step-progressions advanced by Hindemith (see Paul Hindemith, *The Craft of Musical Composition*, vol. I: Theory, trans. Arthur Mendel [New York: Associated Music, 1942], 175-201). A cogent theory of melody is still an elusive goal.
illustrate through the implication-realization methodology a crucial harmonic ambiguity that the Katz analysis overlooks.


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43 For Hatten's complete discussion, which is here only summarized, see Hatten, "Toward a Semiotic Model of Style," 234-43. For Katz's analysis and discussion, see Adele Katz, Challenge to Musical Tradition, (New York: Alfred A. Knopf, 1945; reprint ed., New York: Da Capo Press, 1972), 172-77. The ensuing discussion is not concerned with Katz's analysis.
Hatten posits five systematic presuppositions for this style that are minimally indicative of harmonic implication, two of which are paraphrased as follows:

1) A second-inversion triad appearing on what can be considered a strong beat or measure may be heard as a tonic six-four, and thus it serves to indicate tonal orientation (and major versus minor) even while not functioning as tonic in its usual closural role (i.e., if it functions as a passing or neighbor chord).

2) Pairs of sonorities related by a single half-step voice-leading yield a more defined tonal context. Without listing the specific inversions involved, three common cases involving functional interpretation with minimal context can be abstracted:

   a) $O7 - Mn7 = vii^0_7 - V^7$
   b) $O7 - O7 = ii^0_7 - vii^0_7$
   c) $O7 - O7 - Mn7$ may be heard as $ii^0_7 - vii^0_7 - V^7$

Each of the progressions abstracted in the second stylistic presupposition occurs at least once in the tonally ambiguous introduction (see Example 10), and it is clear that a specific harmonic implication is established on the basis of the particular progressions. Hatten suggests that this "mini-system" can also clarify the interpretation of the beginning of the exposition where a $V^6_5$ (measure 29) resolves to a C major chord (I) on a weak beat, and the I chord then constitutes an upbeat to the $V^7$ of measure 30; thus reversing the typical metric convention. Aside from the metric reversal (which becomes motivically important throughout the movement), Hatten senses an unrealized harmonic implication that contributes to the peculiar effect of the $V^7$ chord on the downbeat of measure 30.
Hatten contends that the "peculiar effect" emerges from an unrealized F-minor implication. Measures 14-16 contain an instancing of progression 2c, thus implying F minor.\(^{44}\) F minor remains in limbo, as it were, when the diminished fifth (E - B-flat) "resolves" out by step to E-flat - C. As Hatten observes, the striking movement of the contrary motion in the outer voices (so essential to the chromaticism of the entire introduction) stretches Beethoven's conventional voice-leading constraints. (Incidentally, a similar "stretching" occurs in measures 41-42 where a notated \(V^7/IV\) moves to a \(V^7\) [note the violin parts]). Following a first-inversion C-minor triad in measure 17, an augmented-sixth chord, emerging from as neighbor notes to G (Violin II and Viola), effects a voice exchange in the inner parts (A-flat - F, F-sharp - A-flat) and arrives at a ii\(^6^7\) chord.\(^{45}\) The supertonic seventh chord, in turn, slides to a second-inversion diminished-seventh chord, and this diminished-seventh chord is then prolonged with a second-inversion minor triad arising from the voice exchange in the outer voices (and so parallels the earlier voice exchange in the inner voices). In addition, but for the passing second-inversion triad of

\(^{44}\) Hatten makes the (rather significant) assumption that, because of the slow tempo, every vertical sonority can be considered a chordal entity wherein the implication(s) of that particular chord has time to establish itself equally in the listener's interpretation. Indeed, although it cannot be maintained consistently (see, for example, measure 12, and measures 9 and 20), this assumption is partly responsible for many of his disagreements with Katz. As its import is not crucial to our discussion, we grant the stipulation while noting its ad hoc status.

\(^{45}\) Or, it may be analyzed as a vii\(^0^7\); see note 44 directly above.
measure 21, the entire progression of measures 19-29 constitute another example of progression 2c, this time in C minor.

A conflict between rules 1 and 2, though, is manifested in measure 21. Hatten states that in measure 21 we hear a minor six-four chord between two inversions of the same diminished-seventh [chord]. The six-four cannot resolve the tonal tension, nor can it exert itself as a structurally significant chord in this context. It is unstable, and [the] following chord confirms its passing status. But that minor six-four is the first consonant sonority since the c₆ chord four measures earlier, and thus it can be heard as a downbeat resolution of the outer voices in a typical 2-voice cadence. Supported by this implication of metric weight, and a slow tempo, the minor six-four chord could register a strong hint of orientation toward f minor (in which it would still be heard as a passing sonority, but between inversions of vii₀⁷/V in f minor).46

The conflict is the attempt to justify this interpretation in terms of the postulates given above. The association of the minor six-four chord to F minor is predicated on rule 1. This rule, though, is obviously not sufficient enough to embrace the multiple (and quite typical) six-four usages. Although the formulation is adequate for cadential six-fours, the plethora of counterexamples (e.g., neighbor motion and passing chords appearing within the same metrical constraints) that have an entirely different contextual function (i.e., not serving as tonic), and whose meanings are understood by virtue of that context, indicate a need for refinement. Even granting prior status to the first postulate, though, there is a lack of provisions in

46 Hatten, "Toward a Semiotic Model of Style," 240-41.
the set of progressions outlined in 2 a, b, and c for the notion of secondary or applied dominants—a notion essential for the interpretation of the F minor chord as a tonic six-four.

Aside from these systematic problems (which could easily be remedied), it is insightful to consider another piece of evidence offered in support of the "tonally orienting" six-four chord. Adhering to a basic postulate of the implication-realization model—that implications are as much a part of what might happen as what does happen—Hatten plays an informative "game." He proposes that additional evidence for an orientation to F minor based on the six-four triad can be illustrated by resolving the C major triad on the third beat of measure 29 to an F minor triad on the downbeat of measure 30. As he correctly observes, the ear readily accepts the logic of the progression. But if we continue this exercise by retaining Hatten's alternative resolution and omitting the second-inversion F minor triad (admittedly destroying the contrary motion of the outer voices), we find that the ear still logically accepts the progression to F minor on the downbeat of measure 30. This "rewritten" version suggests that to ascribe tonic status to the F minor six-four chord is to apply an ad hoc interpretation which is neither parsimonious nor particularly justified by the context. Moreover, I contend that the focus on justifying the passing six-four chord as a tonic six-four to any degree is a red herring in trying to explain the ambiguity.

The heart of the problem lies in the appearance of the C major chord in measure 29, and it is more generally tied to the concept
of mixture. Mixture (sometimes called "modal borrowing") is an operation that permits an interchange of differing scale degrees between corresponding parallel major and minor keys (i.e., the third, sixth, and seventh scale degrees, respectively). As such, it offers a plausible solution to frequent appearances of major dominant triads (raised seventh scale degree) in minor, and minor subdominant or diminished supertonic triads (lowered sixth scale degree) in major. But mixture, when applied assiduously, also produces less typical constructions (at least in the classical diatonic system)—for example, an augmented triad on the third scale degree and diminished triads on the sixth and third scale degrees, respectively, in either major or minor keys. Also, and of primary importance here, mixture, in theory, allows an interchange of the parallel third scale degrees in the tonic harmony ostensibly without restriction. In practice, this interchange is rarely so capricious. Rather, when the parallel third scale degree is invoked to alter the tonic chord, it tends to introduce characteristics associated with the entire parallel key; that is, it effects a modulation without changing tonic. When the parallel mode does not accompany the altered third scale degree—a less common event—the resulting altered triad is understood as follows: in a major key, the altered triad is associated with the dominant key as a minor subdominant (wherein the new note is understood as the sixth scale degree of the dominant); in a minor key, the altered triad is associated with the subdominant key as a major dominant (wherein the new note is understood as the seventh scale degree of the subdominant). These
observations conform to commonly accepted notions of mixture—it is, after all, the sixth and seventh scale degrees that we are most concerned with (note the various "forms" of the natural minor scale).

Returning to the example at hand, we find that the material (measures 17-29) preceding the C major chord in measure 29 is C minor. Moreover, at no point in the introduction is C major either established or hinted at. According to postulates presented in the previous paragraph, the C major chord, as it appears in a C minor context (i.e., alteration of the third scale degree), invokes the subdominant key region (i.e., F minor). Thus, the ambiguity Hatten senses is a systematic one which is innovatively exploited in this context. It does not arise from a "tonally orienting" six-four chord, and it probably has very little to do with the F minor implication of measures 14-16, although this implication certainly contributes to the richness of the passage. (If we play the rewrite game once again, we find that the F minor resolution in measure 30 is still logical when only measures 17-30 are played, and even when measure 21 is omitted).

While the methodological model is not yet completely developed, and it consequently suffers from some internal inconsistencies, the insights to be retained in the following chapter emerge from Hatten's theoretic model described at the outset of this chapter, particularly with regard to how it suggests fruitful lines of investigation into the analysis of directional references. In other words, we adopt parts of his semiotic model without necessarily committing ourselves to an implication-realization methodology.
CHAPTER VI
THE NEapolitan complex IN BEETHOVEN'S OP. 131

The discussions and examinations in the preceding three chapters amply indicate that there are both significant diversities and conspicuous disparities among the analytic doctrines formulated under the aegis of musical semiotics. The diversity is evident not only in the methodologies proposed for a semiotics of music but also in the theoretic assumptions underlying the respective methodologies. The arsenal of analytic approaches is perhaps indicative of the larger state of semiotics which is currently in the process of being defined while its insights are being used to explore various modes of sign-functioning. Nevertheless, at their most basic level, all three systems--Nattiez's taxonomic-empiricist approach, Keller's generative approach, and Hatten's "style as semiotic" and the implication-realization approach--share the assumption that music is a communication system whose syntactical ordering of sign-functions is amenable to semiotic inquiry. As we have seen, though, what kind of system, what aspect of musical syntax, what type of sign-function, and what view of semiotic inquiry is distinct in each approach.

The examination and critical evaluation of these approaches has partially fulfilled the goal of this dissertation. But while essential for continued growth and development in any field, critical
evaluation, in and of itself, can be somewhat disconcerting; it frequently obliges a commentator to couch biases and ideas in the form of constructive criticisms without expounding the implications of the underlying assumptions. That is, the presentation and evaluation of "what has been done" ideally should be coupled with a viable alternative to help explicate "what could be done." This chapter examines a component of musical analysis that is closely tied to semiotic principles and that may be clarified through insights gleaned from those principles.

It should become apparent in the ensuing discussion, though, that to deem the the following concepts an "alternative" (which in its strictest sense implies an unequivocal choice between different items—i.e., this one versus that one) would be a misnomer. The principles outlined below might be said to mediate between different approaches rather than offer a strict alternative. These principles represent an attempt to codify, both theoretically and practically, specific aspects of musical analysis that are implicit, to greater and lesser degrees, in the models examined earlier; they are therefore partially compatible with some of the objectives of those models. Nonetheless, the following principles for musical analysis are distinguished from the previously discussed models in that they emerge from many of the criticisms stated earlier and in that they focus specifically on the types of directional reference.
Theoretic Preliminaries

A common thread woven into the fabric of our earlier evaluations of strategies for a semiotics of music is the relationship of analysis to both theory and perception. Indeed, the principles underlying that relationship, however ill-defined or tacitly assumed, govern the analytic process and the results of that process. The task of the following pages is to detail those concepts relevant to the analytic bias of this dissertation in order to provide a serviceable framework for the analytic examination of directional references.

The purpose of musical analysis is to locate and identify, in as detailed a manner as possible or necessary, structural attributes of a particular composition, and therefore it strives explicate relationships that are significant organizational features of the composition. Analysis is informative in some meaningful way about the composition under consideration to the extent that it posits or submits a possible (not the only) way of hearing, and thereby of understanding, an aspect of the logical organization exhibited by a composition. Aside from the fact that a better understanding of a composition has direct and highly relevant performatory implications; that certain organizational relationships may (or may not) underlie, or at least be similar to, organizational attributes of other compositions; that "informative in some meaningful way" is a variable, and sometimes transient, conception; that every attentive hearing of a composition is an analytic act (however consciously or subconsciously that act is carried out);
and that no analysis of a composition will ever be more informative than the composition itself (unless it becomes the composition itself—in which case it is no longer analysis), the strength and efficacy, and therefore validity, of any analysis is its ability to assist and develop the perceptive capabilities of a possible, hence ideal, listener.

