

# Foundations of Aural Skills



# FOUNDATIONS OF AURAL SKILLS

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# WHAT ARE AURAL SKILLS?

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“Aural skills” are the core skills used by all people involved in music. Many schools and departments of music reserve curricular space for aural skills in classes called “aural skills,” “ear training” (or “ear training and sight singing”), “musicianship,” or other terms. While the word “aural” indicates that we think of these skills as relating to the ear, in many ways they focus more on the brain. These skills belong in two big categories.

First, we are developing **internalized knowledge and physical structures**. For example, we internalize the feeling of conducting a measure “in three” so that we can use that feeling to identify what’s going on in music; and we internalize the sounds of the different notes in a scale and their relationships so that we can draw on these sounds in our own music-making or music-imagining.

Second, we are developing habits, and especially **habits of attention**. When we read music from notation, for example, if we have developed certain eye-movement habits and procedures, we will be much faster and more accurate. We all have lots of practice listening to music, but we can develop habits of listening for specific aspects of the music that relate to

our goals—whether they are to write it down, improvise over it, or something else.

Now, we should be honest: there's no way to actually meet our goal of addressing all the "core skills used by all people involved in music." There are definitely core skills that we have left out. Some of that is due to our own ignorance, particularly of the needs of musicians and music thinkers who focus on repertoires and practices that we're less familiar with. It is our intention that over time, and with feedback and collaboration, we will address more of what we have left out by accident. Some things, however, are purposefully omitted because if we included everything, the book would be too long and complicated to be useful. Some of what's in this text may be less useful to certain people than others. But we have done our best, based on our own experiences, to make sure the skills described in this book are broadly useful for as wide a variety of musicians as possible.

# WHY THIS BOOK?

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We decided to create a new aural skills book for two reasons.

First, we wanted there to be a reasonably comprehensive Open Educational Resource (OER) textbook available to make aural training more accessible. We hope some instructors and students find the book useful simply because it is freely available, easy to modify and use, and compatible with accessibility aids like screen readers . While the current version of the text focuses on the foundations of aural skills (often associated with university-level classes named “Aural Skills 1”) and therefore isn’t yet ready to replace a textbook designed for multiple semesters of study, our long-term goal is to support an entire aural curriculum with open resources.

Second, there are some values that we do not feel are yet adequately represented in current textbooks. Here are the most important values we have striven to align the text with:

- **Empowerment.** It’s difficult for teachers to get away from their role as judges and gatekeepers when the most visible end result of a class or assignment is a numerical or letter grade. But as much as possible, we have tried to make sure that our focus is on helping you develop skills and knowledge that will empower you by making you a

more fluent musician, a more sophisticated and sensitive listener, and more confident and creative. Each chapter has specific goals for things you'll be able to do by the end of your studies, and we focus on those goals rather than constant assessment and judgment. We hope that's satisfying and even enjoyable.

- **Creativity.** It's crucial to us that the focus is on you and your music-making. Many aural skills classes focus only on listening to or reading music that was already created by other people. That's important, and we'll do it too, but engaging that music in creative ways, and creating your own music, is at least as important. Engaging with pre-existing music in ways that involve your own creativity, and creating your own music through improvisation and composition, can be both more fun and more useful to your learning than simply repeating strict dictation and sight-reading of other people's music.
- **Developmental inclusivity.** Current models of aural skills instruction tend to reward students who have already achieved a degree of success with certain skills, particularly familiarity with staff notation, the ability to imagine sound internally, voice and piano experience, and knowledge of music theory. These are definitely strengths to be celebrated, but so are creativity, familiarity with multiple styles, and more. We have tried to embrace a wider vision of desirable skills. And for all

the skills we address, we have striven to teach the foundations that everyone needs to be successful.

- **Musical inclusivity.** Like you, we are inevitably both empowered and limited by our own experiences and identities. But we seek for our resource to be useful and empowering across a broad range of musical repertoires and practices. It is true that we focus our instruction on several culturally-specific practices, including pitch structures based on keys and triads and a time signature-based understanding of meter. But we have done our best to do so in a manner that is as broadly applicable as possible, that acknowledges and shows respect for other ways of doing things, and that doesn't prioritize one subset of this repertoire or composer demographic over another.
- **Holistic assessment.** Sometimes we need to focus in on a specific skill or idea in order to refine it. But when aural skills classes simply grade the details over and over in excruciating detail ("1 point per note, 1 point per beat"), it's difficult for students to connect what they're doing to their broader musicianship, and it's also natural for students to internalize an impossible standard of perfection. We always try to keep in mind the broader goals that we are aiming for, particularly in the assessments we provide, and to allow different kinds of stumbles and failures as a natural part of the learning process.

# NOTE TO INSTRUCTORS

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## Welcome!

This OER aural skills text is designed to support aural skills instruction at introductory levels, particularly college/university/conservatory classes with names like “Aural Skills 1,” “Ear Training 1,” “Musicianship 1,” “Sight-Singing 1,” etc. The text may also be useful for teachers of high school AP Music Theory or other pre-college classes, though it has not been tailored specifically to the needs of students studying for the AP Music Theory exam.

Before we start, we should emphasize that this textbook—while nominally complete and usable in December 2022—is still under fairly active development. Fortunately, we still think this book can be useful to everybody in some way.

If you do decide to actually adopt the book, welcome! As we teach from the text ourselves and continue its development, we will try to add advice and possible curricular layouts here. For now, our focus has been on developing the core materials of the text, so our advice is limited. We do suggest combining and reordering chapters as appropriate: it may help to think of them in three groups, with chapters 1–7 covering largely preliminary/foundational skills, chapters 8–13 applying those



skills to real-world tasks (including, but not limited to, sight singing and dictation), and chapters 14–15 adding some more difficult foundational skills (form and harmony). We can also point you to some additional OER aural skills resources down below.

For those who want to stick with their traditional texts, we hope that you find parts of this book helpful anyway. We feel that many aural skills textbooks do a poor job of teaching some fundamental skills like internal auditory imagery and how to approach “chunking.” Perhaps you’ll find some nice additions to your curriculum in these or other sections, or at least have a resource to send students who struggle with some of these skills. We’ve also done our best to come up with some really creative, applicable, and fun exercises throughout the text. Even if you don’t adopt this as your primary text, you’re welcome and encouraged to look through our activities, find some you really like, and bring them into your classroom. As the book matures and you get used to its approach, we hope you find more and more that you want to incorporate.

If you ever find that you have suggestions or feedback for us, please don’t hesitate to share it. We request that you offer your feedback at this [Google form](#).

If you decide to use the book in any way, please let Tim Chenette know at [timothy.chenette@usu.edu](mailto:timothy.chenette@usu.edu).

## This Book vs. Traditional Aural

## Skills

Most instructors will be aware that many existing aural skills curricula and texts are derived primarily from the content and ordering of a music theory curriculum, filtered through two tasks: sight singing and dictation. We are trying to move away from that model, for reasons too numerous to express here.

As you consider how this book may be of use in your own teaching, we draw your attention to the following differences between this text and previous aural skills texts you may be familiar with.

- **Accessibility.** With their focus on notated music, heavy reliance on working memory, and limited vision of what student success looks like, aural skills classes are notoriously inaccessible to students who don't have certain specific abilities and habits. This text has been designed with accessibility in mind, with a particular focus on trying to make everything transparent to those who use screen readers. In addition, we present different visions of what aural skills look like, from improvisation to playback to transcription to sight reading, offering success to students with different backgrounds and goals. Finally, we explicitly recognize that students bring different abilities and experiences to the class: for example, when we call for the use of the voice, we try to offer alternative approaches for those whose brain-voice

connection is problematic. Inevitably, there are accessibility challenges that we have not yet addressed, but we welcome suggestions and commit to making aural skills acquisition accessible for as wide a range of individuals as possible.

- **A focus on aural fundamentals.** Common aural skills tasks like sight singing and dictation require or benefit from an array of abilities, including hearing with reference to key and meter, hearing sound in your head (“audiating”), directing your attention to different parts of the music, and relating music to internalized models. In fact, many instructors say they use sight singing and dictation largely in order to teach students these abilities. We’re convinced, however, that students who don’t have a foundation in each of these areas won’t develop them automatically. So the initial chapters of this text draw students’ attention to these important skills and give them strategies for improvement.
- **Connections outside of the classroom.** We want aural skills to be something musicians do all the time—not just when they’re in the aural skills classroom. We have a series of chapters dedicated to different manifestations of real-world aural skills: improvisation, playback, transcription, sight reading, and leading or participating in an ensemble. In addition, activities in all chapters relate to such real-world concerns as tuning, communication, conducting, and more. Even traditional

classroom activities such as sight-singing and dictation include activities and explanations that connect them to real benefits that musicians can experience outside the classroom.

- **Different outcomes.** The array of different real-world activities in this text allows some flexibility. Different instructors may care about different manifestations of aural skills and choose different chapters to emphasize, or they may offer students some choice. For example, playback, transcription, and dictation all rely on a core of listening skills: perhaps, given a choice, some jazz musicians would prefer to focus on transcription while some music therapists would focus on playback.
- **Going beyond notation.** The traditional aural skills tasks of sight singing and dictation center “traditional” staff notation. While such notation is a useful skill for many musicians, many pedagogues are exploring how to decenter notation in order to get beyond a focus on pitch and rhythm, embrace oral traditions or traditions with other notation systems, and center creativity rather than replication. In addition, there are many people who struggle with or cannot use notation. We use different methods of describing rhythms in our Rhythm Skills chapter, offer Playback as an alternative to Transcription and Dictation (though we also feel that Playback builds skills relevant to these), and offer Improvisation as a way of welcoming in student creativity.

- **Welcoming instruments.** Many instructors and students have the idea that using an instrument in aural skills is “cheating.” We agree that certain tasks benefit from using the voice, but we are also aware of the extent to which we rely on instrument-based imagery when understanding music. We want to invite students to build and access such imagery, too, so many of the activities in the text specifically call for or welcome different kinds of instruments.
- **Learning in groups.** So much of what musicians do is collaborative, particularly in ensembles. In addition, “core” classes like aural skills are often important in building cohesion and community among music students. We embrace group activities throughout the text, and include a chapter explicitly dedicated to applying aural skills in an ensemble.
- **Empowerment.** We have done our best to avoid language about how one “must” do things, in favor of offering paths to new skills. We hope this invites students to bring their own goals and internal motivation into the process of aural skills acquisition.
- **Learning, not judgment.** Standard aural skills tasks (sight singing, dictation, interval and chord drills) are easy to grade according to a standard of “perfection.” We find this tends to judge students on the abilities they bring to class instead of focusing them on learning, and as a result many students develop fixed mindsets that

they are “bad” or “good” at aural skills. Instead of focusing on easy assessment and judgment of student abilities, we have designed every activity in the text as a way to engage in learning. Each activity has a listed goal, presented as the desired *outcome* of the activity rather than something students need to already possess in order to be successful.

It’s our hope that this results in a more welcoming, more teaching-based (as opposed to judgment-based), more fun, more creative, and more applicable aural skills curriculum.

We welcome your thoughts—and your reports on how it’s working for you!

## Grading

“Traditional” grading of dictations, interval drills, and sight singing often looks something like “one point per pitch, one point per beat for rhythm.” This standard suggests from the beginning that perfection is expected, which can lead students to develop fixed mindsets—which are bad for learning. It can also be difficult to apply this standard to many of the activities in this text, which embrace group work and creative, open-ended activities designed primarily to foster learning rather than being straightforward to grade.

As we and other instructors implement this book, one of

our goals is to provide instructors more ideas and guidance in terms of designing and grading assessments. For now, here's some initial advice:

- We think the exercises in this text are actually good training for traditional dictations and sight-singing hearings, so if you want to (or are required to) stick with those and traditional grading, perhaps our exercises will simply give you some ideas for in-class activities.
- If we embrace the idea that students will come to class with different abilities and goals and that it's okay for them to leave it with different levels of achievement in different areas, then our primary goal may be to encourage active engagement in learning activities. Grading simply based on participation may be appropriate in these circumstances.
- We also like incorporating self-reflection: for example, a group of students might engage in some creative, collaborative activity, write self-reflections, make goals for next time, and then repeat those steps in the next class. An instructor can grade participation, quality of self-reflection, and whether those goals are achieved or not.
- Since the activities in this text are each directed towards a particular goal, we think standards-based grading, criterion-referenced grading, and pass-fail grading that emphasizes outcomes are all a good fit. (There are good

resources on the internet for exploring these different approaches to assessment.) For example, an instructor might grade an activity pass-fail based on whether the intended goal is achieved, and offer multiple opportunities for students to attempt the exercise.

## Aural Skills OERs

If you're looking to adopt Open Educational Resources (OERs) as much as possible in your aural skills curriculum, you may be wondering what else is out there. Here's the list of what we and our wonderful librarians have found; if you know of other resources, please send them our way and we'll add them to the list!

- *Open Music Theory*, Version 2 by Gotham, Gullings, Hamm, Hughes, Jarvis, Lavengood, and Peterson has an introduction to Sight-Singing and dictation, as well as Examples for Sight-Counting and Sight-Singing “level 1” and “level 2” in development by Levi Langolf.
- *The Trained Ear* by André Mount includes many public domain melodies, formatted to permit either dictation or sight reading, as well as downloadable Sibelius and MusicXML files for these melodies.
- *Eyes and Ears: An Anthology of Melodies for Sight-Singing* by Benjamin Crowell is an open-source sight



singing anthology, downloadable as a pdf or as source code (LaTeX and Lilypond), with printed copies available for a low price.

- *The Dictation Resource* by Adam J. Kolek is a large graded series of recordings for dictation; the answer key can be requested from the author.

## Development Plan

Here's the plan for how this textbook will be developed, as of December, 2022:

- December, 2022: Initial usable state
- Spring semester, 2023: Small revisions, continued development, and continued polishing
- Summer 2023 and later: Seek feedback to determine future directions

Future directions will depend on feedback and may include:

- Incorporation of more world-music traditions
- Expansion to cover a complete, multiple-semester aural skills curriculum
- Development of more assessment activities, including auto-graded activities

We welcome additional collaborators—please reach out to us if you are interested in working on this project.

# NOTE TO STUDENTS

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Welcome to this text! We hope you find it a creative, fun, and empowering approach to acquiring aural skills.

As you embark on your formal education in aural skills, there's one thing we've learned from our years of teaching that we'd like you to know: *Everyone is different and hears music differently*. People with absolute pitch are often mystified when they learn that not everyone can identify pitch names without context. People who play a lot of music by ear on the guitar are often surprised to hear that others struggle to hear chord progressions. Be respectful and curious about the different ways your peers hear music. And be kind to yourself, too: you will inevitably encounter activities where you feel less successful than your peers, but remember that everyone is different and everyone experiences this feeling at some point. We're all learning together.

You come to this class with strengths. Many strengths can also lead to weaknesses. For example, if you have absolute pitch, you may have avoided situations that would require you to learn to hear relationships among pitches. If you are really good at picking up music by ear, you may have avoided learning to read notation. If you are an excellent sight reader, you may be very uncomfortable with improvisation without

the security of knowing what you're "supposed" to do. If you listen to music in the background every minute of every day, you may have difficulty listening to music with focus and intention.

Take a moment and review: what are your musical strengths? What are your weaknesses?

Then remind yourself: your current strengths and weaknesses are not facts about you that will never change. Instead, your strengths are your toolbox: the things you know how to use. Your weaknesses are your education plan: we engage in education in order to learn and improve, not in order to pat ourselves on the back for things we can already do. (At least, that *should* be our goal. Easier said than done.) Set an intention now to explore your areas of weakness with curiosity and dedication, and be alert to the temptation to try to avoid them.

It's a common misperception that people simply have a "good" or "bad" ear and there's nothing we can do to change that. This is not true. Students do come to their formal education with different experiences and abilities. But aural skills acquisition is about building knowledge structures and practicing helpful habits. These are things absolutely everyone can do.

Welcome to the journey!

# HOW TO USE THIS TEXT INDEPENDENTLY

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If you've found this text independently, rather than through a class— well, wow. We're honored you're here! We hope you find this resource helpful!

We need to start with the same warning we gave instructors in a different section: while this text officially reached a nominal state of completeness in December 2022, it is still under active development. But hey, it's out there, and it's free. So we hope you find it rewarding, feel free to send us your feedback, and watch for future changes that should make it even better!

In a classroom setting, instructors are likely to mix and match the chapters a bit. That may not be easy to do on your own, but we do want you to know that you don't have to read from (virtual) cover to cover for the book to work. If you have something in particular you want to work on, feel free to skip to that chapter. If not, you can either go in order or jump back and forth between chapters. It may help to know that chapters 1–7 cover the most foundational skills, and should work well together. You might work from chapters 1–3 at first, then 4–7, jumping between chapters as you like. The remaining chapters

cover specific applications of those skills, and you can focus on the ones that are most meaningful to you.

Again, welcome!

# "PERFECT" PITCH

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**Absolute pitch**, often called **perfect pitch**, refers to the ability to name pitches you hear without reference to an instrument. It's a really cool and useful ability, and some aural skills teachers explicitly seek to teach it. Unfortunately, while there's some debate, most of the research on the subject seems to suggest that after childhood it's not possible to develop extensive absolute pitch. Fortunately, you don't need absolute pitch to be successful as a musician.

Absolute pitch either comes in different varieties or, maybe, exists on a spectrum. Some people are extremely accurate and quick at naming any pitch at any time. Other people are great with the "white notes" of the piano but a little slower and less accurate with the "black notes." Others can identify the open strings of the guitar, or the orchestral tuning A of an oboe. Others, even without musical training, can't necessarily name pitches but can sing our favorite songs at or very close to the pitch level we've learned them at from recordings.

People with absolute pitch should celebrate the ability, because it really is useful. But there are also good reasons to develop other ways of hearing. For example, sometimes a choir goes flat, or a Baroque ensemble uses a different tuning standard, or a string quartet adjusts the tuning of individual

notes to make them more expressive, or a pop song is tuned a quarter-tone up because it improves the “sound”; in these situations, it’s nice to be able to hear the relationships among notes rather than identifying each one. Many people with absolute pitch also find part of their range seems to “shift” at some point in middle age, making it more challenging or even sometimes unpleasant to rely on at this point. And hearing relationships between musical tones is just such an important listening skill that it’s worth learning for its own sake.

Fortunately, you can definitely learn relative pitch—that is, the skill of identifying how pitches relate to each other in some way. This is helpful as an additional, complementary skill for people with absolute pitch, and it’s probably the best way for people without absolute pitch to learn to hear music in more detail. This is the approach we take in this text—listening for relationships, particularly within a key but also in intervals and triads.



# NOTE ON SPOTIFY USAGE

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This book uses a fair number of Spotify playlists, particularly in the exercises. We do this because it is a relatively straightforward and simple way to curate music for you to work with in a manner that satisfies copyright. However, we know that Spotify does not pay artists what we think they are worth. We encourage you to purchase albums and tracks when you find something you really like to work with or listen to.

In terms of usability, you have a few options:

- If you do not have a Spotify account, you will only be able to listen to a sample of each song, and you won't be able to control which portion this is. This will work okay for a few exercises, but most exercises will benefit from being able to listen to the beginning or some other specific portion of the song. If you do not wish to sign up for a Spotify account, you may wish to gain access to the songs some other way.
- If you have a Spotify account, you can either log in to Spotify in your browser or press the Spotify logo on an embedded playlist or song to open it in the Spotify application. From there, you should be able to listen to

whatever you need to. A free account will often play you ads.

# ACKNOWLEDGEMENTS

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I cannot sufficiently express my thanks to my parents, Jeanmarie Chenette and Jonathan Chenette, who taught me my earliest music lessons. From them, I learned that thinking about music and making music are inseparable. I wish everyone were so lucky as to have the music education I had as a child.

Though he is listed as a “collaborator,” Daniel Stevens was an integral part of the creation of this book. I have long admired Danny’s creative and empowering vision of aural skills, and reached out to him early in the process of creating this text. Since then we have met regularly, shared ideas, co-edited text, co-created activities, and more. As I was on sabbatical in fall 2022 and Danny was not, I had more time to write text and in the end we decided to distinguish between an “author” and a “collaborator.” However, Danny’s authorial voice is recognized in many chapters, and his invaluable advice and ideas have been influential throughout the book.

Sarah Gates was another early collaborator on the text. Sarah brought important expertise on cognitive science and particularly a sophisticated understanding of how the brain’s various representations of music and musical ideas work together. While Sarah eventually needed to focus on other

projects, she was integral to the planning process, and I hope to get her involved again in the future!

My thanks also to Textbook Assistants Meghan Hatfield and Ryan Becker. Both are incredibly creative, dedicated, and passionate about sharing music. Meghan and Ryan created graphics, populated playlists, expanded sketchy text and activity descriptions, and gave their own suggestions for how the textbook could be better.

Finally, a huge thank-you to the wonderful folks at the Utah State University Merrill Cazier Library who have supported this project, and particularly Stephanie Western, OER Program Manager.

A project like this takes a village, and I'm very grateful to those who have been a part of it!

-Timothy Chenette

# CHAPTER 1 - ATTENTION



Figure 1.1

One of my beloved grandparents used to say, “The most important choice you make in life is what you choose to pay attention to.”

Attention is often compared to a spotlight: whatever we’re paying attention to seems to be brighter, louder, somehow more “present” than everything else. This is particularly clear in vision. For example, look at the image of a series of tiles below. While these tiles are theoretically all identical, you can probably focus your attention on different shapes among them and make them seem to “pop out” from the image.



Figure 1.2.

Our attentional control is probably most obvious in vision, since we can actually experience our eyes moving around and even use eye-tracking software to detect where we're focusing our attention. Too bad our ears don't swivel (unless you're a cat)! But just as with vision, we can focus on one sound or one component of a sound, and we can move that focus around. It's just much harder to observe.

Consider, for a moment, all the situations where musicians need to exercise our auditory focus of attention. When leading a band rehearsal, for example, a conductor who has just heard something wrong needs to direct their attention to the different parts to figure out where the problem is. When transcribing a tune, a jazz musician or arranger might need to direct their attention to specific notes to determine the exact chord being used at a given moment. Singers asked to make

a difficult entrance might need to listen for specific notes at specific times in their ensemble. Keyboard players trying to bring out an inner voice might need to work hard to make sure they are hearing that above the more obvious melody. There are many more.

Essentially, one of the most important things a musician does is to pay close attention, and all of our aural skills rely on a foundation of attentional control.

### Learning Objectives

Students will be able to:

1. Pay close attention to a piece of sounding music.
2. Direct their attention to different layers within a musical texture.
3. Direct their attention particularly to bass lines.
4. Direct their attention to aesthetic/affective aspects of a piece of music.

## Image Attributions

- Figure 1.1 “Closeup shot of a green eye of a black and white cat” by wirestock licensed under a freepik license.
  - Figure 1.2 “White tiles wall” by lifeforstock licensed under a freepik license.
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# PAYING CLOSE ATTENTION

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Our first goal is simply to build the skill of paying close attention. Unfortunately, our attentional capacities are limited: we simply cannot pay attention to everything available to us. Fortunately, there are strategies we can use when we want to maximize our ability to use the attentional capacities we have.

For example, we can use stress-reduction and centering techniques to make sure we are as “fully present” as possible with what we are listening to. These include deep breaths, closing our eyes, and other mindfulness techniques. You may already have some idea of which of these work well for you when you are feeling stressed; if not, we encourage you

## Auditory Awareness Test

The optional video below demonstrates the power, and the importance, of how we direct our attention.



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can view them  
online here:  
[https://uen.press  
books.pub/  
auralskills/?p=29](https://uen.pressbooks.pub/auralskills/?p=29)  
#oembed-1*

How much did  
you hear? How  
much did you  
miss? Note that  
by focusing on  
some things,  
you may miss  
others.  
Controlling your  
focus of

to look around on the internet or elsewhere to find more ideas.

There are, however, more music-specific techniques we can use. These rely on our ability to become invested in and engaged with what we are paying attention to.

First, it can help to imagine *yourself* making the music you are hearing—singing or playing it on your primary instrument or the actual sound source/instrument. You may not know the exact notes, but if you can imagine making an analogous sound, this can involve you more deeply in what you hear.

Second, the more you get yourself making predictions and reacting to the music you hear, the more deeply you will be involved in it.

Activity: Follow sound with intention

Goal: Develop habits of close listening to music.

Instructions: Optionally, center yourself by taking a few deep breaths and closing your eyes. Then

listen to the song embedded

below, with a focus on the oboe melody from 0:48–1:25 (though you may have a hard time turning it off at this point). Follow this melody with your attention, involving yourself in the sound: hear when it is more intense and when it is more at rest, and predict at each moment where it will go next. It may help to imagine yourself singing along with the melody.

attention is important, because it shapes our experience of listening and affects what we can and cannot do with what we hear.



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*<https://uen.pressbooks.pub/auralskills/?p=29#oembed-2>*

### Activity: Follow changing sound with intention

Goal: Develop habits of close listening to music, including directing attention to new sounds.

Instructions: The song embedded below builds slowly from just a few sounds to many layers of sound. The order in which these layers enter is described in the list below. Optionally, center yourself by taking a few deep breaths and closing

your eyes. Then listen to the first minute-and-a-half of the song. (If you have less time, the first 30 seconds already have many of the layers.) As you listen, direct your attention towards each about-to-enter layer, anticipating what it might sound like and where in the musical “texture” you will hear it, involving yourself actively in the sound as it unfolds.

Sounds:

1. Sounds of a car starting
2. Piano octaves
3. Piano triads and vocal melody
4. Bass (two quick notes)
5. Downward slide (end of Verse 1, around 30 seconds)
6. Claps
7. Downward slide again
8. Sustained low bass and high synth line
9. High synth choir, increasing volume
10. Sudden drop to just voice and piano triads
11. Just an octave in the piano, with the voice (1:25)





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*<https://uen.pressbooks.pub/auralskills/?p=29#oembed-3>*

### Activity: Listen closer in your own recreational listening

Goal: Develop the ability to listen with intention and focus when desired

Instructions: There's almost always more to hear in a recording than what you'd get on a first listening. As you learn to listen with intention and focus, you will find new ways to listen to recordings that you were

already familiar with. For example, listen to the different layers included in a song. In addition to identifying these (bass, vocal melody, etc.), you might listen for the quality of each sound or layer of sound. Does it sound like it was recorded in a large or small space? Is there echo or reverb on the sound? How much does it blend into, or stick out from, the overall sound? You can also bring these habits of listening with intention to live music.

# ATTENTION CONTROL WITHIN MORE COMPLEX TEXTURES

---

Much of the music we interact with every day has multiple things going on at once. There might be any number of melodies and harmonizing lines, perhaps a chord progression, drums, and more.

For most people, when there's more than one thing going on in music, the easiest part of the texture to focus on is either the melody or the highest layer of the texture (often, these are the same). Thus, most of the attentional challenges we face in music are from situations where it would be useful to focus on some element of the music that is *not* the melody.

Several factors can make it more difficult to follow non-melody lines. First, we may have a natural inclination to listen to the highest “voice.” Second, some parts of the texture—notably, bass lines—are more likely to leap around and therefore difficult to hear as a single melody. Third, other parts—notably, inner parts—may be less attention-grabbing because they do not have as many interesting movements, satisfying shapes, and more. Finally, most of us have sung or played plenty of melodies and thus have a certain amount of



“feeling” for what kinds of things they will do, but the patterns and tendencies of inner voices and bass lines may be less familiar.

Fortunately, the same strategies we used above for simply paying close attention to single melodies can also help direct our attention around a texture. The activities presented here are intended to give you practice and scaffolding for the skill of listening to different parts of a texture.

Activity: Listening for certain voices in complex textures

Goal: Practice directing attention to different parts of complex textures

Instructions: Some of the songs are listed below with specific lines and time-stamps to focus on. For the rest, just work on focusing your attention on the parts that aren't the melody. See if you can pick one and hum along with it on a second listen-through!

<b>Song Title</b>	<b>Time frame</b>	<b>Line to listen for</b>
Honey I'm Good	0:30-0:46	Background Vocals (on 'oo')
Hallelujah	2:34-3:04	Tenor line (on 'doo')
Schuyler Sisters	1:54-2:15	The string section
Waving Through a Window	2:47-3:47	Background vocals (on 'oh')
The Rose	1:35-1:47	Alto countermelody
We Don't Talk About Bruno	2:43-3:15	Try to follow each part individually through the chorus. Two of them change from their original lines, can you tell which ones?



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auralskills/?p=32#oembed-1](https://uen.pressbooks.pub/auralskills/?p=32#oembed-1)*

Suggest a song for this playlist!

# PAYING ATTENTION TO BASS LINES

---

Of all the non-melody lines we could listen to, bass lines may be both the most important and the most well-defined. Bass lines are important because they have long been recognized to give a kind of “foundation” to the music, and because they are strongly associated with chords—so following a bass line gets you a long way toward figuring out a chord progression.

Bass lines, like inner voices, are not usually as prominent to most listeners as the highest voice. But they have an additional, unique challenge: they tend to leap, making them more difficult to follow.

In a later chapter, we’ll work a bit more on learning to “think like a bass line.” For now, we’ll simply work on ways to direct our attention to them, through a series of practice activities.

Exercise: Follow that bass!

Goal: Direct your attention to the bass line of different songs

Before you start: Headphones or high-quality speakers are recommended!

Instructions: Listen to the following songs. Pay close attention to following the bass line. On your second listen through, try humming along in a comfortable octave or tracing the line in the air or on paper. Bass lines leap a lot, so your movements or tracing may feel jerky. See if you can follow the bass line through the song, even as the texture of the song may become thicker.



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<https://uen.pressbooks.pub/auralskills/?p=34#oembed-1>

Suggest a song for this playlist!

## Activity: Scaffolding bass line listening

Goal: Help those who have a lot of difficulty following the bass to find a more scaffolded way to practice this skill

Before you start: You'll need to download the MidiTrail application and find a MIDI file of a song whose bass line you are interested in following.

Instructions:

1. Open the MIDI file in MidiTrail.
2. Listen to the bass line as MidiTrail plays the file, using the visualization to give your brain some idea of where the bass line is and what it is doing.
3. Since MIDI playback often leaves much to be desired, once you feel comfortable following the MIDI version, find a recording of a more musical performance and see if you can transfer your bass-following skills to the recording.

# HOLISTIC/GESTALT HEARING

---

Sometimes we think of ourselves as being able to hear an entire complex musical texture at once holistically, as a “Gestalt.” This, for example, is what a conductor uses when noticing the one wrong note in a chord that involves many instruments playing different notes—it’d be incredibly time-consuming to listen individually to each different one!

