# Species Counterpoint 

in the Tradition of<br>Fux, Schenker, and Westergaard

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Edition: August 24, 2011

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When the young Gustav Jenner showed his compositions to Johannes Brahms, the elder musician scrutinized them carefully, and when he had finished his critiques, he said to Jenner: "You see, you haven't yet learned anything proper about music; for everything you are telling me about theory of harmony, attempts at composition, instrumentation, and the like, is in my opinion worthless. ...First find a teacher who will instruct you in strict counterpoint; the best ones are among the cantors in the villages; he doesn't need to be so famous as Mr. M——. It is absolutely essential that one see the world through this glass for a good long time. You will have plenty to do there for several years."

Strict counterpoint is a method for studying the construction and simultaneous combination of simple melodic lines in simple musical textures, absent the complications of harmony and motivic repetition. The method is designed as a series of experiments in which melodies are constructed and combined according to a set of rules. The rules ensure that the melodies and their contrapuntal combination possess specific properties. The rules for constructing melodies, for example, define the conditions under which a linear succession of tones can be interpreted as projecting a single triad, by ruling in all possible ways of projecting one triad and ruling out all successions that unambiguously project a change of triad. These rules approximate a definition of what it means for a melody to be "in such-and-such a key."

## Fux, Schenker, and Westergaard

Although rules for composing modal counterpoint had been around since vocal polyphony emerged as a high art in Europe's fourteenth century, it was not until instrumental music and the new vocal aesthetic of the baroque gained prominence that the rules of the earlier vocal style were codified into a series of graded exercises by Johann Joseph Fux (1660-1741) in his Latin treatise Gradus ad Parnassum (Steps to Parnassus), published in 1725. Fux wrote what amounted to a manual for young composers, in hope of reviving the late Renaissance style of modal polyphony, which he regarded as the Parnassus of
musical genius. He styled his treatise as a dialogue between a master named Aloysius (after Giovanni Pierluigi da Palestrina) and his student Josephus. It was the method, if not the style, that appealed to later composers. Mozart, Haydn, and Beethoven all studied or taught counterpoint according to this method, as did Brahms and Schoenberg. In Fux's formulation, there are strict constraints on the local interactions of lines but only loose constraints on the structure of individual lines. Fux's scholastic counterpoint is often called strict counterpoint, in contrast to the free counterpoint of genuinely artistic music.

In the early 20th century, the Viennese musician Heinrich Schenker (18681935) reconceived Fux's method, dispensing with the goal of preserving a particular style of composition while retaining the pedagogical method and using the species to isolate various musical issues. In the two volumes of Kontrapunkt $(1910,1922)$, Schenker reviewed all of the previous literature on species counterpoint and supplied his own explanations for the rules, and in so doing provided insight into the effects of local linear successions and contrapuntal combinations and also into the psychology of tonal thinking. Later, in a spate of articles published in the 1920s and the early 1930s, and in Der freie Satz (Free Counterpoint), which appeared shortly after his death in 1935, Schenker developed a framework for interpreting the large-scale structure and interaction of individual lines in the masterpieces of tonal music. He also sought to explain the connection between strict counterpoint and the compositional practice of the so-called masters: J. S. Bach, Handel, D. Scarlatti, C. P. E. Bach, Haydn, Mozart, Beethoven, Schubert, Schumann, Mendelssohn, Chopin, and Brahms.

In the early 1970s, Peter Westergaard, a composer teaching at Princeton University, integrated Schenker's account of large-scale structure into the discipline of species counterpoint. In Westergaard's formulation, rules govern both the global structure of individual lines and the local interaction of lines in counterpoint. The rules presented in chapters $2-10$ of this text are based on Westergaard's textbook, An Introduction to Tonal Theory (Norton: New York, 1975) and an unpublished redaction made by his former student, Fred Everett Maus in the late 1980s. In the early 1990s, I and my former colleague Marion Guck extended the scope of Westergaard's approach to include rules governing the global interaction of lines in counterpoint, showing how this level of interaction leads to harmonic progression and modulation. The text you are about to read builds on the work of the authors I have just mentioned.

## What's in a Rule?

Take the following well-known rule:
Thou shalt not write parallel octaves.
The rule as formulated appears to govern the behavior of composers. Are there any consequences if you disobey the rule? Well, if you are a student, one consequence is that you lose points on your homework assignment. But are there real-world consequences? Some might say that failure to obey this
rule produces an ungrammatical utterance, which is a sign that the composer is less than fully competent. But this cannot be right, for it is quite obvious that even the most competent composers do not obey this rule. Pick up any score by Mozart or Brahms and you will find it littered with parallel octaves. What, then, is the point of such a rule if it does not tell us how composers are supposed to behave? Clearly there is something wrong with the rule.

The problem lies, I think, in the way the rule is formulated. It leaves out an essential component, namely, the compositional objective of the rule. To apply the rule correctly (i.e., in the style, say, of Mozart), you need to know why you would want to avoid writing parallel octaves and in what context. And, by the same token, you need to know why parallel octaves would be just the thing to do.

Every rule in species counterpoint has an implicit objective. The rule prohibiting parallel octaves, for example, is one of many rules that say how to compose independent lines. The schoolbook version of the rule is the main clause of a conditional command: "If you want to do such-and-such, then do this." The rule about parallel octaves, for instance, can be reformulated as follows:

If you want to compose independent lines, avoid parallel octaves.
The first half of the command specifies a compositional objective, and the rule stated in the second half says something about how to achieve that objective. There is a corollary to this prohibition: If you want to compose lines that are not independent, write parallel octaves. In fact, write lots of them, the more the better.

The student completing a part-writing exercise is given a set of compositional objectives, one of which is to write four independent lines. In the real world, however, one gets to choose one's own objectives. The rule itself says nothing about when you should desire to compose independent lines. That is a question of style. Which is to say, each style has implicit rules about desiring independent lines.

If you are composing a fugue in the style of Bach's Well-Tempered Clavier, you will fastidiously avoid parallel octaves; but if you are writing a Beethovenian fugue for piano, you will still avoid parallel octaves between the fuguing lines, but you might double one of those lines at the octave, particularly the bass line. If you are writing a sonata or a song in the style of Brahms, you may want to slip into parallel octaves every now and again. And if you are writing a piece for a quartet consisting of piano, violin, cello, and clarinet, you might even compose a movement that consists entirely of lines moving in unisons and octaves (e.g., the sixth movement of Olivier Messiaen's Quartet for the End of Time, "Danse de la fureur, pour les sept trompettes").

Composers write music to be played and heard. Most composers, I should think, would like performers and audiences to "get" their music. For that to happen, there must be some degree of shared understanding. I think it is safe to say that composers make assumptions (usually unconsciously) about how
performers and listeners will understand what they write. This makes for a more complex conception of a rule. Westergaard's formulations, for example, consistently take the following form:

If you want your listener to understand the notes you write in such-andsuch a way, do this.

Most compositional rules make assumptions about how listeners understand compositions of notes. The rule about parallel octaves, for instance, rests on certain assumptions about how listeners understand forms of interaction between lines that move simultaneously: namely, that listeners interpret parallel motion in octaves as a form of perfect agreement, unlike, say, contrary motion, which is interpreted as a form of disagreement. It also rests on certain assumptions about how listeners interpret notes as components of a line; predictably, there are rules about making your notes sound like they make a line.

From the composer's point of view, a rule is like a prediction: "If I arrange my notes in such-and-such a way, listeners will interpret them like this." This assumes that composers understand the cognitive abilities and responses of listeners. This is not that far-fetched. The writer of an English novel, after all, needs to understand the cognition of English-speaking readers. The author's understanding, however, need not be accessible to consciousness. Indeed, native speakers acquire the ability to speak their language without knowing the first thing about syntax, semantics, or phonology or the complexity of their interfaces. Native speakers have implicit or procedural knowledge; they know how to speak the language. Linguists have, in addition, explicit or propositional knowledge; they know that various things are true of the language. ${ }^{1}$ Writers and their readers also have to agree to some extent on the denotations and connotations of words, but intersubjectivity is never complete. When a zoologist reads "The Princess and the Puma" by O. Henry to a child that has never seen a puma, "puma" will probably conjure up two very different sets of associations for the two readers. A great deal of verbal communication is devoted to negotiating intersubjective knowledge.

## Why Species Counterpoint?

Just as one cannot understand a sonnet without at least an intuitive grasp of the rules of its particular language, one cannot understand the repertory of classically tonal music without grasping the rules of its particular language. The rules of syntax, however, do not tell you all you need to know in order to read the sonnet. You also have to understand the phonological system and you will probably want to know what the words meant at the time the sonnet was composed. Understanding a Mozart symphony likewise requires more than an intuitive grasp of linear syntax; you also have to understand the behavior of klangs (a.k.a., "chords") as well as the ways in which notes, klangs, and lines

[^0]can be elaborated; and you need to be able to recognize motives and themes as well as follow the syntax of clauses and sentences.

The good news is that you are already fairly proficient in tonal music, at least on an intuitive level. Species counterpoint is a means for gaining explicit insight into some of the most basic cognitive abilities and structures that constitute "proficiency" in classically tonal music. Species counterpoint is in this sense the grammar school of classically tonal music. ${ }^{2}$ You might want to think of the rules, of which there will be many, as rules of grammar and syntax and of compositional exercises as practice in making well-formed utterances in the language of classically tonal music.

Another reason for composing and interpreting species counterpoint exercises is to hone your expectations. The rules prescribe the normal course of tonal expectations (absent motivic repetition and harmony) and proscribe the abnormal. The rules have a predictive aspect. Knowing, for example, the rule about parallel octaves allows one to make some predictions about the behavior of lines: If, for example, you are listening to the progress of two independent lines which at this moment reach $\hat{7}$ and form an octave, you can predict that only one of them will move to $\hat{8}$. If you know more about the structure of each line, you may even be able to predict which line will move to $\hat{\delta}$.

Knowing what to expect, even if it doesn't happen, is part of what it means to be proficient in classically tonal music. The deceptive cadence is a familiar example.

Species counterpoint exercises, however, are not real music. In real music, lines that are moving along independently may at some point come into alignment and then later part company. Or one of them may stop and rest while the others continue. Real music frequently takes unexpected turns. Training in species counterpoint will help you identify and understand such phenomena.

One of the things that will become abundantly clear as we work through the various species of counterpoint is that even within the strict confines of the exercises, the resultant music can be structurally quite complex. You will frequently find yourself at a loss as to how to negotiate all of the compositional objectives; some are simple to achieve in isolation but may prove quite difficult to achieve in combination with other objectives.

## Advice for Studying

There are three documents that you will use: this explanatory text, a separate document containing the rules, and another document that contains the exercises. The explanatory text discusses the musical and mental objectives served by the rules and illustrates how to implement the rules; most but not all of the rules are reproduced in the textbook. A complete set of rules is contained in

[^1]the rule book, which you should print out, as you will need to refer to it time and time again.

Pay special attention to terms that appear in boldface. A glossary of such terms may or may not be forthcoming from the author.

You should study the rules to the point of memorization. Trust me. As you compose counterpoint, you will need to have your wits about you; without the rules firmly in your grasp, you may find yourself at wits' end.

Like any type of mental training, species counterpoint requires steady practice. I recommend that you work on species compositions every day and not try to cram them in the day before assignments are due. Daily practice will ensure that the rules become second nature. And that, in turn, will have the desired effect of sharpening your perceptual skills, which in turn, I hope, will enrich your musical experiences and enhance your musical ability, be it as listener, performer, or composer.

## Constructing Monotriadic Lines

Westergaard's rules for constructing lines in species counterpoint are designed to project a major or minor triad in a series of consecutive notes. Given a succession of notes constructed according to these rules, a listener will understand the succession as a line and as one that projects a single consonant triad in time. Lines constructed using these rules belong to a class of lines that I call monotriadic lines.

The rules assume that listeners use two frames of reference for pitches and intervals: a tonic triad and its scale. Music that can be understood in these terms is said to be "in such-and-such a key." Describing how listeners select and use these frames of reference is a rather involved affair, ${ }^{1}$ but a few informal definitions are in order, since my terminology may differ from what you learned elsewhere. The definitions are presented in conceptual order.
pitch 1. The position of a sound relative to another, as in "higher than," "lower than," and "matches." 2. The assignment of a sound to a position on a scale of measurement. - Not to be confused with the fundamental frequency of a sound; sounds that have different frequencies may be assigned one pitch function (e.g., "in tune" and "out of tune" versions of a pitch); and some sounds that have the same frequency may be assigned to different pitch functions (e.g., F\# and $\mathrm{G}^{\mathrm{b}}$ ).
note The basic unit of musical action. In most cases, a note has a definite pitch, time of onset, and duration. - Not to be confused with notational symbols, which belong to a system for graphically representing notes; several symbols may represent a single note (e.g., two half notes tied together or a quarter note followed by a dot).
line A series of consecutive, non-overlapping notes.
klang A set of simultaneous notes.
register A region of pitch space whose boundaries are similar to the vocal compass of an untrained singer; so, something in the range of a tenth plus or minus a third.
triad A collection of mutually consonant pitches (not notes).
chord (An ambiguous term that I avoid.)

[^2]tonic triad A triad that functions as a primary frame of reference for pitches.
tonic pitch One of the class of pitches in the tonic triad that is regarded as the generating pitch (î) and the primary focus of melodic activity, lying toward the bottom or in the middle of the melodic range.
tonic-triad pitch Any of the three classes of pitch in the tonic triad.
scale A major or melodic minor scale that is associated with a particular tonic triad and functions as a secondary frame of reference for pitches and a primary frame of reference for measuring intervals. The scale also represents the mode of behavior for a line.
scale degree The position of a pitch in a scale (e.g, $\hat{4}$ ).
nontonic pitch Any pitch in a scale that is not a tonic pitch.
non-tonic-triad pitch Any pitch in a scale that is not a member of the tonic triad.

## Types and Levels of Rule

There three types of rule for constructing lines: prescriptions, proscriptions, and permissions. Some rules prescribe what must happen in a line of a certain type, others proscribe certain configurations (i.e., they say what must not happen), and others specify what may but need not occur in the line.