Analytic judgments are determined entirely by the background, knowledge, experience, and perceptive powers of the analyst in relation to those organizational aspects of the composition that the analyst either observes or wishes to observe. The relationship between "learning" and "composition" permeates a reticular conglomeration of associations with the specific composition ranging from the initial hearing to extensive study; to deny the internalized musical knowledge that is brought to analytic judgments on the various levels of association, as the niveau neutre in the taxonomic-empiricist approach attempts to do, is to deny the significance of the analytic process and its ultimate applicability to processes of musical behavior.

Music theory, insofar as it recognizes the analytic process as a part of its domain, must be concerned, on various levels, with 1) the results of the analytic process, 2) the principles which either implicitly or explicitly governed the process, and 3) the relation of that specific process to other analytic endeavors so it can describe in as systematic a manner as possible the relationship of a specific composition and its analysis to other compositions and their analyses.

1 See pages 82-91 above.
The extent to which a theory of music can accomplish these tasks will be proportionate to its ability to define and formalize the more universal stylistic constraints, perceptual judgments (an important component of the analytic act, suggesting the circularity between theory and analysis), and ultimately the internalized musical knowledge brought to the understanding and comprehension of music.

Two closely related observations are pertinent to the foregoing assertions. First, whereas scientific theories are geared toward predicting events given a specified set of circumstances, the primary objective of a theory of music should not be an attempt to predict what could happen given a particular set of possibilities or characteristics as much as it should be an attempt to provide substantive definition for what has happened given that same set of characteristics. Second, as both Keiler and Hatten have observed, a theory of music must be attuned to those aspects of a musical composition that are systematic and those aspects that are piece-specific. An analytic theory must therefore mediate between the more systematic nature of the constraints manifested in a particular composition and the more idiosyncratic aspects of the composition itself—aspects which may lead to a revision or redefinition of the systematic constraints. Thus, theory and analysis constantly interact; one plays off the other, as it were, each continually constraining, revising, amending, and testing the

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2 See pages 111-14 and 134-38 above.
presuppositions or results of the other in the quest for a more comprehensive understanding.

The above observations share an affinity with ideas discussed by the eminent philosopher of science, Karl Popper. Although it is not our intent here to examine Popper's contributions to scientific theory thoroughly, it is not too simplistic to suggest a comparison between Popper's notions of the relationship of tentative hypotheses (which for him are the only possible type of hypotheses) and observation (which for him is always selective and based on an established frame of reference or internalized knowledge) and the present examination of music theory and analysis. If, in other words, an analysis is, in one sense, a test of the underlying theory or underlying hypothesis of how a significant structural feature operates in a composition, then theory and analysis join forces in trying to explicate both the nature of the perceptive judgments about the composition itself and the nature of the systematic constraints underlying those judgments.

The delicate balance between theory and application, one enriching and reforming the other, is also related to Peirce's concept of abductive inferences. As noted in Chapter I, abduction is a specific type of ampliative inference wherein an investigator passes from the observation of certain facts and infers a general underlying principle to account for those facts, always under the stipulation that the

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3 This brief characterization of Popper's ideas is primarily taken from Popper, *Conjectures and Refutations*.

4 See pages 28-29 above.
inference may either be false or require revision when confronted with additional data. As Peirce states, "abduction is the process of forming an explanatory hypothesis. It is the only logical operation which introduces any new ideas; for induction does nothing but determine a value [generally based on statistical evidence], and deduction merely evolves the necessary consequences of a pure hypothesis."\(^5\) Peirce's oft-cited example that illustrates the form of the differing syllogisms for the three types of inference is summarized as follows:

**Deduction:**
- Rule - All the beans from this bag are white
- Case - These beans are from this bag
- Result - These beans are white

**Induction:**
- Case - These beans are from this bag
- Result - These beans are white
- Rule - All the beans from this bag are white

**Abduction:**
- Rule - All the beans from this bag are white
- Result - These beans are white
- Case - The beans are from this bag\(^6\)

Indeed, in his later writings, Peirce views the three kinds of reasoning as a method for logical scientific discovery; by passing from deduction to induction to abduction an investigator moves from greater to lesser degrees of certainty while at the same time increasing the value of productivity or fruitfulness of the hypothesis.\(^7\)

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6 Ibid., 2.623.  
7 For a discussion of the methodological implications of the three inferences see Fann, *Peirce's Theory of Abduction*, 32.
The significance of the abductive process has been explored in many contexts, perhaps most notably in the reasoning processes of the fictional detectives Sherlock Holmes (created by Sir Arthur Conan Doyle) and the Chevalier C. Auguste Dupin (created by Edgar Allen Poe). In music, this constant process of hypothesis-making and hypothesis-testing is performed with amazing rapidity and dexterity on numerous levels in various facets of the musical experience. For example, on a basic (but complex) level, when confronted with an unknown composition and given the task of determining a probable composer (as in the ever-popular listening identification tests), the so-called educated listener will propose hypotheses that are provisionally accepted to explain the facts at hand, and then test these hypotheses against the facts, continually revising or excluding tentative explanations. These hypotheses might include, and simultaneously be based on, decisions about genre, form, style, thematic or harmonic structure, instrumentation, and so on. When a listener hypothesizes, based on several types of judgments, that the mystery composition is, say, a symphony by Mozart, that provisional hypothesis

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tends to govern or direct at least one part of the understanding of the composition as the musical data are interpreted in terms of that educated guess. If a particular scoring later suggests that the composition might actually be an overture by Beethoven, or a harmonic progression later indicates a symphony by Schubert, the listener very adroitly changes tactics, however subtly. In addition, the prior information is generally reinterpreted and reevaluated in light of the current hypothesis. Upon being informed that the composition is actually Bizet's *Symphony in C Major*, the listener/analyst (perhaps somewhat chagrined) has nonetheless processed an immense amount of probably very correct and accurate decisions based on the adoption of provisional, and potentially fallible, hypotheses.

This dynamic process is operative to different degrees in most, if not all, analytic judgments based on perceptual modes of musical behavior. In trying to explain or understand a composition or an aspect of a composition, the analyst constantly compares the presented object with a simpler model; a model, however seemingly ill-defined and intractable, that forms that analyst's particular frame of reference for that composition. This model, based on the observer's knowledge, background, experience, and theoretic viewpoints, among other things, governs the particular types of observations that are made while it is simultaneously modified by the information gleaned from the object. For example, when presented with a particular musical surface, the listener/analyst tends to compare, on an indefinite number of levels, that surface with some simpler and more abstract model that
is apparently relevant to both the particular surface and observer. If this model proves to be uninformative or insufficient relative to the specific musical events, then a new model or hypothesis, often requiring either very subtle or very overt shifts, is adopted. Underlying this constant process of comparison between model and surface are the assumptions that the musical surface is indeed organized and that this organization, by virtue of its syntactic ordering, is meaningful in some potentially knowable way.

At this point we have slowly shifted from a discussion of Popper’s theory of knowledge through Peirce's categories of inference to principles similar to ones found in Ulric Neisser’s theory of cognition—thus, it is hoped, intentionally underscoring the relation of theory to analysis to perception (or, for that matter, the relation of perception to analysis to theory). For Neisser, "cognition is the activity of knowing: the acquisition, organization, and use of knowledge." Perception, then, becomes "the basic cognitive activity out of which all others must emerge...[as it] is where cognition and reality meet." Neisser views perception as a skill that, as he

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9 Hatten notes the connection between the perspectives of Popper, Peirce, and Neisser. His discussion presents a more thorough exploration of Popper’s theories, and he also examines the relationships of these ideas to evolutionary models. His discussion of Neisser's perceptual model is briefly offered as an explanation for how an analysis can be heard. Here, we explore not only how the analysis can be heard, but how that process affects and determines analysis. See Hatten, *Toward a Semiotic Model of Style*, 63-84.

10 Neisser, *Cognition and Reality*, 1.

11 Ibid., 9.
points out in numerous passages, is based on both the knowledge and experience of the perceiver.\textsuperscript{12} His model of the perceptual process (Figure 20) is an alternative to the more static "internal information-processing model" in that it defines the process as a dynamic activity that takes place over time, and it overtly recognizes that this process is based on preexistent mental structures (schemata) which direct perceptual activity and which are simultaneously modified by that activity.\textsuperscript{13}

Neisser examines each component of his perceptual model in some detail; here we cite his definition of the schema in order to illustrate more cogently its relationship to his overall model and to

\begin{center}
\begin{tikzpicture}
  \node {Object}
  child {node {Modifies} edge from parent node[above left] {(available information)}}
  child {node {Samples}}
  child {node {Schema} edge from parent node[below left] {Directs} edge from parent node[below right] {Exploration}};
\end{tikzpicture}
\end{center}

Figure 20. Neisser's Perceptual Cycle

\textsuperscript{12} See, for example, ibid., 13, 20, 89, 93, and 182.

\textsuperscript{13} Ibid., 21. For his discussion of the weaknesses of the "internal information processing model" see ibid., 15-18.
the present discussion of musical analysis. For Neisser, a schema is that portion of the entire perceptual cycle which is internal to the perceiver, modifiable by experience, and somehow specific to what is being perceived. The schema accepts information as it becomes available at sensory surfaces and is changed by that information; it directs movements and exploratory activities that make more information available, by which it is further modified.\textsuperscript{14}

This view of the perceptual model is processive in that it admits of continual modification, evaluation, and interaction of exploratory activities, prior knowledge, and the relevant perceptible qualities of the stimulus itself. No part of the model is static wherein one segment, as a fixed entity, governs the remaining segments. Rather, the dynamic contextual elements of any perceptual act are posited, and thus the process as a whole might be said to reflect the process through which all knowledge, in Popper's or Peirce's sense, is accumulated.

Concerning the role of hypothesis-making and hypothesis-testing, Neisser contends that it would be a mistake to assume that "perceivers formulate highly specific hypotheses about what is coming next and discard them in favor of better ones only when they fail to fit."\textsuperscript{15} Instead, the hypotheses are broad enough to allow a perceiver to predict the general nature of a possible event to come while they are continually modified by those events; thus, the circularity of the

\textsuperscript{14} Ibid., 55.

\textsuperscript{15} Ibid., 12; see also ibid., 43.
model encompasses the necessary change in an observer effected by any perceptual act.

The analysis of a musical composition as an infinitely rich source of potentially perceivable sign-functions is, of course, the ultimate goal of this interdisciplinary pilgrimage. Although the theoretic presuppositions discussed above emerge from the semiotic foundations presented in Chapter I as well as from the various discussions in subsequent chapters, it is useful, even at the risk of over-generalization, to connect these ideas before trying to ground the types of directional references in this theoretic framework.

Music, as a communication system, consists of syntactically ordered sign-functions whose ordering is governed by, and is simultaneously an exploration of, certain constraints determined by various levels of codes and s-codes (e.g., stylistic considerations, tonality, metric organization, and so on).16 The syntactic ordering, and therefore the structure, exhibited by those sign-functions is significant (i.e., meaningful) in that it is informative about, and thus communicates, a quality (or qualities) of organization that reflects some pertinent notion (or notions) about the highly personal way in which we view ourselves, the world around us, or both. The "meaning" and "value" of these intricate relationships, whatever they may ultimately be, are not the subject of explicit speculation in this dissertation, other than that any discussion of an organizational quality of a

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16 See pages 38-41 above for a discussion of Eco's notions of codes and s-codes.
composition or compositions is predicated on the assumption that that attribute is both a significant structural feature of the composition and potentially reflective of a more general or universal organizational principle.

Analysis of these ordered sign-functions must be concerned with those aspects of the message (i.e., the composition) that are systematic and those aspects that are piece-specific in order to define the particular composition in relation to both the system and any other composition. Furthermore, any analysis is always selective; it is therefore tendentiously organized. One task for a theory of music is to attempt to explicate and formalize the often evasive presuppositions governing the observations of the analyst. In such an attempt, it must posit and recognize both a composer competency, in terms of what has been produced in the particular composition, and a listener competency, in terms of the perceptual process itself and the internalized knowledge brought to that process by the analyst as listener. Thus music theory and semiotics share a common goal in their quest to analyze as specifically as possible a particular communication system with regard to the complex interactions among sender, message, receiver, code, and context.

Within this broad framework, the specific emphasis in the following pages is on the types of directional references in relation to both their systematic basis and their realization within the context of a particular composition. While not proposing a full-fledged methodology, per se, the ensuing discussion tries to ground, in
theoretical, semiotic, and perceptual terms, the all-important notion of musical reference by way of providing a specific and practical application of the concepts and principles developed throughout this dissertation.