Nevertheless, we are not able to *focus* on everything in a texture equally all at once. In sight, our visual attention has a primary focus, but there is also a broader visual field that our eyes and brains are aware of in less detail. As long as that visual field seems mostly familiar, our brains are pretty good at filling in the details and noticing surprising elements, but if what we’re looking at is confusing and unfamiliar, we may only be truly aware of whatever we’re focusing on. It seems like hearing is similar: as one scholar says, “the data suggest that the pitches of many tones can be processed simultaneously, but that listeners may only be consciously aware of a subset of between three and four at any one time” (Oxenham 2013, 21).

How can you get better at listening to a whole ensemble or complex texture and figuring out what is going on? The best way is to give your brain lots of models by learning lots

of music in a style similar to what you plan to listen to. For example, if you aim to be a band conductor, learn lots and lots of band music. Your brain will use its memories of other pieces it knows to fill in details of the parts of the sound it isn't focused on, and the more models it has, the better it will do.



# LISTENING FOR AFFECT

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Many people fall in love with music because of how it makes them *feel*. For such people, the technical focus of a lot of the listening we do in formal music education can draw their attention away from this aspect of music that they most love. That's a shame!

We believe strongly in the importance of being able to listen for the technical details of music. But we also believe strongly that we should be able to direct our attention to more holistic aspects of music such as tension, emotion, and dramatic shape—both because this makes us more “musical” and because it is so much of what most people love about music.

As we move forward in this text, never lose touch with your instinctive reactions to music. They are valuable in and of themselves. And when we can place them alongside our technical listening skills and see how they relate, our learning will be even more powerful.

Activity: Listening to Music Instinctually

Goal: Build or strengthen habits of listening to music holistically, and with attention to emotion and affect

Option 1: Moving to feelings in music

- Instructions: While listening to the various songs in this playlist, try air-tracing the tension curves and/or arc of the music.
- Reflection: What do you notice about the more tense moments in the music? In juxtaposition, what are some key traits in music that you find calming, sad, or low? What aspects of the music differentiate the affects of “Run Free” by Hans Zimmer and “Romantic Flight” by John Powell? Take note of these characteristics so that you can add more feeling to the style and musicianship of your repertoire!

Option 2: Draw a visual representation of music

- Instructions: Draw or paint the feelings that are represented in the songs of the playlist below. It may be helpful to start with a structure or frame such as a circle.
- Reflection: What kinds of images does the music invoke in you? How did your visual

representation change based on the affect of the song?



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Suggest a song for this playlist!



# CHAPTER 2 - MOVING TO MUSIC (METER)



Across cultures, music is often associated with movement. This movement ranges from elaborate dances to simple toe taps and head nods. When we move to music in this way, we are aligning bodily motions with events and processes we hear in the music. Of course, to accurately align our movements, we have to anticipate when these events and processes will happen. Regardless of music education, most people can do this to at least some extent.

Many cultures have also invented some kind of way for musicians to keep track of, coordinate, and communicate about time in music. These take different forms, including West African bell patterns, European time signatures, Indian talas, and more. Each of these is a complex, culturally-specific combination of innate bodily responses and invented concepts and systems.

We'll eventually focus on time signatures, but first we'll focus on paying attention to your body's natural responses to music, and on making these responses more detailed. Starting here has two benefits. First, it focuses us on a skill that is widely applicable (though in different ways) across many musical cultures rather than starting right in with cultural specificity. Second, it can actually clarify aspects of time signatures if we start with something a little more intuitive.

The ways you're inclined to move to music are, of course, already influenced by your cultural background. For example, maybe you have been brought up in a culture where public bodily motion is frowned upon, and you don't feel comfortable with much more than a subtle head nod; or maybe you've been brought up in a culture where dance is embraced and it's all you can do not to get up and groove when you hear certain music.

Whatever your background, that's ok! Embrace it and refer back to it as we get into the terms and systems people use to talk about time in music.

## Learning Objectives

Students will be able to:

1. Identify whether there is a recurring temporal pattern in a piece of music
2. Entrain to a beat in sounding music (equal or unequal)
3. Identify a beat cycle (measure) in sounding music, including identifying where that cycle begins
4. Entrain to a simple or compound division of a beat
5. Given a tempo, conduct a beat pattern
6. Internally generate a metrical framework (beat, division, cycle)
7. Map felt patterns to appropriate meter signs
8. Use conventional stylistic markers to identify conventional meters (popular music backbeat, waltz, etc.)
9. Entrain to a hypermetric pattern using simple gestures

## Image Attributions

- Figure 2.1 “Woman Breakdancing on Street” by Keenan Constance licensed under a Pexels license.
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# EXPLORING MOVEMENT AND MUSIC

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We'll start simply by exploring your natural bodily responses to music. Though we call them “natural,” they are a combination of innate characteristics of your body with habits and patterns you've learned from the people and cultures that surround you.

As we explore your natural bodily responses to music, we'll also think about predictability, since this is a priority of the system of time signatures.

You'll likely find that some music doesn't invite much movement. Often, this is because it's hard to predict what will happen next and/or exactly when it will happen. Some of this music may be written or imagined with time signatures, but in a way that's difficult to perceive. Some of it may be created without reference to a time signature at all. Figuring out how to describe this music with time signatures may require vagueness (“it's free and improvisational”), a lot of work (“I decided where to put all the downbeats, but the time signatures are constantly changing”), or atypical uses of the system (“I wrote it out in 4/4, but don't pay attention to the downbeats because it's totally not in 4/4”).

A lot of music, however, invites movement through a

certain amount of predictability: we have a sense of when important events are likely to happen in the music, so we can move our bodies to align with these. When this is the case, the time signature system prioritizes regular/consistent motion that aligns with important events (long notes, chord changes, bass notes, etc.) in the music as often as possible.

Regularity/consistency is particularly important here, so we encourage you to use bodily motions that are easy to keep at a consistent speed. Large-muscle motions are usually best because it's fairly obvious when we start accidentally doing them at a different speed; these motions include swinging your whole arm, swaying your body, nodding your head, and even tapping your toes. If you use small-muscle actions like tapping your fingers, clapping your hands, or using a vocal syllable, you may find yourself accidentally tracking different speeds at different times (that is, following what some people call the “rhythm” rather than the “meter.”)

Activity: Explore music and movement

Goal: Explore how you naturally move to music

Instructions:

1. Listen to the following songs. For each, allow your body to move to the music in some way. Which body part(s) are you moving? Are your motions repetitive (head nods, body sways, toe taps) or more interpretive (playing an “air instrument” or moving continuously through space)? How fast are you moving? Can you specify what in the music you are responding to?
2. If you weren’t engaging in repeated, consistent movements, try to find something you can do over and over to the music at roughly the same speed. If you can do this, what are you aligning with in the music? Optionally, use a metronome or metronome app’s tap function to determine the speed of your repetition in beats per minute.
3. If step 2 worked for you, try to find a slower way to move to the music. How is this different? Is it easier or harder? Then try to find a faster way to move to the music. How is this different? Is it easier or harder?



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Suggest a song for this playlist!

# FINDING THE BEAT

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Now we're going to start connecting your natural physical response to music with the system and terminology of "time signatures." This system was developed in European "classical" music and largely adopted (and occasionally adapted) by American "popular" music (broadly defined). We use this framework not because these perspectives are universal, but because they are useful when you are surrounded by these cultures.

As we work to connect your bodily motion to time signatures, let's start with the idea of a "beat." This term has been defined in many different ways, but for us, it simply means the way you tend to move, in relatively consistent and repeating ways, to a piece of music upon first listening to it. Often, the majority of listeners will agree on the beat; other times, there may be two or even more possibilities. Studies suggest that we tend to gravitate to the range between 80–120 beats per minute (BPM); typically, if people disagree about the beat, it's because there is no single way to move consistently to the music within that range. (That said, the majority of these studies were conducted on members of Western, Educated, Industrialized, Rich, and Democratic—that is, WEIRD—populations, so this isn't necessarily universal.)

We'll continue to use bodily motion as we determine the beat. Bodily motions that tend to be particularly helpful in “entraining” to beats in the typical range include arm waves, head nods, and toe taps.

Most often, every beat in a song is about the same length of time (unless there is a tempo change). However, there is also a significant amount of music where beats alternate in some pattern between different lengths, often with “long” and “short” beats in a length ratio of 3:2. These are sometimes called “isochronous” (same beat length) vs. “non-isochronous” or “mixed” (different beat lengths) meters. Because mixed meters present additional challenges and are less common, we will include some examples in this chapter but leave detailed instruction for later study.

Unless the beat is purposefully obscured, finding it often feels relatively natural. If it doesn't, make sure you're moving your body! But if you're still not consistently finding a beat—or not finding the same beat as the majority of those around you (or your instructor)—it's a good idea to work with someone one-on-one.

Activity: Find the Beat!

Goal: Use physical motion to entrain to (align our attention and motions with) a beat.

Instructions: For each of the songs below, find the beat. You are encouraged to do this with your body in some way. Head nods, foot taps, and hand taps are often particularly helpful in drawing your attention to the layer typically called the “beat.” If you find yourself continuously drawn to different lengths of time (“rhythm” rather than “meter”), however, you might try whole-body sways, which are more likely to stay at the same speed. Optionally, use a metronome or metronome app’s “tap” function to determine the song’s tempo (beats per minute).



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Suggest a song for this playlist!

## Activity: Isochronous and Non-isochronous Beats

Goal: Use physical motion to entrain to (align our attention and motions with) a beat, then determine whether beat lengths are roughly the same most of the time (isochronous) or whether they change lengths (mixed/non-isochronous).

Instructions:

1. For each of the songs below, find the beat. Again, you are encouraged to do this with your body.
2. Once you have found the beat, determine whether the beats are generally the same length throughout the piece (isochronous) or whether they change lengths (mixed/non-isochronous).
3. If the beats change lengths, figure out how you would describe the repeating pattern of longer and shorter beats. For example, you might describe one as “long, short, short, long, short, short, long, short, short,” etc.



## Activity: Working with Ambiguous or Difficult Beats

Goal: Gain skill in working with songs with multiple different possible beat layers or ambiguous beats.

Instructions: Each of the songs in the following playlist fits one of two descriptions:

1. The song may have multiple different possible interpretations. In most cases, this means two possible speeds you could move to it within our typical 80–120 beats per minute range. However, sometimes there are two competing interpretations of the beat.
2. Or the song's beat may be heavily obscured by syncopation and complexity.

In each case, use your physical motions and your intuitions to figure out how you would move to, and describe, the beat. You will likely find others who

disagree with you, and you may both be right:  
discuss your different interpretations.



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Suggest a song for this playlist!

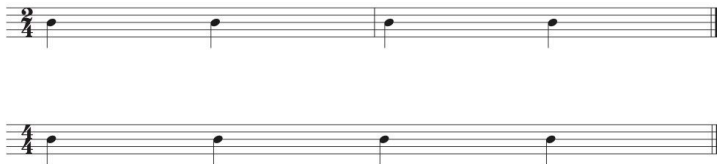
# MEASURES

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Beats often feel like they group into longer “cycles” that repeat. In non-isochronous/mixed-meter songs, these cycles are often defined by a repeating pattern of longer and shorter beats. In isochronous songs, these cycles are often defined by accompaniment patterns (including in the drums) or chord changes. These cycles of beats are typically called “**measures.**”

Most often, we will find beat measures that are 2 or 3 beats long, though other lengths, like 5 beats, are possible. 2-beat measures are called **duple**, and 3-beat measures **triple**.

If you’re familiar with time signatures, you’ve almost certainly heard of a meter called 4/4 (“four-four”). This time signature indicates a **quadruple**, or four-beat, cycle. However, that four-beat measure can almost always be heard as two two-beat cycles; that is, the two following examples aren’t necessarily different in what they communicate to a performer.



Duple and quadruple measures are thus closely related.

We'll discuss some of the reasons why you might choose one or the other when we talk below about culturally-specific expectations below, but for now, we'll never ask you to choose between them. This is why, in the activity below, we refer to “duple or quadruple” (2 or 4) measures as a single category.

If this activity is difficult, it may help to think through the factors that contribute to the perception of measures. These include chord changes, accompaniment rhythmic patterns (such as guitar strumming patterns or piano left-hand patterns), repeating rhythmic patterns, and bass (low) notes.

Activity: Identify the beat and the number of beats in a cycle/measure.

Goal: Identify measures as either duple/quadruple (2 or 4 beats long) or triple (3 beats long). (Again, the decision to write or describe something as a measure of 2 vs. a measure of 4 is a personal decision and in some cases incorporates cultural factors, such as the use of 4/4 meter as a “default” in much popular music.)

Instructions:

1. Listen to an excerpt from the playlist below.
2. Find the beat. You are strongly encouraged to use physical motions such as tapping, stepping, or nodding.
3. Use your intuition to find the beginnings of measures. The factors that contribute to the sense of a cycle beginning include chord changes, accompaniment patterns, repeating rhythmic patterns, and bass notes.



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Suggest a song for this playlist!

## Image Attributions

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# CONDUCTING

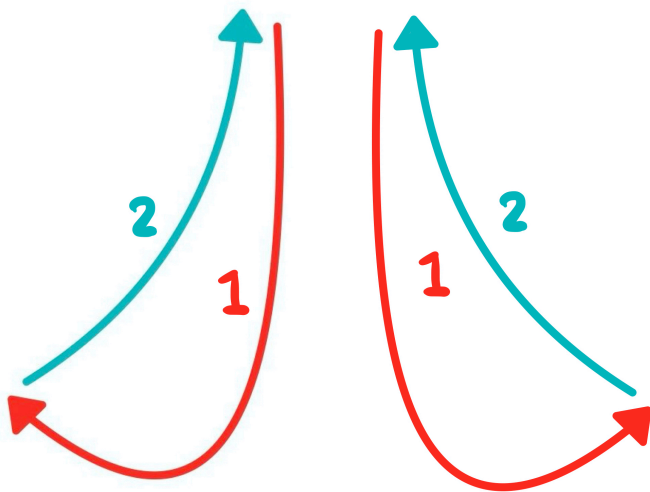
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One culturally-specific way of keeping track of measures is with the conducting patterns used by the conductors of ensembles like bands, choirs, and orchestras. These specific ways of waving your arm and hand can be useful if you need to lead such an ensemble, but they also are useful in giving you a physical model for what measures of different lengths might “feel like.” Internalized physical models are a very powerful tool to draw on in your listening and music-making, and those embodied, internalized models will be our focus here: if you wish to learn about the art of conducting for its own sake, including cueing, communicating character, clarifying ictus, and more, this is not the best source.

All of the conducting patterns assume that the cycle has a “beginning” beat, called a “downbeat,” represented by a downward arm motion. They also assume an “ending” beat, called an “upbeat,” represented by an upward arm motion. Of course, because this is a cycle, the ending simply prepares for another beginning, and the upbeat often feels not like a point of rest but rather a moment of anticipation as the arm rises in preparation for the next downbeat. In between the downbeat and the upbeat are different numbers and directions of hand-waves to represent the number of beats in the cycle

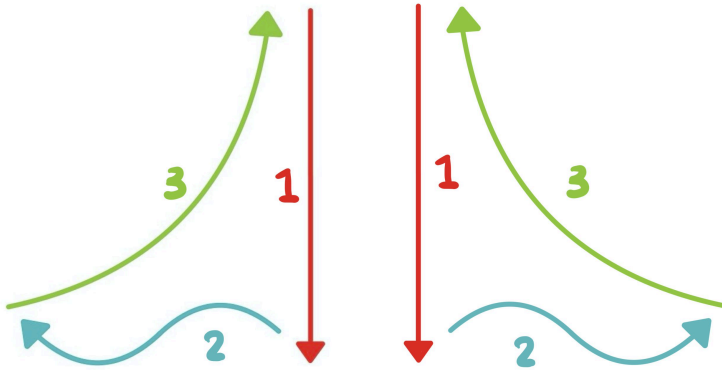
or “measure.” Conducting patterns, in their basic form, thus communicate two pieces of timekeeping information: the beat (represented by each wave of the arm/hand) and the cycle (represented by the pattern and especially the return of each downbeat).

The simplest conducting pattern is for a two-beat cycle, shown with a simple down-up pattern, typically inflected with a slight curve away from the body to look like a J (left arm) or backward J (right arm):

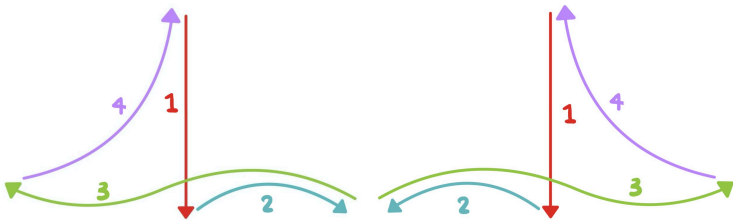


A three-beat cycle is a down-out-back triangle:

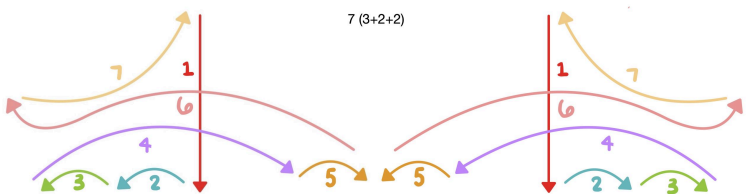
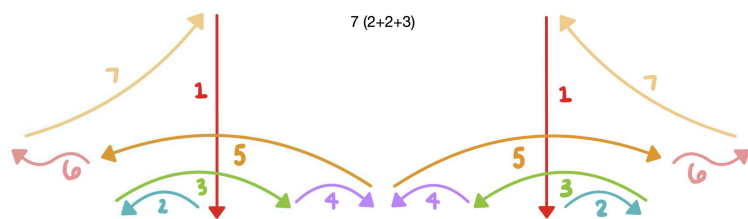
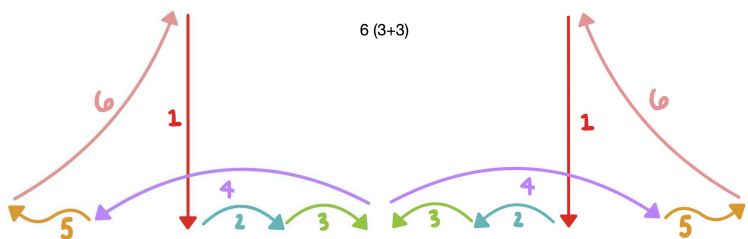
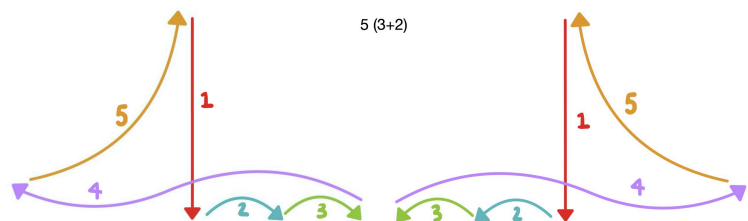
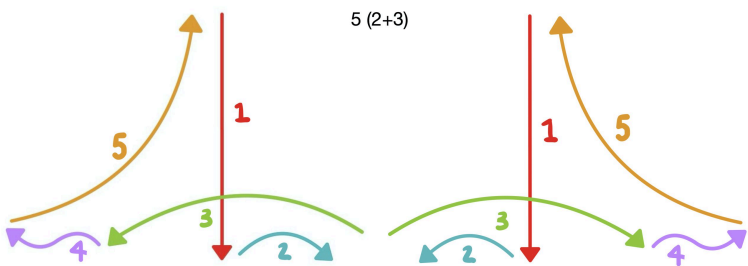


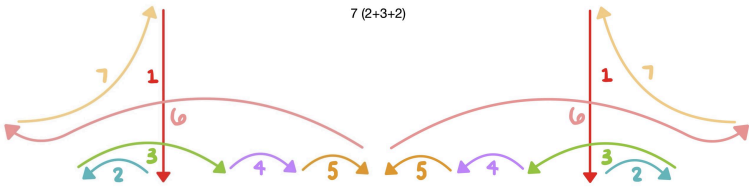


A four-beat cycle (remember, this is often impossible to distinguish from a two-beat cycle when listening, even though it has its own pattern) is down-in-out-back:



For additional beats (5, 6, 7, etc.), we simply add more “ins” or more “outs.” As a rule of thumb, we switch from “ins” to “outs” at the moment in the middle of the cycle that feels most significant for communication.





It's important to note, though, that if you're working from time signatures (discussed in more depth below), a 6, 9, or 12 on the top of a time signature most often does not indicate 6, 9, or 12 waves of the hand (beats), but rather 6, 9, or 12 beat *divisions* (discussed below), and thus 2, 3, or 4 beats.

### Activity: Practicing Conducting

Goal: Practice conducting 2, 3, and 4 patterns (and additional patterns as determined by your and your mentors' goals) until they start to feel "natural."

Instructions: Choose a tempo and a measure length (likely 2, 3, or 4). Set a metronome at your chosen tempo and practice conducting along. Once you feel comfortable, choose a new tempo and measure

length. Tempos between 60–120 are likely to feel most comfortable.

### Activity: Aligning Conducting with Music

Goal: Make connections between your embodied experience of conducting and sounding music.

Instructions: Listen to the songs below. Use movement to find the beat and measure, and determine the measure length. Conduct along using the appropriate conducting pattern. If you find this easy, see if you can jump right into conducting without thinking through beat and measure first, but be sure you have someone around who can help determine whether your choices work with the music.



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# PICKUPS/ANACRUSES

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Here's something confusing. We just said that conducting patterns have a "beginning" and an "end"—but it's actually very common that music doesn't start at the "beginning" of the cycle (downbeat), and it's rare for the last note of a song to be struck on the ending beat of the cycle (upbeat).

What's the difference between a downbeat and the beginning of the music? A downbeat marks where we expect particularly significant, noticeable events in the music to happen. These include chord changes, bass drums and other very low sounds, stressed syllables of text, and more. Sometimes these things happen right at the beginning of the music, but sometimes there's a short bit of music that leads into the first particularly significant, noticeable event (downbeat). Where there's a lead-in like this, we call the music before the first downbeat a **pickup** or **anacrusis** (plural "anacruses").

The song "Happy Birthday to You," for example, begins with a pickup. The most-stressed syllable, "birth-" of "birthday," comes on the first downbeat; this is also often where an accompanying instrument such as a guitar or piano will play its first chord. "Happy," then, is a pickup, which in this case lasts one beat.

Perhaps determining whether music starts on a pickup or a downbeat is simple and intuitive to you, but perhaps not, and that's ok—here's some advice. Factors that contribute to cycles include chord changes, accompaniment rhythmic patterns (such as guitar strumming patterns or piano left-hand patterns), repeating rhythms in the melody, and bass (low) notes. Above all, instead of just counting out the cycle to see if it feels right, make a significant bodily motion—say, a particularly forceful downbeat with your arm, or a sway of the entire body—on what you think is each downbeat. Using your internalized bodily habits, it may become clear whether you are aligning with the cycle or conflicting with it. And if not, as always, work with someone one-on-one; they can help you understand what it feels like to align your bodily motion with downbeats.

Activity: Does it start with a downbeat or a pickup?

Goal: Practice determining whether a melody starts on a pickup or a downbeat

Instructions:

1. Listen to the following songs. As before, find the beat and the beginnings of cycles/measures.
2. Once you feel comfortable tracking the measures, go back to the beginning of the melody and determine: does it start with a downbeat or a pickup?
3. If you find yourself getting more comfortable with this skill, skip the step where you find the beat and the beginnings of cycles/measures; instead, just listen from the beginning of a song, and as soon as you hear the melody starting, see if you can determine whether it begins on a pickup or a downbeat.



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# BEAT DIVISIONS

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While beat cycles are longer than a beat, beats will often also have shorter events “within” them that you could move to.



We will call these “divisions of the beat” or “beat divisions.” Most of the time, the beats will seem to contain either 3 or 2 divisions. Beats of 3 subdivisions are called **compound beats**, while beats of 2 subdivisions are called **simple beats**.

If you’re able to find a beat with consistent accuracy but finding the division is difficult, it may help to practice one method of counting or moving for simple beats and one for compound beats. Because divisions are often rather quick, speaking (such as “1-la-lee-2-la-lee” for compound and “1-and-2-and” for simple, where the numbers represent the beats of the cycle/measure) or small-muscle motions (such as tapping three fingers in succession for compound and two in succession for simple) are probably best. Pay close attention

to whether events occur on your taps/syllables or not to determine which is correct.

Notably, beat divisions are not usually indicated in conducting patterns since these patterns just show beats and cycles. This means if you want to keep track of a beat, its cycle, and its division, you will either need to add information to the conducting pattern or use a different method. Counting can be helpful: for example, in 1-la-li-2-la-li-1-la-li-2-la-li, the numbers are used to indicate beats and keep track of the cycle, and the fact that there are three syllables associated with each beat (number-la-li) shows that the beats are compound, not simple. Keep in mind, however that counting does not necessarily activate your internalized physical motions. It may help to focus on each portion in turn (beat, cycle, division) physically before putting it all together into such a composite.

### Activity: Simple or Compound?

Goal: Practice identifying beats as simple (having two equal divisions) or compound (having three equal divisions).

Instructions: Listen to the following songs. Start by finding the beat; then determine if it breaks down into two or three equal parts. Optionally, find the measure length as well and try counting along, using numbers to track the beats of the measure and either “la-li” (compound) or “and” (simple) to track the remaining divisions of each beat.



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# SWING

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In the previous section, we pretended that every beat divides evenly into either two or three parts. That's not true. Even within the musical cultures we're talking about in this text, there's a third category: swing. In "swung" music, associated primarily with jazz, the beat divides into two unequal parts, with the first part longer and the second part shorter. Nevertheless, when written down, swung music is typically written as if it is in simple meter, and performers simply know to take what look like two even divisions of the beat and make them unequal.

Often, the first division of the beat is roughly twice as long as the second. When that's the case, swing may not be easy to distinguish from compound meter. When listening to jazz, we are more likely to describe the music as "swung"; when listening to music that is not jazz, we are more likely to describe the music as "compound" unless it clearly draws on jazz traditions.

It's also common, however, for the length ratio between the first and second divisions of the beat to be somewhere between 1:1 and 2:1. When this is the case, we typically describe the music using the terminology of simple meter, including time

signatures like 2/4, 3/4, and 4/4, but with the knowledge that the beat divisions are unequal in length.

### Activity: Swung or Not?

Goal: Distinguish even from swung divisions of the beat.

Instructions: Listen to the following songs. Begin by finding the beat. Then determine whether the beat division is simple, compound, or swung. When distinguishing compound and swing, pay attention to both technical aspects of the music (for example, does an instrument ever articulate three equal divisions of the beat?) and cultural aspects (is the music jazz-influenced or not?).



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# FEELING METER INTERNALLY

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Now that we've built a framework for understanding and feeling the experience of timekeeping in music, it's helpful to practice creating this experience yourself. We'll start by deciding on a tempo and meter type, and then use physical motion to start "feeling" it even in the absence of actual sounding music. As you get more and more comfortable with this, we'll work to see how we might "feel" the meter internally by imagining those same actions.

Setting up an internal sense of meter without externally sounding music in this way is often a useful preparatory step for making music. When you're leading an ensemble, feeling the meter internally will help you get the group off to a solid and coordinated start. When you're reading notated music, the ability to construct this internal sense helps you make sure that you are ready to match the "correct" sense of time indicated in the music. And when you're listening, internalized models of what different meters feel like will give you something internal to compare to what you hear in the music to see how they match up (or not).

Here's the process in full:





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We'll continue to practice building our internal sense of meter in future chapters on rhythmic cells, sight-reading skills, and improvisation skills, and whenever we do, we'll re-embed these instructions.

### **Activity: Setting Up a Meter Internally**

Goal: Use physical motion or imagined physical motion to “feel” a meter without sounding music.

Instructions: Decide on a meter (duple, triple, or quadruple and simple, compound, or swung) and, optionally, a tempo/speed. Then work through the steps in the text above to feel this meter internally. It may be helpful at first to use the suggested physical motions, but as you get more comfortable, see if you can feel them internally.

## Activity: Communicating your sense of meter through improvisation

Goal: Develop an understanding of how your internal sense of meter relates to sound.

Before you start: You are encouraged to use any instrument that is comfortable to you, including voice. Though it is not absolutely necessary, we encourage you to work with someone else so they can give you feedback about how clear your meter was (step 6).

Instructions:

1. Choose a meter type or receive an assigned meter type: simple duple, simple triple, simple quadruple, compound duple, compound triple, or compound quadruple. Your goal is to come up with some music that clearly conveys this sense to a listener.
2. Decide how long your rhythm will be; a length of 4–8 measures is often nice. Note that most melodies end on a relatively long note in that

last measure.

3. Decide whether you want to start with a pickup or on the downbeat.
4. Decide how you want to make the downbeats clear. In melodies, downbeats are often marked with relatively longer notes or repeating rhythmic patterns that last about a measure.
5. Consider how you will communicate the beat division. You don't need to have a note on every beat division; just make sure that events happen on beat divisions at least some of the time.
6. Perform your rhythm. (You may decide whether or not to use pitches as well.)
7. Optional: ask a listener to identify the meter that you intend to convey, choosing from the list in step #1. Keep in mind that duple and quadruple meters are often aurally equivalent. If they do not hear what you intended, workshop with them on how you might more clearly convey the meter.

# IDENTIFYING METER BY EAR

---

As we've already explored, when you're listening to music, you likely instinctively move your body—or even just imagine doing so. That's a very useful instinct that, when further developed, can help you determine what metric sense is intended in a piece of music without looking at its notation. Determining meter by ear in this way will be helpful when we want to translate it into notation or respond to it through playback or improvisation.

This process has many similarities with the skill of setting up a meter internally, described in the previous section. The primary difference is that before we started with a goal for a meter and worked toward creating it; here, we start with an already-sounding metric sense and figure out how to describe it.



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Once you've followed these steps, you've found the beat, determined the length of the cycle, and specified the divisions as either simple or compound. When we get to notating music in the transcription and dictation chapters, we'll need to take it one more step and identify a possible time signature to use.

### Activity: Determining Meter by Ear

Goal: Use physical motion or imagined physical motion to find a beat, measure, and division in sounding music, and describe their relationships.

Instructions: Listen to the following songs. Then work through the steps in the text above to identify the beat, measure, and division. Once you have found these and determined their relationships to each other, describe the meter (duple/quadruple or triple, and simple or compound) and use the table

above to determine which time signature top number is most appropriate for the music.



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Suggest a song for this playlist!

# UNDERSTANDING TIME SIGNATURES

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The standard model for meter in aural skills instruction is the system of time signatures.

Time signatures are a culturally-situated system of describing cycles of beats, measures, and divisions. Unlike some other culturally-situated systems of understanding time in music around the world, time signatures are usually described as an “abstract” representation: while conducting comes close, no one action is associated with beats, or downbeats, or beat divisions. This can make them seem universally applicable, but it does not. Time signatures embed a series of assumptions or defaults, including a default that cycles will repeat consistently for significant spans of time and a common association between chord changes and downbeats.