A constructed line has two levels of structure, and these correspond to two kinds of rules for constructing lines: rules of background or basic structure, which determine the basic trajectory of the line, and rules of elaboration that can be used to expand the tonal content of a basic line. There is also a set of global rules that constrain the application of rules of background structure and elaboration.


I refer to these, respectively, as the S-rules, the E-rules, and the G-rules.
The line-writing rules define well-formedness conditions. If we think of these rules as forming part of a generative grammar for tonal music, then we might say that they define which strings of notes are well-formed utterances, while saying nothing at all about the content or beauty of the utterance. ${ }^{2}$

## Background Structures

The construction of a line begins with a background structure. There are three types of background structure, and these correspond to three types of line: bass, primary, and subsidiary.

[^3]

The two main types of line-bass lines and primary lines-have distinctly different trajectories. Bass lines execute a harmonic arpeggiation using the root and fifth of the tonic triad, while primary upper lines execute a descending passing motion.

In addition to having a certain structure, lines also have a registral position. In species counterpoint, the lowest line is always a bass line, and at least one upper line is a primary line; additional upper lines may but need not be a subsidiary line. Bass in this context signifies a relative position and a basic structure but not a vocal register.

## Bass Lines

A bass line moves from the tonic to the fifth degree of the scale and subsequently returns to the tonic degree. The rules confine the notes of the basic structure to a single register.

## Bass Lines

S1. The final note must be a tonic pitch.
S2. The first note must be a tonic pitch, normally not lower than the last note.
S3. The final note must be preceded by a note that lies a fifth above or a fourth below the final note and not more than an octave from the first note.

The structure produced by these rules is called the bass arpeggiation. Since the interval of a fourth or fifth can belong to one and only one triad, the bass arpeggiation ensures that one and only one triad root is projected, though it does not, by itself, determine the mode of the triad. ${ }^{3}$

There are only three normal bass arpeggiations and one abnormal one. In C major, for example:


## Primary Lines

A primary upper line starts on a tonic-triad pitch and then descends by step till it reaches the tonic scale degree that lies below it in the same register.

[^4]
## Primary Upper Lines

S1. The final note must be a tonic pitch.
S2. The first note must be a tonic-triad pitch a third, fifth, or octave above the final note.
S3. These notes must be connected by a descending diatonic step motion.
The step motion produced by these rules is called a basic step motion. By "step motion" I mean a continuous, unidirectional passing motion that progresses step by step from the first note to the final note. Unlike the bass arpeggiation, the basic step motion is not articulated into more than one segment. It constitutes one uninterrupted, unidirectional motion. The descending motion of the basic upper line produces a gradual relaxation that cooperates with the effects of rhythmic rest and triadic closure. Unlike the bass, the upper line does not necessarily pass through an unambiguous triad interval (the fifth), but it does necessarily include the third of the triad and thus is responsible for ensuring that the mode of the tonic triad is projected.

There are only three possible basic step motions. In C major, for example:


## Subsidiary Lines

Subsidiary lines are more loosely defined. A subsidiary upper line begins and ends on tonic-triad pitches that lie in the same register; and if these framing pitches are different, it connects them with a step motion.

## Subsidiary Lines

S1. The last note must be a tonic-triad pitch.
S2. The first note must be a tonic-triad pitch no more than an octave from the last note.
S3. If different, these notes must be connected by a diatonic step motion.
Note that primary upper lines will perforce satisfy these conditions. The rules for subsidiary lines define a general class of monotriadic tonal lines. Primary upper lines are special cases therein.

Because the constraints are looser, the number of possible structures is greater. There are twenty-one possible subsidiary structures (or eighteen, if the basic step motions are excluded). In C major, for example:



## The "Generation" of Lines

The rules for constructing lines are said to be generative, because new notes are introduced into the line as a result of following a rule. Notes thus introduced will be said to be generated by the application of a particular rule. A line that can be constructed from the rules is said to be generable.

The process of generating notes proceeds in stages. Rule S1 generates a note on the first level, rule S 2 generates on note on the second level, and rule S3, on the third level. Subsequent application of elaboration rules will result in additional levels. The number of levels required to generate a line is a measure of its complexity.

The rules at this point say nothing about the duration of the notes they generate. For now we will adopt a simple convention: S1 generates a breve, and the other rules generate whole notes.

Generation of a bass line in the key of $C$ could be notated as follows:


## Rules of Elaboration

The rules for elaborating background structures allow for the expansion of a line's content (number of notes and consequently length) while at the same time ensuring that the projection of the tonic triad is not undermined. The additional notes also stretch out or prolong the basic trajectory, delaying the arrival at one or more steps along that path.

There are four elaboration rules. Rules E1 and E3 generate additional tonic-triad pitches; these two rules are generous, since such additions support the basic objective of projecting the tonic triad in time. Rules E2 and E4 generate non-tonic-triad pitches; these rules are parsimonious, since they ensure that such pitches are not introduced in ways that would undermine the
projection of the tonic triad.

## Addition of Tonic-Triad Pitches

Repetition
E1. Any tonic-triad pitch may be repeated, but not the pitch generated by S1.
The new note generated by rule E1 must immediately follow the original note; hence, application of the rule results in two consecutive notes identical in pitch. No note(s) may intervene between these two unless generated by the subsequent application of a rule of elaboration. So, for example:


Rule S1 generates the last note of a line, hence it cannot be repeated.


Note that rule E1 generates one and only one new note. A series of three or more consecutive notes having the same pitch will only result from multiple applications of the rule.


It may help to think of the rules as instructions for playing a line: "Play E, repeat it twice, then descend by step and stop on C." The expression "E repeated twice" refers to multiple acts of repetition, hence multiple applications of rule E1. If we wanted to create a repetition rule that generated more than one note, we would have to say there are objects like " $\{$ E E $\}$ " and " $\{$ E E E $\}$ " that satisfy the description "repetition of E." That seems odd. ${ }^{4}$

[^5]
## Insertion

E3. A tonic-triad pitch may be inserted between any two consecutive notes provided that no dissonant leap or leap larger than an octave occurs. (Note that a perfect fourth is a melodic consonance and that a second is not a leap and, therefore, not a dissonant leap.)
a. Primary upper lines: A tonic-triad pitch may be inserted prior to the first note of the basic step motion so long as it does not create a leap larger than an octave.
b. Bass lines: Insertion of $\hat{3}$ immediately prior to the final tonic should be avoided.

Rule E3 also generates one and only one new note. If you want to insert multiple pitches of the tonic triad between two consecutive notes, they must be generated by successive applications of the rule.

Because rule E3 inserts pitches of the tonic triad, which is the global frame of reference for the line, we will refer to these as global arpeggiations or global insertions.

Notice that the scope of E3 depends on the type of line. Bass lines must always begin with the tonic pitch generated by S2. Upper lines, however, can begin on a tonic-triad pitch that is not generated by S2, but whatever else it might do at the beginning, a primary upper line will always and ultimately move downward by step and come to rest on the tonic pitch.

The constraint in rule E3b arises from the contrapuntal role of the bass line in classically tonal music, which is to act in harmony with the closure of upper lines. One of the global rules (introduced below) will require a primary line to close by step. This limits the ending of a primary line to two possibilities: $\hat{2}-\hat{1}$ or $\overline{7}-\hat{1} .{ }^{5}$ In C major, for example:


The penultimate bass note is limited to scale degrees that are consonant with both of the potential penultimate degrees in the primary line ( $\hat{2}$ and $\overline{7}$ ). The third of the tonic triad is not among those possibilities.


As a result, bass lines will close either with a stepwise motion to the tonic pitch, or with a leap from the fifth to the root of the tonic triad.

parts play around in the tonic triad; in this case, we think of one note as being divided up into smaller notes; rearticulation is an example of what I call a transformational rule.
${ }^{5}$ I use a bar over a scale degree number to indicate scale degrees that lie beneath the central tonic pitch (î).

## Addition of Non-Tonic-Triad Pitches

Rules E1 and E3 generate notes whose pitches are members of the tonic triad. The same is true of rules S1 and S2. Rules E2 and E4, like rule S3, generate transitions between tonic-triad pitches.

## Neighbor Motion

E2. A neighbor note may be inserted between any two consecutive notes with the same pitch.
Step Motion
E4. Any two consecutive notes forming a leap may be joined by step motion.
In most cases, repetition is conceptually prior to a neighboring motion. In other words, rule E1 must be applied if rule E2 is to be applied. The only exception is the insertion of a neighbor directly preceding the final tonic (S1), in which case the first note of the neighbor motion has to be generated by E3. The space required for a passing motion is most often created by an insertion, hence rule E3 may have to be applied before rule E4 can be applied.

## Application of the Elaboration Rules

Whereas the rules of background structure must be used once and only once in constructing a line, the rules of elaboration may be used many times or not at all. (The lines you will compose in species counterpoint will always include several pitches generated by the rules of elaboration.)

It should now be clear that applying a rule of elaboration causes notes to intervene between two notes that were previously consecutive. Given two consecutive notes $m$ and $n$, a rule of elaboration might generate a third note $o$ that intervenes between $m$ and $n$ :

$$
\langle m n\rangle \xrightarrow{\mathrm{E} n}\langle m o n\rangle
$$

Moreover, the product of elaboration can be the input for a subsequent stage of elaboration. Short strings of notes generated by the rules are lengthened by the insertion of strings also generated by the rules, and so on. For example:

$$
\langle m n\rangle \xrightarrow{\mathrm{En}}\langle m o n\rangle \xrightarrow{\mathrm{En}}\langle m p q o n\rangle
$$

The important thing to keep in mind is that the connections persist despite intervening elaborations. Learning to hear lines in terms of the rules involves learning to hear connections (as defined by the rules) between notes that are not literally consecutive. The parenthetical comment in the previous sentence is an example of an elaboration that does not remove the connection between "connections" and "between."

## Global Rules

Unlike the rules for background structure and elaboration, the global rules do not generate notes. Instead, they constrain the choice of elaborations.

The first rule embodies the hypothesis that we hear musical lines in terms of lines that can be sung. Hence the first rule restricts the range of a line to a single register:

## Register

G1. All of the pitches in a line should lie within a single register (i.e., within the span of a tenth or perhaps twelfth).
The second rule requires stepwise closure in a primary upper line:
Cadence of Primary Lines
G2. The last two notes of a primary upper line must form a step.
This ensures that the stepwise displacement and gradual relaxation that characterizes the basic line is also the concluding move in a primary upper line. It also ensures that at least one of the lines closes by displacing a non-tonic-triad pitch with a tonic-triad pitch, thus enacting in the small what happens in the main to every non-tonic-triad pitch.

The third global rule prescribes use of the melodic minor scale:

## Step Motion in Minor Keys

G3. Lines in minor keys should conform to the melodic minor scale in the use of the sixth and seventh scale degrees. The lower neighbor of the tonic pitch is the raised seventh degree.
This rule embodies our hypothesis that this scale constitutes a prototype for melodic trajectories aimed toward and away from the tonic scale degree. The following situations should be kept in mind:
a. When ascending $\hat{5} \rightarrow \hat{8}$, use raised $\hat{6}$ and raised $\hat{7}$.

b. When ascending $\hat{5} \rightarrow \hat{7}$ (either diatonic or raised), use raised $\hat{6}$.

c. When descending $\hat{8} \rightarrow \hat{5}$, use diatonic $\hat{7}$ and diatonic $\hat{b}$.

d. When descending raised $\hat{7} \rightarrow \hat{5}$, use raised $\hat{6}$.


The selection of $\hat{6}$ or $\hat{7}$ usually depends only upon which direction the line moves afterward. So the selection of raised $\hat{7}$ in the configuration $\hat{8}-\hat{-}-\hat{8}$ is determined by the rise from $\hat{7}$ to $\hat{8}$. In some cases, the selection of $\hat{6}$ depends upon preserving unambiguous stepwise motion. Selection of lowered $\hat{\delta}$ in example $d$ above would have produced an augmented second, which is not an unambiguous step (i.e., it resembles a skip).

## Structural Aspects of Monotriadic Lines

An interpretation of a line is a particular way of deriving (generating) the sequence of notes using the rules. Some lines can be derived in only one way, but most are ambiguous.

## Westergaard Notation

The rules that generate the notes in a line and the order in which they are applied together constitute the generative structure of the line. Westergaard's notation clearly and unambiguously displays the generative structure of a line. He writes the line in stages so as to reflect the conceptual priority of notes in the line, starting with the final note and proceeding toward the finished line. The rule by which each new note is generated is also indicated ( $\mathrm{S} n=\mathrm{a}$ rule of background structure; $\mathrm{E} n=$ a rule of elaboration). Solid lines connect notes that are rewritten in subsequent iterations. When E4 generates more than one note, a curly bracket is placed above them. I call this the long form of Westergaardian notation.


We could save space and paper by writing these lines in succession rather than on separate staves. In this method, too, we indicate the rule by which each new note is generated. This second method saves paper, but makes it harder to grasp the conceptual levels and positions of notes. However, you may find it quite useful as a working method for composing lines. I call this the short form of Westergaardian notation.


## Snarrenberg Notation

The system that I have devised for displaying the generative structure of a line sacrifices some of the clarity of Westergaard's notation but compensates by showing aspects of interpretation that are not explicit in his notation.

Snarrenberg notation will be our standard notation for showing the interpretation of lines.

I write the completed line and then add annotations that show (a) how the notes are generated and (b) how they are connected. What is not explicit in this notation is the conceptual level of each individual note; this is usually easy enough to determine.

To show the primary (basic) structure of a line, I use lines that resemble beams and stems.


I use five symbols for secondary structures generated by the rules of elaboration: left and right parentheses, dashed ties, solid ties, and solid slurs. A note whose only function is an insertion will be placed in parentheses to show that it stands apart from the surrounding context.


A note that functions only as a repetition will be connected with a dashed tie to the note whose pitch it repeats. If the original note was generated as an insertion, the right parenthesis is placed after the repetition.


Notes that together form a neighboring structure will be connected with a solid tie.