The Layers of Directional Reference

Music, in a blatant paraphrase of more colloquial generalizations, is often simply described as "the alternation of sound and silence organized in time." While this skeletal, "no frills" description may provide a serviceable starting point for further elaboration in some specific contexts, the generality implicit in it does little to separate music from, say, poetry. As is usually the case in such clichés, though, the difficulty is not so much trying to refute the statement as it is trying to determine under what conditions it might be true—in other words, providing substantive definition to the skeletal description.

All this is by way of asserting one of the obvious truisms contained in the brief description of music given above: music is an art form whose organization articulates both qualities of time and of space. The complex and somewhat metaphysical implications of this assertion have been explored by numerous philosophers and aestheticians, and it is not the intent of this study to investigate those

implications. Rather, we simply state that a musical composition, and therefore the perception of a composition, is temporal in nature. By so positing, though, we recognize that musical sign-vehicles, insofar as they participate in the temporal succession of the musical fabric, display as one aspect of their sign-functioning a potential for directional references based on that succession. Moreover, the directional references inherent in musical sign-functioning refer to, and are perceivable (hence analyzable) in terms of, the systematic knowledge brought to the composition by the observer. The directional references consist of three basic and interrelated types that, based on their specific temporal direction of reference, are labeled predictive, retrodictive, and juxtadictive. The systematic knowledge to which these references point, and through which they are simultaneously understood, is called extradictive.

Extradictive Knowledge

In its most general terms, a reference in music occurs when a particular musical event directs an observer's thoughts or attention to some other thing or concept. As discussed in the semiotic foundations presented in Chapter I, the process by which something refers to something else (aliquid stat pro aliquo) and the mechanism that correlates a given entity to a supposed object or concept represent a highly complex and intricate web of relationships that is operative on many different levels and dependent upon several contextual and circumstantial factors. But in an examination of the processes of musical
reference one may be confronted with the age-old, and somewhat forced, distinction between "extramusical" references and "intramusical" references. For the purposes of this study, we are concerned only with those references commonly understood as purely musical references (the similarity of the formative extra in extradictive and extramusical notwithstanding).

Extradictive knowledge is the knowledge of the more systematic constraints governing the organization and perception of a particular composition that is brought to the composition by an (ideal) observer; insofar as these constraints are apparently evident in the composition, this knowledge may be assumed to be shared by the composer. These systematic constraints consist of generalized principles that are abstracted from a body of compositions so as to define more universal organizational principles. The more universal principles, then, may be attributes of different and potentially limitless compositional manifestations. In that the systematic constraints may govern specific compositional realizations and may be simultaneously modified by compositional realizations, any composition may include compositional elements that are both evolutionary (in that they arise from an ostensibly definable tradition) and revolutionary (in that they exploit systematic possibilities in unique ways—ways which may eventually contribute to systematic change).

The use of the term "reference" in this particular context would be misleading, although not entirely incorrect, as it only captures a part of the complex interactions among composition, system, and
the analysis of one in terms of the other. On the one hand, a composition exploits certain properties that are systematic in nature; that is to say, these properties are potentially amenable to abstract description in order to illustrate in a generalized fashion what is more universal (i.e., systematic) about the structure of the composition. In this sense, the composition "refers" to that body of constraints. On the other hand, the systematic nature of these properties, to the extent that it is understood and shared by a common community, forms the basis through which a composition may be interpreted. The application of this extradictive knowledge or "preparatory scheme" is largely based on the intuitive knowledge that the more abstract principles are somehow relevant to the structure of the specific musical surface. A particular composition thus refers to elements of the system, which, in their abstracted form, lie outside of the composition (and hence are extradictive), while that same systematic knowledge simultaneously governs, and is modified by, the perception and analysis of the composition's unique realization of various systematic possibilities. Extradictive knowledge is therefore dialectical in nature. Furthermore, insofar as it is a feature of both the composition and the understanding of a composition, it is assumed to be shared, in an ideal fashion, by the composer and listener/analyst.18

18 The notion of a shared competence is indebted to Hatten's semiotic model, see pages 133-34 above.
It should be evident that aspects of the notion of extradictive reference or knowledge as formulated here have been developed in various contexts throughout this dissertation—including Saussure's conception of langue and Chomsky's conception of competence on the more global level, and Neisser's concept of schema on the more "local" (i.e., "perceiver-specific") level. In terms of the relation to and importance for music theory, valuable insights have been gleaned from the examinations of Keiler's concept of musical competence and Hatten's ideas concerning the overlap of listener and composer competence. But in positing a set of systematic principles that are part of both the composition and the perceptual/analytical process, we unabashedly disavow the concept of a neutral and impartial level of analysis in the sense advocated by the taxonomic-empiricists.

On the basis of extradictive knowledge, coupled with the more idiosyncratic reference situations established by the context of a composition, correlations among various sonic qualities of a particular composition may be perceived. Consequently, to detail the extradictive knowledge of the Neapolitan complex as a pertinent framework within which to examine compositional manifestations of the Neapolitan is to describe those relevant oppositional factors that systematically characterize, and therefore define, the Neapolitan complex in its relation to higher-order principles of diatonic tonality. 19 Moreover, to assume that the framework is pertinent is to maintain that the

19 "Opposition" is used here in the same sense as discussed above in conjunction with Saussurean principles; see pages 19-20.
analytic judgments based on it are relevant perceptible features of the various compositional manifestations in their significant and coherent temporal organization. Finally, the extradictive knowledge of the Neapolitan serves as a foundation for the more piece-specific examination of the complex in terms of the contextual relationships established in the Op. 131 String Quartet.

In the presentation of the basis for the Neapolitan given below, the more general descriptions of the systematic principles are tangibly illustrated through examples taken from Beethoven's compositions. The intent of this restriction is twofold: first, through the examination of a particular composer's use of the Neapolitan, we can circumscribe a narrower historical perspective (as compared to an examination of all possible Neapolitan usages); second, this restriction permits a thorough description of one facet of Beethoven's compositional vocabulary—specifically, the various uses of the Neapolitan.

Before proceeding to a discussion of directional references, it should be noted that the three types of directional references

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20 The use of the term "relevant" in the sentences above is meant to account for those commonly-held and highly inter-subjective notions about what is appropriate and perceivable in this type of musical analysis. For example, in a situation somewhat analogous to Eco's concept of purport (see pages 37-38 above), in an ideal equally-tempered tuning system (A⁰ = 440 hertz), C⁴ can be "defined" as 261.63 hertz and its Neapolitan, D-flat⁴, could be described in similar terms as 277.18 hertz. Although the difference in frequency between the two tones represents an opposition in the continuum of pitch frequencies, and although the nature of the opposition may be relevant to acousticians, its import for analysis (other than the obvious fact that there are two different tones) is minimal.
identified below are implicit in varying degrees in many musical
analysis. Indeed, insofar as any sonic feature of a composition—a
tone, chord, harmonic or melodic progression, rhythm, dynamic level,
texture, or silence—participates in the temporal unfolding of the
composition, it is potentially an aspect of one the various types of
directional references on some level, and thus may be described in
those terms. The attempt to ground these references in terms of the
theoretic and analytic principles developed in this dissertation,
though, is simultaneously coupled with an attempt to isolate and
balance in an explicit manner their various interrelationships and
differences in analytic applications.

Predictive References

The names used in this study for the three types of direc-
tional references are borrowed from Coker. Coker asserts that temporal
references are essential presuppositions for the examination of the
semantic aspects of iconic sign situations in terms of their relation
to congeneric musical meaning (i.e., how musical sign situations relate
to both their context and to what they signify when an observer inter-
prets them as a reference to some other musical element which is
similar in type in a composition). For Coker, these complex sign
situations, as musical gestures, "set up a tissue of internal refer-
ences and signify other gestures and parts of the work in preceding,
concurrent, or later places," and the importance of the temporal
references governing this signification process "is a--if not the--most
substantial and consequential characteristic of musical meaning."\(^{21}\)
While we have rejected the attempt to assign specific typologies (such as icons, indexes, and so on) to sign-functions in music,\(^{22}\) we accept the notion that these directional references, in that they refer to and are perceivable in terms of appropriate aspects of extradiuctive knowledge, are important characteristics of musical sign-functioning.

According to Coker, a predictive reference causes "an interpreter to look forward in anticipation or expectation toward what is signified."\(^{23}\) In other words, on the basis of certain contextual considerations, a specific musical phenomenon—note, chord, harmonic progression, the establishment of a particular register, and so on—may refer or point to some possible future musical event. A predictive sign situation thus establishes some prospective relationship whose potential is not immediately realized or directly exploited; therefore, the relationship seems to require some additional exploration at a later place in the composition (although the specific type of treatment

\(^{21}\) Coker, *Music and Meaning*, 154 and 65, respectively.

\(^{22}\) See the section "On Sign Typologies" at the end of Chapter I, pages 43-46.

\(^{23}\) Coker, *Music and Meaning*, 4. It should be noted that Coker bases many of his semiotic conceptions on ideas developed by Morris (see pages 33-35 above), and in this regard his outlook shows a behavioristic bent in its emphasis on the interpretant (or disposition to respond). According to Coker, "any attitude—feeling, emotion, or desire—any anticipation, any action, or any state of consciousness is significant only insofar as it is a response or a disposition to respond to some stimulus within the internal or external environment of the organism. Stimulus—response, the physiological level of existence and experience: this is the essence of sign functioning and meaning." Ibid., 3.
or the specific point in the composition is rarely definite or predictable). The contextual features surrounding the particular predictive reference typically emphasize or highlight that event in some significant manner; for example, through a rhythmic, melodic, harmonic, dynamic, timbral, or textural emphasis (and any combination of those emphases) that directly opposes the event to its immediate sonorous environment. The extent to which the predictive potential is recognized as such by an attentive listener is dependent on the strength of the contextual (i.e., piece-specific) isolation or emphasis and its interaction with the more general systematic (i.e., extradictive) presuppositions concerning the stylistic constraints that are appropriate to both the broad historical period in which the composition is located and the particular traits associated with the specific composer.

This formulation of predictive sign situations is nearly identical to, or at least shares many similarities with, the concept of implication as discussed in conjunction with the implication-realization model. Nonetheless, there are two significant differences between the respective formulations. First, the relation of predictive sign situations to contextual and to extradictive circumstances is explicitly posited—a relation that is sometimes only implicit in the implication-realization model. Second, and perhaps more crucially, we assert that if a predictive reference implies a

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24 See Chapter V above.
certain continuation or some subsequent treatment in the composition, then that continuation or subsequent treatment, whether it represents a "closure" or not, must be recognized as a retroductive sign situation that makes explicit the potential inherent in the predictive sign situation. Indeed, it would seem that the implicative nature of many predictive situations is perceived as such only because the implications are realized at some later point (either in the same composition or perhaps in another composition); thus to speak of an "unrealized implication" is oxymoronic. Moreover, one may easily imagine a situation, both on local and global levels, where, given certain contextual and systematic presuppositions, a particular musical event may imply more than one possible and entirely logical continuation. In such a case (which seems to be the typical one in music), the actual continuation may retrogressively make apparent the implication of the earlier event. In this sense, specific types and instances of directional references can be embedded in more extensive referential patterns. All of these patterns are determined by contextual circumstances, and they refer to and are governed by their relation to a more general extraductive competence. It is this web-like network of complex interactions between the specific musical context of the directional references and extraductive knowledge, in many ways mirroring aspects of Neisser's conception of the perceptual process, that necessitates our examination of the layers of temporal references.
Retrodictive References

A retrodictive reference, according to Coker, is one which causes "an interpreter to reach back in memory to recall or recognize what is signified." A retrodictive sign situation obtains 1) when a particular event refers to some earlier event by means of a similarity (e.g., a textural, timbral, melodic, rhythmic, thematic, dynamic, or harmonic association and any combination thereof) to that event, or 2) when a particular event represents a compositional realization of the potential of some earlier predictive sign situation in the sense discussed directly above. In the first case, it is not necessary that the earlier event be considered predictive in nature (although it may be); for example, it seems less intuitive to assert that a particular timbral characteristic presented during the temporal presentation of a composition (as, say, the pizzicato chord in the second measure of the fourth movement of Webern's Fifth Sätze für Streichquartett) predicts later occurrences of the same timbral quality (although extradicitive knowledge of Webern's careful attention to timbral details may make this a plausible hypothesis) than it does to assert that a later instance of that timbre recalls or refers to the earlier statement (as the pizzicato chord in measure 12 of the same movement does; thus the pizzicato timbre, in a sense, serves to "frame" the movement in that it occurs approximately as far from the end of the movement as it does.

from the beginning). Here, the retrodictive nature of the latter sign situation tends to dominate, whereas the predictive nature of the earlier sign situation, to the extent that it is considered predictive at all, is realized retrospectively.