Because time signatures embed these cultural assumptions, it is important to make a distinction between time signatures and how we experience music. Sometimes we’ll listen to music and decide things like “this music is in 4/4.” There’s no problem with such language in most situations, but it’d probably be more accurate to say “4/4 would offer a useful model for this music” or “I think whoever made this music was using a framework associated with 4/4.”

The **top number of a time signature** is used to communicate about how many divisions are within each beat, and how many beats are contained in each measure. The table below interprets these numbers as if they were always clear and unambiguous, but that’s not always true. 2 and 4 nearly always have the meaning described here. 3 does most of the time, but occasionally it is interpreted as a single compound beat per measure. 6, 9, and 12 are nearly always interpreted as described, but occasionally indicate 6, 9, or 12 beats. In short, learn the “facts” in this table as a default, but be prepared for a messy world.

**Guide to Interpreting or Deciding On A Time Signature’s Top Number**

	2 beats per measure	3 beats per measure	4 beats per measure
2 divisions per beat (“simple”)	2	3	4
3 divisions per beat (“compound”)	6	9	12

One useful way to think of this information: in simple meter, the top number tells us the number of *beats* in a measure; in compound meter, the top number tells us the number of *beat divisions* in a measure.

Other numbers, like 5, 7, and 11, are also possible on the top of a meter sign. Most of the time, these numbers tell us



the number of *divisions* in a measure. For example, 5 often means a beat of 3 divisions followed by a beat of 2 divisions or vice versa, where all the divisions are the same length and the beats vary in length. However, sometimes these numbers indicate the number of *beats* in the measure. This is messy; you'll have to use clues like beaming and tempo to determine whether these numbers refer to beats (usually slower tempos) or divisions (usually medium or fast tempos).

The **bottom number of a time signature** tells us what note value represents a beat (simple meter) or a beat division (compound meter). This number will always be a power of 2. Because note values can occur at any speed, you can't technically hear the difference between 4/4 and 4/8. Nevertheless, in contemporary music-making, there is an assumption that:

- simple meters usually have 4 on the bottom, meaning the beat is represented by the quarter note, and
- that compound meters usually have 8 on the bottom, meaning the beat division is represented by the eighth note (and the beat by the dotted quarter, since that is the length of three eighth notes).

This assumption, by the way, can help you interpret those complicated 5s, 7s, and 11s on the tops of time signatures. Most often, if 4 is on the bottom, the top number tells you the number of beats in a measure. Most often, if 8 is on the

bottom, the top number tells you the number of divisions in a measure.

Still, any power of 2 is technically possible on the bottom of the time signature for any meter type. So when we present rhythmic cells, we'll do so with different time-signature-bottom-number reference points to promote flexibility.

### Activity: Internalize time signature top numbers

Goal: Memorize how time signature top numbers are typically used.

Instructions: Memorize the “Guide to Interpreting or Deciding On A Time Signature’s Top Number” table above. Focus particularly on the “3 divisions per beat (compound)” row, which is the most confusing part for most students.

### Activity: Propose a time signature for sounding music

Goal: Associate time signature top numbers with your perception of beats, divisions, and measures.

Instructions: Listen to the songs from the playlist below and find the beat, number of beats in a measure, and number of divisions per beat. Once you have determined this information, propose an appropriate time signature top number. You may wish to use the table above for reference.



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# METER AND CONVENTION/STYLE

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While there seems to be something universal about associating music and movement, this connection manifests differently in different cultures. Whenever you interact with a specific musical culture or subculture, you can bring these skills to bear, but it's also important to be cognizant and respectful of the ways people talk about musical time (and everything else, for that matter).

We'll give a few examples here of culturally-specific knowledge and expectations within so-called "Western" popular and classical music.

Within European-American popular music, there is often an expectation that the default meter is "4/4." There's typically no reason the same music couldn't be described as 2/4 or 2/16, but because of this cultural expectation, if we can say a piece of popular music is in 4/4, we usually will.

There's also a specific drum pattern associated with that popular-music meter. While it is often varied, the most common elements are a bass/kick drum hit on beats 1 and 3, snare drum on beats 2 and 4 (the "backbeat"), and closed hi-hat cymbals on every eighth note:



Image credit: Wikipedia

When we hear some form of this pattern, we will typically associate its various parts with these specific beats. This is true even when the music is in compound meter, an increasingly common variant: the bass drum is still associated with beats 1 and 3, and the snare or claps with beats 2 and 4.

One more note about this pattern: particularly if you're listening on a laptop or phone without the ability to bring out the bass, the snare “backbeat” on beats 2 and 4 may sound like the loudest part of this pattern. In addition, many (though not all) culturally-aware people often clap along with such music on beats 2 and 4, along with this snare. As a result, students are sometimes misled into thinking that one of these is the downbeat. But remember, downbeats are associated with chord changes, stressed syllables of text, bass drums, and other very low notes, while snares and claps are associated with beats 2 and 4.

Within European-influenced “classical” music, waltzes are specifically associated with being “in 3” (that is, as notated, their cycle is three beats long), and specifically in 3/4. Some waltzes, particularly slow, American waltzes, are easy to feel

in this way. However, many (especially European) waltzes are extremely fast—too fast for that “cycle” of 3 to be easily felt as three individual beats. While such waltzes are still almost always notated in  $\frac{3}{4}$  or sometimes  $\frac{3}{8}$ , ensemble conductors typically conduct them with a single wave of the hand per measure/cycle, treating the cycles more like beats. Listeners, too, often gravitate to the notated measure/cycle as the beat; often, measures feel like they group in pairs, giving a sense of a compound duple/quadruple meter.

### Activity: Identifying Metric Conventions

Goal: Identify metric conventions in sounding music.

Instructions: There are two playlists below: one for waltzes, the other for popular music. As you listen to each song, draw on what you have learned above to identify the time signature that would most likely be used to represent the music and figure out how it aligns with what you are hearing. Optionally, transcribe the first 2–4 measures of the melody to demonstrate your understanding.



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Suggest a song for this playlist!

## Image Attributions

- Figure 2.13 “Characteristic rock drum pattern” by Hyacinth licensed under a CC0 license.
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# EXTENSIONS OF METER

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We've focused here on beats, measures, and divisions. We've talked about these three layers in part because they are the three layers most clearly indicated by time signatures. Other systems of discussing and representing time in music around the world also often focus on or imply a small number of layers. Nevertheless, music may imply even faster or even slower layers of motion.

Unless the tempo is very slow, faster layers very quickly exceed our capacity to measure and distinguish them, so we won't worry about them too much here. Of course, if the tempo is indeed really slow, keeping track of divisions of the beat may be useful in keeping a steady tempo—just because the beat is too long to predict with accuracy.

It may, however, be more useful to pay attention to slower layers of motion. In certain styles of popular and classical music, for example, phrases are often four measures/cycles long, and tracking these groups of measures as if they were beats in a slower “**hypermeter**” helps us focus on this sense of larger-scale pacing. When we're listening, paying attention to hypermeter can help us determine whether and when it is regular or irregular. When we're making music, either in improvisation or performance of notated music, paying

attention to hypermeter can help us have a larger sense of overall shape, rather than getting stuck in the choppy, repetitive nature of the repeating basic cycle/meter. This is, in a way, the message of Benjamin Xander's popular TED Talk, though he incorrectly implies that this perspective is only relevant to classical music:



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Because hypermeter is often not taught until higher levels of aural skills instruction (if it is taught at all), we will develop this section more in future editions of this text.

Activity: Tracking Hypermeter

Goal: Develop sensitivity to phrase lengths, and whether they are consistent or inconsistent

Instructions:

1. Start one of the songs in the playlist below.
2. As you listen, find the measure.
3. Once you are consistently able to track where the measure starts over, start the track over, this time counting how many measures are in each phrase.
4. Once you've listened to 45–60 seconds of the song, answer the following questions. Are the phrase lengths consistent or inconsistent? What is the effect of this consistency/inconsistency?



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Suggest a song for this playlist!

### Activity: Feeling the Phrase

Goal: Develop sensitivity to phrase lengths and phrase shaping in your own repertoire.

Before you start: Find a piece of music for your primary instrument. (We are assuming it is notated, but you may also work aurally with the music without a score.) It may be helpful to choose something that is relatively sustained and legato at first, though the principles can apply to most anything.

Instructions:

1. Study the first phrase, considering it as a whole. Where is its climax? Should what comes before and after be louder or quieter?
2. Plan out a gesture that would show the shape of the phrase as a whole. Arm gestures

are often particularly useful here. One gesture that is often particularly appropriate is starting with an arm across your body, and gradually drawing it out to its own side and then away from your body as it goes up and down as necessary to reflect the melody.

3. Carry out that gesture as you hear the first phrase in your head or sing it aloud, making sure to feel the sustained, goal-directed motion of the gesture.
4. Optionally, perform the phrase on your primary instrument, imagining the feeling of that gesture as you play.
5. Repeat these steps with additional phrases, being sure to consider how they relate to each other.

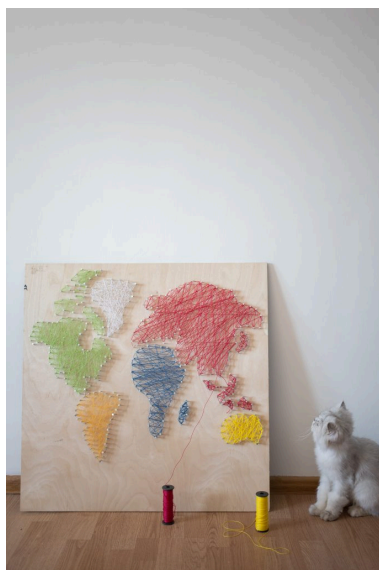


# CHAPTER 3 - TONIC/ COLLECTION AND SOLFÈGE

Most music has some culturally agreed-upon frame of reference for its pitches. This frame of reference is like a map: it shows the possible locations one could go to and also indicates how these locations are connected.

There are many different ways this musical map is constructed within different cultures and subcultures,

but the one we'll focus on is typically called a **key**. (Most of our discussion will also be relevant to the **diatonic modes**.) Some of the principles we'll work with here can be translated to different musical cultures, but it's important to note that



different systems often have different fundamental assumptions: for example, in a key or diatonic mode, we often describe notes as “locations” within a scale, but some cultures associate them with gestures, tunings, and decorations, and they may be thought of differently depending on where they “go” next.

It’s useful to think of a key as a combination of two things: a **collection** of notes, and a **tonic**, or the most important note. For example, the keys C major and A minor have the same collection of notes defined by their key signatures, but they have different tonics (C vs. A). C major and C minor have different collections of notes, but they have the same tonic.

Many, perhaps most, people, are reasonably accurate at listening to music and figuring out its general contour: whether it’s going “up” or “down,” and whether the size of that motion is small or large. But to figure out exact pitches, many people without absolute pitch benefit from using an internalized model of key to compare to the music to “measure” exactly what’s going on. Those with absolute pitch can also benefit from internalizing models of key because this is a significant element that imbues music with “meaning” and helps to define harmony (chord progressions).

The situation is similar when making music, particularly when sight-reading. If we get started at the right point in the scale and can follow up-and-down motion in the score, we’ll often perform most of the pitches accurately. But when leaps are large or awkward, that internalized model of key becomes



important. And paying attention to where we are within that model helps us “shape” the music because certain notes and contexts have more “tension” than others.

Fortunately, if you’ve listened to and/or performed lots of music in a key, you have already started to internalize this map. We’ll simply work on making it more detailed and conscious, and making sure you know how to use it.

One final note: Several sections of this chapter draw on recommendations by pedagogue Gary Karpinski, author of the textbook *Manual for Ear Training and Sight Singing* and the pedagogy manual *Aural Skills Acquisition*. We are grateful to Karpinski’s pioneering work.

## Learning Objectives

Students will be able to:

1. Describe the elements that lead a note to sound like a tonic.
2. Aurally determine the tonic of a nonmodulating melody or full musical texture.
3. Aurally determine whether a passage of music

modulates or not, and hum the tonics.

4. Sing scales using a chosen moveable-tonic solfège system.
5. Mentally set up a key context around a desired note.
6. Sing notes within a key, using syllables from a chosen moveable-tonic solfège system.
7. Mentally set up a new key, after having established an old one.

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## Image Attributions

- Figure 3.1 “Kitten sitting on floor near string artwork” by Monstera licensed under a Pexels license.
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# SETTING UP AN INTERNAL MAP OF KEY

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Internalized maps are funny. You likely have paths or roads you follow every day, perhaps without even needing to think about them—and yet you may have trouble describing them to someone because they are so automatic for you.

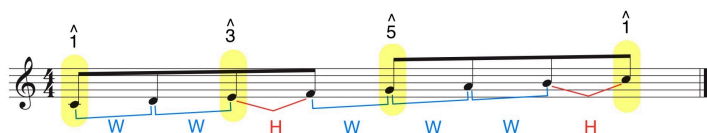
We guarantee, if you have listened to and/or made much music in a key, that you have internalized certain musical paths through major and minor keys. Sometimes we want to follow our automatic routes along those paths. But as musicians, it will be helpful if we have some conscious control over our internalized maps—calling them to mind when necessary, imagining them from different perspectives, starting in different places, and even sometimes shifting the map around us to create a new geography through which to move.

This section will help you develop ways to set up your musical map internally before you start making music. This is particularly helpful when sight reading music that you've never heard before, but building internal models will help us do almost all more-complex skills more accurately and confidently. At first, as we're building our internal models, our methods will be out-loud and conscious, but with time your

internal models will strengthen and you will be able to assume a key context more quickly and silently.

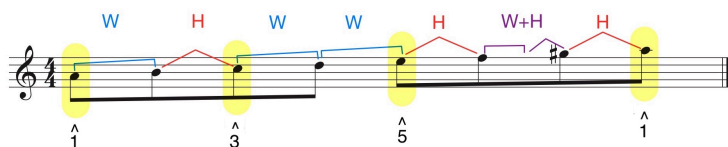
You're encouraged to use your voice to follow the procedures below. Using an instrument can also be effective, but we don't always have instruments with us, and for a lot of people, the voice has (requires!) a more direct relationship with imagined sound in the brain. Since we want to internalize the patterns, getting at the brain is crucial. Of course, if your voice-brain connection is problematic, and especially if you are so familiar with an instrument that it feels like an extension of your body, imagining motions related to that instrument may be just as useful.

A lot of music starts on notes of the tonic triad (scale degrees 1/*do*, 3/*me/mi*, and 5/*sol*). Here's how those notes relate to the half steps within a major key:



And here's how those notes relate to the half steps within a minor key. Notice the added note, raised scale degree 7 ( $\sharp 7$ )/*ti* : while this note is not in a minor key signature, it is so commonly used that many people hear it as part of the key. If we accept that, then there are three potential half steps in a minor key: scale degrees raised 7–1/*ti-do*, 2–3/*re-me*, and 5–6/*sol-le*. If you want to find all three, great, but in our

experience, scale degrees raised7–1 plus one of the others is usually sufficient.



As you may know, historically, one important method of establishing a tonic note is a chord progression known as the “five-one” or “authentic cadence.” While there’s plenty of triad-based music, especially more recent popular music, that does not rely heavily on this relationship, we have found that it is still familiar enough to most of our students that using it to establish a tonic is typically effective. Since we’ve urged you to use your voice, we’ll need to rely on melodies associated with that chord progression to establish the key, rather than the chords themselves. The two that we find most effective are scale degrees 5-1/*sol-do* and scale degrees raised7-1/*ti-do*. (In a minor key, the latter uses the raised scale degree 7.)

Here are some patterns that we have found helpful in establishing a map of key around different scale degrees.

Major key:



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*can view it online here:*

*<https://uen.pressbooks.pub/auralskills/?p=50#h5p-6>*

Minor key:



*An interactive H5P element has been excluded from this version of the text. You can view it online here:*

*<https://uen.pressbooks.pub/auralskills/?p=50#h5p-7>*

### Activity: Internalize key-establishing patterns

Goal: Make the key-establishing patterns so automatic that they can be called to mind silently if necessary.

Instructions:

1. Choose a mode (major or minor) and a starting scale degree (scale degree 1/*do*, 3/*me*/*mi*, or 5/*sol*) and play yourself a starting pitch.
2. Identify the appropriate pattern to establish the selected key around that pitch, treating it as the selected scale degree.
3. Sing or imagine the appropriate pattern. At first, you may wish to sing aloud and have a partner or instructor give you feedback
4. When repeating these steps, you may choose a new starting pitch, but it is also useful to use the same starting pitch and see if you can treat it as a different scale degree—shifting the map around you to create a new geography.

Activity: Communicate a key through improvisation

Goal: Develop an understanding of how an internal sense of key relates to sound.

Before you start: Decide whether to do this activity vocally or on another instrument. Working vocally exercises your internal sense of key more; using another instrument gives you more pitch security, which may allow you to focus more on how to communicate through pitch choice.

Instructions:

1. Choose a mode (major or minor) and a starting scale degree (scale degree 1/*do*, 3/*me/mi*, or 5/*sol*). Your goal is to come up with some music that clearly conveys your chosen key to a listener.
2. Plan out a melody that will convey the collection (by incorporating at least one half-step from the scale) and the tonic (by using gestures such as scale degrees 7-1/*ti-do*, arpeggios of the tonic triad, cadence patterns such as ending on scale degree 2/*re* or 1/*do*, etc.).
3. Consider also how you will “shape” your melody to have a clear high point and a sense of coming to a rest at the end.
4. Choose a starting pitch, either from your head or from an instrument, and set up the key *silently*.



5. Perform your melody. (You may decide whether to use even rhythmic values or something more rhythmically interesting.)
6. Optional: ask a listener to identify the tonic and mode (major/minor) that you intend to convey. If they do not hear what you intended, workshop with them on how you might more clearly convey the key.

Activity: Apply key-establishing patterns to music reading

Goal: Develop the habit of establishing a sense of key before reading music

Before you start: Find some notated music. Sight-reading anthologies are useful because they have lots of short melodies—just make sure you work from a chapter that mixes different keys, including major and minor if appropriate. You may

alternatively apply this to music for your primary instrument. You are recommended to work with your voice even if the music is for a non-voice instrument.

Instructions:

1. Identify the intended key by inspecting the key signature and the emphasized notes. (Recall that scale degrees 1/*do* and 5/*sol* are often emphasized.)
2. Identify the scale degree of the starting note of the melody. Play yourself a starting pitch.
3. Singing or imagining the appropriate pattern specified above, establish the key from that starting pitch. If the starting scale degree is not a member of the tonic triad, you may have to adapt the patterns.
4. Optionally, sing the opening several notes.
5. As we're trying to develop the habit of establishing a key before making music, it's helpful to repeat these steps over and over with additional melodies.

# IDENTIFYING A KEY BY EAR USING INTUITION

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So far we've worked on activating our internal models of key by making sounds ourselves. It's also useful to activate these models when listening to music. Our internal "map" gives us a tool to figure out what's going on in the music, allowing us to play the music back, transcribe it into notation, and make music along to it.

Of the steps below, determining tonic is the more difficult one for most people. Tonic is really complicated. Many melodies start or end on the tonic, but not all. Bass (lowest) lines very often emphasize the tonic at the beginning and/or end, but not always, and bass lines can be more difficult to track than the melody. The tonic might be the most common, longest, or most emphasized note in the melody, but it might not.

What factors, then, lead us to hear something as a tonic? Here are a few:

- Use of the note in melodies at points of rest (scale degree 2/*re* is also common)
- Prominent use of the note in bass lines, especially at the beginnings and ends of phrases and sections

- Chord progressions that are associated with establishing the key, especially authentic cadences
- Common melodic patterns—these differ by the repertoire you’re listening to
- Mere emphasis—but where the other factors are prominent, they will usually outweigh this one

With something so complex, it’s nice if we can rely on and refine our intuition rather than ponder each of these factors one by one. That’s why we start by describing a method to tap into your intuition, drawn from suggestions by pedagogue Gary Karpinski; additional methods are presented in the next section.

Just like in the section on setting up a key, you’re encouraged to use your voice at first, but should eventually be able to figure out the key without using your voice.



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## Activity: Explore the Collection

Goal: Use your intuition to sing the notes of the key of a song you've heard.

Instructions:

1. Choose a song from the playlist below and listen to it for a while. (We recommend at least one phrase of melody, and/or about 30 seconds.)
2. Hum or sing a note you remember from the song.
3. Move around by step, exploring the sounds you've been hearing both up and down. If this is hard, or you consistently find yourself making sounds that aren't in the key, this is a good sign you should work with someone one-on-one.
4. This isn't absolutely necessary for determining the key, but optionally, see if you can find all seven different notes of the scale. (No need to worry, yet, about which one is the tonic.)



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*<https://uen.pressbooks.pub/auralskills/?p=54#oembed-1>*

Suggest a song for this playlist!

## Activity: Finding Tonic

Goal: Use intuitive methods to find the tonic of a piece of music, and, ultimately, strengthen our intuition of tonic.

Instructions:

1. Choose a song from the playlist below and listen to it for a while. (We recommend at least one phrase of melody, and/or about 30

seconds.)

2. Optionally (but recommended, at least at first), hum a pitch that you remember from the song, and move around by step up and down to explore the notes that you were hearing. If this is a challenge, revisit the previous activity on determining collection.
3. Choose a high note from the collection and hum or sing it. It's often helpful if it's a prominent note in the song, but this is not necessary.
4. "Walk" down the scale step by step until you feel like you've "arrived" on tonic. Keep in mind that scale degree 5/*sol* and scale degree 1/*do* are often confused, at least at first. If this is difficult, work with a tutor or instructor.



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Suggest a song for this playlist!

# IDENTIFYING A KEY BY EAR: OTHER METHODS

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If the “intuitive method” of identifying a key doesn’t work for you, a nice complementary method is to use playback on a non-voice instrument to work out the pitch relationships. After hearing the music, use your best intuition and trial and error to work out how to play it back. Once you’ve done so, pay attention to the notes used, particularly where there are half steps and whole steps. These factors can help you intuit where the tonic is.

If finding tonic is still difficult with this method, note that many people find that extensive practice with some system of pitch solfège—described in the next section—can help build your intuition.

One final note: it is possible, even in music mostly based on a key, to have passages of music where there is no clear tonic or where there is legitimate ambiguity among several possibilities. This is common in transitional passages, as well as in loop-based music without clear key-establishing progressions.



## Activity: Find the Collection and Tonic

Goal: Use instrument playback as a tool to work out collection and tonic from a piece of heard music.

Before you start: You will need a non-voice instrument for this activity. The more intuitive you find this instrument, the better.

Instructions:

1. Choose a song from the playlist below and listen to the first phrase of the melody as often as you need to lodge it in your memory.
2. Using trial and error as necessary, work out how to play that phrase back on your chosen instrument. If you need to, you can replay the melody, but do as much as you can from memory.
3. Once you can play the melody back, think about the pitches you used and how they relate to each other. You may wish to rearrange them into a scale. Thinking of them in stepwise relationships, where are the half

steps? Make your best guess as to the key.



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Suggest a song for this playlist!

# SOLFÈGE

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One time-tested model for internalizing a model of key is solfège, also known as “solfeggio” and “tonic sol-fa.” There are several systems that people use, and they have different advantages.

Two systems, “**moveable-do (do-based minor)**” and “**scale degree numbers,**” always associate the same syllable with the same scale degree. These systems are applied to the notes of C major and A minor scales below.

## Movable do and Scale Degrees



## Movable do and Scale Degrees (do-based minor)



Another system, “**moveable-do (la-based minor)**” is similar but with a different approach to showing the relationships between major and minor keys.

## Movable do



## Movable do (la-based minor)



The last major system, “**fixed-do solfège**,” uses the syllables *do-re-mi-fa-sol-la-si/ti-do* to represent the names of specific notes rather than scale degrees (C = do, D = re, etc.).

We prioritize scale degree identity and finding tonic in this text, so we will use moveable-do (*do*-based minor) and scale degree numbers. Nevertheless, you may wish to use a different system. We will refer to all of them with the term “solfège.”

Merely memorizing major and minor scales using the system of your choice is a great start, but is not yet enough to make a solfège system as useful as it can be. Music is complicated, and the richer the models of solfège you internalize, the more powerful the system will be. In particular, it can be useful to practice the most common leaps within the scale.

To maximize the power of your internalized system of solfège, however, you should simply learn as much music on solfège as you can.

### Activity: Sequentials

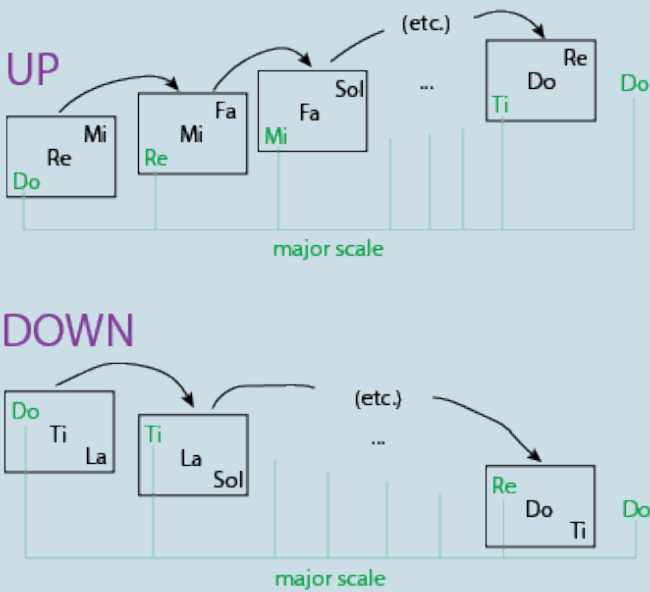
Goal: Learn a system of solfège, and get used to using it to model both steps and leaps.

Instructions:

1. Sing a scale (major or minor) using your preferred system of solfège.
2. Come up with a short pitch pattern (several examples are below). Sing it on each successive degree of the scale going up (see example image below).
3. Figure out how that pitch pattern would

sound if all the generic intervals remained the same size but went the opposite direction (up vs. down). Sing the “upside-down” pattern on each successive degree of the scale going down (see example image below).

Possible models: *do-re-mi* (shown below), *do-mi*, *do-ti-re-do*, *do-re-mi-fa*, *do-mi-fa-mi*, etc.



Example of how a sequential works

### Activity: Familiar songs on solfège

Goal: Enrich your solfège-based model of key by working with songs that do not simply repeat the same pattern.

Instructions: Choose a song that is very familiar to you. Work at first with relatively simple songs such as Twinkle, Twinkle, Little Star and Row, Row, Row Your Boat; as you get comfortable, move to more complicated songs. Sing the song on syllables appropriate to your preferred system of solfège.

### Activity: Solfège and your repertoire

Goal: Make connections between solfège and your own music-making outside of class.

Instructions:

1. Choose a piece of music for your primary instrument. Working with both familiar songs and songs you've never heard or played are useful in different ways.
2. Choose a melodic passage in the song that uses no, or relatively few, accidentals and is of manageable length (likely 4–8 measures). Make sure you know what key the passage is in (this may be different from the key of the song as a whole).
3. Look over the passage, working out how to sing it in your preferred system of solfège.
4. Sing through the passage using the appropriate solfège syllables.
5. Sing/play through the passage as you normally would, without the solfège.
6. Finally, sing/play through again, this time *imagining* the syllables.

Activity: Build your solfège vocabulary



Goal: Enrich your ability to apply your internalized model of solfège to different situations through a systematic approach.

Instructions: Work through excerpts of music from a sight-singing anthology. For each excerpt, look it over for 30–60 seconds, then sing it through on solfège. Since sight-singing anthologies are typically organized by topic and are designed to go from easy to hard, working through systematically will build your ability to approach different kinds of situations with your understanding of solfège.

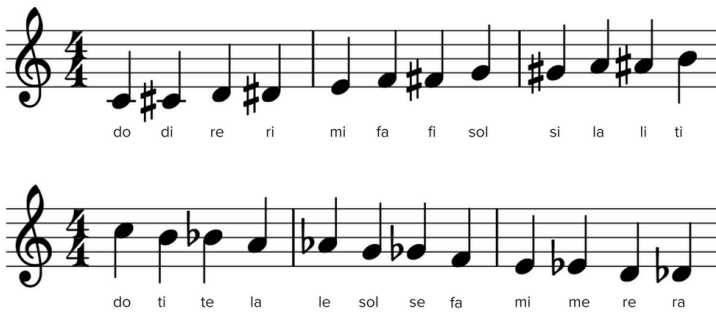
# CHROMATICISM

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Solfège focuses our attention on the primary notes of a key (“diatonicism” or “diatonic notes”), but most music uses at least some notes outside of the key (“chromaticism” or “chromatic notes”). Those notes are typically assumed to relate to the notes within the key: this is why, in notation, they’re represented with the same notes, simply altered with a sharp, natural, or flat.

Of course, there’s also music where notes altered with a sharp or flat seem just as “structurally” important as the other notes. Where this is the case, the music may not be based on a major or minor key or mode, and solfège may no longer be very useful. For that reason, we’re not talking about that music here.

People address chromaticism through solfège in different ways, but most often they preserve the idea that chromatic notes relate to diatonic notes. Here is one way that solfège can be used to represent chromatic notes:



Anytime that chromaticism is making things more complicated, remember the importance of the relationship between diatonic and chromatic notes. The more we can make this connection—emphasize the “place” of chromaticism within our “map”—the more logical and the less disorienting chromaticism will be.

We’ll do some activities here to start to build these connections, and we’ll follow up with more in the sections on transcription, dictation, sight reading, and improvisation skills.

Activity: Sequentials

Goal: Get used to using chromatic solfège, and common ways that chromatic notes relate to diatonic notes

Instructions: In the section on solfège, we introduced an activity called “sequentials” where you repeat a pitch pattern on every scale degree going up, and then the same pattern upside-down on every scale degree going down. Practice the sequential patterns below to develop your ability to use chromaticism.

- Chromatic passing tones: *do-di-re* (alter the pattern on *mi* and *ti* to *mi-mi-fa* and *ti-ti-do*)
- Chromatic neighbor tones *do-ti-do*, *re-di-re*, *mi-ri-mi*, etc.

Activity: Identify how chromatic and diatonic notes relate

Goal: Get used to relating chromatic notes to a

diatonic framework to improve tuning, key stability, and musicality.

Before you start: Locate some music that includes occasional chromatic notes. Sight-reading anthologies can be helpful because there are often chapters on chromaticism. If you practice with chapters on specific types of chromatic tones (“chromatic neighbor tones,” for example), you may wish to also find a later chapter that mixes different types.