And notes that together form a passing motion will be connected with a solid slur. If the initial or final note of a passing motion was generated as an insertion, the slur removes a parenthesis.


The following illustrates an interpretation of a finished line:


## Structural Aspects of Notes

A note in a monotriadic line has several structural properties.
Scale position. The position of the note's pitch in the scale of the line. I distinguish between low and high registers. I use a horizontal bar above the number to indicate scale degrees that lie below the central tonic pitch, and hats above the numbers to indicate the tonic degree and degrees that lie above it.

$$
\overline{1} \overline{2} \ldots \overline{7} \hat{1} \hat{2} \ldots \hat{7} \hat{8} \hat{9} \hat{10}
$$

Triad position. The position of the note's pitch in the tonic triad. Here, too, registral differences are observed.

lower octave, lower third, lower fifth<br>tonic pitch<br>upper third, upper fifth, upper octave, upper tenth<br>non-tonic-triad pitch

Order position. The note occupies a position in a line. We can think of the note in terms of its order position relative to the initiation of the line or with respect to the completion of the line:
first, second, third, ...
$\ldots$, antepenultimate, penultimate, final
Legal status. The rule that generates the note:
S1, S2, S3, E1, E2, E3, E4

Conceptual level. This is a measure of how deeply a note is embedded in the generative structure. The note generated by S1 occupies the first level (deep structure), S 2 occupies the second level, the note(s) generated by S3 occupy the third level, and so forth.

$$
\begin{array}{lr}
\text { deep } & \text { superficial } \\
\mathrm{S} 1 \rightarrow \mathrm{~S} 2 \rightarrow \mathrm{~S} 3 \rightarrow \text { levels of elaboration }
\end{array}
$$

Degree of connectedness. When a note is generated, its pitch is connected to some degree to notes that precede or follow it. The degree of connectedness is determined by the rule used to generate the note. There are two variables. The first is whether the note is connected to the one that precedes or the one that follows. There are four possibilities: neither, the preceding, the following, or both.

The second variable is the extent to which the pitch of the note is determined by the note that precedes or the note that follows. Here, too, there is a range of possibilities. Notes generated by S1 and E3 are insertions of tonictriad pitches; on the level at which they are generated, these pitches do not relate directly to the pitch of any note in the immediate context. This is, of course, obvious in the case of S 1 , since there are no other notes on its level. Notes generated by S1 and E3 rules may be drawn into relations with other notes, but at the point of generation, they connect only to the tonic triad; since the tonic
triad is not a concrete entity, I think of these notes as having the weakest sense of connection within the line. Notes generated by S2 are partially determined by their relation to S 1 ("before" and "higher than in the same register" in the case of primary upper lines).

Notes generated by E1 relate directly to the pitch of one other note in the line (the preceding note). Notes generated by E2 relate directly to two other notes but only to one other pitch, since those two notes have the same pitch. Finally, notes generated by E4 relate directly to at least two other notes that are different in pitch.

$$
\begin{array}{rlllll}
\text { weak connections } & & & \text { strong connections } \\
\text { S1, E3 } & \text { S2 } & \text { E1 } & \text { E2 } & \text { S3, E4 }
\end{array}
$$

## Structural Aspects of Interpretations

An interpretation, as defined above, is a particular way of deriving (generating) the sequence of notes in a line using the rules of basic structure and elaboration. The $S$ rules generate the primary structure of a line. The E rules generate secondary structures. These structural components and the generative structure as a whole have a number of different aspects.

Span of connection. Each structural component has a duration (time span). Since a note in a species counterpoint line has the same duration as every other note, except the last, "duration" for our purposes is equivalent to the number of notes encompassed by the structure.

Connectedness was defined earlier as an aspect of notes. Notes that are connected together form a structural component. The duration of a structural component is equal to the number of notes it encompasses, from beginning to end. A neighboring structure, for example, has a minimum duration of three notes. I use the term span of connection to refer to the duration of a structural component. In Snarrenberg notation, "beams," slurs, and ties all indicate spans of connection.

The duration of a connection between notes is stretchable. Suppose, for example, that S 2 in a bass line is repeated (E1), but the subsequent application of other rules causes, say, three notes to intervene between S2 and its repetition:


The repetition structure now spans five notes, and the bass arpeggiation, which originally spanned three notes, now spans seven. ${ }^{6}$

Structural parallelism. When notes in two separate spans in a line are interpreted in the same way, they are structurally parallel.

[^6]Complexity. The complexity of an interpretation is a function of the number of levels in the generative structure and the number of secondary structures. Of the two interpretations shown below, the one on the left requires more levels and has more secondary structures than the one on the right.


Coherence. The coherence of an interpretation is a function of the degree to which secondary structures are connected to the primary structure. Of the two interpretations shown below, the one on the left is less coherent, since none of the three notes generated as elaborations is connected to the basic step motion. In the interpretation on the right, by contrast, all but one of the elaborations is connected to the basic step motion. Hence the interpretation on the right is the more coherent.


As you can see, coherence correlates (inversely) with the amount of material enclosed in parentheses.

## Nested Secondary Structures

Elaboration can produce a line that has one or more secondary motions (neighboring and passing). The rules make it such that two separate linear structures can be nested one within another ( $a$ and $b$ ) but cannot overlap ( $c$ ). More precisely, when the continuation of a non-tonic-triad pitch in one structure is interrupted by the initiation of another structure involving a non-tonic-triad pitch, the inserted structure must be completed before or at the same time as the structure that was left hanging earlier (see $a$ and $b$ ). The rules also indirectly prohibit a leap between non-tonic-triad pitches (see $c$ ).


Lines that alternate between two or more trajectories, as in $c$, are a form of compound line.

## Cognitive Aspects of Interpretation

Let's assume for the sake of argument that composers and listeners have the same set of rules and that these function as rules of production for composers and rules of cognitive structure for listeners. We already have a sense of how to use the rules to produce lines. But how does a listener interpret lines? As a composer, you can apply the rules in whatever order you like at your leisure, but a listener must interpret the line on the fly, and this fact imposes constraints; for listeners not only operate under a time constraint, they also
process the notes in succession, one at a time. I think it is reasonable to assume that listeners will opt for the most efficient use of working memory and will thus have a variety of preferences for assigning structure to notes as they are heard and recede into the past.

Here are some of the cognitive preferences that our listeners might have:
(1) Prefer to interpret later notes in terms of earlier notes.

Or, in other words, use what you already know to interpret whatever may come. Since the order position of S2 in a primary upper line is not predetermined, this principle favors selection of S 2 as early as possible.
(1a) Prefer selecting S 2 as early as possible in primary upper lines.
Non-tonic-triad pitches place the greatest demands on interpretation because they connect to some note in the past and some note in the future. To minimize demands on working memory, listeners will prefer to resolve such pitches as speedily as possible.
(2) Prefer short spans of connection following non-tonic-triad pitches.

The note(s) generated by S 3 is resolved by the final note ( S 1 ). If the note(s) generated by S 3 is to be resolved in the speediest manner, it (they) must occur as close as possible to the final note. So a corollary of this preference is:
(2a) Prefer selecting S3 as late as possible.
As a general rule of cognition, we prefer simpler structures, with the least number of conceptual levels and the least number of secondary structures.
(3) Prefer simpler generative structures.

If there are multiple secondary structures, listeners will prefer to use as few types as possible, hence a preference for repetition. Repetition reduces the number of active patterns.
(4) Prefer parallel structures.

Given a choice between interpreting the legal status of a note as E1 or E3, I think listeners will prefer E1 (the stronger connection). This reduces the number of individual structural components. In general:
(5) Prefer stronger connections.

And, finally:
(6) Prefer coherence.
(7) Prefer temporal coordination of basic and secondary structures in counterpoint.

## The Phenomenology of Interpretation

Listeners take in lines one note at a time. This means they also generate a structure for the line bit by bit. When we notate an interpretation of the line, we usually represent the final state of interpretation. What is not represented are the structures that we entertain but reject. An account of interpretation, if it is to be faithful to the process of listening, needs to take account of these uncertainties, possibilities, and expectations.

I have yet to develop a phenomenological model, but the cognitive preferences listed above might be a good place to start.

Let's take the following sequence of notes and assume that our listener is expecting to hear a primary upper line.


Given the first note, our listener should prefer to interpret it in the simplest way possible, as S2. Interpreting it as E3 right off the bat is more complex, since it would have to occupy no less than the fourth level of the generative structure, while S2 occupies the second level. However, there's no telling at this point what the triad status of the first pitch is.


The second note begins to disambiguate the situation, reducing the number of tonic triad possibilities from three to two.


The third note defines the tonic triad of the line, and this also defines the triad status of the first two notes as third and tonic. Our listener can now begin to speculate about the legal status of the second and third pitches.


The fourth note, F, is the first non-tonic-triad pitch. Though our listener expects, or at least desires, that the next note will bring about resolution, there are two possibilities: E or G. Of the two, however, the former leads to a more coherent structure, since E can be interpreted as a repetition of S2, while G could at best be interpreted as a repetition of E3.


The next note resolves the situation.


Resolution, however, is short-lived, for the very next note renders impossible our interpretation of the fifth note as E1. For A can only be connected to G; in which case, the intervening E must be generated by E3.


While A could possibly be the first step of a passing motion up to the octave (C), our listener will be biased in favor of hearing it as an upper neighbor, as this interpretation resolves the non-tonic-triad pitch more quickly and resolves it to a pitch that can be interpreted in terms of an earlier note (repetition of $G$ ). The next note realizes this expectation:


The next note (D) can be connected to the pitch of the first note in the line in a number of ways: E2, E4, and S3. Since it can be interpreted as S3, the line is at this point on the verge of closure, so our listener has reason to think that the next note will bring the line to a close:


When the line the proceeds to C, the possibilities are reduced to E4 and S3:


And then when the line comes to rest on C, our listener settles the legal status of $D$ and therewith the final state of the generative structure:


## Aesthetic Interest versus Cognitive Preference

Even if it is the case that listeners have a cognitive preference for the simplest interpretation of a line, they may have quite different aesthetic preferences. I, for one, am more interested in lines that resist simple interpretations and ones whose phenomenology includes false starts, detours, dead ends, and unexpected twists. Given two lines with different structures, I find more interest in the one whose preferred interpretation uses longer spans for elaborative notes, uses more levels, and prevents assigning parallel structures to spans of similar contour.

Although I have a cognitive preference for interpretations that use less memory and make efficient use of memory, I quickly bore if the line ends up repeating the same secondary structure over and over and over and over and over. Of course, if I am dancing, I like the repetition. But if I am listening intently, I crave change. These are matters of taste which theory can help articulate but not decide.

## On Composing Clear, Interesting Lines

Write lines that retain a clearly audible relation to the background structure. Do not construct elaborations that hopelessly obscure this basic shape.

The rules that you use in constructing a line should correspond to the way that a listener is most likely to understand the line. When you have finished an exercise, go back and evaluate and, if necessary, revise your structural interpretations so that they correspond to interpretations that a reasonably competent listener would prefer, even if this differs from your compositional generation.

## Monotriadic Lines and Tonal Melodies

Not every sequence of notes you encounter in tonal music is generable using the rules of basic structure and elaboration introduced thus far. In fact, few if any are that simple. It is worth stressing that this limited set of rules does not by any means constitute a theory of tonal melody. There are many other kinds of structure found in tonal music besides the handful we are using here.

However, the rules of structure and elaboration presented above are the fundamental rules from which nearly all the other rules of melodic structure are derived. I view the rules of basic structure, in fact, as restricted forms of the elaboration rules: S1 and S2 are variants of E3, and S3 is a variant of E4. And I view the four elaboration rules as particular applications of two general rules of melodic syntax: INSERT and STEP TO. Arpeggiation, anticipation, and voice exchange, for example, are species of INSERT, and incomplete neighbors and appoggiaturas are species of STEP TO.

## Preliminary Remarks on Counterpoint and THE SPECIES

The essential objective of tonal counterpoint is the pursuit of a common goal along independent paths. Hence it is crucial to understand the forms of agreement and independence. Many of the rules are designed to satisfy the objective of independent motion toward a shared goal.

The first part of this chapter introduces terminology for relations between notes, both within a line and between lines, with emphasis on ways in which tonal phenomena are said to agree or disagree. The second part of the chapter describes the species of rhythmic relationships that can obtain between lines. And it concludes with some observations on the scope of the rules and discussion of some general aspects of contrapuntal texture.

## Terms for Temporal Relations among Notes

Two notes within a single line are consecutive if the second note begins directly after the first note ends. Two notes are nonconsecutive if one or more notes intervene between the end of the first and the beginning of the second note.


Two notes belonging to different lines can be simultaneous, contiguous, or noncontiguous. We will say that two notes are simultaneous if all or part of one note occurs during the same span of time as all or part of the other note. Thus we use the term simultaneous to indicate a situation in which the timespans of two notes overlap; in our usage, the term does not imply that the two notes begin and end at the same timepoint or that their durations are identical.


A line, by definition, is a series of consecutive notes, therefore two notes that lie within a single line cannot be simultaneous, nor can two simultaneous notes belong to one and the same line. Two notes belonging to different lines are contiguous if one note ends at the point at which the other note begins. They are noncontiguous if there is no temporal point of contact whatsoever.

Contiguous notes whose pitches are close to one another might be construed as consecutive. Since one of the objectives in counterpoint is to compose clear, identifiable lines, some rules will address the potential for confusion between consecutive and contiguous notes. The rule prohibiting similar motion to or from a unison is one such rule.

## Terms for Consecutive Pitch Relations

Given two consecutive notes in a line, there are three ways in which the pitch of the second note may be related to the pitch of the first: the pitch of the second note either repeats that of the first, lies adjacent to it, or lies more than one step away. These relations have different consequences for how we continue to think about the pitch of the first note.
a. If the two notes have the same pitch, we think of the second note as confirming the pitch of the first note. There is a maximum of agreement in this case, and the pitch of the first note remains in play, as it were.
b. If the second note lies a step away, we think of the second note as displacing the pitch of the first note. There is a maximum of disagreement in this case, since the two pitches cannot possibly belong to the same triad, and the pitch of the first note is out of play, at least for the time being.
c. If the second note lies a skip away, we think of the second note as having no effect on the pitch of the note, thus leaving it hanging, perhaps permanently or at least until a later note either confirms or displaces it.