The notion of retrodictive reference is a crucial component of the listening process because it subsumes the continual reevaluation and reinterpretation of musical events in terms of the information presented during the composition. The constant interaction of retrodictive references with predictive references is indicative of the dynamic nature of attentive listening, and it must therefore be explicitly balanced in the analysis of musical compositions.

Juxtadictive References

The final directional reference identified by Coker is juxtadictive reference. According to Coker, juxtadictive sign situations "cause an interpreter to take account of something that is present now but not necessarily present earlier or later." These situations constitute more "internal" references, as it were, in that certain events simultaneously point to some quality or qualities by virtue of their presentation. Some typical examples of juxtadictive sign situations would include an Alberti bass figure which refers to a chord, or a stricto of a fugue, where the successive entries of the voices cause an interpreter to take account of the time interval between the

26 Ibid.
respective entries; a time interval that may not have been present earlier.

The choice of the term "juxtapdictive" (roughly, "to say next to") is unfortunate because it does not adequately capture the notion of "something happening in the present" that is characteristic of this type of reference. I suggest, although it represents a more pedantic borrowing of Latinate roots, that this type of reference might be better labeled "simuldictive" (or, "to say at the same time"). In any case, the point is a moot one for the purposes of this dissertation because the concept of juxtapdictive references is one that has been long assimilated and is well-understood by musicians. It is reflected, for example, in the ability of musicians to take a portion of a musical passage and assign a Roman numeral to that passage. While the rules governing this process are admittedly complex (and often frustratingly difficult to teach), the primary focus in this study is on predictive and retrodictive references with juxtapdictive references being understood as necessary by-products of those reference situations.

The Systematic Basis for the Neapolitan Complex

The Neapolitan chord is the major triad whose root is the lowered second scale degree (♭II). As a chord that frequently appears in the minor mode and in cadential passages, it is generally found in first inversion, and it is therefore referred to as the "Neapolitan sixth chord." The chord usually progress to a dominant chord, characterized with the lowered second scale degree moving down to the
(raised) seventh scale degree. The diminished third between $b\hat{2}$ and $\hat{7}$ may often be filled with a passing 1, supported by either a vii$^{7}$/V, which intensifies the motion to the dominant harmony, or a cadential tonic $\frac{4}{2}$, which expands the dominant harmony, or both (Example 11, next page).27

The term "Neapolitan" refers to those composers active in Naples in the late seventeenth and early eighteenth centuries who were supposedly the first composers to use the chord. Unfortunately, as is well-known, the geographic bias in the appellation is not indicative of the more cosmopolitan uses of the chord found in the music from that time; indeed, many contemporaneous composers in different locales (e.g., Purcell) were also exploiting its possibilities. Nonetheless, because of the wide-spread acceptance of the term in modern-day discussions, and because it provides a consistent means to designate the chord, this dissertation employs the term.

The use of the term "complex" in this dissertation is intended to reflect both the broad range of compositional possibilities afforded by the Neapolitan relationship and the frequent (and sometimes extensive) exploitation of those possibilities in the compositions examined below. To dismiss the chord as a chromatic variant of the diminished chord that typically appears on the second scale degree in

Example 11. Typical Uses of the Neapolitan Sixth Chord

a) Beethoven, *Bagatelle*, Op. 119, No. 9, measures 17-20


the minor mode would ignore the important structural relationships in which the Neapolitan participates as well as the relationships that the complex generates. Indeed, the Neapolitan complex is frequently a significant organizing force in a particular composition. The aggregate of systematic possibilities and idiosyncratic realizations, many of which are peculiar to the Neapolitan, justifies the examination of a Neapolitan complex in this dissertation. ²⁸

As noted above, the term Neapolitan is overly restrictive with regard to its geographic origins. But the term is problematic on another account because it is completely unenlightening with respect to the possible systematic origins the alteration of the second scale degree might have in diatonicism; the name simply avoids the issue. In many instances, the term "Phrygian II" is used to designate this chord, ostensibly as an attempt to bestow a titular systematization on the alteration. Salzer, for example, considers an appearance of this chord to effect mixture between the parallel Phrygian and minor modes; he states that "in order to obtain a perfect triad with its greater harmonic possibilities, composers have been led to the II of the Phrygian mode, which is a major chord." ²⁹

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²⁸ Various authors have alluded to the aggregate of relationships that characterizes the Neapolitan (see, for example, the title of Thompson's article cited in note 35, page 198 below). I have borrowed the term "complex" from Proctor's extensive survey of the Neapolitan, and the present examination is frequently indebted to principles discussed in that study. See Proctor, "Technical Bases of Nineteenth-Century Chromatic Tonality," 97-115.

²⁹ Salzer, Structural Hearing, I:177. Bukofzer also considers the appearance of the Neapolitan chord (as well as augmented
Support for mixture with the Phrygian mode may be garnered from the following observations (see Example 12). First, the Phrygian mode contains a major triad built from its second scale degree and therefore the mode may be a useful source of origin for the chord in diatonic contexts. Second, inversion of the interval content of the major scale generates the Phrygian mode; thus the Phrygian mode, strictly in terms of its contrastive elements, might afford serviceable opposition to the major mode because it opposes the qualities of all of the imperfect intervals formed between its tonic and scale degrees. Third, the major mode, as a collection of two disjunct tetrachords, embeds, as it were, a Phrygian tetrachord at its center (an "embedding," incidentally, that Brahms compositionally exploits in the opening of the second movement of his Symphony No. 4).

Example 12. Phrygian Mode Relationships

The disadvantages for assuming mixture with the Phrygian mode as the sole source of origin for this chord are 1) invocation of modal sixth chords) to represent a "fusion" of the Phrygian mode with the major or minor key; see Manfred Bukofzer, Music in the Baroque Era (New York: W.W. Norton, 1947), 386. Also, Kimmel derives the Neapolitan chord from Phrygian tetrachordal configurations. See William Kimmel, "The Phrygian Inflection and the Appearances of Death in Music," College Music Society 22 (1980), 45-46 and 64-68.
mixture (aside from parallel major and minor) has no other precedence in the diatonic system, and—perhaps more significantly—2) the Phrygian mode does not contain a perfect fifth above its dominant note; consequently, the dominant triad (the typical chord of resolution for the Neapolitan triad in tonal music) is dissonant in the mode (which partially accounts for the different treatment of the major triad on the second degree in the Phrygian mode).

In evaluating other possible systematic sources for the Neapolitan chord in diatonic contexts, we note that the altered second scale degree is the next flat in the circle of descending fifths in the order of minor keys; thus the lowered second scale degree may refer to, or tonicize, either the minor subdominant key (i.e., VI/IV) or its relative major, the major submediant key (i.e., IV/VI). These observations have led some authors to suggest mixture with one of these keys as a systematic process of origin for the Neapolitan scale degree.30 Although several theorists have noted, either explicitly or implicitly, the subdominant characteristics of the chord, its submediant reference is sometimes overlooked. From the many instances of a Neapolitan directly emerging from either a subdominant or a submediant environment, we cite two (Example 13, next page).

Closely associated with a submediant basis for the Neapolitan is the observation that the submediant scale degree of any original

30 For example, Schoenberg, in his chart of the regions (for both major and minor), viewed the Neapolitan key area (Np) as an "indirect and remote" relationship approachable through the minor subdominant (sd) and, at least implicitly on the charts, through the
Example 13. Subdominant and Submediant Origins for the Neapolitan

a) Beethoven, Bagatelle, Op. 119, No. 5, measures 14-17

b) Beethoven, String Quartet, Op. 18, No. 3, III:1-8

minor key lies a perfect fifth above the lowered second scale degree; therefore the Neapolitan chord itself may be tonicized through the use


of VI as V/♭II or, more frequently, the use of the major-minor seventh chord built on the submediant as V\(^7\)/♭II (Example 14). In addition, it is worth noting that V\(^7\)/♭II, like all major-minor seventh chords, can be enharmonically reinterpreted as a German augmented-sixth chord (where the minor-seventh interval is either notationally or conceptually respelled as an augmented-sixth interval). The result of this particular respelling, though, is significant in that the augmented-sixth interval produced (♭6 and #4) is the most frequently used augmented-sixth interval in the tonal system. The types of chords


(Illustration of musical notation)

(Illustration of musical notation)

progress to the dominant harmony wherein the dissonant augmented-sixth interval usually resolves by half-steps to an octave on the dominant. Reinterpretation of the minor-seventh interval as an augmented-sixth, and the augmented-sixth as a minor-seventh, creates an effective, and
often startling, means of exploiting Neapolitan-tonic key relationships, and its converse, tonic-Neapolitan key relationships (Example 15).

As has been noted, the Neapolitan typically occurs in a minor mode environment. Appearances of the chord in the major mode, however, are common, and these appearances are generally effected in two ways.


32 The Rondo, although assigned a late opus number, is in fact an early work, dating from Beethoven's days in Bonn, and it was probably composed between 1795 and 1798. For additional examples of the enharmonic spelling, see Bagatelle, Op. 126, No. 2, measures 70-79; Piano Sonata, Op. 10, No. 1, III: 97-115; Piano Sonata, Op. 13, III:203-10; Violin Sonata, Op. 30, No. 2, III:257-70. (Indeed, the final movements of the last three works share a number of similarities.)
First, the Neapolitan can occur directly, in which case it is frequently juxtaposed to the tonic and constitutes simple mixture with the Phrygian mode (Example 16). In Example 16, the sudden move to the

Example 16. Beethoven, Andante in F, WoO 57, measures 192-200

Neapolitan initiates the coda of the work, and although the opposition to the tonic is clear, the subdominant influence in the Neapolitan is still apparent in this passage. The Neapolitan chord

33 Another example of the direct movement from major to Neapolitan can be found in Symphony No. 7, I:370-76.

34 The Neapolitan harmony frequently figures prominently in many of the coda sections in Beethoven's compositions (see, for example, Piano Sonata, Op. 10, No. 1, I; Piano Sonata, Op. 13, III; Piano
progresses to a V₆/₃ which in turn resolves to the tonic triad (measures 197-98). Interestingly, the root position tonic triad can be interpreted as the V of IV, a fact which may be verified by substituting a root position B-flat major triad for the D minor triad on beat 3. It is this strong subdominant influence, invoked through the precipitant shift to the Neapolitan, that perhaps necessitates the five-measure phrase to reaffirm the tonic triad as tonic harmony. In addition, an earlier passage in the composition (see, for example, measures 15-22) consists of a brief contrasting section of "horn fifth" figures in the key of the flat submediant (D-flat major). This passage, which occurs three times, is approached by unaccompanied repeated F's as a common tone for the modulation to D-flat major, and the return to F major in each instance is effected through an augmented-sixth chord—the same augmented-sixth chord that can be reinterpreted as the V⁷/♭II.

The second and probably more common means of introducing the Neapolitan complex in a major mode context is through a double mixture process. In this process, the minor mode is first invoked, and the Neapolitan then emerges from this more primary mixture. This process

Sonata, Op. 53, I). This should not be surprising as many codas (from a Bach fugue to, in a somewhat more removed form, the closing measures of Debussy's Prelude a "L'Après-midi d'un faune") emphasize the subdominant region in some significant way (usually through its dominant). The Neapolitan, with its subdominant emphasis, is well-suited to perform this role. Indeed, the Andante from which Example 16 is extracted was originally intended as the second movement for the Piano Sonata, Op. 53, where the first and third movements contain important Neapolitan references in their respective codas (and, in fact, have almost identical treatments of the Neapolitan). Each of the Neapolitans in those movements, though, is more closely associated with the type of double mixture described below.
may occur on a small scale (see Example 11a above) or on a large scale (see Example 15 above), but perhaps because of the layering of mixture involved the Neapolitan complex tends to appear less frequently in the major mode than it does in the minor mode, at least in the works of Beethoven. The example below (Example 17) illustrates the relative priority of mixture with the minor mode wherein the introduction of the minor subdominant in measure 234 becomes adequate preparation for the subsequent passage in the Neapolitan.


Thompson, in his article on the use of the Neapolitan in Beethoven's piano sonatas, appears to ascribe to the Neapolitan the status of a generating force for the subdominant and submediant key
areas—a view diametrically opposed to the systematic framework outlined above. After observing that the subdominant and submediant are in fact the third and fifth, respectively, of the major triad built on the lowered second scale degree, Thompson states that the Neapolitan, when elevated to the status of a "fundamental chord," has "relationships of its own in major as well as in minor keys, the relationships being keys implied by its fundamental [constituent] tones [i.e., bII – iv – bVI]," and thus, in Beethoven's compositions, one finds that "the fundamental tones of the Neapolitan chord generate relationships in much the same way the fundamental tones of the dominant and subdominant generate relationships in Mozart's works."