Instructions:

1. Scan the music for chromatic tones. For each chromatic tone, identify its function as a chromatic neighbor, chromatic passing tone, or other.
2. Establish the key if necessary.
3. Sing through the music, ignoring the chromatic tones. (You may either lengthen the note preceding each chromatic note or simply ignore the accidentals on the chromatic notes to sing them as diatonic.) Repeat as necessary to establish a clear diatonic framework.
4. Once you’ve established this diatonic framework, re-introduce the chromatic notes

and sing again.

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## Image Attributions

- Figure 3.7 “Standard Form of Solfege” by Musicnotes Now.  
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# PERFORMING MODULATION

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At this point, we come full circle. We started our discussion of tonic/collection and solfège with the skill of setting up a model of key internally; now we end the section by returning to that skill, using it to establish multiple keys in succession.

This skill can be useful anytime you're performing music and there's a change of key. In later study, we'll apply this skill to the domains of improvisation and sight reading, including how to determine if the music you're reading has changed keys. Here, we simply work on the foundational skill of changing your internally-set-up key.

Remember that key typically has two components: collection and tonic. When you're seeking to transition to a new key, these are still the important aspects to focus on.

Of course, the most reliable way to change keys would probably be to stop the music and repeat the methods from the previous "setting up a key" section. But in most situations, this isn't appropriate—the music needs to keep going! And while stopping and re-starting in this way may help us set up each key accurately in and of itself, it makes it difficult for us to feel the *connections* between the keys—an important element of a lot of music. It would be really useful to have quicker,

“short-cut” methods that help us make a quick change—and such methods will be our focus here. Just note that they may not be reliable at first until the skills developed earlier in the chapter are more solid.

The primary method we’ll introduce is simply to focus on changing the half/whole-step context of the melody at the moment of modulation. Often, music works in such a way as to facilitate this: the melody comes to a certain scale degree in the first key, and then the melody continues from this same note, reinterpreted in a new key. Perhaps that note had a whole step above it in the first key but a half step above it in the second key: if so, then especially if we’ve really internalized the patterns in the “Setting Up a Key” section, we may be able to quickly visualize/hear that changed interval as we perform that note, helping us to lock in to the new key. Note that this method focuses on changing the collection, leaving the tonic implicit. If the “Setting Up a Key” methods are well-internalized, we can often still intuit the tonic from this change of collection; if not, we may need to strengthen those methods first.

Where this method doesn’t work (say, there’s no shared melody note across the two keys, or there’s a transitional section where neither key is clearly primary) or we just want to use a different method, we may need to rely on moment-to-moment strategies until the new key is established. We have all internalized a certain number of short, key-independent musical models, such as important intervals or triads or the



ability to imagine playing something on our primary instrument. Whatever they are, we will need to apply them until the new key becomes clearly apparent. As we do so, we simply need to focus on how these models contribute to our sense of collection and tonic.

### Activity: Shifting triads

Goal: Get used to intentionally changing key context.

Before you Start: This works well as a group or pair activity, with one student choosing from the lists in step 1 and another student or other students doing the resulting exercise.

Instructions:

1. Choose one item from each of the following lists. List 1: root, third, fifth. List 2: root, third, fifth. List 3: major, minor.
2. Set up whatever key you like however you wish, then sing its tonic triad.
3. Sing the note of that triad indicated by your choice from List 1. Then reinterpret that note as the note indicated by your choice from List

2 in the type of triad indicated by your choice from List 3, and set up the key of that new triad's root vocally. For example, if you started in C major and chose third, fifth, major, you'd sing the note E (the third of the triad), then reinterpret E as the fifth of a major triad and set up the key of A major.

4. As you get more confident, see if you can sing the new triad without setting up the new key vocally. For example, you might try to hear the key-establishing progression in your head, or even leap right into singing the new triad without preparation.

Activity: Establish a new key

Goal: Learn to establish new key contexts in as little time as possible.

### Instructions:

1. Choose a starting key and an ending key. You could base this on the keys written in an excerpt you wish to sight read, keys you want to establish in an improvisation, or however you would like.
2. Decide where you will need to change your key context. For example, if you're reading a notated excerpt, determine where changing your context to a new key will help you read it more easily. If you're improvising, decide on a method to modulate: for example, perhaps you will come to a rest on a note shared between the keys and modulate there.
3. Perform the music, making the modulation in a manner appropriate to your level of comfort. At first, you may need to stop the music and set up the new key at some length. As you get more comfortable, see if you can simply sing or imagine a single new note of the key or two to "lock in."

# LISTENING FOR MODULATION

Daniel Stevens

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So far, we have focused on strategies for identifying and internalizing the tonic pitch and the pitch collection. These elements provide the foundation for many of the musical relationships found in tonal music as well as how we perceive those relationships. As listeners, our expectation that scale degree *7/ti* resolve to scale degree *1/do*, that a melody will return to the tonic, or that harmonies within a key will be a particular quality every time they occur are all based on our perception of the tonic pitch and the pitch collection.

Given their foundational importance, it is always significant when the tonic note and pitch collection shift. Modulations are like musical earthquakes: they shift the tonal foundations established earlier in the piece, shaking every tonal relationship built upon them.

Modulations occur frequently in some genres and infrequently in others. No matter the context, modulations provide delightful challenges to listeners that invite them to explore the meaning of the music's change.

Modulations occur when either the tonic or pitch collection

changes. Modulations can occur only once in a long section, as is common in sonata-form expositions or operatic arias, or very frequently, as is typical of sonata developments and operatic recitatives. Knowing something about the genre can help you predict whether or not, and where, a modulation is likely to occur. Likewise, knowing where you are in the musical form can help you anticipate whether a modulation is likely to occur in the middle of a phrase or between phrases. As you listen, always be on the ready for both!

In this section, we will focus on developing the ability to hear that a modulation has occurred. In addition, we will learn some strategies for identifying the new (destination) key of a modulation.

As earth-shaking as modulations may be, they are surprisingly easy to miss when listening to pieces from the repertoire. In many cases, composers change only a single note to create a modulation, and modulations are common enough in certain styles that they may seem to blend in to the context. Keep all this in mind: when we listen for modulations, we have to know precisely what to focus on in the music to perceive that it has changed.

Let's dive in! You may find that you have a decent intuition as to when the key changes. But if not, or to refine that intuition a bit, try simply extending your perception of tonic into the listening process. Early in this chapter, you developed some tools for finding the tonic. As you listen, try singing or audiating scale degree 1/*do* loudly in your voice and inner

ear, and maintain an awareness of the collection of notes that surround scale degree 1/*do*. Also listen for those elements that reinforce scale degree 1/*do*, including the presence of *do*/1 in the bass, at the end of melodies, at many cadences, and as the stable note to which scale degree 7/*ti* and scale degree 2/*re* resolve. When a piece of music modulates, almost all of those elements will change, causing the pitch that used to be scale degree 1/*do* to feel like a different scale degree. Remember: the pitch that was scale degree 1/*do* may still feel quite “at home” in the new key, but its scale degree identity, and all the tonal relationships that surround it, will have suddenly changed.

### Activity: Find the modulation

Goal: Develop a sensitivity to when sounding music modulates to a new key.

Instructions: Listen to songs from the playlist below. For each, identify the location (in minutes:seconds) at which you feel that the piece has modulated. As you start, you should aim to identify the modulation by ear within 15 seconds of its occurrence in the music. As you progress, aim to hear the modulation

almost immediately, within 5 or fewer seconds. If you are having difficulty, once you've found the initial tonic, try humming it to see if you can detect when it no longer feels like "home."



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Suggest a song for this playlist!





# CHAPTER 4 - MUSIC'S MATERIALITY: TIMBRE, ENVELOPE, DYNAMICS, REGISTER, AND TEXTURE



This chapter focuses on five musical elements that profoundly shape our experience of sounds: timbre (pronunciation: 'tam-bər), envelope, dynamics, register, and texture. These elements (especially the first three) are harder to quantify than elements like pitch, duration, or harmony, for which musicians have conventional symbolic notation. Not surprisingly, these elements often do not receive significant focus in aural skills curricula. The activities in this chapter are designed to help you develop better attentional awareness as a listener and auditory/expressive control as a performer.

Why include an entire chapter on these musical elements? It's been said that one of the most powerful aspects of a text is not what is *said*, but what is *assumed*. Similarly, musical elements like timbre, envelope, dynamics, and register have an immediate, visceral impact that seems to bypass the need for critical inquiry. By analogy, if a random stranger were to

suddenly yell in your face (as once happened to an author in a metropolitan center), you might pause to consider why the event is happening (or how to escape it), but you would likely not take time to analyze the intensity or grain of the voice. You just *feel* its brute force. The same goes for timbre, envelope, dynamics, and register. We call these features the “materiality” of sound, given their analog to the feeling or touch of different materials used in textiles or plastic arts. Thinking about the materiality of sound also invites listeners to consider the relationship between these sonic elements and the instruments, voices, performers, and actions that create them.

Notably, elements such as timbre, dynamics, and register lend themselves well to scientific visualizations that rely on graphic representation rather than staff notation. Unfortunately, such visualizations—which include spectrograms and waveforms—are complicated and not commonly used in music education, so they are not ideal as source material. Instead, we will use descriptions and metaphorical language.

This chapter is currently much shorter than it would be if we ourselves had better training in these elements of music. We hope in future work to expand the chapter, particularly to include materials related to sound processing and effects.

## Learning Objectives

Students will be able to:

1. Identify instruments by ear.
2. Describe timbres using metaphorical language.
3. Describe the envelope of a musical sound.
4. Describe the dynamic range used within a particular passage or texture.
5. Describe the registers used in a piece of music and how they change throughout the song.
6. Identify common textures by ear.
7. Create and manipulate sounds by simultaneously morphing two “material” elements (timbre, dynamics, register).

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## Image Attributions

- Figure 4.1 “Untitled” by cottonbro studio licensed under a Pexels license.
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# MUSICAL TIMBRE: INSTRUMENT IDENTIFICATION

Daniel Stevens

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Timbre refers to a sound's unique sonic properties or characteristics. We might use words like bright, grainy, mellow, dark, rich, or brash to describe the sound of a particular instrument or voice. In each case, we are describing the timbre of the sound.

Timbre is created in part by the combination of overtones that naturally reverberate above the base sound, called the “fundamental.” The intensity of each overtone is dependent on numerous factors, including the shape and material of the instrument, the ways in which resonance is created and sustained by the instrument, and external factors such as how the instrument is held, the recording technologies used to process sounds, and the space in which it is played. (Recording technologies and performance spaces function as secondary instruments, as they shape the way a sound reverberates and is perceived.)

The first two activities below invite you to explore and

describe timbres created through the voice and on an instrument.

Activity: Create and describe different vocal timbres.

Goal: Create and manipulate timbres using your voice.

Instructions:

1. Sing a steady pitch for 10 seconds using one single breadth.
2. As you sing, enunciate the following long vowel sounds, slowly morphing from one sound to the next: A – E – I – O – U. (As you manipulate the sounds, be sure not to change the pitch or dynamic.)
3. Describe the timbres that you created while singing each vowel.
4. Describe any salient hybrid timbres that you noticed as you were transitioning between vowels.



Activity: Create and describe instrumental timbres.

Goal: Create and manipulate timbres on an instrument.

Instructions:

1. Choose an instrument that you know how to play.
2. Play what you would consider a “normal” sound on the instrument and describe its timbre. In some cases, it may be appropriate to describe the “attack” of the note differently than its “sustain.”
3. Explore the timbral range of the instrument (including extending techniques) by creating as many unique sounds as you can. The challenges below might help:
  - How many timbres can you create on a single pitch?
  - How does the instrument’s timbre change when increasing or decreasing the volume/intensity of the sound?

- How does timbre change across registers?
- How many gradations of timbre can you create between some of the unique timbral possibilities that you created?

After completing one or both of the activities above, we encourage you to reflect on your experience by considering how you might create and manipulate timbres more intentionally as you perform. How often do you use timbre to help color or express the musical idea? Are there pieces that you are currently playing that invite you to use widely different timbres? How often do you audiate the timbre of the sound before you play in addition to the pitch, dynamic, etc.? As you prepare a piece for performance, how might you use timbre to add greater dimension to the sound of your performance?

One way that musicians regularly exercise their ability to distinguish timbre is by aurally identifying the sounds of different instruments. The better one can identify instruments or voice types in a band, orchestra, or choir by ear, the better one's sensitivity to subtle but impactful timbral differences.

## Activity: A Young Person's Guide to the Orchestra – Benjamin Britten

Goal: Identify instruments and instrument families by ear, and develop descriptive vocabulary for timbre.

Instructions: Listen to Benjamin Britten's A Young Person's Guide to the Orchestra. Describe the timbral qualities of each of the instrument groups (woodwinds, brass, strings, percussion) and individual instruments that are used during the presentation of the theme and variations.



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## Activity: Identify instruments by ear

Goal: Identify instruments by ear.

Instructions: Listen to the following excerpts and identify the primary instrument or instruments you hear.



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Activity: Organize sounds by similar and different timbres

Goal: Compare timbres by ear

Before you start: Download some sampled sounds from an open-access sound library such as Spitfire Audio or sample them from real pieces. The sounds can be produced either with acoustic or electronic instruments.

Instructions: Listen to the various sounds, compare their timbres (sound qualities) independent of other parameters like pitch, and create two collections: the first collection should contain three samples that have highly similar timbres, and the second should contain three sounds with highly distinct timbres. Optionally, explain your choices to a friend.

# MUSICAL ENVELOPE

Daniel Stevens

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The “envelope” of a particular sound is defined by four distinct qualities: attack, sustain, decay, and release. Within each of these qualities is a spectrum of possibilities, all of which can combine into a seemingly infinite array of sound articulations. While this framework is primarily used to create electronic sounds, the terminology is also useful in describing acoustic sounds.

- The **attack** refers to the beginning of the sound. Attacks can be hard and percussive, soft or nearly silent (e.g. a sound that fades in), or anywhere in between. The attack spans from the onset of the sound to its “peak” (the point of highest intensity), after which the decay begins. This span often happens quickly, but it can also be stretched over time.
- **Decay** refers to a rapid decrease in the sound intensity that occurs immediately after the peak of the attack. Sounds created on percussive or plucked instruments (e.g., piano, harp, xylophone, cymbals, gong) feature a natural decay. For wind instruments, the decay of a sound can occur due to the changes in air support or

availability.

- **Sustain** refers to the portion of the sound following the delay. The sustain features a relatively constant intensity and may be characterized by different qualities and effects, such as fluctuations of dynamics/intensity, vibrato, or timbral change. Percussive or plucked instruments do not allow for any sustain, while others (e.g. stringed and electronic instruments) can sustain notes seemingly indefinitely.
- Finally, the **release** refers to the end of the sound. Releases can range from hard stops to slow fade outs with soft or near-silent endings.

Activity: Explore the musical envelope using a spoken word

Goal: Develop an understanding of attack and release.

Instructions: Find four single-syllable words that feature different combinations of hard and soft attacks and releases. Experiment with saying the words in different ways by manipulating your

performance of each of the four aspects of the sound envelope. Perform your chosen words in different ways for a partner, and ask them to describe the performance decisions that you made. Optionally, try to imitate the envelope of these words on an instrument.

Activity: Describe the musical envelope of spoken word poetry

Goal: Develop an understanding of, and sensitivity to, sound envelope.

Instructions: Listen to a recitation of poetry. Focus on one or two words, and describe how the speaker manipulates aspects of the sound envelope and to what effect.



## Activity: Apply the musical envelope to music

Goal: Describe the envelope of a given sound.

Instructions: Choose a piece from the playlist below and describe the sound envelope of specific notes or instruments in the recording.



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# MUSICAL DYNAMICS

Daniel Stevens

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Sound waves have two distinct qualities: their frequency, which determines pitch, and amplitude, which determines the intensity of the sound. Musicians typically call the intensity of the sound its dynamic, and like other elements discussed in this chapter, it is easy for musicians to take dynamics for granted. After all, many musicians have been learning to play piano and forte since their very first lesson.

Nevertheless, dynamics are an impactful element of sounds. Sudden changes in dynamics can startle and scare, and the combination of different dynamics can create a unique sense of spatiality within a piece, even if all the parts are played by the same performers (such as in a solo piano piece). In the 20th century, composers applied serial techniques (a specific kind of musical ordering) to dynamics, such that specific sounds would be performed along a broad dynamic spectrum from *ppppp* to *fffff*. Although we may sometimes take the dynamics of a piece for granted, they are nevertheless an iconic element of some pieces. Imagine, for instance, Johannes Brahms's Lullaby or John Williams's Jaws motive performed at *ff*, or Led Zeppelin's "Black Dog" sung at a mellow *mp*. In fact, it

is difficult to imagine almost *any* piece of music for which its dynamics are not an integral part of its expressive content.

Listening carefully to dynamic contrasts is critical for both performers and conductors. Performers can use dynamics to shape phrases, delineate musical sections, and create expressive effects (e.g., surprise, quietude, intensification). Conductors and performers alike must shape dynamic levels across multiple parts to create balance, textural clarity, and effective voicing.

In addition to the activities below, we encourage you to be mindful of dynamic usage, shaping, and contrast as you perform and listen to music, whether in solo or ensemble settings. Developing an aural awareness and expressive control with regard to dynamic range can enhance your skills as a performer and listener.

Activity: Describe the use of dynamics in the performance of a musical work.

Goal: Increase awareness of the role of dynamics in shaping music perception and interpretation.

Instructions:

1. Choose a movement from the playlist below.
2. Describe how dynamics are used by the composer and/or performer to:
  - amplify musical form
  - delineate or contrast thematic and motivic ideas
  - manipulate timbre
  - create an overall expressive contour

Activity: Manipulate dynamic relationships while performing a musical passage.

Goal: Expand and explore the dynamic range of a musical passage.

Before you start: you will need a recording device

Instructions:

1. Choose a piece of music that you are currently learning.
2. Study the dynamics on the score, but also make note of how you are already using dynamics to shape musical phrases, sections, or the piece as a whole. Also note any areas where you are using dynamics to balance musical parts within the texture, voice harmonies, and create contrast (or similarity) between sections.
3. Create and record three unique renditions of your piece by changing the way you are using dynamics with respect to one or more elements noted in step #2.
4. Listen to the recordings and describe the differences between each of them. List any moments that were particularly effective and note how you used dynamics to create that performance.

Activity: Describe the use of dynamics to create balance within a texture.

Goal: Increase awareness of how dynamic differences can be used to create an overall dynamic profile and textural clarity.

Instructions:

1. Choose a piece from the playlist below.
2. Describe how dynamics are used to create a composite overall dynamic and to balance different lines of the texture.
3. Consider the following questions:
  - How does the use of dynamics create or obscure textural clarity?
  - How does the use of dynamics create a sense of space (with some instruments being closer or farther from the performer)?
  - How does the use of dynamics enable you to hear more or fewer lines at the same time?

- In cases where multiple melodies occur simultaneously, how do the dynamic contours of each melody relate to and align with one another? For example, are the melodies all shaped in similar ways? Do the dynamic contours overlap, or are they offset in expressive ways?

Playlist notes:

- The second movement of Charles Ives's Piano Trio is titled TSIAJ, which stands for "This Scherzo is a Joke." The movement quotes around fifty tunes popular in New England in the early 20th century; many of these tunes are often performed simultaneously.
- When listening to Strauss's *Don Quixote*, variation III, focus on the music that comes shortly after the 3:36 mark. At this point, Don Quixote's loyal sidekick, Sancho Panza, is finishing giving the main character some friendly, practical advice. Don Quixote interrupts, reminding Panza that their adventures are motivated by chivalric ideals and ultimately, by the lovely Dulcinea, who

sadly lives only in Don Quixote's imagination.

- *Cantabile*, by Latvian composer Pēteris Vasks, features contrapuntal writing that diffuses at times into sublimely radiant textures. Be sure to listen at least past the 2-min. mark.



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# MUSICAL REGISTER

Daniel Stevens

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Register can be described in general terms as the “highness” or “lowness” of a particular sound or figure (motive, theme, pattern). These terms, of course, reflect a particular culturally-defined conception of sounds as mapping to a vertical space in which sounds move “up and down” to “higher and lower” sounds; other metaphors for mapping sound relationships exist in other cultures.

Register can also be defined using the particular octave in which a pitch or figure occurs. When appropriate, we’ll use a system called “American Standard Pitch Notation” which has become commonplace in music theory classrooms. In this system, middle C is labeled C<sub>4</sub>, and the notes above middle C retain the label “4” until the C an octave higher is reached (D<sub>4</sub>, E<sub>4</sub>...B<sub>4</sub>, C<sub>5</sub>). These labels can be used somewhat flexibly to identify the register of specific pitches or musical figures. For example, a musical motive that occurs throughout the piece might be tagged by the register of its starting pitch. Noting the register in which certain musical elements occur within a piece can help you discover significant processes at work in a composition.

Thinking about register opens up a field of interesting questions to bring to pieces of music, including:

- In what register does important material occur and reoccur?
- Are there important locations where new registral high (or low) points are achieved? Are these points significant or “hard earned”?
- What is the registral space implied by a piece at its opening? Is there a registral “ceiling” or “floor” suggested by the piece, and does the piece work within those limits or move beyond them?
- How is register influenced by the instruments for which the music is composed? What is the range of each instrument, and which registers within that range does the composer employ?

Activity: Listening to repeating patterns in Brahms' Intermezzo

Goal: Develop a sensitivity to the register of

important events in music, and how those events change over time.

Instructions: Brahms's Intermezzo in A Major (Op. 118, no. 2) begins with a three-note motive (C#–B–D) that is transformed in various ways throughout the piece. List the Pitch-Register dyad of the first note of each instance of this motive.



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Activity: Finding a song where register plays an important role

Goal: Develop a sensitivity to register in music.

Instructions: Find a piece of music in which register plays a significant role. Improvise or recompose an alternative arrangement of the music that preserves most features but drastically alters the register. How does changing the register impact the music?

Activity: Describing register's role in a Beethoven Piano Sonata

Goal: Develop a sensitivity to register in music.

Instructions: Beethoven's Piano Sonata No. 3 in C major (Op. 2, no. 3) begins with a primary theme that seems constricted primarily to the C4–C5 register throughout (mm. 1–12). How does the rest of the piece unfold with respect to registers?



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# MUSICAL TEXTURE

Daniel Stevens

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Like timbre, musical texture is often described qualitatively with terms like thick or thin, transparent, heavy, busy, solo, and so on. Each of these terms is useful in so far as it describes a salient feature of the music.

Musicians sometimes use a set of technical terms to identify common textures. These terms are not perfect, particularly because they were defined by people with a certain cultural worldview, but they are common in discourse on music and worth learning. Below, each of these terms is defined and exemplified with a sound library. (We are grateful to the authors of Open Music Theory for some of the examples below.)

**Homophony (Melody + Accompaniment):** One of the most common textures used in classical, folk, jazz, and popular music alike, this texture is often simply referred to as “homophony.” Homophonic music features a clearly distinguishable melody along with accompanimental layers. While the accompanimental layers may have some interesting musical lines of their own (such as the bass line), these lines do not rival the melodic independence and ornamentation of the primary melodic line.



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**Homophony (Chordal):** Often referred to as “chordal homophony,” this texture features melody and accompanying lines that move mostly in the same rhythm, creating a hymn-like texture. Even in these cases, most listeners are conditioned to hear (and sing) the top line as the melody, and it is understood that the lower musical lines provide harmonic and contrapuntal support to the top melodic line. Despite that all of the lines are moving in a similar rhythm, the middle and bass voices play a supporting role and do not have the same melodic force as the top voice.

(Bohemian Rhapsody: 0–0:16 only)



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**Polyphony:** Polyphonic music features multiple lines of similar melodic content, quality, interest, and/or elaboration that are layered (often at different registers) within the texture. Each line of music moves autonomously and independently from the other voices, with no line serving a subordinate role to other voices.



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**Monophony (simple):** Simple monophonic textures feature straightforward melodic lines, either performed by a single voice (here, a real singer) or instrument, or by multiple voices in unison. Sometimes, multiple instruments play the same melody at different octaves or registers. Even so, the texture is still considered to be monophonic (simple). Below are some examples of simple homophony.



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**Monophony (compound melody):** Often in the Baroque style, composers would write music for a single instrument, but despite that only one note is playing at most times, multiple lines (melody, bass, and sometimes harmonies) are suggested. Here are some examples:



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**Heterophony:** Heterophony is very closely related to monophony, especially those simple monophonic textures in which multiple instruments play the same melodic line. The difference is that in heterophonic textures, the instruments play approximately the same melody line, but some parts

might add embellishments, rhythmic changes, or other minor changes. In heterophony, the parts sound alike and identifiable with one another, but they are not exactly the same (register differences aside).



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When identifying textures in music, keep in mind that pieces can freely move between textures both between and within musical sections. Rarely will music limit itself strictly to a single texture, though “textbook” examples of each type do exist. When asked to identify the texture of a particular excerpt in class or during assessments, focus on the texture that is exemplified by a majority of an excerpt.

Activity: Identify textures

Goal: Identify textures in sounding music.

Instructions: Listen to the songs in the playlist below. For each, identify the texture type at the beginning of the track. In addition to identifying the appropriate generic term from the list above, describe how the parts relate to each other in more detail using whatever metaphorical or literal language makes sense to you. Optionally, listen through the rest of the song and identify when the texture changes.



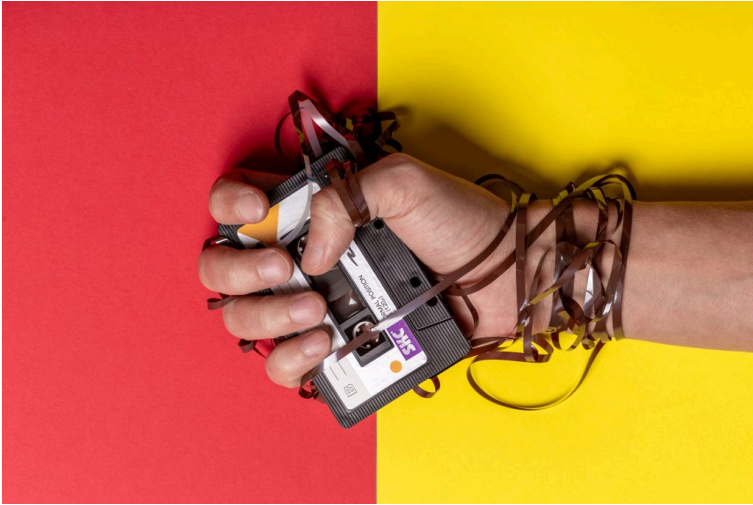
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# CHAPTER 5 - MUSICAL MEMORY



Experts typically think of memory as two interconnected systems.

On the one hand, there's **working memory**, which is focused on what you're doing right now. Scientists used to talk about "short-term memory," but then they noticed that when you're (for example) trying to focus on remembering a phone number while also doing a math problem, the memory and the math will interfere with each other. This suggests that whatever brain mechanisms are required for short-term memory are also required to work with information and

transform it. Music relies on our working memory constantly, as we process sounds we've just heard, written notes we are reading, the signals of our ensemble-mates and/or conductor, and more.

On the other hand, there's **long-term memory**. This is most obviously relevant when we memorize a piece of music and can still perform it from memory two weeks later. But long-term memory is also an important support for working memory. Working memory is limited: evidence suggests that our working memory can store and work with about 3–4 items at a time. If you could only work with 3–4 notes at a time, that would be very limiting! But your long-term memory stores the many patterns that you've gotten used to throughout your musical life—common chord progressions, cadence patterns, types of melodic decorations, the feeling of different meters, and more. Once something like this is defined as a “chunk” in your long-term memory, your working memory can work much more efficiently: instead of each note or chord or whatever filling an entire “item” in your working memory, you can now consider the entire chunk as a single “item” and thereby fit a lot more information into your working memory.

Believe it or not, “chunking” is an official, technical term that people who focus on the brain use. It may sound silly, but it is incredibly useful in helping us work with more stuff at a time in our working memory. Fitting more stuff in our working memory allows us to process music more efficiently, but it also can help us be more musical, as it can help us

focus on the relationships between notes rather than seeing them each as a thing in and of itself. So in this section we will be working a lot with this most unofficial-sounding technical term: “chunking.”

### Learning Objectives

Students will be able to:

1. Describe heard or notated music in “chunks.”
2. Define some of the most common chunk types: contour-based, harmony-based, NCTs, rhythmic cells, etc.
3. Describe how to reinforce musical memory through different ways of conceptualizing music (sound, solfege, physical motion, etc.)
4. Remember and sing back a pre-planned portion of a heard melody (“extractive listening”).
5. Describe how to improve one’s long-term memory of music.

## Image Attributions

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# FORMALIZING CHUNKS

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In the introduction to this chapter, we explained the importance of “chunks.” Anytime you’re thinking of music in *groups* of notes, rhythms, articulations, etc., you’re chunking. Chunking is relevant anytime we think about music, whether we are improvising, reading from notation, or listening.

Whatever you’re paying attention to as you decide what groups together is likely useful! But in this section, we’ll define some common specific chunk types that many musicians find helpful. You may or may not find these easy to spot/hear at first, and that’s ok—as we work with the various parameters of music throughout the text, this should get easier.

One more note before we get into the chunk types: there is always more than one way to describe/think about a passage of music. Sometimes we may focus on a repeated rhythmic chunk; the next time through the music we may be drawn to a melodic pattern; then later, we may notice how harmonies are implied in the melody in standard ways. Embrace, and experiment with, different ways of understanding music.

A proposed short list of common important chunk types:

1. **Rhythmic cells.** While rhythms are theoretically infinitely variable, in reality, certain rhythms are far more

common than others. Whenever we notice common/familiar rhythms, we can understand them as “chunks.” We’ll focus explicitly on these most common rhythms in the chapter on rhythmic cells. In addition, you might find that a given piece of music has a rhythmic pattern, likely short (2–4 beats), that comes back over and over (often called a “**rhythmic motive**”). This, too, is a great opportunity to understand that as a chunk whenever it returns.

2. **Scale fragments.** Passages of music that move by step through the scale, particularly if they only move in a single direction, can be understood as chunks. For example, such a chunk might be “a stepwise run from scale degree 1/*do* up to scale degree 5/*sol*.”
3. **Non-chord tone formulas.** If you’ve studied non-chord tones such as neighbor tones, double-neighbor tones, and suspensions, you can use your knowledge to group these as chunks, too. (Passing tones can be useful too, but they also fit into the larger category of “scale fragments.”)
4. **Harmony-based chunks.** If you’re able to identify chords, you’ll notice that there are certain ways that they tend to be reflected in a melody. This is true whether there is an accompaniment that clearly defines chords or whether the harmonies are merely implied by the melody. For example, some melodies are actually simple arpeggiations of chords. Others may require some

interpretation (say, noticing non-chord tone formulas and how they relate to the implied chords). Regardless, seeing a large group of notes as tied together by a single harmony or common harmonic progression can be a very powerful way of chunking music.