In a monotriadic line, every non-tonic-triad pitch is ultimately displaced, and the only pitches left in play at the end of the line are tonic-triad pitches.

We think of some melodic skips as consonant and others as dissonant. Consonant skips are those intervals that can occur between pitches of a tonic triad. Consonance is, in this sense, a form of agreement. The linear consonances include major and minor thirds, perfect fourths, perfect fifths, major and minor sixths, and perfect octaves, as well as the expansions of these in-
tervals by one or more octaves. Seconds, sevenths, and all diminished and augmented intervals are dissonant. The pitches of a dissonant skip, like those of a dissonant step, are in state of disagreement. Generally speaking, the notes of a dissonant melodic skips are regarded as belonging to different linear trajectories (as in a compound line), hence the rules for simple monotriadic lines prohibit dissonant melodic skips.

## An Illustration of Linear Intervallic Interpretation

In the theme of Bach's Passacaglia in C Minor, the skip from C to $G$ at the beginning of the line leaves the $C$ hanging. In fact, it is not until note 9 that the pitch of the first note is either denied or confirmed (displaced or repeated).


The leap from note 2 to note 3 leaves both $C$ and $G$ hanging during the time of $E^{b}$. And together these three pitches form a C-minor triad, the tonic triad of the passacaglia. This initial projection of C-minor triad, its later confirmation, and the exclusive use of pitches in the melodic minor collection based on C are the basis for our thinking that this is a composition in the key of C minor.

Note 4 displaces the pitch of both the second and third notes. It is in turn displaced by note 5 , and that note is displaced in turn by note 6 . The skip from note 6 to note 7 leaves the pitch of the sixth in play, until both are displaced by the pitch of note 8 . Note that the pattern of effects in notes $2-4$ is replicated by notes 6-8.

The pitch of note 8 also confirms the pitch of note 2 ; this pitch, the fifth of the tonic triad, acts as a focal point for this segment of the passacaglia theme. There is no note subsequent to note 8 that either confirms or denies its pitch, thus this pitch is left hanging through the remainder of the line. Note 9 instead resumes a trajectory begun by the very first note in the line or, alternatively, by the third note. This trajectory is continued as the line steps up to note 10. The dissonant skip of a diminished fourth between notes 10 and 11 prevents us from understanding those two pitches together; however, we can understand the pitch of the eleventh note as displacing the pitch of the very first note. The move to note 12 reverses that displacement and confirms the pitch of the first note. As no subsequent note in the line either confirms or displaces the pitch of note 12 , it too is left hanging at the end of the line.

In fact, at the end of the line, the only notes left hanging are notes whose pitches belong to the tonic triad, C minor. It is this feature, as well as the overall pitch content of the line (C melodic minor), that creates the impression of the passacaglia's key.

## Terms for Simultaneous Pitch Relations

I use the term sonority to refer to the vertical intervals formed by simultaneous notes. When there are only two lines, sonorities are intervals. Contrapuntal combinations of more than two lines produce a greater array of sonorities. I use figured bass notation to identify sonorities. In figured bass descriptions of sonority, the only intervals that come into consideration are those formed between the upper line(s) and the bass; intervals formed between upper parts are a secondary matter.

The "chords" taught in traditional theory are species of sonority, but my definition is considerably broader and more in keeping with the use of the term klang in the eighteenth century. ${ }^{1}$

The vertical consonances are those intervals that can occur above the bass of a stable tonic klang ( $\left.\hat{i}\right|_{3} ^{5}$ or $\left.\hat{3}\right|_{3} ^{6}$ ); they include unisons, major and minor thirds, perfect fifths, major and minor sixths, perfect octaves, and the compounds of these. Note that this list does not include the perfect fourth. When a note forms a perfect fourth above the bass, it is regarded as a vertical dissonance, along with seconds, sevenths, and all diminished and augmented intervals. ${ }^{2}$ As with linear relationships, vertical consonance is a form of agreement and dissonance a form of independence.

The vertical intervals can be ranged in a series based on the degree of agreement between the two pitches, from a state of maximum agreement to a state of maximum disagreement or independence. Rules governing the interaction of lines take into account the particular degree to which the two pitches of a vertical interval agree or disagree.

$$
\begin{aligned}
& \text { agreement } \longleftrightarrow \text { independence } \\
& 1 \begin{array}{lllll|llll} 
& 8 & 5 & 3 & 6 & 4 & 7 & 2 & (5,4, \ldots)
\end{array}
\end{aligned}
$$

Perfect unisons manifest perfect agreement as to pitch-class, register, and triadic affiliation. Two lines meeting in a perfect unison thus show a temporary lack of independence. Perfect octaves maintain a difference in register, but still agree in pitch-class and triadic affiliation. Two lines meeting in a perfect octave are minimally independent and largely in agreement. Perfect fifths are independent in terms of register and pitch-class, but the two pitches together determine a single triad whose root is the lower note of the fifth.

Seconds, in contrast to unisons, manifest complete disagreement. The two pitches cannot belong to the same triad and they are competing within the same register. Two lines that meet in a second are independent in the extreme. Likewise, two pitches forming a seventh are in disagreement, for they cannot both belong to the same triad. The competition is less intense than in the case

[^7]of seconds, because the two pitches appear in different registers. However, the lines are still extremely independent at this point.

Thirds and sixths constitute a kind of middle ground between the extremes of agreement and independence. In both intervals, the two pitches can belong to one and the same triad, though the identity of the triad is ambiguous. In the case of thirds, the triad's root may be the bottom note of the third or a note lying a third below. C below E , for example, could as easily belong to a C major triad as it could to an A minor triad. The lower note of a sixth, on the other hand, cannot be a root; only the upper note can be a root. Thus thirds manifest a more stable form of agreement than sixths.

Vertical fourths, as you know, are treated as dissonances. Why this is so is unclear. Nevertheless, it is a well-established aspect of classically tonal music.

In general, then, vertical dissonance promotes the effect of independence and vertical consonance promotes the effect of agreement. Both are essential to composing lines that pursue independent paths toward a common goal.

## Cognitive Aspects of Consonance and Dissonance

Two pitches that form an interval (linear or vertical) are consonant if they belong to the same triad (major or minor). We usually speak of the interval itself as being consonant or dissonant, but it is more fruitful to regard consonance as a relation between a pitch and a triad (major or minor). Thus a collection of one or more pitches is a consonant collection if and only if each and every pitch in the collection can belong to the one triad. Some collections are, of course, ambiguously consonant. Two notes forming a third can together belong to two different triads.

Dissonance is more complicated. A note is dissonant if it does not belong to a triad. Of course, if one hears an isolated pitch, it is simpler to think of it as belonging to a triad, so the dissonant status of a pitch only arises from its relation to other pitches. When we say that the interval $(x, y)$ is consonant, this asserts their mutual inclusion in a triad $T$ :

$$
(x \in T) \cdot(y \in T) \quad(" x \text { is in } T \text { and } y \text { is in } T \text { " })
$$

When we say that the interval $(x, y)$ is dissonant, at least one of the pitches does not belong to $T$ :

$$
\sim(x \in T) \vee \sim(y \in T) \quad \text { ("either } x \text { is not in } T \text { or } y \text { is not in } T \text { ") }
$$

However, this can mean three different things:

$$
\begin{aligned}
& (x \in T) \cdot \sim(y \in T) \quad(" x \text { but not } y \text { is in } T \text { ") } \\
& \sim(x \in T) \cdot(y \in T) \quad \text { (" } y \text { but not } x \text { is in } T \text { ") } \\
& \sim(x \in T) \cdot \sim(y \in T) \quad(\text { "neither } x \text { nor } y \text { is in } T \text { ") }
\end{aligned}
$$

So, in order to understand a dissonant interval, we need to know which if any of the pitches belongs to the triad.

In species counterpoint, this is not a problem: for when two pitches form a dissonance in species counterpoint, one of them invariably belongs to a triad, and we always know which pitch that is: by definition, every whole note in species counterpoint is consonant. (Real music, of course, is not as clear.)

In every case, a dissonant pitch in species counterpoint lies a step away from a pitch that is consonant with the whole note. A dissonance, in other words, is a stepwise displacement of a consonance. The following diagrams illustrate the prototypical behavior of dissonances:


When a dissonant pitch $x$ moves by step to a pitch $y$ that is consonant, that consonance forms what I call a state of resolution. It is customary to refer to the second pitch $y$ as "the resolution" of the dissonant pitch $x$; in most cases, that poses no problems, because the pitch in question is consonant (as in $a$ below). In real music, however, there are situations in which $x$ moves to $y$ by step, but because of the movement in another line, $y$ is dissonant; in such cases, the state of resolution is postponed until one or both of the lines in question move on (as in $b$ below).


## Terms for Relative Motion

The counterpoint rules take into account the direction of the lines as one or more of them moves into a vertical interval, the so-called relative motion of the lines. The forms of relative motion are also differentiated with respect to agreement or disagreement (independence).

There are three ways in which the directed motions of two independent lines can relate to one another. Two voices are said to move in contrary motion when they move in opposite directions. If only one voice moves while the other remains stationary, the motion of the voices is said to be oblique. When they move in the same direction, they are said to move in similar motion. If they move in similar motion and each traverses the same size interval (quality notwithstanding), they are said to move in parallel motion. Thus there are two types of similar motion: parallel and nonparallel. Both lines may also remain stationary, in which case there is no relative motion. The only occasion in species counterpoint when both lines stay put is, appropriately, the end of the composition.

The four principal categories of relative motion can also be ranged in a series based on their degree of agreement. Lines moving in contrary motion show the greatest independence; one line moving obliquely against another
shows a modicum of independence. Two lines moving in the same direction, however, show agreement, the more so if they move by the same interval (in parallel).


In all forms of relative motion other than parallel similar motion, the movement of the voices alters the space between the lines, either narrowing or widening it. Hence, we can also speak of convergent and divergent species of relative motion. Thus there are seven distinct species of relative motion. The following diagram provides a visual representation of the concept:


Actually, to be precise, given that there are three ways a line may move (go up, stay put, go down), there are nine ways in which two lines can move relative to one another:

|  | $\nearrow$ | $\rightarrow$ | $\searrow$ |
| :--- | :---: | :---: | :---: |
| $\nearrow$ | $\nearrow$ | $\rightarrow$ | $\searrow$ |
|  | $\nearrow$ | $\nearrow$ | $\nearrow$ |
| $\rightarrow$ | $\rightarrow$ | $\rightarrow$ | $\searrow$ |
| $\searrow$ | $\searrow$ | $\searrow$ | $\searrow$ |

If there are more than two lines, then of course there are many more possibilities.

## Metrical Aspects of Species Counterpoint

Every species composition contains at least one line that sets the pace for the others. Following tradition, we will sometimes call this line a cantus firmus. For convenience, we will notate this pace-setting line in whole notes. (It is merely by convention that we use the unit-value of the notational system as the unit for setting the pace of the species composition. In practice, any notational symbol can function as the unit by which we measure the pace of notes in lines.) Since the pace of this line is measured solely in terms of the timespan of one note, we will designate the meter of the composition as $\frac{1}{1}$.

The notes of the pace-setting line start on the beat. The only beats are those produced by the initiation of notes in this line.

To indicate that the line has reached its conclusion, we will interrupt the pace of each line at its conclusion so as to create a point of rhythmic rest. We
create this point of rhythmic rest in the pace-setting line in the simplest way possible, notating the final note as a breve ( $\boxed{\square}$ ), for in this way we indicate that there is a point in the line (the latter half of the breve) where our expectation for continuation is not satisfied. The final notes of the other lines will likewise be notated as breves. In a species composition, all lines must initiate their final note at the same time (another form of agreement).

## The Species of Rhythmic Format

The term species refers to different types of rhythmic relations among counterpointed lines.

In the first species, the simplest species of rhythmic format, all lines proceed at the same pace in whole notes (1:1), hence both lines are in exact rhythmic agreement.


In the second species, one line proceeds at twice the pace of the line in whole notes (2:1), with every other note beginning on the beat. The increase in independence in the second species preserves the agreement that obtained in the first species, in the form of notes initiated together on the beat. That they both proceed at an even pace and that the pace of one can be used to measure the pace of the other are also forms of agreement.


In the third species, one line proceeds at three or four times the pace of the line in whole notes ( $3: 1$ or $4: 1$ ), with every third or fourth note beginning on the beat. Here, too, there is an increase in independence but preservation of the forms of agreement noted above.


In the fourth species, one line proceeds at the same pace as the line in
whole notes, but initiates its notes at the midpoint of the notes in the pacesetting line, producing a staggered (syncopated) rhythm. In this species there is now a form of rhythmic independence, in that none of the notes in the counterpoint line are initiated with those of the cantus firmus. A change of pace at the end of the staggered line allows it to coincide with the conclusion of the pace-setting line.


In the fifth species, one line proceeds at an irregular pace, switching among the rhythmic formats of the second, third, and fourth species. There is a maximum of disagreement between the two lines. Against the predictable pace of the cantus firmus there is an unpredictable stream of rhythmic values in the counterpoint line. Only at the end is there complete agreement. For example:


In mixed or combined species, two or more lines of second, third, fourth or fifth species species are combined with a cantus firmus in whole notes. For example:


The final possibility is to combine lines of second, third, fourth or fifth species without the support of a cantus firmus in whole notes.

## Westergaard's Rationale for the Species

Westergaard notes that the species "cover all the ways the beginnings and ends of two simultaneously sounding notes might be ordered in time and related to a beat" (55). There are five ways in which the beginnings and ends of two simultaneously sounding notes can be ordered in time, irrespective of their relation to a beat:
a. Both notes begin at the same time, and both notes end at the same time.
b. Both notes begin at the same time, but one lasts longer
$\qquad$ than the other.
c. One note begins before the other, but they both end at
 the same time.
d. One note begins before and ends after the other note.

e. One note begins before the other note begins and ends
 before the other note ends.