Although exactly what types of relationships the "fundamental" tones of dominant and subdominant chords generate in Mozart's compositions is unclear, it seems peculiar to grant priority to a chromatic key area (the Neapolitan) for the generation of key relationships which are more directly and expeditiously generated by either mixture (in minor) or double mixture (in major).

These systematic origins for the Neapolitan complex are proposed as the extradictive presuppositions underlying the ensuing?

35 Harold Thompson, "An Evolutionary View of Neapolitan Formations in Beethoven's Pianoforte Sonatas," College Music Symposium 23:2 (1980), 144-45. In discussing the use of the Neapolitan in the second movement of Beethoven's Op. 106, Thompson mistakenly analyzes the Neapolitan chord of measures 22-24 as a secondary dominant of bV (see pages 158-59). The bV chord, though, is a neighbor chord to the Neapolitan—a IV/bII, as it were, which tonicizes the Neapolitan—and not a chord receiving tonicization. The retention of an F-sharp throughout the passage is helpful in deciding the issue.
examination of the Neapolitan in conjunction with the directional references outlined earlier. Although not every possible use of the Neapolitan in Beethoven's works has been detailed, the presentation of a systematic basis for the Neapolitan complex in diatonic tonality affords a framework from which to explore the qualities and peculiarities of the complex as manifested in the C-sharp minor quartet, and from which to illustrate its role in the organizational structure of that quartet.

An Analysis of Directional References

The compositions in which Ludwig van Beethoven (1770-1827) explored and exploited the implications of the Neapolitan as a complex of relationships are among his greatest contributions to the musical literature. Indeed, if one were familiar with only those compositions by Beethoven that employ the Neapolitan complex, either as a large-scale structural feature permeating various movements—as in, say, the Piano Sonatas, Op. 27, No. 2, and Op. 57; and the String Quartets, Op. 59, No. 2, Op. 95, and Op. 131—or as a feature extensively emphasized in a particular movement—as in, say, the opening movements of the Piano Sonatas, Op. 10, No. 3, and Op. 31, No. 2; the final codas of the Piano Sonatas, Op. 10, No. 1, and Op. 13; and the finales of the Violin Sonatas, Op. 12, No. 1, and Op. 30, No. 2—one might be inclined to view the Neapolitan as a "normative" component of Beethoven's harmonic vocabulary, worthy of comment when it does not occur. In any case, one
would undoubtedly be struck by the tenacity with which Beethoven pursued the implications of the Neapolitan complex in the works.

Work on the **String Quartet in C-sharp Minor**, Op. 131 was begun in late 1825 and completed in early 1826. In many respects, this quartet represents a final sojourn through and a summation of compositional processes that are admired in Beethoven's style. By stretching and exploring the possibilities of the genre, this quartet is an almost unprecedented statement about musical structure, and the quartet rightly deserves the frequently overused accolade of masterpiece. Reportedly, Beethoven himself once declared to Karl Holz that the C-sharp minor quartet was his "greatest" expression in the form.\(^{36}\)

While it is true that superlatives are exceedingly difficult to justify when applied to musical compositions—as they are based on a host of objective and subjective considerations—it is perhaps even more difficult to argue against Beethoven's use of this one.

The first movement of this seven movement quartet is an **Adagio fugue**. After its initial statement, the subject is answered by the second violin in the subdominant (Example 18, next page). As has been observed,\(^ {37}\) this "real" answer in the subdominant, aside from being presaged by the subject's subdominant tint (i.e., the **sforzando A** of measure two, and the harmonic implications of F-sharp and A in

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\(^{37}\) The most extensive treatment of this quartet is found in Joseph Kerman, *The Beethoven String Quartets* (New York: W.W. Norton,

Quartett No. 14.

measure three), unequivocally emphasizes, both dynamically and rhythmically, the submediant scale degree of the subdominant, D-natural, which is also the Neapolitan note of the original tonic, C-sharp minor. Through this seemingly simple alteration of the more typical structure of a fugue's exposition, Beethoven has forcefully

1966; paperback ed., New York: Alfred A. Knopf, 1979), 295-349. In many places in the following discussion, I am indebted to Kerman's lucid analyses. See also, Donald Tovey, "Some Aspects of Beethoven's Art Forms" in The Main Stream of Music and Other Essays (New York: Meridian Books, 1959), 271-97.
established a predictive sign situation whose compositional implications are to be ingeniously explored throughout the remainder of the fugue and the remainder of the quartet.\footnote{Winter, in his excellent study of the sketches for this quartet, shows that Beethoven apparently planned a more "typical" answer in the dominant. See Robert Winter, \textit{Compositional Origins of Beethoven's Opus 131} (Ann Arbor: UMI Research Press, 1982), 113-19.}

The turn to the subdominant area is vitiated by the E-natural (measure 8) which also prepares the re-entry of the subject in the tonic. This entry in the tonic is answered by the cello's statement of the subject in the subdominant (measure 12), thus once again emphasizing D-natural. At this point, though, the situation is more complex harmonically. The subdominant entry in measure 12 initiates a slow, but inevitable, shift toward its subdominant, and B minor persists until measure 18, where the abrupt introduction of D-sharp, in the cello, and B-sharp, in the second violin (rhythmically, almost "lunged at" and retained across the bar line), attempts to restore the original tonic. Yet the restoration process is not so easy. After a half-cadence in C-sharp minor (measure 20), a brief stretto ensues (first violin and cello), and the subdominant and the subdominant's subdominant again begin to color the proceedings. Once more, these keys are wrested from moving too far afield harmonically, this time by a striking reiteration of the D-sharp/D-natural cross-relation in the cello and second violin (measures 23-24).

In the description of the final entry of the subject in the exposition (measure 12) given above, it was stated that the harmonic
progression slowly, but inevitably, slips toward B minor. Undoubtedly, "inevitability" in music is largely a vacuous concept, other than in retrospect. Its use here, though, can perhaps be justified in terms of the directional references and extradictive knowledge discussed earlier. It was noted that the subject of the fugue contains a sub-dominant hue; consequently, a "real" answer in the sub-dominant must necessarily emphasize its subdominant. This emphasis is made more explicit, though, with the appearance of the Neapolitan of the subdominant (G major) in measure 7 which, when systematically understood as potentially effecting mixture with the subdominant (i.e., VI/IV)—although in its local environment, the G-natural also reflects a IV/VI interpretation—colors F-sharp minor with hints of B minor. Thus the B-minor emphasis represents an attempt to balance, as it were, the subdominant's subdominant implication with the subdominant nature of the original subject. Further support for a strong B minor implication may be heard in measure 11 where, following statements of the subject in the tonic (measures 9 and 10), the chord on the first beat (a V\(^{7}\) of B) slips to an F-sharp minor chord on the second beat; hence, by juxtaposing A-sharp and A-natural (second violin and viola), the leading tone of B minor is blocked, and the B minor influence, for the time being, is quieted.

In these opening measures there is a nesting of subdominant influences that is both typified by and realized through appearances of the Neapolitan, and the careful working out of these influences
characterizes, on several levels, the remainder of the movement. Because the Neapolitan is the specific concern of this study, we need only examine the subsequent appearances of the complex in this movement before proceeding to later movements.

The two-part episodes (Example 19) occurring soon after the mid-point of the movement serve as the retransition to an extensive


39 In fact, Kerman has illustrated how the keys generated by the working out of the subdominant influence in this movement contribute to the key relationships of the remaining six movements of the quartet; see Kerman, The Beethoven String Quartets, 328-29.
dominant prolongation. The first canonic episode is in A major (measures 66-72), the submediant of the original tonic, C-sharp minor, and this sequential passage, whose harmonic implications recall more Baroque models, is immediately repeated in the key of D major (measures 72-79). But whereas D major emerged as the subdominant of the submediant—a transposition, incidentally, that reflects the exposition’s answer in the subdominant—its status as the Neapolitan of C-sharp minor of the original tonic becomes aurally evident after its progression to the dominant in measure 83.

Before the entrance of the sequential episodes, there occurs a compositional detail that is too exquisite to pass over without some comment. Although in an A major context, the subject, in a fragmented form, is recalled in its "F-sharp minor guise"; first in diminution (viola, measures 63-64), and then "tonally" (second violin, measures 63-64). Significantly, both statements conclude on D-natural, and thus D-natural emerges as VI/IV, in a local context, while simultaneously being nested within a IV/VI context on the larger level—the former context retrodictively reminiscent of the initial answer of the fugue, the latter predictively pointing to the second sequential episode that immediately follows.

Following the interruption of what would appear to be a final resolution to the tonic harmony (measures 90-91)—an interruption characterized by a brief excursion (measures 91-98) through the subdominant realm—the concluding section of the fugue commences (Example 20, next page). The first violin states the subject in the
subdominant, but the "original" D-natural is significantly altered to D-sharp (measure 100); thus, the B minor implication that was so prevalent in the opening measures of the fugue is avoided. Adding emphasis to this important alteration is the augmented "tonal" answer in the cello (measures 99-107) which accompanies the D-sharp of the violin with a B-sharp--thus seeming to turn toward C-sharp minor. The subdominant receives passing tonicization in measures 104-5. Emerging from this tonicization, and coinciding with the end of the augmented statement of the subject in the cello, is the first, and only, statement of the subject in the Neapolitan (first violin, measures 106-7). The D-natural is left suspended, as it were, with an immediate diminuendo to piano and an appearance of a D-sharp stated in the second violin. A sequential passage, based on the first three notes of the subject, culminates in two statements, widely separated by range, of the subdominant version of the subject, first in the cello (measures 110-12) and then in the first violin (measures 111-13). By the time the first violin has reached the sforzando D-natural (measure 113), the cello has slid to a B-sharp, creating, with the remaining parts, a "German-sixth dominant" (that is, a $\text{vii}^7$ with lowered third, or an "inversion" of an augmented sixth chord that resolves to the tonic chord); thus, the Neapolitan note is convincingly restrained within the confines of C-sharp minor. The movement concludes when the tonic chord with its Picardy third, E-sharp, eventually yields to the pianissimo octaves on the tonic.
Kerman states that the instability established by the subdominant and Neapolitan colorings in this movement are "ultimately resolved in a passage of magnificent integrative power" in the concluding measures of the fugue. Yet the extensive use of the subdominant throughout the movement, which he carefully details in his analysis and which is commented upon above, suggests that the C-sharp major chord carries a dual implication: it is, on the one hand, a cadence on the major tonic and, on the other hand, a cadence on the dominant of the subdominant. Indeed, Tovey states that at the end of this movement the influence of "the flat supertonic is so strong that the major tonic chord is almost in danger of sounding like a dominant." This situation is similar in principle to the one discussed in conjunction with Hatten's analysis of the ambiguity in the opening measures of Beethoven's Op. 59, No. 3. The alteration of the third of the tonic triad in a predominantly minor-mode context, coupled with the earlier insistence of the subdominant influence, reflects exactly that harmonic ambiguity that Kerman feels characterizes the entire movement—a movement "poised half in the tonic, half in the subdominant."

40 Ibid., 297. Emphasis mine.
41 Tovey, "Some Aspects of Beethoven's Art Forms," 290.
42 See pages 158-60 above.
43 Kerman, The Beethoven String Quartets, 329. It seems to me that an analogous situation occurs in the Bagatelle, Op. 119, No. 1, in G minor. The main theme returns (measures 67-71) both in the tonic and in the subdominant. The tonic has been established harmonically,
The second movement, Allegro molto vivace, follows without pause in the key of D major, the Neapolitan of C-sharp minor. The choice of the Neapolitan as the tonal center for a movement—thereby unequivocally elevating the Neapolitan complex to a significant structural status—is unprecedented in Beethoven's compositions, yet it represents, in retrospect, a logical outgrowth of the predictive implications afforded by the tonic–Neapolitan crux that was prominently exploited in the first movement. To be sure, the close relation (both harmonic and melodic) of the beginning of the second movement to the close of the first may cause one to wonder, at least briefly, if the fugue is indeed completed. Moreover, the stark juxtapositioning of C-sharp minor to D major, in that it establishes a compositional implication whose potential is not directly realized, predictively refers to the passages in the final movement that explore the latent potential.