This list is a good starting point, and we'll work with identifying these, but remember that any pattern that you notice is valid in "chunking" music.

### Activity: Chunk improvisation

Goal: Get used to thinking of musical materials in chunks. Optionally, apply thinking in chunks to your primary instrument.

Instructions:

1. Come up with a series of chunks based on the types listed above (in a group, have one student do this). You do not need to be able to hear them in your head yet (though that'd be great), just list them: for example, "Scalar fragment from scale degree 5/*sol* up to 1/*do*;

repeat a rhythmic motive a few times; then arpeggio down the dominant triad to create a half cadence.”

2. Sing or play the resulting melody, focusing on these chunks (in a group, have a different student do this). Any description in chunks will likely leave some room for interpretation; note that the example in step 1 sometimes leaves rhythm undefined and sometimes leaves open different pitch interpretations. You may fill in any gaps with your own ideas.
3. In a group of more than two students, have another student play the melody as well. They can either try to play it the same as the previous student (using their knowledge of chunks to help them remember exactly what was done) or interpret it slightly differently.

Activity: Chunk listening

Goal: Get used to using chunks to improve your memory of heard melodies.

Before you start: You'll need a source of melody. It can be improvised by a classmate, played from a recording, or some other source.

Instructions:

1. Listen to a short melody (ideally 1–2 phrases).
2. Describe the melody in chunks as best you can. You can either try to draw on the list of chunk types defined above, or more informally ask yourself, “How would I describe what the music did, in as few words as possible?”
3. Listen to the melody again, doing your best to note anything you may have missed the first time around.
4. Describe in chunks again.
5. See if you can sing back the melody.

As you get more comfortable with this task, you can challenge yourself by working with longer and longer melodies. But don't worry if you seem to hit a limit; perceptually meaningful chunks cannot be infinitely long.

## Activity: Chunk reading

Goal: Get used to seeing chunks in notated music, improving both our memory and our musicality when performing.

Before you start: Find a manageable excerpt of notated melody. “Manageable” likely means 1–2 phrases/4–8 measures, without many accidentals, but you can scale to your level of comfort. The excerpt can be chosen from a sight-reading anthology, most of which are pretty good at isolating manageable amounts of music, or from “real music.”

Instructions:

1. Look over the excerpt, scanning for chunks. If you have a partner/groupmate, describe the chunks aloud. You can either rely on the chunk types defined above, or more informally answer the question, “How would I describe what the music does in as few words as possible?” If you have a partner/groupmate,

discuss any differences in how you chunked the melody.

2. Sing or play through the melody, noting the chunks as you go.

# BUILDING YOUR CHUNK LIBRARY

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In the previous section, we drew your attention to some particularly common types of musical chunks. But musical patterns go well beyond this list, and many of them are too nuanced to capture in a short, descriptive list. The best way to create an internal library of “chunks” to use and notice in future music-making is simply to learn lots and lots of patterns that are common in music. And, in fact, not just to learn them, but to deeply internalize them, and to associate them with instrument-based kinesthetic imagery and solfège to reinforce and enrich them.

Many traditional aural skills classes ask you to learn lots of music (often called “prepared singing”) to build your internal auditory imagery vocabulary in this way. Unfortunately, many such common patterns are specific to different kinds of music: classical music has contrapuntal sequences and galant schemata, popular music has common chord loops, jazz has “the lick” and other stock phrases, and more. Different teachers will have different priorities.

But regardless of any given teacher’s instructions here, anyone can build their vocabulary by simply learning as much of the music they are interested in as possible.



## Activity: Chunking in daily (musical) life

Goal: Integrate thinking about chunks into your broader musical life to build your awareness of chunks in the music you work with regularly.

Instructions: As you go about your musical life, identify opportunities to notice chunks. These might include practice time on your primary instrument, ensemble rehearsals, and even (if you feel like it) recreational listening. At least at first, it'll be helpful if you have time to think when the music isn't sounding, such as during portions of ensemble rehearsal when some other section is working out an issue. During this time, think about the music you heard most recently, and try to describe it in chunks. You might take either an informal ("describe what the music does in as few words as possible") or a systematic ("find all the non-chord tone patterns") approach.

Activity: making intervallic associations with different melodies to chunk sound.

Goal: To increase exposure to many songs in a certain genre so that one can start to pick up on common melodic and/or harmonic patterns. This will also help with one's ability to "predict what might come next" in a piece of music.

Before you start: Find a recording of music that you are unfamiliar with; maybe a new piece of repertoire or a song suggested by a friend.

Instructions:

1. Listen to just the first line or two of the music.
2. Try to sing back the melody of the first two lines (or as far as you can remember). This may be challenging after just one exposure to the piece. Do not be discouraged!
3. Now, listen to the same passage again, but pay attention to either the contour of the melody or certain intervals between pitches. Do certain intervals or chunks of the melody

remind you of another piece of music? Maybe there is a popular song or favorite symphony that uses the same interval or stretch of 3 notes?

4. Try to sing/play the melody again keeping in mind the associations and intervallic relationships you listened for in the previous step.
5. Continue this process of chunking the piece and playing/singing back,
6. Perhaps repeat these steps but instead of listening to the melody, pay attention to the harmonic speed (the pace at which chords change).
7. Find another unfamiliar piece of a similar genre and complete the same process.
8. After listening to a couple different pieces of music from similar genres in this manner, what patterns are you noticing? Are these patterns helping you “predict” what will come next in the piece? Were there moments in the piece where you were surprised by what came next? Has your capacity to memorize certain passages become any easier from noticing patterns? Questions to ponder. (Can

you think of another exercise that might be more beneficial for you to learn certain patterns in music?

Activity: Can you guess what's coming next? – Hum-along activity

Goal: To practice predicting the harmonic or melodic contour of a piece in real time for many different pieces in a genre of choice.

Before you start: Find a recording of a piece of music that you are unfamiliar with; maybe a new piece of repertoire, a new song in your ensemble, or a song suggested by a friend.

Instructions: While the song is playing, listen for one or two lines and then begin humming along with the piece. You can take an approach focused on melody or focused on harmony. **Melody:** Even if it sounds messy, try humming the melody with the piece as it

is playing. Or, for an added challenge if this is an ensemble piece, try tuning in to your voice part or instrumental line and humming the pitches with your part (in an octave that is comfortable for you).

**Harmony/Chords:** Try humming notes that fit in each chord. Often, you will be able to hum the same pitch in successive chords; see if you can predict, however, where you will need to move to a new pitch in order to fit.

In review, how challenging was this exercise for you? Which was harder: following the melody or following the harmony/chords? Would you do this exercise differently next time?

# REINFORCING AUDITORY MEMORY

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Our memories are most robust and reliable when they are reinforced and enriched, over and over, in different ways. This is for two reasons. First, reinforced and enriched memories have more ways to be cued and connect to more kinds of meaning. Second, having different but associated ways of understanding music gives us different ways of thinking about it at different times. Your brain has several mechanisms for working with information and planning action in the moment, but they are all limited; if one mechanism is overloaded, a musician with multiple ways of thinking about music can rely on another. For example, if you are in an ensemble and preparing for your next entrance, your ability to imagine sound may be overwhelmed by the other sounds people are performing all around you, but you may be able to feel more ready for the entrance by imagining it through physical motion or solfège/scale degrees.

If you have played some instrument for many years, you may be able to make your internal image of sound more robust by either playing an “air” version of the instrument (for example, forming your fingers to hit the right keys on your saxophone or piano) or even just imagining playing the instrument. This

type of reinforcement, called **Instrument-based kinesthetic imagery**, helps your sound-image connect with physical motion, giving you two different ways of understanding and encoding in memory.

One more method that can be useful is getting really familiar with solfège and scale degrees (as recommended in Chapter 3). The more you practice solfège, the more it will help you store, and think about, music in different, mutually-reinforcing ways.

In the end, if you have these ways of thinking about music, they can be just as powerful as the ability to hear realistic sounds in your head.

### Activity: Responding to sound with a robust internal image

Goal: To hear a sound and quickly be able to map it to physical motions on an instrument and solfège.

Before you start: You'll ideally want a group for this activity. It can work with voices or instruments or any combination, but will work best if everyone has access to an instrument on which they can track whole and half steps.

### Instructions:

1. Each member of the group silently comes up with a string of 3–5 notes that they can either sing or play on their instrument. The string of notes should all fit and make sense in a single key.
2. One person performs their string of notes (twice if the string is hard to remember). Then the rest of the group takes a silent 30 seconds to do the next two steps. (If those steps are not working well, it may help to do them aloud with trial-and-error at first, but our goal is to eventually make them silent.)
3. First, figure out how to play it back. If working on relative pitch, you may do so at any pitch level. If there are multiple people in the group, it may be useful for the first person to indicate the starting concert pitch so that everyone can work it out at the same pitch level.
4. Then figure out how to describe it in solfège. There may be multiple different solutions: for example, scale degrees 3-2-1 (mi-re-do) could also be heard, without any other context, as scale degrees 6-5-4 (la-sol-fa).
5. Everyone then plays the string of notes aloud



on their instruments, then sings them aloud on solfège.

### Activity: Connecting solfège with your primary instrument

Goal: Build strong connections between your conception of key on your primary instrument and solfège.

Before you start: This is a group activity. It will work, and has different benefits, with both voices and instruments. Working vocally will exercise your internal “map” of key, while working on an external instrument will integrate a clearer understanding of half and whole steps into this map.

Instructions:

1. Agree upon a mutually-acceptable concert key. Establish the key in some way, such as

- the vocal patterns suggested in chapter 3.
2. Someone in the group calls out a short (3–6-note) string of solfège syllables/scale degrees.
  3. Everyone else plays/sings back the requested notes. (If necessary, it's ok to take a few seconds to work this out before playing.)
  4. Repeat steps 2–3 several times, but if you're practicing this for very long, make sure to change keys every once in a while and go back to step #1.
  5. Suggestion: also try the inverse of this activity. That is, after establishing a key, someone plays a short string of notes in the key, and everyone else figures out how those notes would be represented in solfège/scale degrees.

Activity: Generating imagery from notation that is somewhat familiar to you

Goal: From notation, generate a robust internal concept of the intended sound using solfège and instrument-based kinesthetic imagery

Before you start: Select a piece of notated music that you are currently studying on your primary instrument. The piece should be one you haven't memorized, and it's great if you are only just starting to work on it. We're going to use solfège, so double-check that it at least starts in a clear key, with a level of chromaticism (sharps/flats/naturals outside the key signature) that you are comfortable with. Choose a phrase to work with; in many cases, the first theme/phrase will work.

Instructions:

1. Solfège: determine the solfège syllable/scale degree of each note in the melody. Ideally, it'd be great to imagine singing the whole thing on solfège in rhythm, but we haven't worked on sight-reading skills yet, so it's fine if you just do this out-of-time. Then either sing or subvocalize through the melody on solfège; if subvocalizing, try to hear it in your head.
2. Instrument-based imagery: go through the melody again, this time using instrument-

based kinesthetic imagery. Depending on your level of comfort, you may either imagine playing your instrument, play an “air” version of your instrument, or actually use the instrument itself without making sound. (If your primary instrument is the voice, you may either use another comfortable instrument or subvocalize, making sure to use good technique.) As you do so, try to hear the melody in your head.

3. Finally, play the melody normally. As you do so, can you hear solfège syllables in your head?

# EXTRACTIVE LISTENING

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It's never possible to pay attention to everything. Instead, most of the time, we pay attention to a few things (that we are hearing, seeing, feeling, etc.), and our brains fill in the rest of what's going on with their best guess.

Certain cognitive principles affect what our brains most naturally pay attention to: for example, in sound, we're more likely to pay attention to something loud, high, or unusual rather than something quiet, low, or common. But as musicians, there are times when we want to pay attention to something in particular whether or not it's what our brains default to. For example, when leading an ensemble in rehearsal, we might hear that there's a mistake in an inner part near the beginning of a phrase and want to listen closely to that part rather than the melody to figure out what's going on. The ability to control our attention and manage what we remember in this way is called **extractive listening**.

We've already talked about the attentional skills needed for extractive listening, in the chapter on attention. But we need our memory skills, too, because we want to retain whatever we're listening for so that we can act on it. This is a challenge, though, because sometimes there's a lot of memory interference. For example, if we're listening for something that

happens near the beginning of a melody, our brains will be tempted to forget it as we hear the rest of the melody.

The best way to preserve our memory of something in the face of interference is to build as robust a representation of that thing in our memory as possible. That means not just paying attention to raw sound (though it is important), but pairing that inner sound image with other representations: an understanding of how that portion of the music might be chunked, its solfège syllables or scale degrees, how it would feel to play it on an instrument or sing it, etc.

### Activity: Extractive Listening

Goal: Practice using instrument-based kinesthetic imagery, solfège, chunking, and attentional focus to retain a portion of a melody in memory despite interference.

Before you start: Choose some excerpt of music (at least melody; accompaniment/harmony optional) that is too long to remember as a whole. If you are working with a group, this could be a song that another student knows that you are unfamiliar with. If you are working alone, it might be a recorded song

that you've never heard before. You don't need the whole thing; ideally, it is just a little too long to remember; perhaps 25–45 seconds of music, depending on how fast it is.

Instructions:

1. Before you listen, set an intention to listen to the first phrase or sub-phrase of the melody. Keeping in mind that you will need to retain this music in memory despite listening through the rest of the music, plan how you will reinforce your memory in the face of this interference. Will you focus on paying attention to chunks? Imagining what it would feel like to play the music on an instrument? Describing it on solfège?
2. Listen through, doing your best to remember that first phrase or sub-phrase, then see if you can sing it back. If you have difficulty, think about whether other methods might have been more helpful, then repeat this step.

If you are having difficulty, you can scaffold this activity by making the interference more or less prominent. For example, if you cannot seem to retain the music in memory, try turning the music

down once that phrase has played. As you get more comfortable, return it to its original volume.



# MEMORIZATION

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If working memory only allows us to store and work with 3–4 bits of information at a time, how in the world can people memorize a several-minute-long piece of music and perform it without notation? Honestly, it's a pretty impressive feat. But the basic answer is that this ability develops from complex interactions between working memory and long-term memory. Those interactions are complex enough that we only have a limited understanding of the process, but we can give some advice.

First, as with chunking, the more that you can think of the music in larger groups rather than individual notes, the less taxing it will be on your memory. Many of the chunks we've described here are still fairly short, on the order of 3–5 notes. But there are ways of focusing on larger units of music: in particular, focusing on how it *feels* to perform the music may help us group entire phrases into physical gestures.

Second, there are techniques proven to reinforce long-term learning in fields outside of music that are likely helpful in music memorization as well. Most prominently, these include practicing recall, mixed practice/interleaving, and spaced practice.

Finally, remember that memories need to be cued: we

typically think of something stored in long-term memory when we are presented with something associated with that memory. At any point in a piece of music where you think memory may falter, think about what might cue your memory of what's supposed to happen next. Breaks between sections of a piece of music are one location where memory often fails: you might think about what in the ending of the first section will call forth your memory of the second. Sections that are similar but with slight differences are also tricky. What will trigger/cue your memory of the differences, and how will those triggers/cues differ between the two similar sections?

Practice these methods with music you are learning. Some of them are difficult and may not feel productive in the moment—mixed practice, in particular, is often experienced as less productive than repeating the same thing over and over—but they really do work, long-term!

# CHAPTER 6 - INTERNAL HEARING AND INTONATION



In this chapter, we'll be working on the connections among sounds in our heads, sounds we make, and sounds we hear. (For this chapter, those sounds are largely pitches without concern for rhythm, which we work on elsewhere.) The more we can make these connections, the better our tuning will be, the more we'll be able to work with

music internally, and the more we'll be able to engage in immediate ways with music as it is happening by reducing friction between hearing, imagining, and performing.

As in some previous chapters, we'll use the voice quite a

bit here. There are three helpful aspects of the voice: it is controlled by the brain with minimal mediation through external structures, it is particularly connected to our ability to imagine sound in our heads, and it can slide continuously up and down, so it facilitates thinking about tuning. If your brain-voice connection isn't really working, you will have more challenges here, but you may be able to get similar benefits from an instrument with the ability to produce a continuous range of sounds, such as an unfretted string instrument or a theremin.

We will also benefit, however, from making connections to non-voice instruments. Such instruments can help vocalists to visualize relationships among notes, and help other musicians connect their internally imagined sound to their understanding of their primary instrument to improve tuning. So we will often ask you to go back and forth between your voice and your primary instrument.

Keep in mind the differences between instrument timbres as you do these activities. In particular, it will be difficult to focus on tuning on an instrument with a sharp attack that then quickly gets quieter like the guitar, marimba, or piano. You will likely need to focus your tuning efforts on using your voice or another instrument with a more sustained sound that you also feel comfortable with.

## Learning Objectives

Students will be able to:

1. Match a pitch they hear, thinking about tuning, timbre, and dynamics.
2. Imagine a tone or short string of music in their head (“audiate”).
3. Retain a string of music in memory (can demonstrate through sing-backs, play-backs), with or without different kinds of interference such as intervening time and sound
4. Imagine a desired string of music based on notation
5. Alter imagined music in terms of rhythm, pitch, timbre, dynamics, and more
6. Use internalized physical and knowledge-based models to strengthen internal hearing
7. pitch and rhythm call and response
8. Use internal auditory imagery to improve tuning
9. Adjust equal-tempered tuning to other approaches as appropriate to make chords

sound in-tune and melodies sound expressive.

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## Image Attributions

- Figure 6.1 “A Tuning Fork Near a Music Sheet” by Thirdman licensed under a Pexels license.
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# MATCHING PITCH AND TUNING

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We start by simply matching pitch. We find this a useful activity to prime the connections between heard, imagined, and performed sound, and to start focusing on tuning.

Tuning can be intuitive—it may just “feel right” when you are perfectly in tune. But if not, it may be helpful to make sure you are listening on good-quality audio equipment, and to listen for “beats” in the sound. Those beats should get slower and then disappear as you get more in tune. To hear the beats most clearly, play or hum/sing as pure a sound as you can.

Students who have difficulty matching pitch with their voices may benefit from some foundational vocal technique. Many instrumentalists, in particular, simply haven’t used their voices enough to feel confidently in control of them! If this is true for you, gaining some confidence in the use of your voice should have benefits beyond this activity, as the pitched voice is such a useful way to communicate in music.

If you have trouble hearing yourself as you’re trying to match a pitch, try momentarily plugging one ear (be sure not to do this for too long, as it can make it harder to tune with the pitch you want to match). If you need to hear yourself for a longer period of time, stand facing a wall, close enough

that you can hear yourself, use your hands to make a bridge between your mouth and your ear, or you could even create a connector out of PVC pipes to connect what you are singing to your ear.

One final common difficulty is a phenomenon coined by choir director Don Brinegar as “rainbow ears.” Sometimes, especially with an overtone-rich instrument like the piano or a strong voice, it is difficult to recognize the fundamental pitch. If this seems to be a problem for you (for instance, if someone points out to you that you are singing a fifth above the desired note), try practicing matching pitch with something that has a clear pitch and is somewhat breathy, such as a vocal falsetto or pure, straight-tone singing, a recorder, a flute, or an ocarina. Once you feel comfortable with matching pitch on these kinds of instruments, try extending your pitch-matching to other instruments with richer timbres.

If you still find vocally matching pitch difficult after working on some basic technique, we recommend first working with a tutor if possible; if things still aren’t working, then you should find another instrument that will be useful in similar ways. If you feel very comfortable with your (non-voice) primary instrument and it has sufficient sustain and tuning variability to focus on tuning, it will likely work fine; if not, you may need to find a digital instrument such as a variable-pitch tuning tone or a theremin.



## Activity: Match a tone to your own pitch

Goal: Develop vocal control and the habit of listening for how tones relate in pitch.

Instructions:

1. Open a tone generator with a continuous frequency control (example). We recommend setting it to a sine or triangle wave.
2. Find a pitch that is comfortable in your voice, and start humming it or singing it on a pure vowel. Try to keep your breath pressure consistent to keep your tuning as steady as possible. As you do the next few steps, keep humming or singing, simply taking a breath when necessary.
3. Double-check that your volume is not too high, then press “play” on the tone generator. Unless you get really lucky, it will probably not play the same pitch that you are singing. Do your best to determine whether the pitch you are hearing is above or below the pitch you are singing.

4. Slowly drag the frequency slider in the appropriate direction until it is as in tune with your pitch as possible.
5. Once you and the slider are on the same pitch, drag the slider slowly up and down, moving your voice to remain in tune with it.

This activity can also be done with an instrument, though if it is not able to slide between notes, you may need to adjust how you do step 5 or skip it altogether. If your instrument occupies your hands so you cannot both play and adjust the slider, you could work with another student, one playing and the other adjusting the tone generator.

### Activity: Match pitch with a pure tone

Goal: Develop vocal control, and listening skills needed to match and sustain a sounding pitch.

Instructions:

1. Open a tone generator and choose a pitch that is in your comfortable range. If you know your choral voice type, the following starting points may be helpful: soprano, alto, tenor, bass. (We recommend using a sine or triangle wave.) Double-check that your volume is not too high, then press “play” and listen to the tone.
2. Listening closely, imagine singing or humming along to the tone. What vowel would best match the sound you are hearing? Once you’ve chosen one, prepare your vocal mechanism to sing along.
3. Take a deep, calm breath and sing the pitch on the pure vowel you’ve chosen. As you sing, check the match between your pitch and the sounding pitch. If you can, adjust your tuning to match as closely as possible. You may need to experiment with different vowels. Take a breath when necessary.

If you have difficulty matching pitch, return to the activity above.

This activity can also be done with an instrument with some minor adjustments.

### Activity: Match pitch with a more complex tone

Goal: Develop vocal control, and listening skills needed to match and sustain a sounding pitch.

Before you start: You'll need a way to hear a sustained complex tone (that is, one that's richer than the purer tones we were working with above). You might have someone else play a sustained tone on their primary instrument or use a software instrument or synthesizer. If you use an instrument with a loud attack and quick decay such as a piano, marimba, harp, or guitar, it may be difficult to match pitch and work on tuning, but these instruments are often convenient.

Instructions:

1. Play a sustained complex tone, or have someone else do so.
2. Once the tone is sounding, imagine singing along. As with the pure tone above, consider how to roughly match the volume and the timbre of the sound through breath support

and an appropriate vowel sound.

3. Take a deep, calm breath and sing the pitch, matching its timbre, dynamic, and tone as closely as you can. If you can, adjust your tuning to match as closely as possible. You may need to experiment with different vowels. Take a breath when necessary.

There is an online game similar to this activity: the “Single Tones” game on Pitchy Ninja. Note that the game does not allow for octave displacement, but you can adjust your comfortable range of pitches by using the button that looks like a game controller and adjusting the sliders to fit where you are comfortable singing!

### **Activity: Matching a single pitch using a primary instrument**

Goal: Practice matching pitch using your instrument

Before you start: This activity works best on a non-

voice instrument with adjustable pitch. Musicians with fixed-pitch instruments may either choose a different instrument to work with or, if their tuning abilities are already pretty good, compare the note their instrument plays with the desired pitch.

Vocalists who do not have an alternative, adjustable-pitch, external instrument should use one of the activities above.

Instructions:

1. Just like in the previous activity, someone will give a pitch stimulus. This time, they will also indicate the concert pitch of the note.
2. Using your primary instrument, close your eyes or focus them on a fixed point and imagine yourself playing the given pitch, including embouchure, air, and fingering as appropriate.
3. Play the note on your instrument. If you are using a non-fretted and/or sustained instrument, you should sustain the pitch and adjust it so that it matches the given stimulus.

# TUNING INTERVALS

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In the previous section, we worked on matching pitch. Now we'll go for a different kind of matching: instead of singing the same note you hear, you'll sing something in tune with it. Again, we urge you to start with your voice here for its relatively direct connection to the brain and ability for continuous pitch changes, but if your brain-voice connection isn't great, you might get similar benefits from working with an external instrument such as a fretless string instrument or a theremin.

Because we're working with two notes (one you're tuning to, plus your own sound), we'll work here with two-note intervals. We've put a bunch of links to videos and demonstrations below in the "activities" section to help you hear these; there's also lots of advice online about how these intervals tend to "feel," like a sense of "purity" in the perfect intervals, "sweetness" in major thirds, etc. You'll have to see how things sound to you, but if you hear the intervals in these ways, we encourage you to start by practicing tuning the intervals that tend to sound the "purest" (at least, after the unison): the octave, the perfect fifth, and the perfect fourth. From there, we add the typically more complex-sounding intervals of 3rds and 6ths, and then finally the dissonances.

Your instructor may or may not think it's important to get through all of these.

Before we get to these examples, though, we have to ask: what does it mean to be “in tune”? As you may know, instruments with fixed pitch such as the piano and guitar are typically tuned in “12-tone equal temperament,” a tuning system where the relationships of notes within a key are the same in all keys. But when working with an instrument with adjustable pitch such as the voice or fretless strings, we can often get a “purer” sound by adjusting this tuning a bit. If you're interested in the details of tuning systems, there are websites where you can learn more. But for now, we'll simply note that there are different approaches to tuning, we'll give you some examples of different tuning systems below, and you'll have to base your approach on your and your instructor's goals.

### Activity: Getting used to the sounds of intervals

Goal: Develop the ability to tune two notes together based on the sounds of different intervals.

Instructions:



1. First, choose an interval to work with. We recommend starting with the “perfect” intervals of the octave, perfect fifth, and perfect fourth; then moving to thirds and sixths; and only then adding other intervals.
2. Open one of the links below relevant to your chosen interval, and listen to it. Come up with a verbal description of the “quality” of what you hear.
3. Play the interval again, and this time hum or sing along with the top note or the bottom note. Repeat, matching the other note.

Once you have developed some familiarity with a few intervals, move to the activity below and practice generating them. You are encouraged to move back and forth between these activities as you add more and more intervals to your skill set.

### **Resources/Links**

Perfect intervals:

- Octave
- Perfect fifth: voice, organ
- Perfect fourth

Other intervals:

- Major and minor thirds: equal temperament, just intonation
- Major sixth
- Minor sixth
- Major second

### Activity: Tuning intervals

Goal: Use internal auditory imagery to tune intervals.

Before you start: Choose whether you will use your voice or an external instrument, and make sure you have it available.

Instructions:

1. Begin by choosing an interval you are comfortable with and a comfortable, somewhat low pitch in either your vocal range or your instrument's range (depending

on which you will be using).

2. Have a classmate play or sing the chosen pitch, or sound it with a tone generator such as this one. (If using a tone generator, first double check that your volume is not too loud.)
3. As you hear that pitch, imagine the appropriate sound to create the upper note of the interval. Imagine it as vividly and in-tune as you can.
4. Sing or play that upper pitch, adjusting its tuning until it feels “just right” with the lower pitch.

Once you are comfortable with this, you can experiment with starting with the upper note of the interval and adding the lower note. This is more difficult for most people.

# WORKING WITH SHORT TONAL MELODIES

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We move now to short melodies that are each in a key. While you might imagine that a melody is just like putting together several of the notes from the section on matching pitch, studies suggest that the memory mechanisms for these two different kinds of stimuli are different. We find that, with single tones outside of a context, we may be more focused on the “raw sound” itself, while when we hear notes that (potentially) establish a key, we focus more on their relationships. So we’re really working on a different, but complementary, skill here.

It may be more difficult to focus on tuning now that we’re drawn to the relationships among notes. That’s ok, because again, we’re building different skills. But as much as you can, keep focusing on making your notes as in-tune as possible, in your head, in your voice, and on your instrument.

Activity: Connecting listening, imagining, singing, and playing

Goal: Accurately represent internalized sounds in your mind/inner ear and reproduce these vocally (humming or singing) and on an instrument. (Singers may opt for piano or any other instrument with which they are familiar.)

Before you start: You'll need to either work with someone else who has access to an instrument or find another way to listen to short strings of notes. For the final step, it will also be helpful if you have access to your primary instrument.

Instructions:

1. Have a friend play a short, diatonic 3–4 note pattern consisting of a mix of steps and leaps. Alternatively, if you are working on your own, find a way to listen to short strings of notes. Listen to their playing, focusing as much as possible at this stage on the sound-as-sound.
2. After listening, take a moment to recall the sound of the melody as vividly as possible. Imagine not only the pitches that you heard, but their timbre, register, envelope (attack, decay, sustain, and release), volume/intensity, and other notable elements of the sound. As you recall what you heard, try to audiate the

stimulus as accurately as possible.

3. Hum or sing the stimulus that you are audiating. Feel free to check yourself by having your partner (or the recording) play back the stimulus as you sing it. If there were elements of the stimulus that you could reproduce more accurately, repeat steps 2–3.
4. Using an instrument, find the starting note of the melody and then play it. Go slowly and patiently, giving your ear and body time to integrate. Ideally, the ear should lead, and the body should follow.

# CUEING INTERNAL AUDITORY IMAGERY

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Internal auditory imagery, which you've already been working with, is sound you imagine in your head. This sound can be more or less vivid, from a faint shadow of the sound to something so realistic that it almost seems like you're actually hearing it out loud. Whatever the quality of what you can hear in your head, we want you to be able to work with this imagery and strengthen it.

Of course, the sounds you hear in your head are not actually sounding externally; instead, they are something your brain puts together from memories of sound that it has stored. This is basically an act of memory. One of the most effective ways to activate your memory is through what's called **cueing**. Cueing is when we give our brains a stimulus that is so strongly associated with the desired memory that the brain almost can't avoid accessing it. For now, we'll work with two physical types of cues that can be useful for activating musical auditory imagery.

The first type of cueing is called **subvocalization**. To subvocalize a pitch, you actually make all the physical shapes and motions in your vocal mechanism to make the desired sound, but stop just short of actually making it. For example,

I'd get my mouth, diaphragm, and throat ready to sing, maybe even breathe in as if I were about to do it, and then instead of actually letting my breath activate my vocal folds, I'll listen in my head to what it would sound like if I were to do so. You can experiment with exactly which motions are helpful to you.

The second type of cueing is called **instrument-based kinesthetic imagery**. If you have played some instrument seriously for many years, you may be able to cue your memories of its sound by either playing an “air” version of the instrument (for example, forming your fingers to hit the right keys on your saxophone or piano) or even just imagining playing the instrument.

Different people will have different levels of success with each of these methods of cueing. For obvious reasons, people with lots of experience singing will have a higher likelihood of success with subvocalization, while instrumentalists with lots of experience will have a higher likelihood of success with instrument-based kinesthetic imagery.