Westergaard then notes that the 5 rhythmic situations can relate to a beat in 16 ways:
a. Both notes begin on a beat.
b. One note begins on the beat,
 the other begins after the beat.
c. The beat occurs just as both
 notes end.
d. The beat occurs just as one note ends and after the other note has already ended.
e. The beat occurs during the
 course of both notes.
f. The beat occurs during the course of one note and
(1) after,
(2) at the end of,
(3) at the beginning of, or
(4) before the other note.


Each of the 16 possible metrical situations arises in a species or combination of species, but any given species includes only a limited number of such situations. As Westergaard notes, this limitation "allows us to concentrate on the problems posed by a limited number of such situations" (55).

## Global and Local Contexts

## The Scope of a Rule

Each rule has a scope of application. Some rules take into account the context of the entire line or the entire composition. I refer to this as the global context. There is a rule, for example, which requires that the lowest line have the structure of a bass line. And there is a rule that says all lines must project the same tonic triad. These rules are global in scope.

A local context is a small portion of a line or counterpoint of lines, usually spanning no more than one to three bars. There will be many rules, for example, that apply to the leaps of a fourth between consecutive notes in the lowest line. These rules vary with respect to their local context: some apply to leaps of a fourth within a bar, others apply to leaps of a fourth across the barline.

A completed composition has global contexts and a myriad of local contexts, which sometimes overlap, sometimes not. As you compose, you will negotiate among rules that govern various contexts. The solid boxes in the following figure indicate the global contexts of each line and their contrapuntal combination. The dashed boxes represent some of the possible local contexts we will encounter: the context of the bar and the relation from an off-beat span to the next beat.


As you can infer, even two lines in first species will prove challenging.

## Consonance and Dissonance in Global and Local Contexts

I distinguish between local and global consonance. The tonic triad is the frame of reference for consonance within the global structure of a line: any member of the triad is globally consonant, all other pitches are globally dissonant. In the local context of a bar, however, it is the the whole note therein that constitutes the frame of reference for consonance and dissonance: any pitch that is vertically consonant with the whole note is locally consonant, all others are locally dissonant. The frame of reference for global consonance is invariant, while that of local consonance will shift from one bar to the next.

This distinction between global and local forms of consonance and dissonance produces additional complexity in a line, for a whole note that is globally dissonant (a non-tonic-triad pitch) will always be locally consonant. And in some species, a note that is globally consonant may be locally dissonant.

The rules for composing lines are global in scope. They ensure that each line projects the tonic triad and they ensure that global dissonances (non-tonictriad pitches) resolve to global consonances.

The rules governing moment-to-moment interaction of the lines are local in scope. They ensure that any locally dissonant pitch moves by step from and to a locally consonant pitch.

## On Texture and Register

The texture of species counterpoint consists of a bass line and one or more upper lines. In two-voice counterpoint we will combine a bass line and a primary upper line.

Counterpoint in three or more lines consists of a bass line and two or more upper lines, at least one of which is a primary upper line. ${ }^{3}$

Bass lines are always the lowest sounding line in species counterpoint. The proper register of bass lines varies with the performance medium: bass lines in piano music tend to lie two or three octaves below bass lines in solo violin music; bass lines in polyphonic choral music tend to lie in the lowest register of the human vocal range. For the purposes of species counterpoint, we will only restrict bass lines to the register lying beneath and adjacent to the register of the human vocal range; if the only upper line lies in the soprano register, the so-called bass of the species composition must lie in the immediately adjacent register below, namely, the alto register. In all cases, however, the bass line must be the lowest sounding line. In the context of species counterpoint, then, "bass" connotes a relative registral position and a type of basic structure.

In order to study the interaction of the primary upper line and the bass line, the rules must ensure that the identity of each line remains clear by ensuring that the register of each line remains clear and perceptible. To this end, we introduce an additional global rule which stipulates that the bass line is always the lowest line.

G4. Notes in the bass must always sound below simultaneous notes in upper lines.

Furthermore, we will write compositions in which lines unfold in adjacent registers.

G5. Adjacent lines must unfold in adjacent registers.
The basis for this prescription is, again, a hypothesis about interpreting textures in contrapuntal music: namely, that we understand a texture to be "complete" or "full" when there are no empty registers between the outer voices.

[^8]This rule is reinforced by a rule of sonority that advises you not to compose lines in which simultaneous notes in adjacent lines are separated by more than a tenth.


## Construction of Lines

In first species, both lines move at the same rate. Each line is written in whole notes and concludes with a breve.

Each line must be generated by the rules for constructing monotriadic lines. The upper line must be a primary upper line. The lower line must be a bass line.

## Control of Dissonance

In all species, the rules assume that the pitch of the whole note in each bar defines local consonance. In first species, where at every moment there are two whole notes sounding simultaneously, the simultaneous pitches must therefore be mutually consonant. Thus the well-formedness rule for control of dissonance in first species is simply a prohibition against any form of dissonant sonority.

1. Two notes that sound simultaneously must not form a dissonant interval.

Remember that a perfect fourth is regarded as a dissonance when formed above the bass.

## Forbidden Forms of Motion

The following well-formedness rules govern the motion of the lines in local contexts.

1. No parallel unisons, octaves, or fifths between consecutive simultaneities.

Consecutive unisons and octaves are prohibited because they produce a temporary loss in the independence and, in the case of unisons, identity of the lines. Consecutive fifths are perhaps prohibited because they were regarded as syntactical mistakes by composers of classically tonal music.
2. No non-consecutive parallel unisons or octaves that result from parallel structures in their lines, unless the intervening simultaneity includes a pitch dissonant with the first unison or octave.

Nonconsecutive parallel unisons or octaves that result from parallel structures in their lines will undermine the independence of the lines unless the intervening sonority contains a pitch that is dissonant with the first unison or octave. This condition ensures that the consonance of the first unison or octave is displaced prior to the second unison or octave; such a displacement counteracts the bond created by the parallel structure.

3. No similar motion to or from a unison.

Similar motion to or from a unison is prohibited because it undermines the independence of the lines: the two lines converging in this way on a unison are in complete agreement as to both direction and goal. Convergence on or divergence from a unison in similar motion also produces an overlap in the register of the lines, undermining the registral clarity and independence of the two lines.

4. No similar motion to an octave unless both notes forming the octave are the final tonics in their respective basic structures and the upper note is approached by step.

Because of registral differentiation, octaves are less apt to undermine independence. Thus similar motion to an octave is less restricted than similar motion to a unison. Rule 4 allows the effect of independent agreement created by similar motion to the octave to take place at the one moment in a species composition where that effect is appropriate: namely, at the very end, where the
two basic structures conclude on the tonic scale degree. The independence of the two lines is marked by their characteristic modes of behavior: a step in the upper line and a skip in the bass.

5. No similar motion to a fifth unless the upper note is approached by step and is either the fifth or second scale degree.

Similar motion to a fifth is also restricted. In addition to the requirement that the upper voice move by step (see rule 4), there is also a requirement that the upper voice of the fifth be either $\hat{5}$ or $\hat{2}$. This ensures that the stability and perfection of the fifth supports the definitive pitches of the tonic triad. ${ }^{1}$

6. No voice crossing, overlapping, or cross relations.

Voice crossing and overlapping are prohibited because they interfere with the registral clarity of the lines.


A cross relation is a contiguous relationship between diatonic and chromatic forms of the same scale degree. In species counterpoint these can only arise in minor keys. Cross relations are prohibited because they interfere locally with the diatonic clarity of the lines.


Each species has rules that govern leaps of a fourth in the bass. These rules are aimed at preventing local situations that promote the implication of a ${ }_{4}^{6}$ sonority during the time of the lower note of the fourth. The rules accomplish

[^9]this by stipulating an arrangement in the upper line that forces us to interpret the two notes in the fourth as belonging to different triads. In first species, the only way to accomplish this is to see to it that one of the contiguities in the span defined by the fourth in the bass is a second or seventh, because seconds and sevenths are the only truly non-triadic intervals.
7. If the bass leaps a fourth, one of the two notes in the upper line that coincides with the two notes forming the fourth must be form a second or a seventh with the contiguous (non-simultaneous) bass note.

The dissonance of the second or seventh ensures that the interval formed with the lower note of the fourth cannot be interpreted as belonging to the same triad as the interval formed with the upper note of the fourth. This is easily explained.


When the bass leaps a consonant fourth, the first note is left hanging. If both bars project the same triad, the lowest note left or brought into play in the bass turns out to be the fifth of the triad, hence the implied ${ }_{4}^{6}$ sonority.

The prohibition of explicit or implied ${ }_{4}^{6}$ sonorities reflects the fact that in classically tonal music, ${ }_{4}^{6}$ sonorities arise either as the coincidence of linear elaborations within a different triad (as in the cadential ${ }_{4}^{6}$ and the passing ${ }_{4}^{6}$ ) or as a moment within in a broader context that projects those same pitch classes as a ${ }^{5}$ or ${ }_{3}^{6}$ sonority (as in the arpeggiated ${ }_{4}^{6}$ ).

## Sonority

In writing counterpoint, the aim is to create two lines that take independent paths toward a common end: there is global agreement as to triad and goal, but local disagreement on how to move within that triad and reach the goal. As you will recall, the sonorities that produce agreement are, above all, perfect unisons and octaves. Two lines meeting in a perfect fifth also manifest agreement, in that they jointly project one and only one triad. The triadic ambiguity of thirds and sixths produces a weaker form of agreement, in that the two notes belong to a triad whose identity may be uncertain. The aims of counterpoint in first species are thus reinforced if imperfect consonances prevail within the body of the composition and if perfect consonance are used sparingly, perhaps only in conclusion.

A fifth or octave may be written in the midst of the composition where the emphasis provided by that interval will help to stress a pitch that belongs to the background structure. Too many octaves or fifths, however, and the texture becomes thin and hollow. Since unisons collapse the distinction between the two voices and are the thinnest, least full sonority, avoid unisons except in the first and last measures. Intervals larger than a tenth are likely to sound too
thin in two-part writing and should thus be avoided or used sparingly.
You will want to avoid a long series of parallel thirds or sixths, since two lines that persist in moving in parallel are not taking independent paths.

## Contrapuntal Interest

In addition to composing interesting lines (see chapter 2), there are several things you can do to create interesting counterpoint.

One source of interest lies in the possibility of contradiction between the local and global triad status of a note. In first species, every globally dissonant pitch is locally consonant, so interest is produced by writing numerous non-tonic-triad pitches in each line. Interest is heightened when you counterpoint a globally consonant pitch with a globally dissonant pitch, as this situates a tonic-triad pitch in a nontonic triad.

The independence of the lines is enhanced if you avoid co-initiated or co-terminated secondary structures, particularly parallel structures. Instead, try to compose secondary structures that begin and end at different times. When you notate the generative structure using the standard notation, you can quickly tell whether slurs and ties are noncongruent.

Avoid contrapuntal monotony. Seek variety in the succession of intervals and types of relative motion. While some motion in parallel thirds or sixths is desirable, long stretches of parallel motion reduces the independence of the lines. Interest will be enhanced if the parallel thirds or sixths do not arise from parallel secondary structures.

Avoid linear monotony. That is, avoid consecutive notes that are identical in pitch, and also avoid writing a line that hovers around one pitch. Avoid repetitions of all kinds. Minimize the number of neighbor structures.

## Second Species: Two Lines

In second species, one line moves twice as fast as the other. One line is written in half notes, while the other line is written in whole notes. Both lines conclude with a breve.

In second species there are two rhythmic situations for simultaneous notes: (1) the two notes are initiated together or (2) the notes are initiated separately, with the second note initiated after but still during the first.

As in first species, co-initiation of notes creates a beat. Hence we speak of on-the-beat half notes, whose onset matches that of the whole notes, and off-the-beat half notes that start in the middle of the whole note's duration. The initiation of the off-the-beat note subdivides the span of the whole note.

The rhythmic format of second species produces the first distinction between metrical cycles: the spans between beats are the primary units, and the spans of the subdivisions are secondary units. Likewise, the beat is a primary referential timepoint and the point of subdivision is a secondary referential timepoint. We think of the subdivisions as parts of the beat, and we think of the point of subdivision as dividing the primary beat span. So, beats and the spans between them are conceptually prior to points of subdivision and the shorter spans they define.

## Construction of the Half-Note Line

The half-note line may be either the bass or upper voice.
The quicker pacing of the line in half notes may be established with either one or two notes in the first bar.

1. The half-note line may begin either on or off the beat, that is, it may begin with a half rest.

In order to secure rhythmic rest for the line and the composition:
2. The last note in the line is a breve attacked with the last breve of the wholenote line.
The half-note line introduces a distinction in rates of motion. Were the halfnote line to restate the same pitch in successive notes, its rate of pitch change would be no different from that of the whole note line. Hence the following rule:
3. The half-note line must not include any immediate repetitions.

When the upper line is the half-note line, the penultimate bar contains two notes, so we need to extend the global rule governing the closure of a primary upper line to cover the new situation.
4. If the half-note line is a primary upper line with basic step motion, at least one note in the penultimate bar of the line must lie a step above or below the final tonic and must be locally consonant. If the step-related note is the first note in the penultimate bar, the second note must not displace it by step.

This modification continues to ensure a strong linear conclusion. ${ }^{1}$ The rule limits the conclusion of a species composition to the following possibilities:


## Control of Dissonance

The rules that govern vertical consonance and dissonance in second species are designed to ensure the simplest possible relationships.

1. On the beat: all intervals must be consonant, as in first species.

The first rule ensures that metrical position and local stability coincide. In other words, the rule prescribes agreement in both rhythm (co-initiation) and pitch (consonance) on the beat.

If the on-the-beat half note were dissonant with the whole note, one aspect of the note (its onset) would be conceptually prior to that aspect of the notes immediately before and after, but another aspect of the note (its pitch) would be conceptually dependent on one or the other of those notes. Conflicts of this sort are a source of considerable interest in real music, but part of the point of species counterpoint is to examine simple situations before examining the more complex, so such conflicts are, at least for the moment, forbidden.
2. Off the beat: the interval may be dissonant if the half note is approached and left by step, that is if it is a dissonant passing tone or a dissonant neighbor.