The tasks delegated to the final movement of the quartet are to reaffirm the Neapolitan complex, on the one hand, and to attempt to

but the theme itself (including a fleeting mention of $b^2$) is strongly subdominant in nature (compare this statement to the original statement in measures 1–4), and all subsequent appearances of the tonic harmony are with the tierce de Picardie with which the composition concludes. Indeed, the final cadence is plagal (with a pedal G to securely ground the C minor triad as iv). Interestingly, the following Bagatelle (No. 2) is in C major (the major subdominant of the previous piece), perhaps realizing the subdominant implication in the concluding measures of No. 1.

44 The second movement of Haydn's Piano Sonata in E-flat Major, Hob. XVI/52 is in the Neapolitan (E major). The Neapolitan harmony is also employed in the development section of the first movement (see measure 68) where its abrupt introduction begins the so-called retransition for the recapitulation.
tame its various implications, on the other. Before turning to an examination of this movement, though, it should be noted that the brief, twenty-eight measure sixth movement in G-sharp minor not only prepares the C-sharp tonality of the last movement, but also re-introduces the Neapolitan harmony. The gradual emergence of the Neapolitan A-natural in the cadential passages of this movement is described by Kerman, and we need only comment upon the final measures of this movement (Example 21). The first-inversion Neapolitan of measure 25 is preceded by an E major triad (i.e., it emerges as "IV/VI") and it proceeds in its "typical" cadential function. The emphasis on the submediant basis of the Neapolitan is significant in that E major was the tonality for the fifth movement, the Scherzo. In addition, A major was the key center for the set of variations which


45 Kerman, The Beethoven String Quartets, 340.
constituted the third movement. The cadential implication of measure 25 is avoided with the turn toward C-sharp minor in measure 26 (where the A-natural is retained as part of the V\(^9\)/C-sharp). The A major triad appears once more (measure 27), this time in root position as part of a deceptive cadence in C-sharp minor. Thereupon follows a measure of a G-sharp chord, now unequivocally the dominant of C-sharp, and then the finale commences.

The first statement of the Neapolitan in this movement (Example 22) is emphasized dynamically (subito piano), rhythmically (the


break in the ostinato-like rhythmic figure), and stylistically (the legato phrasing in the first violin). This convergence of several textural details to recall and reestablish the Neapolitan complex after a hiatus of intervening movements is also a compositional feature of

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46 Simpson has suggested that the scherzo (movement five) is not in the key of E major as such as it is on the dominant of A major (the key of the set of variations in the third movement); see Robert Simpson, "The Chamber Music for Strings," in The Beethoven Companion, ed. Denis Arnold and Nigel Fortune (London: Faber and Faber, 1971), 274-75.
other works in which the Neapolitan participates in the structural unity of various movements.\footnote{See, for example, the \textit{String Quartet}, Op. 59, No. 2 where the Neapolitan complex is prominently displayed in the initial statement of the main theme of the first movement (measures 1-9). The Neapolitan returns in the third movement, emphasized dynamically (measure 17), and in the final movement, emphasized dynamically and with a measure of silence (measures 340-43). Indeed, the main theme of the last movement of this quartet has a marked submediant tendency, and the Neapolitan nurtures that tendency by preparing each return of the main theme as IV/VI (see measures 96-107 and 259-75). I have examined this work with respect to its use of silence and how silence participates in different directional references; see William Dougherty, "The Significance of Silence in the String Quartets of Beethoven," \textit{The Journal of the Graduate Music Students at The Ohio State University} 7 (1981), 19-45.} The Janus-like nature of this appearance of the Neapolitan—at once a retrodictive sign of the conflict established in the first movements and a highlighted predictive sign of the events to come—typifies the web-like layering of directional references.

It remains now to see how final reconciliation is wrought. In the development section (measures 124-35), the protracted tonicization of the Neapolitan constitutes the immediate antecedent for the extensive dominant prolongation (measures 136-59) which prepares the recapitulation (measure 160). The use of the Neapolitan in this context is harmonically similar to the treatment of the complex during the
retransition in the opening fugue (see Example 19 above). Moreover, the appearance of the Neapolitan complex (measure 124) is highlighted in several ways, perhaps most notably by a sudden dynamic shift to piano, recalling the subito piano which accompanied the earlier introduction of the Neapolitan in this movement (see Example 22).

The measures of the recapitulation comparable to the measures in the exposition that strikingly reintroduced the Neapolitan harmony make no mention of the lowered second scale degree. Instead, the Neapolitan complex is reserved, as it were, for a more structurally significant role in the recapitulation—-it is the key for the return of the second theme (Example 23). The turn to D major begins in measure


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48 Kerman shows how the key structure of the development almost literally corresponds to the key structure of the entire first movement; see Kerman, The Beethoven Quartets, 345.
207, and the fully-established key (along with the return of the second theme) is highlighted with the *subito piano* dynamic marking that has by now become a salient, and seemingly obligatory, characteristic of Neapolitan appearances in this movement.

In the coda, the Neapolitan (almost parenthetically) interrupts a cadence in C-sharp minor (Example 24). The repeated *pianissimo* Neapolitan scales provide a poignant retrodictive reference to the influence exerted by the Neapolitan during the course of the quartet, and the *forte* resolutions to tonic appear to have finally subdued that influence.


In light of the importance of the Neapolitan complex to the unity of this composition— in its participation as both a surface chord and a structural complex— the final appearance of the chord is
perhaps singularly ironic (Example 25). The move to the Neapolitan (measure 262) has been preceded by thirteen measures of an ostinato on C-sharp. Harmonically these measures alternate between major tonic chords and neighboring minor subdominant chords, and consequently they reintroduce the tonic-subdominant ambiguity of the opening fugue.\textsuperscript{49} The Neapolitan chord progresses to a vii\textsuperscript{7} which is suspended through four measures. (This diminished-seventh chord is the last dominant-function chord in C-sharp minor to appear in the final twenty-one


\begin{center}
\includegraphics[width=\textwidth]{example25.png}
\end{center}

\textsuperscript{49} Indeed, the use of the Neapolitan chord together with a melodic figure motivically derived from the main theme represents the first use in conjunction with the first theme, and so retrodictively points to the similar situation in the first movement; see Example 20 above.
measures.) When the diminished-seventh chord eventually resolves, it is not to the tonic chord, but to a V/iv; thus, the subdominant once again vies for control. What is ironic is that after the extensive attention accorded to the Neapolitan complex in various guises throughout the quartet and after the forceful resolutions of the Neapolitan in C-sharp minor (see Example 24), the "last gasp" of the Neapolitan chord appears in its more traditional cadential function (i.e., bII – V – i), ostensibly as a final resolution and propitiation of the Neapolitan. But that resolution is thwarted, and the subdominant influence once again asserts itself and infuses the last measures of the quartet. As Kerman states, in these final measures the whole scene clouds over ambiguously with subdominant harmony; and this ambiguity simply provides the last great binding force of organic interrelation. For from the moment it suffered its answer in the subdominant, the opening Fugue was similarly clouded. . . . The ultimate page of the quartet finds itself poised half in the tonic, half in the subdominant--until six bars sweep up five octaves in still another abrupt gesture of assertion. The question is closed; and with it the seven movements complete their perfect mutual trajectory. 50

The Neapolitan complex, as an oppositionally defined entity in the tonal system, is one of the most striking compositional features of this quartet. Knowledge of the abstract systematic characteristics associated with this complex (and consequently, knowledge of the tonal system) governs the perception of any piece-specific realizations. We

50 Kerman, The Beethoven Quartets, 349.
have examined these piece-specific realizations in relation to the various types of directional references wherein the Neapolitan, as a significant integrative element, participates in the temporal presentation of the composition, and thus it exhibits qualities associated with the scheme of directional references outlined above. The semiotic validity of this approach to analysis lies in the power of semiotics to provide a framework that helps explicate systematic potential and piece-specific realizations; the musical validity of this approach is in its ability to ground an essential component of the analysis of musical sign-functioning into a serviceable theoretic framework. Extradictive knowledge and directional references are semiotic: they constitute an important part of music's communicative power and consequently an important part of the perceptual process.
CHAPTER VII
SOME RETRODICTIVE AND PREDICTIVE REMARKS

At the outset of this study, it was observed that the value of a new discipline can be partly attributed to the questions the discipline asks, how they are asked, and the concerns circumscribed by the answers it seeks: the emergence of a new discipline articulates a new way of looking at the world around us. This observation, however, is not only appropriate to disciplines on the global level, it is also applicable in describing the value of a new theory or the value of interdisciplinary research on the local level. To shape a new way of thinking about a particular object by examining it from a different theoretic perspective is to attempt to bring into sharper contrast some more obscured characteristic of the object. New insights generate new frameworks which, in turn, generate new ways of thinking: this recursive process is the impetus for continued growth and development in any field.

Semiotics offers a theoretic framework that can provide music theory with new insights. As the science of communication systems, semiotics tries to explicate the complex relationships manifested among sender, receiver, message, context, and code. What semiotics has to say about these relationships in general will apply to the examination of any communication system in particular, and music, as one such
system, should benefit greatly from an examination of its content in terms of semiotic principles. The adoption of a semiotic perspective allows the musician to seek potential correlations between problems addressed in semiotic formulations and musical problems and concerns in order to illuminate the specific characteristics of musical sign-functioning— that is, a semiotic outlook offers the musician a viable means to ask relevant questions about music in new and potentially revealing ways.

This examination of different approaches to a semiotics of music has illustrated the types of questions that are asked and how each approach attempts to answer those questions. To be sure, these questions are necessary concerns for a semiotics of music; moreover, insofar as they focus on the process of musical analysis, they are significant contributions to theories of musical behavior. As we have seen, though, the questions and answers that have been formulated in the quest for a semiotics of music have assumed different forms, and the diversity of these forms has been predicated on the extensive differences among the various theoretic presuppositions. Throughout this study, I have presented the underlying assumptions in order to illustrate their relation to the types of results obtained by the particular methodologies. In this way it has been possible to show how the respective theoretic commitments determined the specific focus of each semiotic camp.

In general, the variety exhibited by the approaches to a semiotics of music sprouts from at least three intertwined roots. The
first is the way each approach has adopted a semiotic way of thinking. Appropriately, Chapter I of this dissertation reviewed the semiotic line of thought in order to define the concepts, issues, and terminology with which semiotics is concerned— in other words, it presented a semiotic perspective. This perspective, when translated into the various approaches to musical semiotics, undergoes some marked changes, and these changes become most immediately apparent in the analytic goals of the systems of musical semiotics discussed herein. Clearly, the adoption of a semiotic perspective in musical analysis does not dictate a preordained set of analytic procedures—a fact which speaks for the richness of semiotic formulations. Rather, the broad semiotic foundations currently support several approaches to musical objects, and each approach is free to sample the insights that are available to it in the semiotic outlook.

The second factor that determines the particular thrust of each approach to musical semiotics is the use of linguistic concepts and principles. As has been detailed in this document, linguistics has influenced many semiotic formulations, and this influence has been frequently transferred from semiotics in general to musical semiotics in particular. The use of linguistic models manifested itself not only a similarity between methodological apparatuses, but also in a shared theoretic perspective; consequently, the differences between, say, Nattiez's and Keiler's respective approaches are as much a result of the differences between their linguistic allegiances as they are a
result of their musical ones. Nevertheless, the overriding consideration in the attempt to transfer concepts and models from linguistics to music must ultimately be their power to address musical issues.

The third, and most significant, determinant of the variety currently exhibited by the approaches to musical semiotics is the nature of the musical object itself. The complexity of music has stubbornly resisted attempts to design a unified approach to a semiotics of music—a fact which now speaks for the richness of the musical object. But it is this complexity that so wonderfully characterizes the analysis of our domain, and it both justifies and propels the development of new and more precise analytic tools to dissect its constituent parts. Clearly, though, strict dissection is never sufficient: any taxonomy of musical phenomena must correlate the piece-specific realizations to the more universal principles underlying them.

The semiotic perspective offers a springboard from which we may better understand the mapping, as it were, of more systematic constraints onto their piece-specific realizations, or vice versa. This "mapping" procedure is an essential—if not the essential—component of the analytic, and therefore the perceptual, act. Musical analysis is a process of abstraction—it attempts to interpret and describe a complex musical surface in terms of simpler models. These simpler models—be they abstracted harmonic prolongations, implicative patterns, or directional references—are assumed to be intimately tied and directly relevant to both the musical surface and to the more universal principles that may (or may not) underlie other compositions.
A theory of musical analysis is only obliquely concerned with the analysis as a product in and of itself; rather, the theory is concerned with the rules and constraints that permit the translation from composition to analysis, or from analysis to more systematic principles—in other words, although the particular analytic decision may be justifiably questioned, the critical issue for music theory is the analytic process that underlies the decision and permits it in the first place. The specification of these relationships is compounded by the fact that musicians tend to demand that the analytic process be grounded in a perceptual scheme, and thus that it merge with and reflect "real-world" processes of musical behavior. Consequently, music theory, like semiotics, is concerned with the nested set of complex relationships obtained among sender, receiver, message, context, and code.