Activity: Practice using **instrument-based kinesthetic imagery** to cue internal auditory imagery



Goal: Build the habit of connecting sound/music with physical motion.

Before you start: Make sure you have a non-voice instrument. If your primary instrument is voice, you may wish to use another comfortable instrument or practice the other activity below instead.

Instructions:

1. Start by choosing a very short passage (3–8 notes) of notated music or planning out a very short passage of improvised music. If improvising, don't worry about the sound for now—just plan some notes that feel connected in some way (a stepwise passage, some notes in the same key, etc.).
2. Imagine playing this passage on your primary instrument, trying to hear what it would sound like if you were to actually do so. Depending on your goals and your instrument, you may wish to play it in transposition or at the intended pitch. Either is fine. You might experiment with both playing an “air version” of your instrument and imagining playing it—see which one gives you clearer internal auditory imagery of the

sound.

3. Play the passage out loud on your instrument, to compare with your imagination.
4. If you didn't find your imagery to be very accurate or vivid, try step #2 again after hearing the music out loud. Having the sound in your head from step #3 may help you cue it in memory more effectively.
5. Repeat steps 1–3 (and 4 when necessary) to continue building your ability to cue internal auditory imagery.

Activity: Practice using **subvocalization** to cue internal auditory imagery

Goal: Build the habit of connecting sound/music with physical motion.

Before you start: Note that this activity assumes a certain amount of vocal control. If your voice-brain

connection is very tenuous, you may wish to use the activity above instead. You'll also want to either choose a very short passage (3–8 notes) of notated music or plan out a very short passage of improvised music. If improvising, don't worry about the sound for now—just plan some notes that feel connected in some way (a stepwise passage, some notes in the same key, etc.).

Instructions:

1. Subvocalize the passage; that is, make all the motions your mouth, throat, and torso would need to sing the passage—just don't actually make the sound. As you do so, try to hear what it would sound like if you were to make the sounds with your voice. Depending on your goals, you may wish to give yourself a starting pitch so you can imagine the sounds as notated, or you may wish to start your internal auditory imagery on another comfortable pitch and simply follow the (transposed) correct intervals/contour from there. Either is fine.
2. Sing through the passage out loud to compare the sound with your imagination.
3. If you didn't find your imagery to be very

accurate or vivid, try step #2 again after hearing the music out loud. Having the sound in your head from step #3 may help you cue it in memory more effectively.

4. Repeat steps 1–3 (and 4 when necessary) to continue building your ability to cue internal auditory imagery.

# BUILDING AUDITORY IMAGERY VOCABULARY

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Try to memorize this sentence.

Now, try to memorize the following string of letters: Mzeto thtsi emoeri ennets.

The second sentence has fewer letters and fewer words but is probably more difficult for you to memorize. This is because our memories work best when they are dealing with known objects. And since internal auditory imagery is essentially an act of memory, the same will be true of this imagery.

So one of the best ways to improve your internal auditory imagery is to simply learn lots and lots of patterns that are common in music. And, in fact, not just to learn them, but to deeply internalize them, and to associate them with instrument-based kinesthetic imagery and solfège to reinforce and enrich them.

Many traditional aural skills classes ask you to learn lots of music from notation (often called “prepared singing”) to build your internal auditory imagery vocabulary in this way. Unfortunately, many such common patterns are specific to different kinds of music: classical music has contrapuntal sequences and galant schemata, popular music has common chord loops, jazz has “the lick” and ii – V – I patterns, and

more. Different teachers will have different priorities. In addition, while the traditional teaching method relies on music notated in sight-reading anthologies and this is what our exercises below focus on, you can internalize patterns aurally as well.

Regardless of any given teacher's instructions here, anyone can build their vocabulary by simply learning as much of the music they are interested in as possible, particularly if they use a method such as solfège to focus their attention on what is “going on” in the music. If the notation-based activities below don't fit well with your goals, experiment with how to bring this kind of awareness to your own repertoire and music-making.

### Activity: Learning common patterns from notation

Goal: internalize a set of some of the melodic “vocabulary” most common across a variety of triad-based styles.

Before you start: You will need a sight-reading anthology for this exercise. The exercise is ideally completed with both voice and an external

instrument but can be completed with just one or the other.

Instructions:

1. Find the sections in your sight-reading anthology that focus on leaps within the tonic, dominant, and subdominant triads. (Most anthologies have chapters focused on these.)
2. Learn a series of melodies from each chapter. You may learn them vocally or on an instrument, but you should either be speaking or thinking solfège to make sure you notice how common patterns relate to these scale degrees. You may learn the series of melodies all in a row or, even better, one at a time across several days or weeks.
3. To test whether you have successfully internalized the patterns common to these melodies, try sight reading through other excerpts from these chapters. You are especially encouraged to sing rather than play because using the voice relies primarily on internalized models (our goal) rather than instrument mechanisms. You may wish to look ahead for advice from the chapter on

sight reading.



# BUILDING AUDITORY IMAGERY FLEXIBILITY

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Got internal auditory imagery? Great! (If not, keep revisiting the previous sections of this chapter!)

The next step is working on the flexibility of your internal auditory imagery. For example, maybe you can imagine a saxophonist arpeggiating up a major triad. But can you imagine it loud? Quiet? Played by a theremin?

Flexibility of auditory imagery is helpful for imagining new sounds and transferring the skill to different contexts. But it can also be a useful challenge for people whose imagery is strong but inflexible.

## Activity: Transforming sound internally

Goal: Develop internal auditory imagery flexibility and control.

Before you start: You'll need to be able to hear a

melody. This could be played by a friend or from a recording. As you get more comfortable with internal auditory imagery, you may even be able to generate this internally without actually having to listen to an external sound.

Instructions:

1. Listen to a melody.
2. Hear that melody internally as vividly as possible. If you have difficulty, listen to it again.
3. Choose something to change about the melody: dynamics, instrument or timbre, articulation, rhythm, or pitch.
4. Having mentally made the changes, hear the resulting new melody internally as vividly as possible. If you have difficulty, you may wish to hum softly to give your “internal ear” some external reinforcement.

# RELATING INTERNAL AUDITORY IMAGERY AND TUNING/SHAPING ON YOUR INSTRUMENT

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Throughout this chapter, we have been working on the connection between internal imagery and external sound—both what you hear and what you perform. One of the most important applications of this connection is the skill of setting an intention before you perform. We'll talk about two important applications here.

First, tuning. Many expert performers—notably, of strings, winds/brass, and voice—say that you absolutely cannot tune correctly unless you can (internally) hear the note you want to sound before you play/sing it. We can start by practicing with single notes, and then move to phrases: first, imagine what you want to hear, then actually make it happen.

Second, shaping. For any instrument, the subtle variations of timing, volume, and articulation that contribute to a more beautiful performance will be more reliable, and more effective, if they are internally imagined beforehand.

## Activity: Setting an intention

Goal: Practice intentional performing guided by your internal auditory imagery.

Before you start: Choose a piece of music, either for voice or for your primary instrument (which you may want on hand). Find a short passage—perhaps as few as three notes—that you will be able to hear in your head. If necessary, give yourself the starting pitch.

Instructions:

1. Hear the passage in your head as vividly as possible. Practice and repeat this internal hearing as necessary, making decisions about tuning and shaping, until you feel fairly secure in and happy with your mental image.
2. Optionally, hear this internal auditory image one more time as you practice making the motions you would need to perform the passage.
3. Perform the passage, either vocally or on your

primary instrument, doing your best to “hear” how your internal image relates to what you’re actually playing.

4. Compare your internal image to your performance. If they did not match, repeat steps 3–4 until they do.

# USING TUNING EXPRESSIVELY

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Many people used to the fixed tuning of the piano think of tuning as something that's simply right or wrong. But it's also possible to get different expressive effects in performance by adjusting your tuning—in ways that can all be, in a sense, equally “right.” Discussions of expressive tuning are particularly prominent in choirs and among fretless string players. Because this isn't an area we know in great detail, for now we'll give a few resources here, and then urge you to experiment for yourself! If you have ideas for techniques or resources that would be useful here, please feel free to share them with us.

Resources for Violin (and other string) tuning

Choral approaches to tuning

# CHAPTER 7 - RHYTHM SKILLS



Beginning musicians are often taught to read rhythms by focusing on individual note durations: quarter notes, eighth notes, half notes, etc. There are good reasons for this, especially if one of our goals is to dive into notated music right away. But it also ignores an important fact about how we tend to listen to music: it's more natural for our brains to focus on beats than on individual notes.

For this reason, aural skills rhythm pedagogy typically focuses instead on what we call “rhythmic cells,” or groups of durations that fill a beat (or other metrical unit such as a

half measure). This helps students memorize and internalize the most common ways that beats are divided up into different kinds of meters—learning them as “chunks.”

Studying rhythm in this way helps us work with music more efficiently because instead of focusing on each duration in and of itself, we can recognize groups of durations holistically.

It’s also easier and more musical for most people, because if we can track a beat, we can understand very quickly how these rhythmic cells fit together; whereas, if we focused on each note separately, we’d have to carefully figure out how each note relates to the meter in order to notate or perform it.

While these are all important reasons to focus on rhythmic cells, there will always be rhythms that are either unfamiliar or complicated enough that we haven’t yet internalized them. So we will also address the skill of “subdividing,” to make sure we’re able to work with any situation we are presented with.

### Learning Objectives

Students will be able to:

1. Use physical motions to track metric units (beats, cycles, etc.).



2. Perform and identify common one-beat rhythmic cells in simple, compound, and mixed meter.
3. Create and identify strings created with combinations of learned one-beat rhythmic cells.
4. Use subdivision strategies to accurately perform more complex notated rhythms and identify more complex heard rhythms.

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## Image Attributions

- Figure 7.1 “Group of People Playing Drums during Daytime” by Pixabay licensed under a CC0 License.
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# INTRODUCING RHYTHMIC CELLS AND RHYTHMIC SOLMIZATION

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Many of the sections of the Rhythmic Cells chapter introduce particularly common rhythms, which we will study as individual “chunks” called “rhythmic cells.” We’ll conceptualize each rhythmic cell in a few different ways: a verbal description, notation, and, when appropriate, a word whose common manner of being spoken might help you understand the rhythm as a whole.

The notation appropriate to each rhythmic cell will look different depending on which note value is chosen to represent the beat. For example, in simple meter, the quarter note is most common way to represent the beat, so we’ll be sure to give that visualization. But since different reference points can be used, we’ll also typically give a few other possibilities.

We’ll also give each rhythm in “protonotation/shorthand.” These are systems we’ll describe in more detail in a future chapter.

Finally, we’ll give each rhythm in “rhythmic solmization.”

Systems of rhythmic solmization help us keep track of either note values or where we are in the meter. Because the approach of this chapter is primarily oriented towards relating to meter, we will give takadimi syllables as well as a hybrid system that uses “1 ee and a” for simple meter and “1 la li” for compound meter; we’ll call this latter system simply “Counting Numbers.”

### Activity: Compare rhythm visualizations

Goal: Consider how different ways of representing rhythm relate to sound and your instincts and preferences.

Instructions: Listen to the opening phrase (after the very first chord; approx. 0:04–0:16) of Ludwig van Beethoven’s Symphony No. 7, movement 2, embedded below. Compare the sound to the visualizations below. Which method(s) of visualizing the rhythm is/are most intuitive to you? What does each one communicate about the rhythm and meter?



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## Symphony No. 7, 2nd movement

Ludwig van Beethoven

Staff Notation: 

Takadimi: ta ta di ta ta ta ta di ta ta ta ta di ta ta ta ta di ta

Description: long short short long long long short short long long long short short long long long short short long

Instrumental syllables: 1 2 & 1 2 1 2 & 1 2 1 2 & 1 2 1 2 & 1

Kodaly syllables: ta ti ti ta ta ta ti ti ta ta ta ti ti ta ta ta ti ti ta

Protonotation: 

Notation Shorthand: 

# UNDERSTANDING TIME SIGNATURES (AGAIN)

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Because rhythmic cells are defined by beats, and beats are typically understood within time signatures, we repeat the “Understanding Time Signatures” section from the Meter chapter.

The standard model for meter in aural skills instruction is the system of time signatures.

Time signatures are a culturally-situated system of describing cycles of beats, measures, and divisions. Unlike some other culturally-situated systems of understanding time in music around the world, time signatures are usually described as an “abstract” representation: while conducting comes close, no one action is associated with beats, downbeats, or beat divisions. This can make them seem universally applicable, but they are not. Time signatures embed a series of assumptions or defaults, including a default that cycles will repeat consistently for significant spans of time and a common association between chord changes and downbeats.

Because time signatures embed these cultural assumptions, it is important to make a distinction between time signatures and how we experience music. Sometimes we’ll listen to music and decide things like “this music is in 4/4.” There’s no

problem with such language in most situations, but it'd probably be more accurate to say "4/4 would offer a useful model for this music" or "I think whoever made this music was using a framework associated with 4/4."

The **top number of a time signature** is used to communicate how many divisions are within each beat, and how many beats are contained in each measure. The table below interprets these numbers as if they were always clear and unambiguous, but that's not always true. 2 and 4 nearly always have the meaning described here. 3 does most of the time, but occasionally it is interpreted as a single compound beat per measure. 6, 9, and 12 are nearly always interpreted as described, but occasionally indicate 6, 9, or 12 beats. In short, learn the "facts" in this table as a default, but be prepared for a messy world.

### Guide to Interpreting or Deciding On A Time Signature's Top Number

	2 beats per measure	3 beats per measure	4 beats per measure
2 divisions per beat ("simple")	2	3	4
3 divisions per beat ("compound")	6	9	12

One useful way to think of this information: in simple meter, the top number tells us the number of *beats* in a measure; in

compound meter, the top number tells us the number of *beat divisions* in a measure.

Other numbers, like 5, 7, and 11, are also possible on the top of a meter sign. Most of the time, these numbers tell us the number of *divisions* in a measure. For example, 5 often means a beat of 3 divisions followed by a beat of 2 divisions or vice versa, where all the divisions are the same length and the beats vary in length. However, sometimes these numbers indicate the number of *beats* in the measure. This is messy; you'll have to use clues like beaming and tempo to determine whether these numbers refer to beats (usually slower tempos) or divisions (usually medium or fast tempos).

The **bottom number of a time signature** tells us what note value represents a beat (simple meter) or a beat division (compound meter). This number will always be a power of 2. Because note values can occur at any speed, you can't technically hear the difference between 4/4 and 4/8. Nevertheless, in contemporary music-making, there is an assumption that:

- simple meters usually have 4 on the bottom, meaning the beat is represented by the quarter note, and
- that compound meters usually have 8 on the bottom, meaning the beat division is represented by the eighth note (and the beat by the dotted quarter, since that is the length of three eighth notes).



This assumption, by the way, can help you interpret those complicated 5s, 7s, and 11s on the tops of time signatures. Most often, if 4 is on the bottom, the top number tells you the number of beats in a measure. Most often, if 8 is on the bottom, the top number tells you the number of divisions in a measure.

Still, any power of 2 is technically possible on the bottom of the time signature for any meter type. So when we present rhythmic cells, we'll do so with different time-signature-bottom-number reference points to promote flexibility.

### Activity: Internalize time signature top numbers

Goal: Memorize how time signature top numbers are typically used.

Instructions: Memorize the “Guide to Interpreting or Deciding On A Time Signature’s Top Number” table above. Focus particularly on the “3 divisions per beat (compound)” row, which is the most confusing part for most students.

Activity: Propose a time signature for sounding music

Goal: Associate time signature top numbers with your perception of beats, divisions, and measures.

Instructions: Listen to the songs from the playlist below and find the beat, number of beats in a measure, and number of divisions per beat. Once you have determined this information, propose an appropriate time signature top number. You may wish to use the table above for reference.



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Suggest a song for this playlist!



# SUBDIVISION

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Our focus in most of this chapter will be on memorizing/internalizing some of the most common rhythmic cells used in music. But what do we do when presented with something unfamiliar and complicated? The answer: “**subdividing**,” or using additional reference points *within* the beat to figure out what’s going on.

Subdividing is useful in both reading and listening to music. (It may also be useful in improvisation, but because improvisation is typically done spontaneously, there may not be enough time to stop and ponder subdivisions.) When listening, we can replay the music in our heads, perhaps slowing it down, while subdividing to figure out what’s going on. When reading music, we can use subdivisions to figure out exactly where to place certain notes in time.

The most common approach to subdivision is to use the main divisions of the beat as reference points. We can do this in a few ways, but especially at first, we encourage you to use physical motion to track these points in time. For example, you might tap two fingers in succession to keep track of the beat divisions of a simple meter, or three fingers in succession to keep track of the beat divisions of a compound meter. Tapping a surface, with a little more emphasis on the beat than on its

other divisions, may also be effective. See what works for you. Just make sure, as you think in divisions of the beat, that you don't lose track of the beat itself.

If this doesn't make sense, an internet search for counting rhythms through subdivision will bring up some helpful advice, both videos and websites.

Once you're able to locate the divisions of the beat, we then pay attention to exactly when notes happen with reference to these points in time.

### Activity: Listening for subdivisions

Goal: Practice slowing down music in your head and keeping track of subdivisions.

Instructions:

1. Listen to a song from the playlist below and determine its meter, focusing particularly on the relationship between beat and division.
2. Once you've figured out the meter, return to the first phrase and listen through, keeping track of the beat. If you can, memorize that first phrase.

3. Listen through the first phrase again, either aloud or playing it back in your head, now keeping track of the subdivisions. (Hearing it in your head allows you to slow it down, which can help with subdividing.)
4. Work through the melody and determine, within each beat, which subdivisions have new note attacks/onsets.
5. Optionally, notate the appropriate rhythm in staff notation, protonotation, notation shorthand, or some other system.



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Suggest a song for this playlist!

Activity: Reading complex rhythms with subdivision

Goal: Use subdivision to accurately perform complex rhythms.

Before you start: You'll need a notated musical excerpt that features complex, difficult-to-read rhythms. Difficult-to-read rhythms might include lots of ties, dots, beams, and inconsistency. It is helpful to use excerpts from a sight-reading anthology, as these often have chapters devoted to complex rhythms, quick subdivisions, syncopation, and other difficult-to-read rhythms. However, you may use music for your primary instrument or something else.

Instructions:

1. Note the meter of the excerpt, including how the beat will divide.
2. Look through the excerpt's rhythmic notation, visually locating where the beats occur. If the rhythm is particularly dense, you may wish to mark these above the score with a vertical line. If possible, however, see if you can do this without needing to add markings.
3. Then, look through each beat, visually noticing where each subdivision falls within the notation and how the notes will relate to

these subdivisions. Again, if necessary, use some kind of marking to indicate visually where the subdivisions occur, making sure they are less prominent than the beat markings so you can clearly distinguish them.

4. Set up the meter internally, making sure you feel not just the beat and measure but also the beat division before starting. Make sure you do this at a tempo that will allow you to perform the shortest note values.
5. Going as slowly as necessary, read through the excerpt, either with both pitch and rhythm or just reading the rhythms on the vocal syllable “ta” or tapping a surface. Anytime you have difficulty, make sure you are feeling the subdivision internally, and refer to the subdivisions in the notation to help you place the notes correctly.
6. When we focus our attention on beat divisions, we often find our tempo slowing way down. That’s great for working on accuracy, but it may mean we lost track of the beat—an important feature of the music. Make sure you are performing the music at an appropriate speed; if not, then repeat the



rhythm a few times while you try speeding up and transferring your attention back to the beat.

# SIMPLE METER: SIMPLE DIVISIONS

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Beats in simple meter typically have two equal divisions. Note values (whole notes, half notes, quarter notes, etc.) also divide simply into twos. So in this section, we'll see lots of ways to divide things in half!













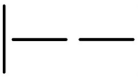
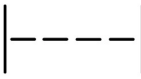
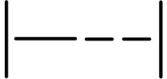
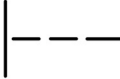
In any meter, we can of course get notes that last longer than a beat. We can typically track these simply by counting the number of beats they occupy.

Any of the notes in the cells below may be replaced by rests. When this occurs, we simply need to experience the rest as a (silent) part of the pattern.

The table below lists four common rhythms in simple meter. The table includes the following ways of understanding each rhythm:

- A reference number (for the purposes of the textbook and activities below)
- A verbal description
- Staff notation with three different possible note values used as the beat
- Takadimi syllables
- Number syllables

- Kodaly syllables
- Protonotation (introduced in a later section; included here for reference)

Reference number:	S1	S2	S3	S4
Description:	two even notes	four even notes	long-short-short	short-short-
Staff notation (eighth note beat):				
Staff notation (quarter note beat):				
Staff notation (half note beat):				
Takadimi syllables:	ta di	ta ka di mi	ta di mi	ta ka di
Number syllables:	1 and	1 ee and a	1 and a	1 ee and
Kodaly syllables:	ti ti	ti ri ti ri	ti ti ri	ti ri ti
Protonotation				

## Activity: Improvise and identify rhythms

Goal: Generate or identify the defined rhythmic cells.

Before you start: This activity works best with at least one other person. But you can also do it on your own; just skip step 3.

Instructions:

1. Identify one person to improvise.
2. The improviser comes up with and performs a short rhythm (perhaps 4–6 beats long) made up entirely of the rhythmic cells defined above, plus optionally notes longer than a beat.
3. The other student(s) identifies/identify which cells were used and in what order.

If this activity feels too easy, go ahead and add pitches at an appropriate difficulty level to the improvised rhythm.

## Activity: Read rhythmic cells

Goal: Notice when rhythmic cells occur in notated music.

Before you start: You'll need a source of notated melodies or rhythms that primarily use the rhythmic cells listed above. Sight-reading anthologies are a good source; *Open Music Theory* also has appropriate materials here. You can do this activity vocally or on another instrument.

Instructions:

1. Look over the notation, note the meter, and set up an appropriate sense of meter internally.
2. Scan over the notation, identifying rhythmic cells. Note that some notes in the rhythmic cells may be replaced by rests; you can still call up the “sense” of the rhythmic cell, simply experiencing the silence as part of the pattern.
3. Perform the rhythm, with or without pitch.

## Activity: Find rhythmic cells “in the wild”

Goal: Develop sensitivity to rhythmic patterns as they occur in music.

Instructions:

1. Listen to a song from the playlist below and determine its meter.
2. Listen to the first 1–2 phrases of the song and identify the rhythmic cells used and their order.
3. Optionally, identify an appropriate meter, time signature, and durational symbols that represent the music.



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Suggest a song for this playlist!

## Activity: “Point and Perform” in a Group

Goal: Perform indicated rhythmic cells

Before you start: This is a group activity

Instructions:

1. Identify a leader. This person will display the defined rhythmic cells in a way that everyone else can see, such as in notation or protonotation on a board.
2. The leader sets up a steady beat, perhaps by conducting, and everyone else aligns themselves with that beat.
3. Once everyone is ready, the leader points at rhythmic cells, and the other participants perform them on rhythmic solfège, on “ta,” or by clapping or tapping. The leader should start by changing slowly, allowing the other participants to settle into each cell by performing it a few times in a row; as people get more comfortable, the pace of change can speed up until you are changing every beat.

Activity: Improvise rhythmic cells while listening to music

Goal: Use defined rhythmic cells to improvise to a piece of music.

Instructions:

1. Start one of the songs in the playlist below.
2. Pick a rhythmic cell listed above and perform it to the beat of the song playing
3. As you perform the rhythmic cell, listen for where significant changes seem to happen in the music. At these points, change to a new rhythmic cell! If you feel like you aren't able to hear these points of change while performing the rhythm, that's ok (we'll work on listening for form later)—just change when it feels appropriate to you.
4. Continue to switch patterns until you feel comfortable with each of the four cells.
5. If you feel pretty comfortable with the rhythmic cells, you might start performing them one after another or even jumping



between them randomly instead of repeating one over and over.



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Suggest a song for this playlist!

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  - Figure 7.18 “tiri ti protonotation” by Meghan Hatfield licensed under a CC BY-SA License.
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# SIMPLE METER: DOTS AND MILD SYNCOPATION

---

“Dotted rhythms” in simple meter are also extremely common. In most styles, it is more common to have the longer (dotted) note fall on the beat and the short note fall right before the next beat (cells S5 and S6 below), but the other way around—having a short note on the beat and the longer note off the beat (cells S7 and S8)—is also common in certain styles.

These dotted rhythms are common at different levels of scale. For example, the dotted note could be shorter than a beat (three-quarters of a beat long, followed by a note one-quarter of a beat long) or longer than a beat (a note a beat and a half long, followed by a note a half beat long). To distinguish these, make sure you are carefully tracking the beat, ideally with some kind of physical motion like swaying or conducting. In the takadimi and number rows of the table below, notes that last past the start of the next beat have additional syllables in square brackets: these should be kept track of silently while sustaining the previous note.







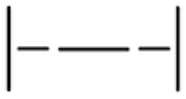
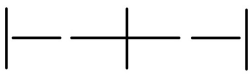
Once we get to compound meter, we’ll also need to

distinguish these “long-short” and “short-long” rhythms from compound-meter versions of those same patterns.

Any of the notes in the cells below may be replaced by rests. When this occurs, we simply need to experience the rest as a (silent) part of the pattern.

Reference number:	S5	S6	S7	S8
Description:	long-short within a simple beat	long-short across two simple beats	short-long within a simple beat	short-long across two simple beats
Staff notation (eighth note beat):				
Staff notation (quarter note beat):				
Staff notation (half note beat):				
Takadimi syllables:	ta mi	ta [di ta] di	ta ka	ta di [ta di]
Number syllables:	1 a	1 [and 2] and	1 ee	1 and [2 and]
Kodaly syllables:				
Protonotation:	— —	— + —	— —	— + —

There is also a mildly syncopated rhythm that is reasonably common within simple meter. We will work with longer syncopated rhythms in a later section.

Reference number:	S9	S10
Description:	short-long-short within a beat	short-long-short across two beats
Staff notation (eighth note beat):		
Staff notation (quarter note beat):		
Staff notation (half note beat):		
Takadimi syllables:	ta ka di	ta di [ta] di
Number syllables:	1 ee a	1 and [2] and
Kodaly syllables:		
Protonotation:		

## Activity: Improvise and identify rhythms

Goal: Generate or identify the defined rhythmic cells.

Before you start: This activity works best with at least one other person. But you can also do it on your own; just skip step 3.

Instructions:

1. Identify one person to improvise.
2. The improviser comes up with and performs a short rhythm (perhaps 4–6 beats long) made up entirely of the rhythmic cells defined above, cells defined in the previous section, and optionally notes longer than a beat.
3. The other student(s) identifies/identify which cells were used and in what order.

If this activity feels too easy, go ahead and add pitches at an appropriate difficulty level to the improvised rhythm.

## Activity: Read rhythmic cells

Goal: Notice when rhythmic cells occur in notated music.

Before you start: You'll need a source of notated melodies or rhythms that primarily use the rhythmic cells listed above. Sight-reading anthologies are a good source; *Open Music Theory* also has appropriate materials here. You can do this activity vocally or on another instrument.

Instructions:

1. Look over the notation, note the meter, and set up an appropriate sense of meter internally.
2. Scan over the notation, identifying rhythmic cells. Note that some notes in the rhythmic cells may be replaced by rests; you can still call up the “sense” of the rhythmic cell, simply experiencing the silence as part of the pattern.
3. Perform the rhythm, with or without pitch.

## Activity: Find rhythmic cells “in the wild”

Goal: Develop sensitivity to rhythmic patterns as they occur in music.

Instructions:

1. Listen to a song from the playlist below and determine its meter.
2. Listen to the first 1–2 phrases of the song and identify the rhythmic cells used and their order.
3. Optionally, identify an appropriate meter, time signature, and durational symbols that represent the music.



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<https://uen.pressbooks.pub/auralskills/?p=213#oembed-1>

Suggest a song for this playlist!



## Activity: “Point and Perform” in a Group

Goal: Perform indicated rhythmic cells

Before you start: This is a group activity

Instructions:

1. Identify a leader. This person will display the defined rhythmic cells in a way that everyone else can see, such as in notation or protonotation on a board.
2. The leader sets up a steady beat, perhaps by conducting, and everyone else aligns themselves with that beat.
3. Once everyone is ready, the leader points at rhythmic cells and the other participants perform them on rhythmic solfège, on “ta,” or by clapping or tapping. The leader should start by changing slowly, allowing the other participants to settle into each cell by performing it a few times in a row; as people get more comfortable, the pace of change can speed up until you are changing every beat.

Activity: Improvise rhythmic cells while listening to music

Goal: Use defined rhythmic cells to improvise to a piece of music.

Instructions:

1. Start one of the songs in the playlist below.
2. Pick a rhythmic cell listed above and perform it to the beat of the song playing
3. As you perform the rhythmic cell, listen for where significant changes seem to happen in the music. At these points, change to a new rhythmic cell! If you feel like you aren't able to hear these points of change while performing the rhythm, that's ok (we'll work on listening for form later)—just change when it feels appropriate to you.
4. Continue to switch patterns until you feel comfortable with each of the four cells.
5. If you feel pretty comfortable with the rhythmic cells, you might start performing them one after another or even jumping

between them randomly instead of repeating one over and over.



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Suggest a song for this playlist!

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# COMPOUND METER

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Beats in compound meter have three equal divisions. Traditional notation of compound meter **always** uses a dotted note to represent the beat. This is a little more to keep track of than simple meter's two divisions, but it can be helpful to think of the three parts of each beat as its "beginning," "middle," and "end."

In any meter, we can of course get notes that last longer than a beat. We can typically track these simply by counting the number of beats they occupy. Since compound beats are represented by dotted notes, it's not always as intuitive to figure out what note value to use to notate a long note in compound meter as it is in simple meter. Sometimes, compound meter requires some awkward notation: for example, a three-beat note value is typically represented by a larger dotted note tied to a smaller one (for example, a dotted half tied to a dotted quarter in 9/8).

The table below shows some of the most common beat-length patterns in compound meter. Any of the notes in the cells below may be replaced by rests. When this occurs, we simply need to experience the rest as a (silent) part of the pattern.

Reference number:	C1	C2	C3	C4	C5
Description:	one note per beat	three even notes per beat	long-short within a compound beat	short-long within a compound beat	six even notes per beat
Staff notation (dotted eighth note beat):					
Staff notation (dotted quarter note beat):					
Staff notation (dotted half note beat):					
Takadimi syllables:	ta	ta ki da	ta da	ta ki	ta va ki da ma
Number syllables:	1	1 la li or 1 & a	1 li or 1 a	1 la or 1 &	1 ta la ta ta
Kodaly syllables:					
Protonotation	———	———	———	———	———

Activity: Improvise and identify rhythms

Goal: Generate or identify the defined rhythmic cells.

Before you start: This activity works best with at least one other person. But you can also do it on your own; just skip step 3.