Since the onset of the off-the-beat note is conceptually dependent on the onset of the two notes that begin on the beat, there is no conflict if the pitch of the off-the-beat note is also conceptually dependent on the pitches of the notes that begin on the beat. Hence, the vertical interval formed by the off-the-beat half note may be dissonant or consonant.

When an off-the-beat half note is consonant, its pitch is comprehended immediately in terms of its relation to the pitch of the whole note. But if it is

[^10]dissonant with the whole note, its pitch cannot be comprehended in terms of its relation to the whole note and must be comprehended solely in terms of its relation to the pitch of notes in the same line. The rule stipulates the conditions that allow us to comprehend its pitch in terms of its relation to the immediately preceding and following stable half notes.

The restriction to stepwise motion in the case of dissonant half notes in the upbeat also arises from the objective of starting with the the simplest situations. Recall the effect of consecutive pitches discussed in chapter 3. Given two consecutive notes, the pitch of the second note can be understood in terms of the pitch of the first note only if it is the same as or a stepwise displacement of that pitch. A skip, by contrast, leaves a question mark, as it were, for the second pitch in a skip neither confirms nor denies the first pitch of the skip. Direct repetitions are prohibited in the half-note line, so the pitch of the off-the-beat half note cannot be the same as the pitch of the on-the-beat half note that precedes it, so the only way it can immediately relate to the pitch of the preceding note is if it lies a step away. Likewise, the pitch of the note on the following beat must lie a step away from the pitch of a dissonant off-the-beat half note. And since this pitch must also be consonant (rule 1), a state of resolution immediately follows the dissonance.

There are many other forms of dissonance, but conceptually speaking, the form encountered in second species is the least complicated.

Thus the off-the-beat half may be (1) a consonant note, (2) a dissonant passing note, or (3) a dissonant neighbor note.


While the two rules controlling dissonance ensure that there is no local conflict between the metrical position of a half note (downbeat or upbeat) and its harmonic relation to the whole note (consonant or dissonant) and permit dissonances only in the upbeat, where they are metrically and harmonically dependent upon the consonance of the previous and next downbeats, the rules do not require agreement between the local and global status of a pitch. There may, in fact, be a conflict between the local consonance or dissonance of a half note and the global function of that note in its line. Conflicts between local and global conditions are a source of interest, even in first species. Second species adds a new possibility: the off-the-beat half note may be locally dissonant but globally consonant.

## Forbidden Forms of Motion

The first two rules governing forbidden forms of motion are straightforward.

1. On the beat to off the beat: since all motion is oblique, the only restriction is against the bass crossing the upper voice.
2. Off the beat to on the beat: as in first species.

However, now that dissonances can appear off the beat, it is important to remember that the the term "parallel fifths" includes parallel motion from a diminished to a perfect fifth. Hence the following is prohibited:


In first species, the rule prohibiting parallel unisons, octaves, and fifths applied to consecutive pairs of notes. In second species, the rule is extended to cover notes initiated on consecutive beats (consecutive notes in the whole-note line and nonconsecutive notes in the half-note line).
3. On the beat to on the beat
a. No parallel unisons or octaves.
b. No parallel fifths except where the half note forming the second fifth is approached and left by a step motion in the opposite direction from the parallel fifths.

Notes initiated on the beat are in a metrically strong position and thus their pitch relationships are particularly salient. Contrary motion, however, can mitigate the effect of parallel fifths between consecutive beats. In the following example, the fifths rise but the bass line descends through the pitch of the second fifth.


The contrary step motion of the half-note line undercuts the effect of consecutive fifths by making it clear that the fifths do not result from parallel linear structures: the half note involved in the second fifth directly displaces the half note in the first upbeat and is therefore less strongly connected to the half note involved in the first fifth.

Rule 4 governs a rhythmic situation that is new in second species.
4. Off the beat to off the beat
a. No parallel unisons.
b. Parallel octaves related by seconds may occur, but only if the two off-the-beat half notes are approached from opposite directions.
c. Parallel octaves related by any other interval may occur if either
(1) the two off-the-beat half notes are approached from opposite directions,
or
(2) the first off-the-beat half note is left by step.

Parallel unisons will be heard no matter whether they are placed on consecutive beats or consecutive offbeats. Octaves are less salient, to the point where the effect of consecutives can be mitigated in several ways. The contrary motion required by rule 4 b counteracts the nonconsecutive parallel relationship.


If the octaves are not connected by step, the half note involved in the second octave cannot be heard as displacing the half note involved in the first octave. Contrary motion (option 1 in rule 4c) counteracts the parallel motion, while connection by step (option 2) displaces and cancels the pitch of the half note involved in the first octave prior to the appearance of the second octave.


Rule 5 extends the rule that eliminates the impression of a dissonant ${ }_{4}^{6}$ sonority.
5. Leaps of a fourth in the bass
a. When the half-note line occurs in the bass: (1) A leap of a fourth may not occur within a measure. (2) A leap of a fourth may occur off the beat to on the beat if the first-species rule about fourths in the bass is followed.
b. When the whole-note line occurs in the bass: A fourth is permitted in the bass if there is a half-note in the upper line that
(1) sounds during and is consonant with one of the notes forming the fourth,
(2) forms a second or seventh with the other, and
(3) satisfies at least one of the following conditions:
(a) falls on the beat,
(b) is approached by leap, or
(c) is contiguous with the note forming the second or seventh.

When the half-note line is in the bass, leaps of a fourth in the bass across the bar line are subject to the constraint laid out in the rules for first species; namely, there must be an absolutely dissonant contiguity (second or seventh) across the bar line.


The portion of the rule that governs situations in which the whole-note line is in the bass extends the constraint: there must be a note that is (1) consonant with the simultaneous whole note but (2) absolutely dissonant with the whole note in the contiguous bar. The third condition (3) ensures that the half note forming the required dissonance is salient, thereby making the harmonic differentiation as clear as possible.


Finally, rule 6 recognizes the possibility of mitigating the effect of a cross relation.
6. No noncontiguous cross relations between an on-the-beat half note and the whole note in the next measure unless the half note moves by step.

The immediate step displacement in the second species line removes the sense of connection (contiguity) between the chromatic and diatonic forms of the scale degree: the one degree is displaced before the other sounds.


## Sonority

1. On the beat: as in first species.
2. Off the beat: any interval is permitted, but dissonant intervals are preferred.

The two rules of sonority recommend composing lines in which the off-thebeat half is dissonant. Dissonance in the upbeat promotes connection and motion across the bar line. A consonant note in the upbeat is understood immediately in relation to the whole note. A dissonant note in the upbeat, by contrast, has no relationship with the pitch of the whole note and can only be understood as passing along to another note that will be consonant with the next note in the whole note line. Thus the passing dissonance (be it a neighbor or passing tone) effects a local synthesis of two adjacent time spans, joining past and future.

## Monotony

Avoid using neighbor notes in the half-note line unless either (a) the first half note falls off the beat or (b) the motion is interrupted by application of one or more rules of elaboration (E3 or E4).

## Examples of Second Species in Two Voices



## Third Species: Two Lines

In third species, one line moves three or four times as fast as the other. The faster line is written in triplet half notes or in quarter notes, while the pacesetting is written in whole notes.

## Construction of the Triplet-Half- or Quarter-Note Line

As in second species, the quicker pacing of the counterpoint may be established in the first bar in more than one way, beginning either directly with the first whole note or after one or more rests. The possible rhythmic configurations for the first bar are as follows:


With more notes in the bar, it now becomes possible to project a local harmony more fully. Accordingly, we introduce new ways of furthering this projection by adding localized variants of rules E1 and E3. These new rules permit the repetition and insertion of consonant notes that belong to the local triad that is partially determined by the whole note.

## Local Repetitions

3. In the counterpoint line (but not the whole-note line) any consonant pitch may be repeated within a measure.
4. No immediate repetitions may remain in the completed line.

## Local Neighbors

5. A neighbor may be inserted between a locally consonant pitch and its repetition. In minor, the lower neighbor to the diatonic or raised seventh degree, is the raised sixth degree; and the upper neighbor to the diatonic or raised sixth degree is the lowered seventh degree.

Localized rule E1 allows the repetition of any locally consonant pitch within the confines of a bar, so long as the direct repetition is removed through the further elaboration of a neighboring note or local insertion.


Note the restrictions in minor keys.


## Local Insertions

6. A non-tonic-triad pitch may be inserted within a measure if
a. the inserted pitch is consonant with the whole note,
b. another note in the measure is vertically consonant and generated by the normal rules,
c. the inserted pitch is linearly consonant with every other locally consonant pitch, and
d. the inserted pitch is subsequently displaced (stepwise) by a tonictriad pitch.

Localized rule E3 allows the insertion of a locally consonant pitch that is not generable by the global rules. Local insertions may seem to have no antecedent (as if they come out of nowhere), but they must eventually be displaced by step to a tonic-triad pitch. (The final note in a line may effect the required displacement.) In virtually every case, the pitch of a local insertion must be displaced by an immediately adjacent tonic-triad pitch. The two exceptions are diatonic $\hat{\gamma}$ and raised $\hat{6}$ in minor keys, which lie two steps away from the requisite tonic-triad pitch. Diatonic $\hat{7}$ in minor must subsequently be displaced by diatonic $\hat{6}$, and that pitch, in turn, by $\hat{5}$. Raised $\hat{6}$ in minor must subsequently be displaced by raised $\hat{7}$ and that pitch, in turn, by $\hat{8}$.


The rule requires the pitch of the local insertion to be consonant with the whole note and with at least one note in the same bar that is generated under the global rules for constructing monotriadic lines. This ensures a connection of the local insertion to both the local and the global contexts.

Use of local insertions makes it possible now to skip between two non-tonic-triad pitches. Such skips promote the effect of a local, non-tonic harmony.

## Local Passing

7. Localized rule E4 (L4). Two locally consonant pitches may be may be joined by a step motion.

## Combining Lines

As in second species, consonance is required on the beat and dissonance is only permitted off the beat. The rule governing dissonance has been extended to cover situations in which two or more dissonant notes occur in succession.

1. On the beat: as in second species.
2. Off the beat:
a. Any interval may be dissonant as long as it is approached and left by step.
b. If two consecutive intervals are dissonant, they must be approached and left in the same direction.

## Forbidden Forms of Motion

Third species introduces greater rhythmic complexity. Consequently, the rules governing the motion of the lines must be extended so as to cover relations between notes initiated at the following pairs of timepoints:


In the first pair of situations (1), all motion is oblique, so the only prohibition is against the bass crossing the upper voice, as in second species.

The rules governing the motion of the voices in situation 2 are identical to the rules in first species.

The rules governing situation 3 are similar to those in second species. Contrary (passing) motion or harmonic unity are the two means of alleviating the effect of parallel octaves and fifths.


Situation 4 is new in third species, but the rules are similar to the rules governing off-beat parallels in second species.
4. Off the beat to next (but not immediately following) on the beat (in the next measure):
a. No parallel unisons.
b. No parallel octaves except where either the note forming the second octave is approached and left by a step motion moving in the opposite direction to the parallel motion, or the pitch of the second octave appears as a consonance in the preceding measure.

Rule 4 governs nonconsecutive sonorities in which the second sonority but not the first is initiated on the beat. Again, contrary motion or harmonic unity are the means for alleviating parallel octaves.


The greater rhythmic complexity of third species offers new possibilities for avoiding the implication of a dissonant ${ }_{4}^{6}$ when the bass leaps a fourth. At the same time, it also creates new ways for this implication to arise. Rule 5 governs leaps of a fourth in the bass.
5. Leaps of a fourth in the bass:
a. When the triplet-half- or quarter-note line occurs in the bass: (1) A leap or a fourth may not occur within a measure unless the same measure includes a lower pitch consonant with both pitches forming the fourth. (2) A leap of a fourth may occur across the barline if the first-species rule on fourths in the bass is followed.
b. When the whole-note line occurs in the bass: A fourth is permitted in the bass if there is a note in the upper line that either
(1) sounds during and is consonant with the first of the notes forming the fourth, forms a second or seventh with the second of the notes forming the fourth, and
(a) comes at the beginning or end of the measure,
or
(b) there is no later note in the measure that is a step away and is consonant with the bass in that measure;
or
(2) sounds during and is consonant with the second of the notes forming the fourth, forms a second or seventh with the first of the notes forming the fourth, and either
(a) comes at the beginning of the measure,
or
(b) is not preceded in that measure by a note a step away that is consonant.

The following figure illustrates situations described in the rule. As in second species, the rules ensure the salience of the shorter note that forms a contiguous dissonance with one of the whole notes.


## Sonority

The preference rules for sonorities simply extend those of first and second species. When the next-to-last note in a bar is dissonant against the whole note, the line is directed clearly toward a pitch lying a step away in the next bar. Such dissonances connect past and future and thus promote continuity. As in second species, the stepwise constraint on the introduction of notes forming dissonant sonorities should be balanced by leaps that expand the melodic space and provide contrast to the step motions.

## Monotony in Third Species

Since there so many patterns available in third species, it is usually possible to avoid any repetition of pattern. This is an extension of the rule regarding avoidance of monotony.

In 3:1, in particular, avoid neighbor note patterns within the bar, as these are a form of monotony (melodic stasis).

## Interpreting Lines in Third Species

Now that there is a clearer distinction between local and global frameworks, the question arises whether to interpret some notes in terms of the local or the global framework. My inclination is to interpret locally dissonant pitches as generated within the local framework, and locally consonant pitches as generated within either the local or global framework, keeping in mind that these frameworks coincide in some measures. At least one locally consonant pitch must be generated by a global rule.

In the fifth bar of the example below, one could interpret the $g^{1}$ as either a local passing tone (L4) or a global insertion (E3).


## Fourth Species: Two Lines

In fourth species, the notes in both lines have the same duration, but in one line they begin off the beat. This is the simplest form of syncopation.