What semiotics can provide music theory is a theoretical apparatus that explicitly pursues the nature of this nested set of relationships. By recognizing the complexity of this relationship, by segmenting its components, and by defining the characteristics peculiar to each, a semiotics of music addresses crucial issues in the formulation of analytic theories pertinent to musical objects: it asks relevant questions about the musical process.

Music is semiotic, and the perception of music is a semiotic act. Consequently, the analysis of music can embrace semiotic principles. A semiotics of music must strive to articulate in as precise a manner as possible the correlations between systematic constraints and idiosyncratic realizations, and thus to explicate how these constraints
are both governed and modified by these realizations, and the assumption underlying the explication process is that the dialectic formed between system and composition is the basis for musical understanding—that is, for communication. Thus continued research into a semiotics of music will result in a better understanding of the processes involved in the perception of the musical object.

Musical semiotics accepts a composition as a network of syntactically ordered sign-functions, and hence it strives to develop the theoretic perspective to explore the components of that sign-function. The specific focus on directional references in the analytic apparatus used in this dissertation is intended to capture, in a semiotic and musical framework, an important component of musical sign-functioning and its relation to the perceptual and analytic process. Directional references in music are multi-directional: they refer to each other during the temporal presentation of a composition, and they refer to an aggregate of systematic principles which both governs and is modified by their specific realizations. In positing and exploring the relationship between systematic knowledge (i.e., extradictive knowledge) and the contextual relevance of the various types of directional references (predictive, retrodictive, and juxtadictive), I hope to have shown that many musical concepts are amenable to semiotic inquiry while not losing sight of the musical problems and concerns. Indeed, the concept of directional references governed by extradictive knowledge are apparent in many competent analyses, but the framework
that underlies these intricate relationships is often only implicitly addressed.

Music is a complex communication system, and its syntactically ordered sign-functions are meaningful events for composers, performers, and listeners. The panoply of insights that are inherent in the semiotic perspective constitute a wellspring for a semiotics of music; conversely, the problems and concerns of a semiotics of music are a fount which should feed the ever-growing semiotic perspective. Further research into a semiotics of music will continue to tap the dynamic semiotic perspective, drawing from it those relevant insights which may assist the explication of musical problems and concerns. Clearly, the value of this research will always be commensurate with its ability to clarify the significance of sign-functioning in music.
APPENDIX A

A TRANSLATION OF RUWET'S METHODOLOGY


a) Our "machine to locate elemental identities" travels through the syntagmatic succession and marks the identical fragments. One regards the longest possible sequences which are repeated in full, either immediately after their first statement or after the intervention of other segments, as the units of level I. This initial operation provides structures such as A+X+A, A+A+X, A+X+A+Y+A, A+A+B+B+X, A+B+A+X+B+Y, and so on (repeated sections, as units of level I, are represented by earlier letters of the alphabet, the "remainder" by later letters).

b) The remaining section or sections are provisionally regarded as units of level I...; this analysis is either confirmed or in validated by the appeal to other criteria. The global duration of the segments can provide a preliminary indication if, by operation (a), one extricates a structure A+A+X, X

a) Notre "machine à repérer les identités élémentaires" parcourt la chaîne syntagmatique et repère les fragments identiques. On considère comme des unités du niveau I les séquences—les plus longues possibles—qui sont répétées intégralement, soit immédiatement après leur première émission, soit après l'intervention d'autres segments. Cette première opération fournit des structures telles que A+X+A, A+A+X, A+X+A+Y+A, A+A+B+B+X, A+B+A+X+B+Y, etc. (les sections répétées, unités de niveau I sont représentées par les premières lettres, les "restes" par les dernières lettres, de l'alphabet).

b) Le ou les restes sont considérés provisoirement comme des unités du même niveau I...; cette analyse est confirmée ou infirmée par le recours à d'autres critères. La durée globale des segments peut fournir un premier indice: si, par l'opération (a), on a dégagé

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will be considered in principle a unit on the same level as \( A \) if its global duration is approximately the same as that of \( A \) (in which case, in order to indicate that (b) has been invoked, one can, in the notation, replace \( X, Y, Z, \) etc. with \( B, C, D, \) etc., and \( A+A+X \) is written \( A+A+B \)). Note that by resorting to the durational equivalence of the segments, we have only applied the principle of repetition on a more abstract level: \( X \) is, from the point of view of its absolute duration and all other things being equal, a repetition of \( A \).

(b) The results of (b) can then be strengthened either with recourse to indications provided by rests or, when it is a question of vocal music, with the linguistic analysis of the texts.

c) If operations \((b)\) and \((b_1)\) are inconclusive, and if the remaining sections are not assimilable in the units of level I, two possibilities arise: 1) \( X, Y, \) etc. are much shorter than \( A, B, \) etc.; one then transfers these remainders to a later stage of the analysis, counting on the results of an operation in accordance with d); the remaining section(s) is (are) much longer than \( A, B, \) etc.; in this case, either, by virtue of operations \((b), (b_1), \) or \((d), \) it appears segmentable\(^1\) into units of level I.

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\(^1\) Eventually the brief "remainders" are transferred to a later stage of the analysis; for example \( A+A+X = A+A+B+C+y \) (the units of level I are represented with upper case letters and those of level II with lower case letters).

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\(^1\) Avec, éventuellement, de nouveaux restes brefs, à transmettre à stade ultérieur de l'analyse; par exemple, \( A+A+X = A+A+B+C+y \) (on représentera les unités de niveau I par des majuscules et celles de niveau II par des minuscules).
which are transformations of A, B, etc.—and then, for example, A+A+X will be described as A+A+B+C; or else it will be reduced later—after a new application of (a) to the units segmented on level I—to units of level II; or finally, it must be considered as an unanalyzed unit of level 0 (see "e" below).

d) Frequently, one will be led to consider various units—as often among A, B, etc. as among X, Y, etc.—as being transformations (rhythmic and/or melodic variants) of one another. Thus, for example, A+A+X will be rewritten as A+A+A', or A+B+A+B as A+A'+A+A'. It would be essential to draw up a list of types of possible transformations and to describe the procedures which permit their extraction. I will confine myself to a few remarks (leaving aside the question of transpositions—particular transformations which hardly pose any problems).

d1) A primary class of transformations will be extracted if one applies, as has already been suggested above, the principle of repetition separately to pitches and to durations. One then obtains rhythmic transformations of the same melodic structures, and vice versa.

d2) Other transformations involve more complicated operations, such as permutations and addition or suppression of certain elements. I will not enter into the details of these operations here other than by indicating a few of them in the course of the analysis of the examples.

d3) It is important to remark that, in order for one section, B or X, to be considered alors, par exemple, A+A+X sera décrit comme A+A+B+C—ou bien il se réduira ultérieurement—après une nouvelle application de (a) aux unités dégagées au niveau I—en unités de niveau II, ou, enfin, il doit être considéré comme unité inanalysée de niveau 0 (voir ci-dessous, (e)).

d) Souvent, on sera amené à considérer diverses unités—aussi bien parmi les A, B, etc., que parmi les X, Y, etc.—comme étant des transformations (des variantes, rythmiques et/ou mélodiques) les unes des autres. C'est ainsi que, par exemple, A+A+X sera réécrit A+A+A', ou encore A+B+A+B sera réécrit A+A'+A+A'. Il serait essentiel de dresser la liste des types de transformations possibles, et de décrire les procédures qui permettent de les dégager. Je me bornerai à quelques remarques (en laissant de côté la question des transpositions, transformations particulières qui ne posent guère de problèmes).

d1) Une première classe de transformations sera dégagée si on applique, comme on l'a déjà suggéré plus haut, le principe de répétition, séparément aux hauteurs et aux durées. On obtient alors des transformations rythmiques des mêmes structures mélodiques, et inversement.

d2) D'autres transformations feront intervenir des opérations plus compliquées, telles que permutations, ajouts ou suppressions de certains éléments. Je n'entrerai pas ici dans le détail de ces opérations, quitte à en signaler quelques-unes au cours de l'analyse des exemples.

d3) Il importe de remarquer que, pour qu'une section, B ou X, soit considérée comme une
a transformation of another section, A, it is often necessary to pass to a lower level through a new application of operation (a); this operation segments the units of level II, such that, for example, \( A = a + b \), and \( X = a + c \). Consequently, one part of \( X \) appears as a strict repetition of \( A \), and if, from other points of view—absolute duration, rests, text structure, etc.—\( X \) is at all equivalent to \( A \), \( X \) will be considered a transformation of \( A \): \( X = A' \). We see here an example of the necessity of shunting during the course of the procedure; that is to say, proceeding sometimes from high to low, sometimes from low to high. Another example of this was given at the outset, since starting from the "low"—the elementary units of duration and pitch—we have then, with operation (a), proceeded to start from the "high.

\( d_4 \) Often in the process of extricating transformations—notably by operation (\( d_1 \))—one is led to revise an earlier segmentation provided by (a) and (b). Suppose that these two operations have concluded in a structure \( A+x+A+y \) (with the "remainders" very brief). If (\( d_1 \)) indicates that \( A+x \), from the point of view of duration, for example, is identical to \( A+y \), and if other reasons intervene equally (such as the absence of pause between \( A \) and \( x \), \( A \) and \( y \), and the presence, on the contrary, of a pause between \( x \) and \( A \)) one will grant that \( A+x \) is a single unit of which \( A+y \) is a transformation, and the structure will be written \( A+A' \).

e) We can now approach a problem of which (\( d_4 \)) only represents a particular case. Suppose transformation d'une autre section \( A \), il est souvent nécessaire de passer par une nouvelle application, à un niveau inférieur, de l'opération (a); celle-ci dégage alors des unités de niveau II, telles que, par exemple, \( A = a+b \), et \( X = a+c \). Ainsi, une partie de \( X \) apparaît comme une répétition stricte de \( A \), et, pour peu que, à d'autres points de vue—durée absolue, pauses, structure des paroles, etc.—\( X \) soit équivalent à \( A \), \( X \) sera considéré comme une transformation de \( A \): \( X = A' \). Nous voyons ici un exemple de la nécessité, au cours de la procédure, de shunter, c'est-à-dire de procéder tantôt de haut en bas, tantôt de bas en haut. Un autre exemple en était donné dès le début, puisque, partis du "bas"—les unités élémentaires de durée et de hauteur—nous avons ensuite, avec l'opération (a), procédé à partir du "haut".

\( d_4 \) Souvent, en dégageant des transformations—notamment par l'opération (\( d_1 \))—on est amené à réviser une première segmentation, fournie par (a) et (b). Supposons que ces deux opérations ont abouti à une structure \( A+x+A+y \) (avec des restes très brefs). Si (\( d_1 \)) montre que \( A+x \) est, du point de vue des durées par exemple, identique à \( A+y \), et si d'autres raisons interviennent également—telles que l'absence de pause entre \( A \) et \( x \), \( A \) et \( y \), et la présence au contraire d'une pause entre \( x \) et \( A \)—on posera que \( A+x \) est une seule unité, dont \( A+y \) est une transformation, et on réécrit la structure comme \( A+A' \).

\( e \) Nous pouvons maintenant aborder un problème dont (\( d_4 \)) n'offre qu'un cas particulier. Supposons que l'opération (a) ait
that operation (a) has provided structures such as

1) \( A+X+A+Y \ldots \)

or

2) \( X+A+Y+A \ldots \)

A question, that we have completely ignored, arises: couldn't we consider that \( A+X \) and \( A+Y \) in 1) and \( X+A \) and \( Y+A \) in 2) constitute units of a level higher than that of level I (let us call this level "0")? Operation (a) does not provide the means to respond to this question, and it is necessary to resort to subsidiary criteria. Here are the two most important; both seem to me to be equally necessary in order to describe 1) as \((A+X) + (A+Y)\), and 2) as \((X+A) + (Y+A)\):

\( e_1\) The end of \( X \) and of \( Y \)
in (1), and that of \( A \) in (2)—opposed to that of \( A \) in (1), and those of \( X \) and \( Y \) in (2)—is marked in a special fashion, by a pause and/or the lengthening of the final (when faced with the absence of pause and/or the lengthening in other units).