Instructions:

1. Identify one person to improvise.
2. The improviser comes up with and performs a short rhythm (perhaps 4–6 beats long) made up entirely of the rhythmic cells defined above, plus optionally notes longer than a beat.
3. The other student(s) identifies/identify which cells were used and in what order.

If this activity feels too easy, go ahead and add pitches at an appropriate difficulty level to the improvised rhythm.

Activity: Read rhythmic cells

Goal: Notice when rhythmic cells occur in notated music.

Before you start: You'll need a source of notated melodies or rhythms that primarily use the rhythmic cells listed above. Sight-reading anthologies are a good source. You can do this activity vocally or on another instrument.

Instructions:

1. Look over the notation, note the meter, and set up an appropriate sense of meter internally.
2. Scan over the notation, identifying rhythmic cells. Note that some notes in the rhythmic cells may be replaced by rests; you can still call up the “sense” of the rhythmic cell, simply experiencing the silence as part of the pattern.
3. Perform the rhythm, with or without pitch.

Activity: Find rhythmic cells “in the wild”



Goal: Develop sensitivity to rhythmic patterns as they occur in music.

Instructions:

1. Listen to a song from the playlist below and determine its meter.
2. Listen to the first 1–2 phrases of the song and identify the rhythmic cells used and their order.
3. Optionally, identify an appropriate meter, time signature, and durational symbols that represent the music.



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Suggest a song for this playlist!

## Activity: “Point and Perform” in a Group

Goal: Perform indicated rhythmic cells

Before you start: This is a group activity.

Instructions:

1. Identify a leader. This person will display the defined rhythmic cells in a way that everyone else can see, such as in notation or protonotation on a board.
2. The leader sets up a steady beat, perhaps by conducting, and everyone else aligns themselves with that beat.
3. Once everyone is ready, the leader points at rhythmic cells, and the other participants perform them on rhythmic solfège, on “ta,” or by clapping or tapping. The leader should start by changing slowly, allowing the other participants to settle into each cell by performing it a few times in a row; as people get more comfortable, the pace of change can speed up until you are changing every beat.

## Activity: Improvise rhythmic cells while listening to music

Goal: Use defined rhythmic cells to improvise to a piece of music.

Instructions:

1. Start one of the songs in the playlist below.
2. Pick a rhythmic cell listed above and perform it to the beat of the song playing
3. As you perform the rhythmic cell, listen for where significant changes seem to happen in the music. At these points, change to a new rhythmic cell! If you feel like you aren't able to hear these points of change while performing the rhythm, that's ok (we'll work on listening for form later)—just change when it feels appropriate to you.
4. Continue to switch patterns until you feel comfortable with each of the four cells.
5. If you feel pretty comfortable with the rhythmic cells, you might start performing them one after another or even jumping

between them randomly instead of repeating one over and over.



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Suggest a song for this playlist!

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# COMPOUND METER: FURTHER DIVISIONS

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Compound beats typically divide into three parts/divisions. Those three divisions, in turn, are each typically represented by an un-dotted note such as an eighth note, which means they typically further divide (“subdivide”) into twos. This gives a total of six possible subdivisions within each beat.

There is a huge number of ways those six subdivisions might be articulated. As you work with compound meter and figure out which of this huge number of possibilities is happening at any given time, it may be helpful to bring to bear your subdivision skills to keep track of the beat division physically as you listen or perform. For example, you could tap three fingers in succession for each beat. Eventually, however, we will strive to learn at least the most common rhythms as units that do not need to be subdivided to be recognized.

For now, here are a few relatively common possibilities that are worth memorizing. Any of the notes in the cells below may be replaced by rests. When this occurs, we simply need to experience the rest as a (silent) part of the pattern.

Reference number:	C6	C7	C8	C9
Description:	long-four shorts	long-three shorts	long-two shorts	long-short-medium
Staff notation (dotted eighth note beat):				
Staff notation (dotted quarter note beat):				
Staff notation (dotted half note beat):				
Takadimi syllables:	ta ki di da ma	ta di da ma	ta da ma	ta di da
Number syllables:	1 la ta li ta	1 ta li ta	1 li ta	1 ta li
Kodaly syllables:				
Protonotation	-----	-----	-----	-----

Activity: Improvise and identify rhythms

Goal: Generate or identify the defined rhythmic cells.

Before you start: This activity works best with at least one other person. But you can also do it on your own; just skip step 3.

Instructions:

1. Identify one person to improvise.
2. The improviser comes up with and performs a short rhythm (perhaps 4–6 beats long) made up entirely of the rhythmic cells defined above, plus optionally notes longer than a beat.
3. The other student(s) identifies/identify which cells were used and in what order.

If this activity feels too easy, go ahead and add pitches at an appropriate difficulty level to the improvised rhythm.

Activity: Read rhythmic cells

Goal: Notice when rhythmic cells occur in notated music.

Before you start: You'll need a source of notated melodies or rhythms that primarily use the rhythmic cells listed above. Sight-reading anthologies are a good source. You can do this activity vocally or on another instrument.

Instructions:

1. Look over the notation, note the meter, and set up an appropriate sense of meter internally.
2. Scan over the notation, identifying rhythmic cells. Note that some notes in the rhythmic cells may be replaced by rests; you can still call up the "sense" of the rhythmic cell, simply experiencing the silence as part of the pattern.
3. Perform the rhythm, with or without pitch.

Activity: Find rhythmic cells "in the wild"



Goal: Develop sensitivity to rhythmic patterns as they occur in music.

Instructions:

1. Listen to a song from the playlist below and determine its meter.
2. Listen to the first 1–2 phrases of the song and identify the rhythmic cells used and their order.
3. Optionally, identify an appropriate meter, time signature, and durational symbols that represent the music.



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Suggest a song for this playlist!

## Activity: “Point and Perform” in a Group

Goal: Perform indicated rhythmic cells

Before you start: This is a group activity.

Instructions:

1. Identify a leader. This person will display the defined rhythmic cells in a way that everyone else can see, such as in notation or protonotation on a board.
2. The leader sets up a steady beat, perhaps by conducting, and everyone else aligns themselves with that beat.
3. Once everyone is ready, the leader points at rhythmic cells, and the other participants perform them on rhythmic solfège, on “ta,” or by clapping or tapping. The leader should start by changing slowly, allowing the other participants to settle into each cell by performing it a few times in a row; as people get more comfortable, the pace of change can speed up until you are changing every beat.

## Activity: Improvise rhythmic cells while listening to music

Goal: Use defined rhythmic cells to improvise to a piece of music.

Instructions:

1. Start one of the songs in the playlist below.
2. Pick a rhythmic cell listed above and perform it to the beat of the song playing
3. As you perform the rhythmic cell, listen for where significant changes seem to happen in the music. At these points, change to a new rhythmic cell! If you feel like you aren't able to hear these points of change while performing the rhythm, that's ok (we'll work on listening for form later)—just change when it feels appropriate to you.
4. Continue to switch patterns until you feel comfortable with each of the four cells.
5. If you feel pretty comfortable with the rhythmic cells, you might start performing them one after another or even jumping

between them randomly instead of repeating one over and over.



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Suggest a song for this playlist!

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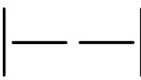
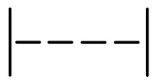
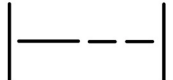
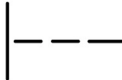
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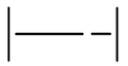
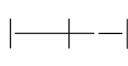
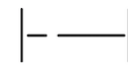
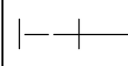
# CATALOGUE OF BASIC RHYTHMIC CELLS







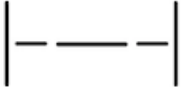
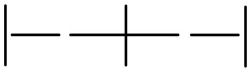
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This section repeats the rhythmic cells introduced up to this point, for activities where it may be useful to have a full reference.

# Simple Meter
















Reference number:	S1	S2	S3	S4
Description:	two even notes	four even notes	long-short-short	short-short-
Staff notation (eighth note beat):				
Staff notation (quarter note beat):				
Staff notation (half note beat):				
Takadimi syllables:	ta di	ta ka di mi	ta di mi	ta ka di
Number syllables:	1 and	1 ee and a	1 and a	1 ee and
Kodaly syllables:	ti ti	ti ri ti ri	ti ti ri	ti ri ti
Protonotation				













Reference number:	S5	S6	S7	S8
Description:	long-short within a simple beat	long-short across two simple beats	short-long within a simple beat	short-long across two simple beats
Staff notation (eighth note beat):				
Staff notation (quarter note beat):				
Staff notation (half note beat):				
Takadimi syllables:	ta mi	ta [di ta] di	ta ka	ta di [ta di]
Number syllables:	1 a	1 [and 2] and	1 ee	1 and [2 and]
Kodaly syllables:				
Protonotation:				

Reference number:	S9	S10
Description:	short-long-short within a beat	short-long-short across two beats
Staff notation (eighth note beat):		
Staff notation (quarter note beat):		
Staff notation (half note beat):		
Takadimi syllables:	ta ka di	ta di [ta] di
Number syllables:	1 ee a	1 and [2] and
Kodaly syllables:		
Protonotation:		



# Compound Meter

Reference number:	C1	C2	C3	C4	C5
Description:	one note per beat	three even notes per beat	long-short within a compound beat	short-long within a compound beat	six even notes per beat
Staff notation (dotted eighth note beat):					
Staff notation (dotted quarter note beat):					
Staff notation (dotted half note beat):					
Takadimi syllables:	ta	ta ki da	ta da	ta ki	ta va ki da ma
Number syllables:	1	1 la li or 1 & a	1 li or 1 a	1 la or 1 &	1 ta la ta ta
Kodaly syllables:					
Protonotation	———	— — —	———	— ———	-----

Reference number:	C6	C7	C8	C9
Description:	long-four shorts	long-three shorts	long-two shorts	long-short-medium
Staff notation (dotted eighth note beat):				
Staff notation (dotted quarter note beat):				
Staff notation (dotted half note beat):				
Takadimi syllables:	ta ki di da ma	ta di da ma	ta da ma	ta di da
Number syllables:	1 la ta li ta	1 ta li ta	1 li ta	1 ta li
Kodaly syllables:				
Protonotation	-----	-----	-----	-----

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# MIXED METER, TRIPLETS, AND DUPLETS

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In this section, we'll work on mixing simple and compound beats in different ways. We'll do so while working primarily with the rhythmic cells we've studied so far. It'll help to have begun internalizing them, since we're now focused on their relationships.

When moving back and forth between simple and compound beats, there are two possible approaches we could take.

When **every *beat* is the same length**, we typically decide which beat type we consider “primary” (simple or compound), then call the other beat type a “tuplet” when it occurs. If our primary beat type is simple but then there's a compound beat inserted, we'll call that compound beat a “triplet.” In the opposite case, where our primary beat type is compound but then there's a simple beat inserted, we'll call that simple beat a “duplet.” A triplet typically feels “sped up,” since compared to the surrounding beats it has more divisions in the same amount of time; a duplet typically feels “slowed down” for the opposite reason.

When, on the other hand, **every beat *division* is the same length/speed**, we typically call this “mixed meter.” In mixed meter, beats will simply be different lengths based on how many divisions they have. Now, instead of compound beats feeling “sped up,” they will be longer; and instead of simple beats feeling “slowed down,” they will be shorter.

### Activity: Improvise and identify rhythms

Goal: Generate or identify the rhythmic cells with triplets/duplets or in mixed meter.

Before you start: This activity works best with at least one other person. But you can also do it on your own; just skip step 3.

Instructions:

1. Identify one person to improvise.
2. The improviser comes up with and performs a short rhythm (perhaps 4–6 beats long) made up entirely of the rhythmic cells defined above, plus optionally notes longer than a beat. The rhythm should either use the

occasional triplet within a simple meter, use the occasional duplet within a compound meter, or use some combination of compound and simple beats while keeping the beat division the same length.

3. The other student(s) first identifies the approach taken to mixing compound and simple, then identifies/identify which cells were used and in what order.

### Activity: Read rhythmic cells

Goal: Notice when rhythmic cells occur in notated music.

Before you start: You'll need a source of notated melodies or rhythms that mix compound and simple beats. Sight-reading anthologies are a good source; many have chapters on triplets, duplets, and/or



mixed meter. You can do this activity vocally or on another instrument.

Instructions:

1. Look over the notation, note the approach to meter, and set up an appropriate sense of meter internally. You may wish to go once through the excerpt simply “feeling” the meter and the ways it changes without worrying about the exact rhythms.
2. Scan over the notation, identifying rhythmic cells. Be sure that you are keeping either the beat divisions or the beats the same length, as appropriate to the excerpt.
3. Perform the rhythm, with or without pitch.

Activity: Find rhythmic cells “in the wild”

Goal: Develop sensitivity to rhythmic patterns as they occur in music.

### Instructions:

1. Listen to a song from the playlist below and determine its meter.
2. Listen to the first 1–2 phrases of the song, identifying the approach to mixing simple and compound beats (triplets within simple meter, duplets within compound meter, or mixed meter).
3. Identify the rhythmic cells used and their order.
4. Optionally, identify an appropriate meter, time signature, and durational symbols that represent the music.



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<https://uen.pressbooks.pub/auralskills/?p=219#oembed-1>

Suggest a song for this playlist!

# IDENTIFYING BOTH RHYTHM AND METER

---

So far, we've addressed rhythmic cells as if you must know the meter type first, and then you relate the rhythmic cells to that. But sometimes, especially when listening, we notice rhythmic cells first, and because they are so strongly associated with a specific meter type, we figure out the meter from there. Cells particularly associated with certain meters include:

1. Compound long-short (rhythm C3) with compound meter
2. Dotted simple long-short (rhythms S5 and S6) with simple meter
3. Even divisions of the beat with whatever meter is appropriate

Note that numbers 1 and 2 are both long-short patterns. To distinguish them, you will need to determine whether the ratio of the long note to the short note is the more lilting 2:1 (compound meter) or the more “snappy” 3:1 (simple meter). One helpful way to distinguish is to get up and skip along to the rhythm: it should be easy (depending on tempo) to skip

along to a compound long-short, but difficult or impossible for a simple long-short.

### Activity: From rhythm to meter

Goal: Determine an appropriate meter for a rhythm.

Before you start: This is a group activity.

Instructions:

1. Each person privately comes up with a short (perhaps 3–8 beat) rhythm in simple or compound meter.
2. Choose one person to perform their rhythm on neutral syllables while tapping or otherwise indicating the beat.
3. The other members of the group repeat back the rhythm on a neutral syllable while also indicating the beat.
4. These other members figure out the rhythm, either identifying the relevant rhythmic cells or repeating the rhythm back on appropriate syllables.

5. Finally, the group discusses an appropriate meter for the excerpt, either by type/description (e.g., “compound duple”) or by time signature (e.g., “six-eight”).

### Activity: Listening for meter

Goal: Develop sensitivity to rhythms associated with different meters

Instructions: Listen to the songs in the playlist below, listening especially for rhythmic cells associated with specific meters. Use these clues to help you quickly identify a meter type (e.g., “simple triple”).



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Suggest a song for this playlist!

# SYNCOPE

---

So far, the way we've worked with rhythmic cells might suggest that every beat is always a unit unto itself and always divided evenly. Of course, that's not the case! And one particularly important exception—especially in contemporary popular music—is **syncopation**, where something important-sounding happens at a metrically-unexpected moment.

Many syncopations can be tracked without too much trouble by keeping track of the beat and, when necessary, subdividing to figure out exactly where notes are occurring/should occur.

However, we have noticed that students often struggle too with a situation that is particularly common in the melodies of contemporary popular music, where something important happens *right before* an important beat, such as the downbeat. When this happens, many people mentally associate that important event with the important beat and have a difficult time figuring out where it actually occurs. In many cases, the answer is half of a beat earlier than the important beat; subdividing is generally a good way to check.

## Activity: Reading syncopation

Goal: Get used to performing syncopation from notation.

Before you start: You'll need a source of syncopated melodies. Sight-reading anthologies are a good source; many have chapters dedicated to syncopation. You can do this activity vocally or on another instrument.

Instructions:

1. Start by noting and setting up the meter.
2. Scan the notation, looking for syncopated notes. These are often apparent from ties (especially over barlines).
3. Practice (silently or aloud, as appropriate) performing the syncopated passage, focusing on the relationship of the notes to the beats and using your subdivision skills as necessary.
4. Perform the whole excerpt, with or without pitches.



## Activity: Relate syncopated melodies to the meter

Goal: Get used to how syncopated melodies tend to relate to important beats.

Instructions:

1. Listen to one of the songs below and figure out its meter.
2. Listen to and memorize the first melodic phrase of the song, optionally conducting or tapping along to the beat.
3. Play back the melody in your head or sing it aloud while conducting or tapping the beat, slowing the melody down as necessary. Notice where the notes occur relative to your physical motions tracking the beat.
4. Optionally, notate the passage.



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Suggest a song for this playlist!

# 3S AND 2S: HEMIOLA AND OTHER ACROSS-THE-BEAT RHYTHMS

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In a previous section, we looked at how 3s and 2s can interact through mixed meter and tuplets (triplets and duplets). Here, we'll take a look at a few additional ways 3s and 2s can interact.

The first, called “hemiola,” is particularly associated with (broadly defined) classical music. **Hemiola** technically just refers to the ratio of 3:2, but it is most often used to describe a shift, usually temporary, from “two groups of three” to “three groups of two.” In notated music, this most often means one of the following:

1. When in a compound duple meter such as 6/8 (two beats of three eighth notes each), there may be a shift to a simple triple meter such as 3/4 (three beats of two eighth notes each). This might be notated as a meter change, or there might simply be an implication of 3/4 by the use of three quarter notes within 6/8.
2. In music notated in a simple triple meter like 3/4,

measures/cycles often seem to group in pairs, creating “two groups of three” (two measures with three beats each); hemiola in this case would mean suddenly using half notes and pairs of quarter notes tied across the barline, since now two measures will be filled with “three groups of two.”

The second type of 3/2 interaction we’ll address here is particularly associated with popular music. In this type, a simple meter melody uses a bunch of “threes” (dotted notes), syncopating or contrasting against the beat, only to use some number of “twos” at the end of a cycle to “reset” to the downbeat. For example, in 4/4, the rhythm might be dotted quarter-dotted quarter-quarter (3-3-2, measured in eighth notes) or dotted eighth-dotted eighth-dotted eighth-dotted eighth-eighth-eighth (3-3-3-3-2-2, measured in sixteenth notes).

Perform hemiolas from notation

Goal: Get used to how hemiolas feel in performance.

Before you start: You’ll need a source of notated

rhythms or melodies with hemiolas. Many sight-reading anthologies have chapters on hemiola; hemiolas are also reasonably common in triple-meter music by Johannes Brahms and some varieties of European Medieval and Renaissance music. You can do this activity vocally or on an instrument.

Instructions:

1. Note the meter and set it up internally.
2. Scan the notation for a hemiola, looking for a spot where groups of three (typically dotted notes) are supplanted by groups of three (likely undotted notes).
3. Practice transitioning into the hemiola; it may help to practice abstractly at first, counting 1-la-li-2-la-li-1-and-2-and-3-and. Make sure your beat divisions remain the same length.
4. Perform the rhythm.

Activity: Identify contrasting 3s and 2s in music

Goal: Identify hemiolas and other contrasting 3s and 2s in sounding music.

Instructions: Listen to a song from the playlist below. Each song features either hemiolas or, within a simple meter, several “three” notes followed by 1–2 “two” notes; the latter case is usually a cycle that repeats over and over. Identify which device you hear in each song. Optionally, notate the relevant phrase.



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Suggest a song for this playlist!

# CHAPTER 8 - IMPROVISATION SKILLS



Thus far in this book, we've worked on fundamental skills. Now we move to a section focused on application: to improvisation, transcription, sight reading, and dictation.

We're starting with improvisation for a few reasons. First, we believe creativity is a fundamental right and responsibility of all musicians. Second, improvisation is one of the best ways to enrich your knowledge structures and then demonstrate mastery of them. ("Create" is considered the most sophisticated way of demonstrating learning in Bloom's Taxonomy of Learning.)

Third, we simply find it fun. Not all musicians will improvise in public performances. But we hope all musicians play around with music regularly, simply for the joy of it.

Some musicians, particularly those trained in the “classical” tradition, may find improvisation daunting. If that’s you, don’t worry—we’ll start by tying it to skills we’ve already worked on, and we’ll give you specific ways to approach “making stuff up” that should be helpful.

Other musicians may have already been improvising for some time and may wonder what this chapter will do for them. In some cases, focusing your attention on important aspects of improvisation that you have been doing more intuitively may help you improve your skills. But we also invite you to consider how your expertise in improvisation, and the ways we will use it here, help you build other skills such as internal hearing, determining key, etc.

We invite you to commit to the importance of creativity by making up some music now. Grab your instrument or just hum. Make something up. If you’re not enjoying it to at least some extent, change what you’re doing until you do!

### Learning Objectives

Students will be able to:



1. Describe strategies for approaching improvisation.
2. Effectively use time-based parameters of music: orienting to the meter, choosing rhythmic ideas, and planning out pacing.
3. Effectively use pitch-based parameters of music: orienting to the key and planning out melodic shape/contour.
4. Improvise a second phrase in response to a given first phrase.
5. Improvise embellishments around a melody.
6. Improvise a counter melody that parallels an original melody.
7. Improvise a bass line to a given melody
8. Improvise a single-phrase melody that clearly reflects a specified chord progression.

## Image Attributions

- Figure 8.1 “singer, jazz club, saxophonist, jazz band, oil painting, artist Roman Nogin, series “Sounds of Jazz.”” by Roman Nogin licensed under a Shutterstock Standard License.
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# IMPROVISATION STRATEGIES

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Anytime you're creating, you're going to have some frustrating experiences of "writer's block" where you feel like you just can't come up with anything "good." What do we do when this happens?

First, we can try to get rid of the internal "judge" that wants to avoid making any mistakes. Judging what you're about to make as "good" or "bad" before it even comes out can really hold us back. Unfortunately, many musicians have a perfectionist streak and have a really hard time letting go of these internal judgments. Still, it can help to center yourself in the moment with mindfulness exercises, and to try to adopt an attitude of curiosity ("I wonder what I am about to play!" or "I wonder what would happen if I...") rather than judgment ("Is what I am about to play good enough?" or "This is probably going to be terrible but...").

Beyond this, there are some more technical methods people sometimes use to generate material. Here are a few ideas. Many of them rely on the interplay of patterns and novelty, which generally work together to both give us something familiar and easy to understand (patterns) and catch our attention with something new (novelty).

- Don't be afraid to use common patterns, especially at beginnings (like scale degree 5/*sol* on a pickup leading to scale degree 1/*do* on a downbeat) and endings (like cadence patterns).
- Sequences, or pitch/rhythm patterns that repeat starting on a different pitch each time, are a really useful way to structure a melody. Often, the “motive” that is repeated is about a measure/cycle long, so if you can come up with something interesting that lasts about a measure, try repeating down a step in the next measure. If down a step doesn't feel right, try a different spot (up a third?).
- Rely on things that either feel good to you or intrigue you.

### Activity: Get used to making stuff up

Goal: Quiet your inner critic and develop habits that are useful in improvisation.

Before you start: You may wish to use your primary instrument. If you're not fatally self-conscious, it may also be helpful to work with a group of other

folks who can help you come up with ideas and encourage you.

Instructions:

1. Start by centering yourself. It may be helpful to close your eyes and take a few deep breaths. Acknowledge any emotions you may be feeling and give them permission to stick around if they wish.
2. Come up with a minimal plan of how you will begin and end. This may include a key, meter, an effect you're going for, a starting idea, a set of notes you particularly enjoy playing that you'd like to start with, an ending note, and more.
3. Perform *something* at a tempo that allows you to feel as comfortable as possible and confident that what you are performing sounds intentional.
4. Consider: how did that feel? If you were nervous, how can you address this the next time through? If your improvisation felt wandery, how could you give it more structure? Ideas might include a planned-out contour or rhythmic shape. Repeat as appropriate, implementing your new plan.



# RHYTHM, METER, AND PACING

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One of the most important aspects of improvisation is to think about pacing, or the rate of speed at which stuff happens. A common issue in beginning improvisers is to play constantly, never letting the music “rest” or feel like it has “highs” and “lows.” To have effective pacing, we’ll want to both orient to the meter and have a bit of a plan for how the music will go.

Given our focus, we will avoid pitch variation: you can perform on a vocal “ta,” with clapping/tapping, or on a single tone on an instrument, as you and your instructor prefer.

First, let’s orient to the meter. The meter may be clear if you have an ensemble playing along with you. If so, just make sure you are feeling it—literally, as in able to move to the beat, the downbeat, and the beat division. If you’re improvising solo or with something more ambiguous, then use our familiar steps to set up an internal sense of meter.



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Once you can feel the meter, you're ready to come up with a plan for pacing. There's lots of advice on the internet, so it may help to do a search for "improvisation pacing" and see what's out there. Here's some basic advice:

- Consider a few rhythms appropriate to the meter.  
Having some consistency in your rhythms—coming back to some of the same ideas over and over, perhaps on different beats—will usually help the improvisation feel “unified.”
- Plan out how many phrases are appropriate for the length of time you will be improvising, and consciously decide to make space between the phrases.
- Plan where the climax of the improvisation will occur, a basic idea of how you will make it feel like the climax, and a basic idea of how you'll lead up to it.

Activity: Focus on pacing



Goal: Develop habits of planning out pacing in improvisation

Before you start: We encourage you to use your primary instrument, even though we are working on rhythm alone without pitch variation. Decide whether you will be improvising solo or with an ensemble. Though we are focusing on rhythmic improvisation without pitch, it's fine if you have an ensemble performing some pitch-based backing music such as a twelve-bar blues to help you think about where you are in the improvisation.

Instructions:

1. Decide on a meter type and tempo, and make sure you internalize these following the instructions above.
2. Decide on one or two different basic short rhythms (just 1–3 beats each is great).
3. Plan out a number of phrases appropriate to the amount of time you have. If you're just starting out, one or two phrases is plenty. Consciously decide to make space between the phrases.
4. Plan where the climax will occur, a basic idea of how you will make it feel like the climax,

and a basic idea of how you'll lead up to it.

5. Take a deep breath, and perform your improvisation! We encourage you to use only rhythm, with no pitch variation.
6. If time, come up with a plan for improvement, focused on rhythm, meter, and pacing. If your relationship to the meter was tenuous, make sure you are internalizing the meter and revising rhythms as necessary to make it clearer. If your improvisation felt like it wandered around aimlessly, make sure you leave space between ideas and plan out a dramatic shape. Then repeat, trying out your new plan.

# CONTOUR AND SHAPE

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In the previous section, we considered rhythm, meter, and pacing. Here, we'll add pitch. If you're having trouble with pitch, however, we encourage you to make sure your rhythmic/metric foundation is strong.

Your pitch structures contribute to an improvisation in several ways. Most obviously, they set up the key context. But pitches can also convey a sense of “shape” or **contour** as they go up and down, and they can convey tension and release as we use more and less “clashing” notes (relative either to the key or to a sounding chord).

First, let's orient to the key. The key may be clear if you have an ensemble playing along with you. If you're improvising solo or with something more ambiguous, then use our familiar steps to set up an internal sense of key before you start. Even if you're performing on an instrument, this will help you imagine the pathways you're setting up for yourself.

Orienting to a major key:



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Orienting to a minor key:



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Once you’ve established your key context, you’re ready to make some music! There are some very specific approaches to choosing pitches in improvisation that you can take, including chord-scale theory, the idea of “guide tones,” and basing your improvisation on an existing tune. Here, however, we focus on basic advice that we hope is useful across different approaches.

- Remember that (especially at first) you may wish to come up with your rhythms first, then add pitches. Particularly if we follow the procedures in the previous section, this can help us focus on pacing—which we can then try to match with our pitch structures.

- Think about how to end your phrase in a way that is appropriate to the key. It's particularly common for melodies to end with downward, stepwise motion, and to end on scale degrees 2/*re*, 1/*do*, or 7/*ti*, at the end of each phrase.
- Decide on a “shape” that is appropriate to your chosen starting point and the key. If you start on scale degree 1/*do*, then unless you choose to perform it relatively high in your range, you may wish to start by ascending (likely followed by descending). If you choose to start on scale degree 5/*sol*, you might start with a leap up to scale degree 1/*do* or simply do a slow descent across the whole melody. Whatever you choose, make sure you have an intention before you start.
- Rhythmic patterns often go with pitch patterns, but most often those pitch patterns are moved to a new place in the scale with each repetition—often down a step each time.

Activity: Focus on contour and shape

Goal: Develop habits of planning out pitch shape/ contour in improvisation

Before you start: We encourage you to use your primary instrument. Decide whether you will be improvising solo or with an ensemble. You may also wish to start by coming up with a rhythmic improvisation using the activity described in the previous section and only then use the following instructions (adapted to remove redundant steps) to add pitches.

Instructions:

1. Decide on a key and a starting note. If appropriate, set up your internal sense of key using the steps above.
2. Plan out a number of phrases appropriate to the amount of time you have. If you're just starting out, one or two phrases is plenty. Consciously decide to make space between the phrases, and how you want them to relate. The relationships among phrases are particularly apparent by how they contrast (higher/lower, louder/softer, more/less active, etc.) and how they end (particularly whether they end on more or less stable scale

degrees).

3. Plan where the climax will occur, a basic idea of how you will make it feel like the climax, and a basic idea of how you'll lead up to it in terms of pitch and rhythm. It's most common for the climax to be a high point in the melodic shape.
4. Take a deep breath, and perform your improvisation!
5. If time, come up with a plan for improvement, focused on pitch contour/shape. If your relationship to the key was tenuous, make sure you are internalizing the key and consider important notes of the key that you might more clearly emphasize. If your improvisation felt like it wandered around aimlessly, refine your plan based on your intention for how phrases will relate to each other, making sure to leave some space between melodic ideas.

# EMBELLISHING A STRUCTURE

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One of the most common approaches to improvisation is to embellish or decorate a structure. For example, jazz musicians often improvise over chord progressions associated with classic tunes, sometimes even just decorating the tune itself, while Baroque opera singers were generally expected to improvise during their arias in ways that both made the music more beautiful and showed off their vocal skills. To embellish a structure in this way, we need to build a vocabulary of common decorative patterns and then practice applying them to music.

Decorative patterns differ widely among different musical traditions. Here, we'll focus on a core set of relatively simple patterns that are common among classical and popular music, but the more you work with an improvised tradition, the more you will internalize the patterns people use for it.

Stepwise embellishments may be the simplest to apply. These fall into two main categories: neighbor tones and passing tones.

To apply a neighbor tone, start on a structural note, move to a note right next to it in the scale, and then back to the structural note. This decoration is appropriate anytime a



structural tone lasts long enough to fit in this whole pattern, or where a structural tone repeats with enough time in the middle to fit in a neighbor tone.