Fourth species introduces syncopation as well as dissonance on the beat. Both are forms of conflict with (independence from) the pace and armonic definition of the whole-note line.

## Construction of the Lines

The pace-setting line is written with one whole note per measure, as usual. The syncopated line begins with a half rest followed by a succession of half notes tied across the barline. The syncopated line ends with a full breve, and this breve is preceded by a half note without a tie in the penultimate bar.


Breaking the pace of the syncopated line creates an acceleration and brings the syncopated line into agreement with the last note of the pace-setting line.

No direct repetitions are permitted in the completed line.

## Control of Dissonance

The tied-over notes (also known as syncopes) may be consonant or dissonant with the new whole note.

Dissonant syncopes are often called suspensions. A suspension involves three stages: a note begins as a consonance (stable) off the beat in one bar, then becomes dissonant (unstable) against a new whole note on the next beat; the unstable relationship is resolved when the dissonant note moves downward by step into a note whose pitch is consonant with the whole note. These three stages are known as preparation, suspension, and resolution. ${ }^{1}$

[^11]The various species of suspension are named with pairs of numbers that indicate the interval of the dissonance and the interval of resolution. All suspensions resolve down by step. When the suspension is in the upper line, dissonant interval is one step larger than the interval of resolution (e.g., 7-6); when the suspension is in the lower line, the interval of resolution is one step larger (e.g., 2-3).

Only so-called strong suspensions are permitted in two-voice counterpoint. There is one set of strong suspensions for upper lines, and a different set for bass lines:
a. 7-6,9-8, and 4-3 for suspensions in the upper line, and
b. 2-3, augmented 4-5, (but not perfect 4-5), and augmented or diminished 5-6 for suspensions in the bass line.

Since augmented fourths and fifths, and diminished fifths are relatively rare intervals, most bass suspensions in two-part counterpoint will be 2-3 suspensions.

As in second and third species, the preference is to use dissonances whenever possible, using consonant syncopations only in situations where the descending resolution of suspensions would become monotonous or impossible to sustain. Since dissonant suspensions always resolve downward by step, we recommend that you use the occasion of a consonant syncope to make the line move upward, preferably by leap.

## A Little Rhythmic Liberty

It is permissible to break out of fourth species and into second species; in other words, it is permissible for both voices to move on the beat. ${ }^{2}$ Breaking out of rhythmic format of fourth species provides an opportunity to leap upward and thus break away from the inexorable descent created by resolving dissonant syncopes.

However, there are three restrictions. (1) Breaking out of fourth species may happen no more than once during the course of your composition (that is, once in addition to the breaking of fourth species at the very end of the composition). (2) It may only occur after the first three syncopes; this ensures that the character of fourth species is well established before the liberty is taken. And (3) it may only last for two consecutive half notes.

When the rhythm of syncopation is broken in this way, the line in half notes is temporarily understood as a second species line and must follow the rules for second species. The following example sketches out the possibilities for leaping and the stepwise constraints imposed by local dissonances:

[^12]
[more commentary]
[immediate clarification of dissonance is normal in all species]
[strength and clarity of suspensions?]

## First Species: Three Lines

All three lines move in whole notes. Application of the rules governing the motion of lines is extended with the addition of a third line: there are now three pairs of lines: bass-middle, bass-upper, and middle-upper. The motion of each pair must be examined.
[Because the action of one voice may counteract that of another, some forms of motion prohibited in two-part counterpoint are permitted so long as the action of the third voice mitigates the otherwise undesirable effect. In general, the strictness of the rules about forms of motion relax as the number of parts increases. However, in textures of three or more parts, the rules tend to be stricter for the outermost pair of voices (e.g., bass and soprano).]

Greater variety in sonority comes with the addition of a third line. In two lines, sonorities were limited to: 13568 . In three lines these can be combined in a variety of sonorities.

Sonorities are categorized according to three features: triadic completeness, pitch differentiation, and quality of the bounding interval. Sonorities may contain either one, two, or three members of a triad. They may contain one, two, or three distinguishable pitches, and the interval between the outer voices may be either open (imperfect) or closed (perfect).

Sonorities are identified with figured bass notation. For our purposes, it will be useful to distinguish the ordering of intervals above the bass. So, for example, we distinguish between ${ }_{3}^{6}$ and ${ }_{6}^{10}$ even though both are described in standard figured bass notation as ${ }_{3}^{6}$. If both upper voices have the same pitch, we will notate it with side-by-side figures: e.g., 33 .

| Triad Members | Pitches | Figures |  |
| :---: | :---: | :---: | :---: |
|  |  | open | closed |
| 3 | 3 | 10106 5,63 | 3 |
| 2 | 3 | 3 <br> 3 <br> 1,10 | $\frac{12}{8,}, \frac{8}{3}, \frac{8}{5}, \frac{8}{6}$ |
| 2 | 2 | 33, 66 | 55 |
| 1 | 3 |  | ${ }_{8}^{15}$ |
| 1 | 2 |  | 88 |
| 1 | 1 |  | 11 |

Prefer a variety of open, complete sonorities in the body of an exercise, reserving closed sonorities for the support of notes that belong to a line's background structure. Avoid unisons, as these obscure the registral distinction of the lines.

## An Example of First Species in Three Voices



## Apparent Second Species: Compound Line

A compound line combines the trajectories of two simple lines into a single succession of consecutive notes by alternating between notes of the two simple lines. A line is compound if it can be decomposed into two simpler lines.

To begin our study of compound line, we will begin with the simplest of lines-monotriadic lines in first species. We start by composing three lines in first species. Then, from this original composition, we will create another composition that has the rhythmic appearance of second species; we do this by arpeggiating two adjacent voices in the original composition in the rhythm of half notes.

In order for the apparent second sepcies composition to work, the three lines of the original composition must naturally follow the constraints for first species. Moreover, the two lines that will form the compound line must have several special features:

- they must end together on a unison
- they must remain within an octave of each other
- if they are the upper voices, they must not form an augmented fourth or diminished fifth,
- if the bass is compounded with the inner voice, the two upper voices must not form a perfect fourth and the two upper lines must never cross.

Once you have completed the first-species composition in three voices, you will select either the upper or lower pair of lines and then proceed to compound the two lines by arpeggiating back and forth between their notes. In every bar but the last and perhaps the first, you must choose between two alternatives: arpeggiating upward or downward. To avoid monotony you should not arpeggiate in the same direction for more than a few consecutive bars.

Arpeggiation is the only type of consecution available within a bar, so if a compound line is to move by step, it must do so across the bar line. Step motion is desirable, of course, since step motions constitute the primary content of lines. When possible, then, choose consecutive arpeggiations that permit
step connection across the bar line, preferably in contrary motion against the bass. Dissonant skips are not permitted.

Notes that are generated as repetitions or insertions in the first-species setting can be omitted in the compound line, so long as these notes were not otherwise connected to the structure of the line. If such a note is omitted, you may add a note of elaboration in its place.

As always, the whole note lines may contain direct repetitions, but the compound line, in the guise of second species, may not contain direct repetitions.

The apparent second-species line that results from the compounding may be generable under the rules for monotriadic lines, but this is by no means guaranteed. It the two lines in question meet together consonantly on two non-tonic-triad pitches, the result of the compounding will be a direct succession of those two pitches, a succession which is not generable under the monotriadic rules.

## Apparent Third Species: Compound Line

In creating a compound line in the rhythmic guise of second species, we created a simple, unadorned compound line. We now turn our attention to the elaboration of compound lines. Again, we start by composing three lines in first species. Then, from this original composition, we will create another composition that has the rhythmic appearance of third species; we do this by arpeggiating and elaborating two adjacent voices in the original composition in the rhythm of three half notes or four quarter notes.
[Elaborating compound lines: such elaborations are local elaborations and are generated within or between local harmonies; local insertions; passing within the harmony of the bar; passing from a locally consonant note in one bar to a locally consonant note in the next bar (the consecutive harmonies need not be identical)]

As with apparent second species, all three lines must follow the constraints for first species in three voices. In addition, the lines that will form the compound line must have several special features, though not nearly so many as in apparent second species, since elaboration offers the possibility for removing the stasis of a repetition or the dissonance of a consecution: unisons are permissible in the first-species setting so long as direct repetition in the compounded setting is alleviated by further elaboration (a neighbor note); an augmented fourth or diminished fifth is permissible between compounded upper voices so long as further elaboration intervenes. Also, it is now permissible for the compounded lines to be separated by more than an octave at some point, since it will be possible to elaborate this larger space by inserting locally consonant notes that eliminate the direct arpeggiation of a compound interval.

Again, notes that are generated as repetitions or insertions in the firstspecies setting can be omitted in the compound line, so long as these notes were not otherwise connected to the structure of the line. A note of elaboration will have to take the place of the omitted note. And again, the whole note lines may contain direct repetitions, but the compound line, in the guise of third species, may not contain direct repetitions.

Once you have completed the first-species composition in three voices, you will select either the upper or lower pair of lines. But whereas the choices for presentation in the compound line were extremely limited in apparent sec-
ond species, here there is an overwhelming number of possibilities. The repertory of patterns includes (1) rearticulation with intervening neighbor, (2) simple arpeggiation, (3) passing within an arpeggiated third or fourth, (4) passing into the next bar, and (5) local arpeggiation across spans of a fifth, sixth, or octave.

Some preferences: Avoid the monotony of a repeated pattern of unfolding. Prefer elaborations that create step motion across the bar line. Prefer contrary motion across the bar line. Prefer to give greater emphasis to imperfect intervals. Avoid repetitive use of a single pattern, particularly those that involve neighbor notes.

## Patterns in Apparent Third-Species Lines

The chart below lists various patterns that can be used when producing apparent third-species lines. Each pattern is produced from two notes sounding simultaneously-either $\frac{y}{x}$ or ${ }_{y}^{x}$.

There are two main categories of pattern: those that end with either $x$ or $y$ and those that end with a step-related note. Continuation is more constrained in the latter than in the former, as the step-related note is usually dissonant and must proceed by step into the next bar, preferably in the same direction in which it was approached. In the patterns indicated below, such step-related notes are indicated by the letter P (passing), with the understanding that the direction of the passing may change (i.e., the step-related note may become a neighbor). The effect of the neighbor is weaker, since it brings the pitch of $x$ or $y$ back in the next measure rather than moving on to a new pitch. If there are two step-related notes at the end of the bar, then the line must continue in the same direction across the bar line.

If $x$ and $y$ are notes that differ in pitch, the pattern may promote one pitch more than the other. If one pitch sounds the same number of times as the other, the alternation is balanced; if one sounds more times than the other, the pattern is weighted toward that pitch. Weight is also given to the pitch that appears on the beat.

In 3:1 and $4: 1$ compounds, the interval between $x$ and $y$ may be elaborated by passing.

| Apparent Third Species (3:1) |  |  |
| :--- | :--- | :--- |
| if $y \leftrightarrow x=$ consonant interval |  |  |
| $\quad$ Alternation | $x y x \quad \mathbf{- x y}$ |  |
| Pass into next bar | $x y \mathrm{P}$ |  |
| if $y-x=$ third, also |  |  |
| Pass between  <br> if $y=x$  <br> Neighbor  <br> Pass into next bar $\mathbf{N} x$ <br> Simple statement $\mathbf{- - x}$ |  |  |


| Apparent Third Species (4:1) |  |  |  |
| :---: | :---: | :---: | :---: |
| if $y-x=$ consonant interval |  |  |  |
| Alternation | $x y x y$ | - $x$ y $x$ | - - $x y$ |
| Neighbor to one | $x N x y$ | $x y N y$ |  |
| Pass into next bar | $x y x P$ | x y P P | - $x$ y $P$ |
| if $y-x=$ third, also |  |  |  |
| Pass between | $x \mathrm{P} y x$ | $x y \mathrm{P} x$ | - $x \mathrm{P} y$ |
| Pass between and into next bar | $x \mathrm{P} y \mathrm{P}$ |  |  |
| if $y-x=$ fourth, also? |  |  |  |
| Pass between | $x \mathrm{P} \mathrm{P} y$ |  |  |
| if $y=x$ |  |  |  |
| Neighbor | - $x \mathrm{~N} x$ |  |  |
| Pass into next bar | - $-x \mathrm{P}$ |  |  |
| Neighbor and pass into next bar | $x \mathrm{~N} x \mathrm{P}$ |  |  |
| Simple statement | -- $=$ x |  |  |

## On Arpeggiation in Free Composition

There are many ways to interpret the relation of two notes that form an arpeggiation. Interpreting each note as belonging to a first-species line is only the strongest among many possibilities.

The following list is probably not exhaustive. I have listed them in order roughly from strongest to weakest. The stronger the interpretation, the more tightly the note is tied into a context that stretches from the past into the future.

- each is a note in an independent line
- one is a note in an independent line; the other is a note in a derived line
- one is a note in an independent line; the other is an anchoring root or a local arpeggiation
- one is a note in a derived line; the other is an anchoring root or a local arpeggiation
- one is a note in a line; the other is motivically parallel to a local arpeggiation (or stronger relation) in a prior instance of the motive
- one is an anchoring root; the other is a local arpeggiation
- both are local arpeggiations


## Fifth Species: Two Lines

In fifth and final species of rhythmic format, one line moves in whole notes while the other moves in a mixture of second, third and fourth species.

As with the other species, it is important to establish the rhythmic format right at the outset. There are only a handful of ways in which this could be accomplished. We could begin in second species and then shift into third in the second half of the bar:


The initiation of $z$ is the point at which the mixture is established. Until that point, the upper line moves in second species. With the onset of $y$ we have as yet no reason to think that $y$ is anything other than a half note, acting on the assumption that we expect the future to resemble the past. With the onset of $z$, however, we have no choice but to reinterpret $y$ as a note in the third species of rhythmic format, an interpretation that will also take a note initiated on the next beat. Hence, from an interpretive point of view, the spans of second and third species overlap (see the brackets in the example above).

With the introduction of rhythmic diversity within the exercise comes the possibility of creating spans of rhythmic rest prior to the final note. We could achieve a mixture of rhythmic formats in the first bar by writing two quarters followed by a half note.