\( e_2\) Later analysis—that is to say, essentially the operations grouped under (d)—shows that \( Y \) is a transformation of \( X \).

It remains to be said that once the units of level I are segmented, the procedure must be applied anew, beginning with operation (a), so as to extricate the units of level II; and thus it continues, until one arrives at the units which are confused with the elementary units with which one had started.

fourni des structures telles que

1) \( A+X+A+Y \ldots \)

ou

2) \( X+A+Y+A \ldots \)

Une question se pose, que nous avions tout d'abord laissée de côté: ne peut-on pas considérer que, en (1), \( A+X \) et \( A+Y \), et, en (2), \( X+A \) et \( Y+A \), constituent des unités d'un niveau supérieur au niveau I (appelons ce niveau le niveau 0)? L'opération (a) ne donne aucun moyen de répondre à cette question, et on est obligé de recourir à des critères subsidiaires. Voici les deux plus importants; tous deux me paraissent également nécessaires pour décrire (i) comme \((A+X) + (A+Y)\), et (2) comme \((X+A) + (Y+A)\).

\( e_1\) La terminaison de \( X \) et de \( Y \) en (1), celle de \( A \) en (2)—par contraste avec celle de \( A \) en (1), celles de \( X \) et de \( Y \) en (2)—est marquée d'une façon spéciale, par la pause et/ou l'allongement de la finale (en face de l'absence de pause et/ou d'allongement dans les autres unités).

\( e_2\) L'analyse ultérieure—c'est-à-dire, essentiellement, les opérations groupées sous (d)—montre que \( Y \) est une transformation de \( X \). Il reste à dire que, une fois dégagées les unités de niveau I, la procédure doit être appliquée de nouveau, en commençant par l'opération (a), de manière à dégager des unités de niveau II, et ainsi de suite, jusqu'à ce qu'on arrive à des unités qui se confondent avec les unités élémentaires dont on était parti.
APPENDIX B

GLOSSARIAL INDEX OF SPECIALIZED TERMS

Both semiotics and linguistics, like all other disciplines, use a specialized vocabulary to describe their respective objects. Obviously each vocabulary has been developed to capture and define the subtleties and distinctions that are the prerequisites for meaningful discourse in either domain; consequently, any survey of these disciplines—such as the one presented in the first two chapters of this study—will employ the appropriate terminology in order to discuss the relevant concepts that constitute each field.

This use of this vocabulary in this study, however, is fraught with difficulties. First, the specialized vocabulary of semioticians and linguists is large and complex; it is, after all, an attempt to partition as precisely as possible the almost impalpable nuances that characterize the communication process. Second, although most terms are defined upon their earliest appearance in this study, many terms recur in subsequent chapters without a repetition of their definitions; thus, this barrage of interdisciplinary terminology may prevent the considered evaluation commensurate to the value of potential insights offered by its application to musical analysis.

This appendix is included as a reference guide to assist the reader in traveling through the sometimes treacherous terminological
terrain. I do not present complete definitions of the specialized terms listed below; the complex meaning of each term (not to mention the often striking and contested differences in usage among different authors) is impossible to capture in a study of this nature, either in the text or in this appendix. The attempt to do so would result in an endless string of qualifications and exceptions that would mire even the most ambitious reader in a terminological quicksand. In this appendix, I have limited myself to a succinct definition of each term, and I then refer the reader to the appropriate context in the body of this work where the term is discussed and where references to more thorough expositions of each term may be found. Additionally, at the risk of disciplinary monism, I have only listed those terms introduced in conjunction with semiotic or linguistic principles; there are no definitions of musical terminology.

Words marked by an asterisk (*) are defined elsewhere in this appendix.

1 Although explanations of the following terms are culled from the writings of various authors discussed in the text—and consequently, their works should be the sources for further elucidation—there are several dictionaries that discuss this terminology in a more expanded manner: see Oswald Ducrot and Tzvetan Todorov, *Encyclopedic Dictionary of the Sciences of Language*, trans. Catherine Porter (Baltimore: The Johns Hopkins University Press, 1978); and Algirdas Julien Greimas and Joseph Cortes, *Semiotics and Language: An Analytical Dictionary*, trans. Larry Crist et al. (Bloomington: Indiana University Press, 1982).
Abductive inference. In Peirce's classification of the types of reasoning processes, abduction is when an investigator adopts an explanatory hypothesis with the stipulation that it may be verified or falsified when presented with additional data; 28-29, 165-69.

Ampliative inference. In Peirce's classification of the types of reasoning processes, an ampliative inference is an inference in which the conclusion expounds upon what is contained in the premises; 28-29.

Arbitrary sign. A *sign consisting of two relational identities—the *signified and *signifier—which do not have a motivated correspondence between the two parts; 20-22.

Base rules. In Chomskyan linguistics, the base rules essentially consist of *phrase structure rules; 71-73.

Bloomfieldian linguistics. see *descriptive linguistics.

Cenoscopic sciences. In Peirce's typology of sciences, cenoscopic investigation refers to those sciences which are more "philosophic" in nature where the emphasis is on reflective consideration of the data. Semiotics is a cenoscopic science; 26-28.

Code. The mechanism or set of rules which correlates an element from the *expression plane to an element from the *content plane; 37-38.

Competence. In Chomskyan linguistics, competence represents the abstract internal ability of a native speaker-hearer to create and understand actual sentences (or *performance). It is the speaker-hearer's innate knowledge of language. According to Chomsky, the task of the linguist is to describe competence in as formal a manner as possible; 64-65, 71-73.

Connotative code. A connotation arises when the *content and *expression planes of one signification (i.e., a *denotation) become the *expression plane for another signification; 38-39. Compare to *unlimited semiosis.

Content plane. In Eco's semiotic perspective, the content plane consists of the more conceptual aspect of the *sign-function; 37-38. Compare to *signified.
Deep structure. In Chomskyan linguistics, deep structures are the
abstract underlying representations of an underlying string and the
tree structure showing its derivation. They are intended to
depict the "kernel" upon which subsequent *transformations are
performed, and they are the input for both the generation of
*surface structures and the study of *semantics; 71-73.

Denotative code. A direct correspondence of an element from the
*expression plane to an element from the *content plane; 38.

Descriptive linguistics. A school of linguistics developed in the
early part of this century that was influenced by positivistic
thought. Descriptivists were primarily concerned with a strict
*synchronic description of language structure without respect to a
priori commitments; 53-63.

Diachronic linguistics. The study of language over time or with a
historical perspective. In Saussure's series of dichotomies, it
is paired to and contrasted with *synchronic linguistics; 16-18.

Discovery procedures. A formally explicit set of procedures which
permits a rigorous and scientific description of an object; 57-58.

Distributionism. Essentially synonymous with immediate constituent
(IC) analysis.

Embedded sentences. In Chomskyan linguistics, an embedded sentence
construction occurs when an element is rewritten at a subsequent
level as a complete sentence (S). In complex constructions, the
subsequent (S) is subordinate to the prior (S); 70-71.

Explicative inferences. In Peirce's classification of reasoning pro-
cesses, explicative inferences are those inferences in which the
conclusion follows directly from the premise; 28-29.

Expression plane. In Eco's semiotic perspective, the expression plane
subsumes the more physical aspect of the *sign-function; 37-38.
Compare to *signifier.

Firstness. In Peirce's hierarchy of trichotomies, a first is any
thing that is subjectively experienced as an entity sui genesis;
29-30.

Form. In Saussure's distinction between *substance and form, a form
is the abstract notion that governs the instancing of substances.
Forms are systematic in that they are characterized by patterns
and rules; 18-19.
Generative grammar. The syntactic description of a language which uses a set of rules to produce (generate) the grammatical utterances in that language. This school of linguistics was developed by Chomsky; 63-73.

IC analysis. See *immediate constituent analysis.

Icon. A *sign-vehicle that *denotes its object through some shared physical similarity; 44.


Immediate constituent analysis. The methodology developed by the *descriptivist school of linguistics wherein a constituent is segmented into smaller elements on the *phonological, *morphological, or *syntactic levels; 58-62.

Index. A *sign-vehicle that *denotes its object by virtue of a dynamic connection; 44.

Inductive inference. In Peirce's classification of reasoning processes, an induction is when an interpreter adopts a general conclusion on the basis of a representative sampling of the data; 28-29.

Interpretant. In Peirce's and Morris's semiotic perspectives, the interpretant represents the disposition to respond on the perception of a *sign-vehicle; 31-34.

Langue. In Saussure's series of dichotomies langue is the abstract system governing speech acts (see *parole); 22-23.

Morpheme. The minimal meaningful unit in a language (e.g. cats consists of two morphemes, cat and s).

Morphology. The study of the types and formations of words.

Object. In Peirce's and Morris's semiotic perspectives, the object (or referent) is the thing to which the *sign-vehicle refers; 31-34.

Opposition. In Saussurean linguistics, opposition is the process wherein *forms as contrasted to one another within a given *system. The strength of the opposition is a criterion for the *value of a *form; 19.

Paradigmatic relationship. A paradigmatic relation obtains between a unit and its similarity to other elements in a *system; 23-24.
Parole. In Saussurean linguistics, parole is the actual speech act; 23-25.

Performance. In Chomskyan linguistics, performance is the sample of utterances that are produced by native speakers; 65-66.

Phoneme. A single sound made up of distinctive features (e.g., voiced, labial, etc.).

Phonology. The study of *phonemes in terms of their changes and modifications in the development of a language and their role in the structure of that language.

Phrase marker. In Chomskyan linguistics, a phrase marker represents the graphic depiction of the *syntactic relations of an utterance in the form of a tree-structure diagram; 66-68.

Phrase-structure rules. In Chomskyan linguistics, phrase-structure rules are a set of formalized rules wherein a particular element may be rewritten as a string of other elements; 66-68.

Pragmatics. The study of the relation of *signs to their interpreters, 34-35.

Purport. In Eco's semiotic perspective, purport subsumes that part of the *sign-function with which semiotic investigation is not specifically concerned; 37-38.

Referent. See *object.

Representamen. In Peirce's concept of the *sign-function, the representamen is equivalent to the *sign-vehicle; 31-33.

S-code. In Eco's semiotic perspective, an s-code is a lower-level *coding correlation which may be submitted to a strict structural examination in terms of its *oppositions and differences; 39-40.

Secondness. In Peirce's hierarchy of trichotomies, a second is any thing that is apprehended in relation to and by virtue of some other thing; 29-30.

Semantics. The study of *signs and the objects or concepts to which they refer; 34-35.

Sign. Generally, a sign is something that refers to something else. This dissertation, though, distinguishes between the process (*sign-function) and the actual entity (*sign-vehicle); 43-44.
Sign-function. The complex process by which something refers to something else including the relationships among sender, message, receiver, context, and *code.

Signified (signifié). As one component of Saussure's definition of the *sign-function, the signified represents the conceptual aspect or the thing (notion) referred to; 20-22.

Signifier (signifiant). The physical or spoken realization of Saussure's two-part conception of the *sign-function; 20-22.

Sign-vehicle. The actual object that is understood as referring to something else; 35.

Structuralism. See *descriptive linguistics.

Substance. In Saussure's distinction between substance and *form, a substance is the actual object that is governed by forms; 18-19.

Surface structure. In Chomskyan linguistics the surface structure is the result realized after the application of transformations to *deep structures. These structures are the input for *phonology; 71-72.

Symbol. A *sign-vehicle that (arbitrarily) *denotes its object by virtue of a rule or convention; 44.

Synchronic linguistics. The study of language at a particular time as a state-system. In Saussure's series of dichotomies it is paired with *diachronic studies; 16-18.

Syntactics. The study of the formal relations and systematic connections of signs to one another; 34-35.

Syntagmatic relationship. In Saussurean linguistics, a syntagmatic relation obtains between a unit and its contiguity to other units surrounding it; 23-25.

System. To Saussure, a system is the organized network of *forms that governs the potentially unlimited appearances of different *substances; 19-20.

Thirdness. In Peirce's hierarchy of trichotomies a third is any thing that participates in a triadic relationship in that it mediates between two other correlates; thirdness is semiotic; 29-30.

Transformational rule. In generative linguistics, a transformational rule transforms an entire *phrase marker by the addition, deletion, or rearrangement of elements in the previously generated marker; 68-70.
Unlimited semiosis. In Peircean semiotics, unlimited semiosis is the recursive ability of the *interpretant to develop into another *sign-vehicle; 32-33.

Value. According to Saussurean principles, value is essentially equated with *opposition; the value of any *form emerges from its *opposition to other forms in a given *system; 19.
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