In the middle of the half note, where a simple-minded listener would expect a new note to begin, nothing happens. Notice how this contrasts with the first example, where something unexpected happened in the middle of the second part of the bar. With the onset of $z$ and at the corresponding timepoint during the span of $w$, we encounter the unexpected, but in one case it is an event and
in the other a non-event. In general, it is the latter situation that produces the effect of rhythmic rest, the sense that something moving at a certain pace has come to rest, even if only momentarily.

The initiation of a span of rhythmic rest becomes a marked timepoint, the initiation of something new. Thus far, the only marked timepoints in the rhythmic species have been beats and the onset of the final note. In second and third species, the beats were marked by the simultaneous initiation of notes in separate lines; in fourth species the two lines are out of phase until at the end, one of them gives in to the other.

In fifth species we will want to keep the meter clear. It bears repeating that meter is the measuring out of time into spans. It is something we do as listeners, even though we attribute meter to "the music." In species, as in real music, we tend to select as a measuring unit the span between two consecutive marked timepoints; as long as the onsets of subsequent events coincide with the timepoints predicted by the selection of our measuring span, we can be said to be in a particular meter.

In species counterpoint, the means for marking referential timepoints are limited to simultaneous initiation of notes and the initiation of a span of rhythmic rest. It is clear that in fifth species, notes can only be initiated simultaneously with the initiation of the whole notes. As we have seen, the variably paced line moving against the whole notes can produce a span of rhythmic rest that does not begin on the beat. We will want to avoid such situations and the interpretive conflicts they produce. Hence the second solution to beginning a piece in fifth species is not allowed. For the same reasons, we could not start in third species and then shift to fourth.

How else, then, might we begin a composition in fifth species?
If we start on the beat in second species, we could switch to third in the middle of the bar (as above) or to fourth:


Commentary on the rules
Decoration of suspensions


## Harmonic Second Species: Two Lines

Species counterpoint teaches us a great deal about the ways in which lines individually and in combination unfold a single triad. Tonal music, however, also involves the unfolding of a progression of triads in time, the triads whose functions we have called tonic, predominant, and dominant. In this chapter we adapt the rules of species counterpoint in order to form a bridge to music that is both contrapuntal and harmonic.

In third species we relaxed the rules of linear structure to allow for the inclusion, within a bar, of a note whose pitch belonged to the harmony of the bar but was not generated from a preceding tonic-triad pitch. This relaxation opens the door to incorporating harmonic progression into species counterpoint: local insertions will be allowed during the span of a harmony. Such insertions will still be subject to the constraint that they must "resolve" by step to a tonic-triad pitch by the end of the piece.

One objective in writing a species counterpoint composition was to create two or more lines whose individual structures independently projected a single triad, the tonic. The constraints on the introduction of non-tonic-triad pitches were largely what make it possible to achieve this objective. There were no constraints, however, placed on triadic sonorities produced by the interaction of those lines. Nor were any constraints placed on the local consonance or dissonance of the tonic-triad pitches in a given line.

In order to produce a harmonically progressive succession of triadic sonorities, we will have to add constraints that help achieve the objective of having a sequence of harmonic changes without relinquishing the triadic unity of the individual lines. The new constraints affect the global interaction of basic structures. Others affect the local context. The question, then, is how to create harmonic diversity within harmonic unity.

The path to achieving this effect lies in attending to the local interaction between the basic structures of the primary upper line and the bass line. In order to create the effect of harmonic progression, we will have to coordinate those structures. In effect, then, we will have to exercise greater control over the timing of the notes that form the basic structures. At the same time, we will modify the rules of elaboration so as to allow the projection of nontonic triads during nontonic spans of the harmonic progression.

Each composition will be arranged so that it presents a basic, phrase-level progression: ${ }^{1}$

$$
\mathrm{T}_{i}-(\mathrm{P}) \rightarrow \mathrm{D} \rightarrow \mathrm{~T}_{c}
$$

The rhythm of the succession of functions, what we will call the harmonic rhythm of the composition, will be determined by rules that constrain the timing of the notes in the basic structures of the primary upper line and the bass line. The result of observing those constraints will be a harmonic pace that accelerates toward closure on the final tonic.

In particular, the harmonic spans of the composition will have the following rough proportions:

1. Initial Tonic ( $\mathrm{T}_{i}$ ) will take up at least half the duration of the complete exercise.
2. Final Tonic $\left(\mathrm{T}_{c}\right)$ will arrive only in the final measure of the exercise.
3. Dominant (D) will occupy the penultimate measure(s) of the phrase.
4. The Predominant $(\mathrm{P})$ will occupy one or more measures between the end of the initial tonic span and the beginning of the dominant.

## A Second Species Approximation of Harmonically Progressive Counterpoint

One line moves twice as fast as the other. One line will be written in half notes while the other line proceeds in whole notes. The half-note line may be either the bass or upper voice.

All of the rules of second species apply unless otherwise noted.
Since we will be writing compositions of two lines, each composition must include a line constructed as a bass line and a second line constructed as a primary upper line with basic step motion. Either of these can be the whole note line.

## Constructing the Basic Structure of the Bass Line

S1. The final note must be a tonic pitch in the final measure.
S2. The first note must be a tonic pitch, not lower than the last note.
S3. The middle note must be a dominant pitch a fifth above or a fourth below the last note and initiated in the penultimate or antepenultimate measure.
S4. The middle note of the bass arpeggiation may be preceded by $\hat{2}, \hat{4}$, or $\hat{6}$. We will call this note the basic predominant bass note. The insertion of this note must not create a dissonant leap nor an interval larger than an octave. If $\hat{2}$, the final tonic of the bass arpeggiation must lie a step away; if $\hat{4}$ or $\hat{6}$, the dominant of the bass arpeggiation must lie a step away. The basic predominant bass note must be initiated at or after the midpoint of the composition's overall timespan.

The notes generated by S1 and S2 necessarily coincide with the initiation of the two tonic spans; those generated by S3 and S4 may coincide with the

[^13]initiation of the dominant and predominant spans but may also be delayed by elaboration.

## Constructing the Basic Structure of the Primary Upper Line

The basic structure of the upper voice should be generated immediately after the basic structure of the bass line has been generated.

S1. The final note must be a tonic pitch in the final measure.
S2. The first note must be a tonic-triad pitch a third, fifth, or octave above the final note.
S3. These notes must be connected by a descending diatonic step motion.
S4. The basic step motion of the upper line must be coordinated with the harmonic spans defined by the harmonic bass line.
a. In an upper line whose basic structure begins with $\hat{3}$, each note must be introduced as a consonance within one of the harmonic spans ( $\mathrm{T}_{i}, \mathrm{P}, \mathrm{D}$, and $\mathrm{T}_{c}$ ). The bass note forming the consonance must belong to the triad of the harmony, but need not be the root. The note of P must be $\hat{z}$ of the upper voice's basic structure; $\hat{\imath}$ may also be generated within the D span as a local insertion (see below).
b. In an upper line whose basic structure begins with $\hat{5}$, at least four of the five notes must be introduced as consonances within the harmonic spans. The note introduced within P will generally be $\hat{4}$ of the upper voice's basic structure.
c. In an upper line whose basic structure begins with $\hat{8}$, at least four of the eight notes must be introduced as consonances within the harmonic spans. The note introduced within $P$ will generally be either $\hat{4}$ or $\hat{6}$.

## Elaborating the Basic Linear Structures

Within the span of each harmonic function, application of the elaboration rules must be framed in terms of a triad specified by that function. We will call these the framing triads. In particular, the rules must be modified to read:

E1. Any framing triad pitch may be repeated.
E2. A neighbor note may be inserted between any two consecutive notes with the same pitch.
E3. A framing triad pitch may be inserted between any two consecutive notes provided that no dissonant leap or leap larger than an octave occurs.
a. Upper lines: A tonic-triad pitch may precede the first note of the basic structure if it does not create a leap larger than an octave.
b. Bass lines: No pitch other than $\hat{5}$ may be inserted between the final dominant and tonic.
E4. Any two consecutive notes forming a leap may be joined by step motion.
In bass lines, elaboration of the span between the $\hat{5}$ generated by rule S3 and the $\hat{1}$ generated by rule S 1 is limited to repetition or insertion of $\hat{5}$. In effect, then all or nearly all elaboration in the bass line prolongs the move from initial tonic to dominant or the move from predominant to dominant.

The definitions and constraints on framing triads are as follows:

1. In the case of $T$, you must frame the elaborations in terms of $\hat{1}, \hat{3}$, and $\hat{5}$.
2. In the case of $P$, you must frame the elaborations in terms of $\hat{2}, \hat{4}$, and $\hat{b}$.
3. In the case of D , you must frame the span in terms of $\hat{5}, \hat{7}$, and $\hat{2}$. (Do not use any seventh chords.)

Insertions of pitches belonging to nontonic framing triads (rule E3) amount to local insertions, thus the resolution rule presented in third species governs them:
4. All non-tonic-triad pitches generated as local insertions must resolve by step to a tonic-triad pitch by the end of the composition.

In the same vein, there is a constraint on some notes generated by rules E2 and E4:
5. If an elaborative structure initiated within a harmonic span is not completed before the end of that span (i.e., a neighbor or passing motion that does not return to a pitch in the framing triad), the structure must either continue by step to the next note of the basic structure or it must move by step to a note of the next framing triad.


[^0]:    ${ }^{1}$ In German, this is the difference between kennen and wissen. In Japanese, it is the difference between wakaru and shiru.

[^1]:    ${ }^{2}$ There are, of course, other dialects of tonal music, not to mention other musical languages. Some components of the theory are shared by all dialects (e.g., tonal centricity), while others are peculiar to classical music (e.g., triads). I have, for example, worked out a linear grammar for medieval liturgical monophony (Gregorian chant).

[^2]:    ${ }^{1}$ The reader interested in such matters could usefully begin with Nelson Goodman's construction of color cognition in The Structure of Appearance and Benjamin Boretz's adaptation of this for musical cognition in Meta-Variations.

[^3]:    ${ }^{2}$ In their present formulation, the rules appear to be a generative grammar that describes an aspect of a musician's productive, compositional mode of thought. In order to describe comprehension, however, the rules would have to be recast in the form of a context-sensitive grammar. I would welcome discussion with anyone interested in working on such a project.

[^4]:    ${ }^{3}$ It is useful to think of the bass arpeggiation as having two segments: the first segment arpeggiates from from tonic to dominant and the second arpeggiates from dominant to tonic. In classically tonal music, the first segment is often highly elongated and elaborate, while the second segment is usually short and simple (as I will explain in a later section, this differentiation is a consequence of an interpretive preference for selecting S3 as late as possible). The term dominant properly belongs to the domain of harmony. I use it here because the bass structure is a harmonic construct. As I explain in the booklet A Linear Approach to Harmony, the bass structure is defined in terms of how it harmonizes with one or more upper lines. A primary or subsidiary line, by contrast, is not defined in terms of another line but only in terms of how it behaves within a triad.

[^5]:    ${ }^{4}$ A curious question: If I hear $\{$ G G G G \} as "G repeated over and over," is it the first G that is constantly repeated or is it each new $G$ that is repeated? I'm inclined to think that the former is the case, on the theory that we prefer to interpret notes in terms of something already lodged in memory. That is, I am inclined to think that you'd keep adding Gs as the second note (i.e., as repetitions of the first) rather than tacking them on at the end one after another. Perhaps there is a point at which you'd think of this series not so much as a series in which one note repeats another ("repetitions") but as a series of repeated instantiations of a pitch ("iterations"?). There are also contexts in real music where it is useful to think of a note as being "rearticulated," as when cellos and basses chug away in eighths or sixteenths on a tonic pitch while the upper

[^6]:    ${ }^{6}$ The levels of elaboration "expand" the content of the line (add more notes) and "extend" the duration of the structural components (add more time). Music theorists often use the term "prolongation" in ways that appear to mean one or both of these aspects.

[^7]:    ${ }^{1}$ "Sonority" is derived from the Latin word for sound, sonor, and "klang" is derived from the German word for sound, Klang. I use them as synonyms.
    ${ }^{2}$ Because fourths above the bass are dissonant, it is misleading to regard ${ }_{4}^{6}$ klangs as closely related to ${ }_{3}^{5}$ and ${ }_{3}^{6}$ klangs. Hence I avoid the terms "root position," "first inversion," and "second inversion." Roman numerals lump these three klang formations together, so I avoid using that nomenclature as well.

[^8]:    ${ }^{3}$ The conceptions of bass, primary, and subsidiary upper lines form part of an interpretive hypothesis about contrapuntal tonal music first articulated by Schenker. Combining a bass and primary upper line produces a basic contrapuntal structure (Schenker's Ursatz) in which there is both an unambiguous projection of a triad (secured in the bass and supported by the upper line) and a gradual relaxation toward tonic closure (secured in the upper line and supported by the bass). It is common belief among theorists, following Schenker, that contrapuntal tonal works can be interpreted in terms of the twin trajectories of a bass arpeggiation and a basic step motion. (I take the primary upper line to be an interpretive hypothesis for monophonic tonal music.)

[^9]:    ${ }^{1}$ I'm certain this is not the best explanation. It's clear why $\hat{5}$ over $\hat{1}$ is permitted, but not why $\hat{2}$ over $\hat{5}$ is permitted and $\hat{3}$ over $\hat{6}$ and $\hat{\jmath}$ over $\hat{3}$ are excluded. The rule may be an intrusion of harmonic thinking (tonic and dominant).

[^10]:    ${ }^{1}$ [Note to self: This rule should be emended to proscribe use of $\hat{3}$ for the off-the-beat half note in the penultimate bar. Perhaps the rule should be framed in terms of the dominant.]

[^11]:    ${ }^{1}$ Keep in mind that in real music, the state of resolution may be postponed or avoided altogether by the movement of the other line.

[^12]:    ${ }^{2}$ Traditional species does not permit this exception.

[^13]:    ${ }^{1}$ You may wish to review the handout Harmonic Progression, which deals with functions and the basic harmonic progression.