Neighbor tones can also be extended into a “double neighbor.” In this case, a structural tone is decorated by both the note above and the note below in the scale.

Passing tones typically require two successive structural tones to be either two or three steps apart. In this situation, we can fill in that distance by step—with “passing tones.”

We will introduce one embellishment that is not stepwise: chordal skips. Anytime we have an explicit or intuitive sense of the chord appropriate to a part of a melody, we can skip from wherever we are to other notes of that chord.

Finally, there’s a technique often used by jazz musicians: choosing some characteristic rhythmic or melodic idea from one part of a melody and playing it somewhere else—on a different beat, in a different measure, and/or starting on a different scale degree.

Activity: Practicing methods of embellishment

Goal: Develop a “vocabulary” of melodic embellishment techniques

Before you start: Decide if you wish to use your voice or another instrument. Either is fine.

Instructions: Practice each type of embellishment listed above:

- Neighbor tones: perform a short string (3–7 notes) of even, medium-length pitches. Then repeat the string, giving each pitch an upper, lower, or “double” neighbor.
- Passing tones: perform a short string (3–7 notes) of even, medium-length pitches that includes at least 1 skip of a 3rd or 4th. Then repeat the string, filling in each skip with passing tones. Make sure that the original pitch plus passing tones do not take any longer than the original pitch without passing tones.
- Chordal skips: come up with a short (3–7 chord) chord progression with a number of beats per chord (ideally 3–4). Optionally, listen to the progression played on a chord instrument. Then work your way through the progression, skipping between notes of the

chord in any pattern for as long as each chord lasts.

- Moving a motive: Think of a single phrase of a familiar melody. Identify a short, identifiable pitch and/or rhythm idea (1 measure or less) from that melody, and think of a way to insert it—transposed is fine—into a different portion of the melody. Play the resulting melody.

### Activity: Embellishing a melody

Goal: Practice applying embellishments to a melody.

Before you start: You'll need a melody or collection of melodies. You can work from notated melodies from a sight-reading anthology, melodies you know, or any other source. You can use your voice or another instrument, as you wish.

Instructions:

1. Perform through the melody.
2. Take a moment to review the melody, noting any opportunities for embellishment.
3. Perform the melody again, this time applying the embellishments.

# CALL AND RESPONSE

---

“Call and response” is another common approach to improvisation in a wide variety of musics around the world. Call and response can work many different ways, with either the call, the response, or both being improvised. Here, we build on the skill of working with a pre-existing melody begun in the previous section, by working with pre-existing calls and improvised responses.

The very idea of call and response relies on the fact that musical phrases often feel like they group in pairs (here, the “call” and the “response”). For us to feel this connection, clearly there must be some kind of relationship between the two phrases. That will be our primary goal in this type of improvisation.

One of the most common types of connections is often called “question and answer” or “parallel period.” In this approach, the call and the response both start the same, but then they end differently. The call should feel “incomplete” in some way, often by ending on scale degrees *2/re* or *7/ti* (a “half cadence”), while the response should feel like it completes the thought, most often by ending on scale degree *1/do*.

On the other hand, it is also possible to create a relationship among phrases by making them complementary—that is,

making them do different things that seem to go together. For example, perhaps the call starts on scale degree 5/*sol* and makes its way down to scale degree 1/*do*, while the response starts on scale degree 5/*sol* and makes its way up to scale degree 1/*do*. It is harder to advise on creating complementary phrases than on question-and-answer phrases.

### Activity: Improvising responses

Goal: Improvise music that has a specific relationship to the music that comes before.

Before you start: You'll need a source of "call" melodies. These can be improvised by a friend or yourself, or selected from notated "periods" (pairs of phrases) such as this collection and performed by yourself or someone else. If selecting from notated periods, use only the first notated phrase as the "call." You may use your voice or another instrument, as you wish.

Instructions:

1. Set an intention for how your "response" will relate to the call. Will it

be “parallel” or contrasting?

2. Perform, or have someone else perform, the “call.”
3. Perform a “response” that is roughly equal in length to the call and defined by your intention set in step 1.
4. Evaluate: how did the two phrases sound together? If you are dissatisfied with the result, set a new intention and repeat.

# IMPROVISING A COUNTERMELODY

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For some reason, one of the most blissful experiences in music is to perform a satisfying **countermelody**, or additional melody that differs from, and enriches, the main melody. Countermelodies, also sometimes known as “harmony lines,” can feel sophisticated and beautiful.

There are different approaches to countermelodies. In one approach, the improviser seeks to “complement” the main melody, filling in with short notes when the main melody is “sitting” on long ones and “getting out of the way” with longer notes when the main melody is moving more quickly. Here, however, we’ll focus on a simpler method, which we call “parallel.” This approach to countermelody will create a sweetness or richness around a main melody while not distracting from it. In this method, we create a harmony line that is generally a third above or below the original melody.

Activity: Improvise a parallel countermelody



Goal: Develop instincts for how to harmonize a melody.

Before you start: You'll need a melody to harmonize with, and optionally an accompaniment/chord progression to clearly define chords. The original melody can be improvised by someone else, read by someone else from a notated melody in a sight-reading anthology, or played from a pop song recording (as long as there isn't already a countermelody)—or you may have additional ideas. You may choose to harmonize either vocally or on another instrument, although there's something particularly delightful about vocalizing a countermelody (especially if the original is also vocal).

Instructions:

1. Consider the notes a third above and a third below the first note of the main melody. (Make sure to use major or minor thirds as necessary to stay within the scale.) Choose which one you think will sound better based either on your hearing and instinct or on your knowledge of which notes will work best in the harmony. If either will work, you can

either choose arbitrarily or consider the third above/third below for the next note or two in the melody. (Note: we are talking about thirds here, but if the main melody is in a different octave from your countermelody, you may end up a sixth or tenth away instead.)

2. Once you've chosen "third above" or "third below," you're ready to perform your countermelody! Play or have someone play the original; simply follow the contour (up/down motions) of the main melody yourself, remaining a third above or a third below, using the same rhythms as the melody.
3. Occasionally it may sound better to be a fourth or (even less common) a second away from the main melody. Usually this is because that note is in the appropriate chord while the third away from the main melody is not. You may be able to use your instincts or your knowledge of chord progressions to choose when to do this; if not, parallel thirds usually sound fine even when they don't technically fit.
4. Finally, to make your countermelody even a little more sophisticated, you could choose

occasionally to differ slightly from the rhythm of the main melody, either delaying a note slightly or rushing to it early.

# IMPROVISING A BASS LINE

Daniel Stevens

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As a form of musical “play,” improvisation often involves significant amounts of iteration and experimentation. Think of a child who begins designing an airplane out of LEGOs. At first, the basic structure is formed, and over time, new bricks are added to create special features. Sometimes, a child must try different combinations of bricks to get just the right result. None of the choices made along the way are right or wrong, but they are all essential steps to getting a satisfying result.

Similarly, improvising a bass line to a given melody is a creative, playful activity that will involve significant iteration and experimentation. As you begin trying different possible approaches, you may find that a simple melody admits seemingly countless possible bass lines.

Before you begin, it is important to remember three functions of a bass line, the last two of which are unique to this line as the lowest in the texture. First and foremost, the bass line should itself be a beautiful and musically appropriate addition to the melody. While defining these criteria is somewhat subjective, for now, it is worth noting that the

process of improvising a bass line should avoid defaulting to formulas or patterns. Further, we are improvising a bass line, not just the bass notes to whatever harmonies you think the melody calls for. Often, a good bass line will create harmonic possibilities that you hadn't considered, so at this stage, it is best to think of the bass line as a second melody that will complement the given melody.

As noted, there are two special functions that the bass line plays. The first is to establish a beautiful contrapuntal relationship with the melody. Contrapuntal writing has a long history stretching from the Renaissance through the compositions of contemporary composers. While counterpoint is sometimes approached as a rules-based compositional practice, the basic aesthetic values of contrapuntal writing, including balance, flow, and independence of voices, are typical across styles. When improvising a bass line in a tonal context, consider some of the musical qualities that are associated with each of these aesthetic qualities:

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<b>Aesthetic Quality:</b>	<b>Musical Considerations:</b>
Balance	Does my bass line complement the rhythmic structure of the melody by using similar rhythmic durations?
	Does my bass line have a clear overall shape, with points of arrival?
	Does my bass line use mostly stepwise/conjunct motion?
Flow	Does my bass line approach large leaps with care (often following them by stepwise motion in the opposite direction)?
	Does my bass line use different rhythmic patterns from the melody?
	Does my bass line establish a contour that is unique from that of the melody? Does my bass line use some contrary motion by sometimes moving in a different direction than the melody?
Independence	Does my melody establish mostly consonant relationships with the main, structural notes of the melody?
	When I use dissonance, does the dissonance resolve satisfyingly?
	Are there places in which a chromatic passing tone between scale steps could add a special color to the bass line?

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The second special function played by the bass line is to steer the direction of the phrase toward its endpoint. In tonal music, most melodies conclude by suggesting an authentic cadence.

Establishing an authentic cadence would typically demand ending the bass line with scale degrees 5-1/*sol-do*. Before the cadential scale degree 5/*sol* (which suggests a root position V chord), you might consider whether or not scale degree 5/*sol* can be preceded by scale degrees 2/*re*, 4/*fa*, #4/*fi*, or some combination of these scale degrees (e.g., scale degrees 4-2/*fa-re*, scale degrees 4-#4/*fa-fi*). These bass notes are often, but not always, used to prepare for the arrival of the bass note *sol*. Once you have a sense of how your bass line will end, consider how your bass line will establish and prolong the opening tonic. Also, consider whether your bass line will wander far from tonic before arriving at the predominant and cadential bass notes.

Taking those contrapuntal and phrase-specific considerations into account, it is time to begin the process of improvising!

Here are some strategies to get started:

1. Try using a minimal approach by singing and sustaining only *do* from the beginning until you get to the cadential dominant. Then, switch to scale degree 5/*sol*, and then return to *do* in the bass when the melody concludes (usually on scale degrees 1/*do* or 3/*mi*). Try this a few times, and as you improvise, consider if there is a fitting location to add a predominant note in the bass (scale degrees 2/*re*, 4/*fa*, or #4/*fi*).
2. Begin iterating on the minimal approach by listening for

structural notes in the melody (often notes on strong beats) and finding consonant intervals below them that you could move to from the sustained do.

3. As you sketch out basic contrapuntal possibilities, consider some of the aesthetic questions above and use these considerations to spark new ideas and approaches. For example, if the melody started with an ascending gesture, can you move in the opposite direction and descend to the next structural note? Is there a shape you would like your bass line to take? Are there any moments where you can use a dissonant interval and resolve it satisfyingly?
4. Once you have a basic contrapuntal structure established, begin to increase rhythmic variety by adding embellishing tones to your bass line. Try to create movement in your bass where the melody is less active and vice versa. Ideally, the bass line will project independence from the melody without stealing the show. That said, this is your music, so have fun and see how far you can push the music's boundaries...and your own!
5. As with all musical performances, improvisations should strive to exhibit poise and control. As you improvise a bass line on your voice or instrument, always keep your ear in control by audiating each note before you perform it. Letting your ear guide your performance will ensure that this activity results in maximal growth.



Below are two simple melodies. The first melody includes several possible bass lines that demonstrate the first four steps above. The second melody is provided for you to try!

For further practice, take any simple song (e.g., a children's song or folk tune) and learn to play it on the piano. As you play the song, try singing an improvised bass line to the melody. Try each melody several times so that you can work through the strategies above. You can also flip the part assignments by singing the melody and playing the bass line on the piano. Feel free to use a device to record your performance of the melody if performing two melodies proves too difficult.

Another excellent use of this skill is to improvise a bass line along with the music you are learning in private lessons, large ensemble, and/or chamber music. After you create different bass lines, return to the original score to study the composer's bass line. Often, engaging creatively with the music you are learning can reveal new things about the choices made by the composer.

# IMPROVISING A MELODY TO A CHORD PROGRESSION

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Improvisation is one of the best ways to experiment with the relationships between melody and harmony. These connections are crucial to how music works, and if you start to make those connections internally, it'll help all of your musical skills. We'll work on this connection more in depth in a future chapter, but for now, we'll learn some of the basics and start to hone our instincts.

Improvising over a chord progression starts with an understanding of which notes are in each chord. These “chord tones” will almost always sound in some way “right” when we play or sing them over the chords themselves. Of course, using only chord tones is very limiting, and there are styles of improvisation where sticking to the chord tones is considered boring. But even there, it makes sense to start by understanding the chord tones.

Focusing on chord tones like this is in a sense a “vertical” way of understanding improvisation. That is, it's like slicing the music into discrete chords and stacking the right notes for each moment. But music is usually more compelling when it

also has a “horizontal” sense—the sense that each thing leads naturally to the next.

To structure the “horizontal” in our improvisation, it can be useful to start with a “guide tone” line. (The term guide tone is adapted from jazz pedagogy, though we won’t necessarily focus on chord 3rds and 7ths as jazz musicians typically do.) To construct a guide tone line, choose one or occasionally two chord tones per chord. Most often, it is nice if these “guide tones” move from one to the next by step, though sometimes a small skip or staying in the same place is also nice. Once you’ve come up with a guide tone line, then, you can elaborate it using the skills of elaboration we worked on in a previous section.

### Activity: Improvise a melody to a chord progression

Goal: Develop a sensitivity to how melody relates to harmony, and balance “vertical” and “horizontal” aspects of improvisation.

Before you start: You’ll need some kind of accompaniment that clearly conveys a chord progression. This can be played by someone else or from a recording. You can use your voice or some other instrument, as you wish.

### Instructions:

1. Consider the chord progression. (You may be given it in notation, have it described to you, or listen to it and try to figure it out by ear.) For each chord, figure out which notes are chord tones.
2. For each chord, choose one or (for a long-ish chord) possibly two chord tones to act as your “guide tones.” As you choose, make sure to think “horizontally”—in particular, it’s nice to have stepwise motion as you move to new guide tones between chords.
3. Optionally, perform your “guide tone line” along with the accompaniment.
4. Now, consider how you can make your guide tone line a little more interesting. You may wish to use simple embellishments, or you may be inspired to do something much more complex.
5. Perform your embellished melody along with the accompaniment.

# IMPROVISING OVER A CHORD PROGRESSION

Daniel Stevens

---

Another way to spontaneously create music is to take a keyboard, guitar, or other chord instrument, choose a simple harmonic progression, and then activate each harmony with as inventive a figuration as you can create. Few things are as energizing and enjoyable as riffing freely on a chord progression. You can explore figurations that are metered or unmetered, structured or atmospheric, simple or complex. You can create figurations within a narrow range or those that expand to include the entire range of the instrument. Playing with contrasting registers, dynamics, articulations, embellishing tones, rhythms, harmonic durations, and other effects are all on the table in this activity. As always, work to integrate your ear, mind, and body by letting your ear guide the creative act as much as possible. Listen ahead, and try to anticipate and prepare harmonic changes.

Activity: Improvise over a given chord progression

Goal: Freely improvise patterns and other figurations on a chord instrument.

Requirement: A keyboard, guitar, or other chord instrument

1. Choose a simple chord progression two to four chords in length. Some good patterns to start with include: I-IV (one-chord to four-chord), I-V (one-chord to five-chord), I-IV-V (one-chord to four-chord to five-chord), or I-V-vi-IV (one-chord to five-chord to six-chord to four-chord). The last progression is used in numerous popular songs.
2. Make some preliminary decisions about how you want your improvisation to sound. Decide the key, meter (or if it will be ametric), tempo, register, rhythmic groove (if applicable), and the intended duration of each harmony.
3. Begin improvising over your chord progression. Play through the harmonic pattern five to ten times to get comfortable with the pattern, voice leading, and the feel of the pattern in your body.
4. As you improvise try manipulating one or more elements to change the feel of your

improvisation.





# CHAPTER 9 - PLAYBACK



North American aural skills training often focuses heavily on music notation, but many of the world's rich musical traditions do not rely primarily on notated music. This is true in many approaches to composition, where musicians simply improvise or compose at an instrument, and in passing down oral traditions, where experienced musicians might perform songs and exercises for less-experienced musicians, who learn them by ear.

In this chapter, we'll be working directly with music, and

without notation. We'll listen to music and play it back, and think about what we can add to it. This way of working with aural skills—when it's working—can feel delightfully spontaneous and immediate.

In addition to the benefits of working directly with sound, playing music back also has benefits for other aural skills—including those that use notation. Many of the best transcribers of music, for example, are constantly imagining what it would feel like to play the music they are transcribing. It gives them yet one more way to think through the sound and how to represent it.

We've used the word "play" here, which might suggest that we're more interested in external instruments rather than voices. For the most part, that's true. There are benefits to singing music back, as we've experienced in the chapter on internal hearing and tuning. But when we want to conceptualize the relationships within a piece of music, it is beneficial to use an instrument with discrete parts (frets, keys, valves, finger positions, etc.) that help us associate sounds with specific motions and locations. As a result, we'll consistently use language in this chapter that suggests playing this kind of instrument, and we encourage vocalists to use a secondary instrument even if it's not terribly familiar. But if you feel you can get similar benefits from singing back, by all means, adapt this chapter to fit your needs.

Finally, in this chapter, we'll mostly be working with small portions of music—a phrase or small section, for example.

We'll reserve thinking about entire pieces until the chapter on Transcription, though you are of course encouraged to work with as much music as you feel comfortable with here.

### Learning Objectives

Students will be able to:

- Determine an appropriate meter and key for music they hear.
- Play back the rhythms of heard music.
- Compare heard pitches to the key center in order to come up with an appropriate representation in pitch notation.
- Replicate heard bass lines.
- Replicate heard inner voices when appropriate.

## Image Attributions

- Figure 9.1 “A Man Dancing in Front of the Mirror” by LosMuertos Crew licensed under a Pexels License.
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# DETERMINING METER AND KEY

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Sometimes we can play something back without thinking too much about it. But it is also usually useful to have some idea of the context we're working in and in particular those important contexts of key and meter.

Fortunately, we've already gone through the processes of determining meter and key. You may wish to return to those now, but here's a quick review.



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*<https://uen.pressbooks.pub/auralskills/?p=406#h5p-3>*

For playback, we don't necessarily need to come up with a time signature to represent what we hear: as long as we can feel it in our bodies, we should be set.

Key:



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*<https://uen.pressbooks.pub/auralskills/?p=406#h5p-8>*

Once we've found the tonic, we turn to our instrument and try to find that note. Once we've found the note on the instrument, it may help to either play or visualize the scale, too, to think about what notes we're likely to need as we try to play the music back.

### Activity: Determine tonic and meter

Goal: Develop listening habits that prioritize context (key and meter).

Instructions: Listen to the songs in the playlist below. For each, determine key and meter. We will continue working with these songs over the next few sections, so it may be helpful to get comfortable

with each meter and locate the notes of the appropriate key on your instrument.



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Suggest a song for this playlist!

# PLAYING BACK RHYTHM

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In this section (and throughout this chapter), we urge you to embrace your intuition! You may be able to simply play rhythms back without thinking about them. Where this doesn't work, we have a few suggestions.

First, don't forget about meter! When you're having difficulty with a rhythm, make sure you're tracking the important pulses of the meter. Beat is usually most important, followed by downbeat/cycle beginning, and finally beat division. Pay attention to where sounds start regarding the meter. Once you've got that figured out, make sure you're tracking the meter yourself as you try to play it back. Particularly tricky rhythms may need to be clapped or tapped before transferring them to an instrument.

Second, remember that anything we can do to group the music into “chunks” will help us remember it. One of the most helpful ways of thinking about chunks is through rhythmic cells—you may wish to review those.

Activity: Playing back rhythms



Goal: Replicate heard rhythms

Instructions: Listen to the songs in the playlist below. For each, listen to the first 1–2 phrases, and try to clap back the rhythms of the melody. If you are having difficulty, make sure you are keeping track of the meter and thinking about how each note relates to the beats. It's fine to repeat the phrases as necessary to learn them, but make sure you are practicing your memory skills.



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Suggest a song for this playlist!

# PLAYING BACK PITCHES

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As you figure out the pitches to play the music you're working with, yet again, embrace intuition! When intuition isn't working, the best way to figure out pitches is by thinking about their relationships. Most often, that means thinking of them in scale degrees—that is, in terms of their relationship to the key. For people without absolute pitch, this may be the only way to figure out what's going on. For people with absolute pitch, it makes sure we're building “tonal” hearing skills, which help us understand and track the relationships among pitches and between pitches and keys.

We'll be mapping two different but related things onto each other: our internal understanding of scale degrees or other pitch relationships, and our physical motions/locations on the instrument. We'll give some advice below about how to figure out the scale degrees, but it may be helpful to start by making sure you have a physical sense of the context (usually a key) before doing so. You might quickly play or imagine playing the song's scale, or even just its tonic triad (scale degrees 1/*do*, 3/*mi* or *me*, and 5/*sol*) to orient your brain to where these will be on your instrument.

Once you've oriented yourself, it is usually helpful to start by figuring out which scale degree the melody starts on. Of

course, to figure out the scale degree, you need to know where the tonic is, so it may be helpful to re-find the tonic and hum it to yourself. Then, hum or subvocalize the beginning note, and then walk down through the scale until you get to the tonic. Counting the number of pitches you need to go through will help you determine that starting pitch's scale degree. Find that scale degree on your instrument.

From that first pitch on, you'll typically find two different kinds of situations, which call for different approaches:

1. Melodies often simply step through the scale, up or down. Where this occurs, it may be obvious to you. If so, great news! Simply follow the up-and-down motion of the melody and as long as you've started in the right place, you'll be thinking the correct scale degrees/solfège and—if you're well-oriented on your instrument—playing the right notes.
2. Of course, melodies can also leap around. At first, we strongly recommend that when you notice a leap, you treat the second note as a new “starting pitch” and vocally walk it down through the scale until you get to tonic to figure out what it is. Over time, as you get used to more musical patterns, strengthen your internal models of scale degrees, and develop more sensitivity to harmony, you should be able to rely on intuition more often.

## Activity: Playing back pitches

Goal: Replicate heard pitches

Before you start: Make sure you have access to a non-voice instrument. Voice will also work but will not help you focus on pitch relationships in the same way.

Instructions: Listen to the songs in the playlist below. For each, listen to the first 1–2 phrases, optionally make sure you can sing them, and then try to play them back on an instrument. If you are having difficulty, make sure you are thinking in scale degrees. It's fine to repeat the phrases as necessary to learn them, but make sure you are practicing your memory skills.



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# ADDING BASS LINES

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If you play an instrument that can sound multiple pitches at the same time and you're trying to play back music with multiple simultaneous lines, the next thing to add is usually the bass/lowest part. As we discussed in the chapter on attention, "Of all the non-melody lines we could listen to, bass lines may be both the most important and the most well-defined." Since they are often so prominent and associated with chord progressions, adding the bass can make your playback sound much fuller and more like the original.

People who play single-line instruments can still take on the challenge of playing back bass lines, too, even though they can't play the melody and the bass line simultaneously. Being able to play both back, even separately, helps us hear each of them in a fuller context. And following different lines within the texture helps us develop our attentional focus.

In a way, bass-line playback is the same as playing back melodies. As long as you can follow the line and figure out its scale degrees and rhythms, you can just figure it out the same as a melody. Indeed, for some people, it's just that easy. If that's you, awesome.

There are plenty of people, however, who find that first part—"as long as you can follow the line and figure out its scale

degrees and rhythms”—challenging when applied to bass lines, in a way that melodies are not. This is probably for two main reasons.

First, evidence suggests that most people’s attention is drawn first to the highest voice sounding, so we need to practice directing our attentional focus to a different part of the texture. In the chapter on attention, we worked on directing our attention to the bass through a series of practice exercises. You may wish to return to those now.

Second, we are best at paying attention to familiar objects, so the more acquaintance we have with the common patterns associated with bass lines, the easier it will be to follow them.

### Activity: Learn to be a bass

Goal: Internalize common bass-line patterns in order to identify them in heard music

Before you start: Choose to use your voice or other instrument, as you wish.

Instructions: Several common bass lines are described below. Play or sing these in several

different keys in order to internalize them. If you sing, sing on solfège syllables to help direct your attention to how they relate to the key. The more these patterns are internalized, the more success you will have in following these bass lines.

- scale degrees 1-4-5-5-1/*do-fa-sol-sol-do*; if you go up from scale degrees 1-5/*do-sol*, consider dropping the octave on the second scale degree 5/*sol*
- scale degrees 1-5-6-4/*do-sol-la-fa* in a major key
- starting on a relatively high pitch and going down for the next two pitches, scale degrees 1-6-4-5-1/*do-la-fa-sol-do* in a major key and *do-le-fa-sol-do* in a minor key
- the “circle of fifths”/“circle of fourths”: scale degrees 1-4-7-3-6-2-5-1/*do-fa-ti-mi-la-re-sol-do* in a major key and *do-fa-te-me-le-re-sol-do* in a minor key



## Activity: Playing back bass lines

**Goal:** Listen for bass lines and replicate them

**Before you Start:** A non-voice instrument is recommended; voice will also work.

**Instructions:** Listen to the songs in the playlist below. For each, listen to the first 1–2 phrases, and try to play back the bass line on your instrument. It may be helpful to try to sing the bass line first. It's fine to repeat the phrases as necessary to learn them, but make sure you are practicing your memory skills.



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Suggest a song for this playlist!

# GETTING A START WITH HARMONY

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If you play an instrument that can sound multiple pitches at the same time, then it'd be great to add the chords to your playback, too! As always, embrace your intuition here, and if you've figured out melody and/or bass, you can use your knowledge of their pitches to figure out likely chords. But if you're having difficulty figuring out what's going on in the chords, you'll want to skip ahead to the later chapter on harmony and try out techniques such as improvisation and the *do/ti* test.

## Activity: Playing back chords

Goal: Replicate heard chords

Before you start: Make sure you have access to an instrument that can play chords (arpeggiation on a single-line instrument may work for some songs).

Instructions: Listen to the songs in the playlist below. For each, listen to the first 1–2 phrases, and then try to play back the chords on an instrument. Do not worry about playing the melody as well unless you are comfortable with both. It may be helpful to play along with the recording to make sure your chords sound “right.” Trial-and-error is just fine, but make sure you are thinking about likely chords within the key.



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Suggest a song for this playlist!

# TUNING IN TO, AND PLAYING BACK, INNER VOICES

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Once we've figured out melody and bass, there may be additional lines that seem important to add. As you might guess from the section above on bass lines, this skill relies on two foundations:

1. The ability to train our attention on different parts of a musical texture, and
2. Familiarity with how the kind of line we're transcribing tends to work.

So there's not really anything new to teach here; instead, simply practice your attentional focus exercises, and learn as much about the style you're working with as possible. For example, the more you work with bluegrass harmonizing, the better you'll be able to guess what a harmonizing line is doing; the same is true of fugue countersubjects.

## Activity: Playing back inner voices

Goal: Replicate inner voices

Before you start: A non-voice instrument is recommended; voice will also work.

Instructions: Listen to the songs in the playlist below. Each one has at least one prominent line/voice that has some melodic identity but is not the main melody or the bass. Listen to the first 1–2 phrases, identifying and trying to follow that inner voice. Optionally try to sing along. Then try to play or sing the inner voice independently. Optionally, either perform both the melody and the countermelody together on your instrument or perform multiple parts (melody, countermelody, bass, chords) with a group.



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# CHAPTER 10 - TRANSCRIPTION

There are many situations where it's useful to write down music you hear. Marching band directors and a cappella group arrangers, for example, transcribe popular music for their ensembles. Jazz musicians transcribe their idols' solos to learn about their approach to improvisation.



There are also benefits to transcription that are less immediately practical. In particular, it can strengthen the connections between what you hear, your internalized models of how music works, and notation, in ways that can make all of your music-making more intuitive and effective.

Fortunately, we've already worked on all the skills we will need to do transcription. Unfortunately, transcription involves a lot of components, making it potentially overwhelming.

We'll take it a step at a time; anytime you feel stuck or unsure of what to do, comes back to these steps.

There are times when we transcribe with the aid of an instrument and maybe even software playback, and other times when we need to make do with just our ears and maybe a pencil and paper. As practice activities, both have benefits for building your skills. Nevertheless, it is more common that instructors ask students to work without an instrument or playback because this requires you to stretch your skills more.

Finally, when doing transcriptions, melodies tend to be easiest, while transcribing inner voices or bass lines often requires the addition of different, specialized skills. Much of this chapter will address transcription skills in general; the additional skills needed for non-melody lines will be reserved for later in the chapter.

Since this chapter is long, here's a quick outline (repeated in the section "Understanding the Process of Transcription Step-by-Step"):

- After reviewing meter and key, we start by isolating the "memorize and analyze" steps separately for rhythm and pitch in three sections on "protonotation/shorthand" (introduction, rhythm and meter, pitch). If you are new to transcription, we strongly encourage you to start here and go through the whole chapter. Even those who have transcribed before may find this way of clarifying their understanding useful.



- We then move to notation—again, separately for rhythm and meter and for pitch. Readers who are very confident in their understanding of staff notation may wish to start here.
- Finally, we review the whole process. Readers who have done transcription before and are confident in their understanding of staff notation may wish to start here; for others, this section will help you synthesize everything you have read so far.
- Then we add additional sections on transcribing bass lines, inner voices, and harmony.

### Learning Objectives

Students will be able to...

1. Determine an appropriate meter and key for music they wish to transcribe.
2. Describe the processes necessary to transcribe.
3. Use protonotation to represent pitches within a key and rhythms within a meter.
4. Compare pitches to the key center in order to

come up with an appropriate representation in pitch notation.

5. Compare rhythms to internalized rhythmic cells and an established meter in order to come up with an appropriate representation in metric notation.
6. Transcribe bass lines.
7. Transcribe inner voices when appropriate.

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## Image Attributions

- Figure 10.1 “A Person Writing a Musical Notation” by Pavel Danilyuk licensed under a Pexels License.
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# GETTING ACQUAINTED WITH THE MUSIC

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When you care about transcribing a piece of music, the best place to start is to do some listening to get a general “feel” for the music. Of course, many instructors do not require this step, and many students are busy enough that they may feel it necessary to jump right into the more technical processes outlined in later sections. But if you have time for this step, especially if you want to arrange a song for another ensemble, it can be really helpful.

These more general perspectives can inform all the technical elements we’ll go through in the coming sections. And of course, the more you’ve listened, the more familiar everything will be.

Activity: Getting acquainted with a song

Goal: Gain a baseline understanding of a song that will prepare you to transcribe it

Before you start: Choose a song you'd like to transcribe! You may want to think about your goal. Is your end goal a transcription? an arrangement? a new understanding of a style or approach? These will affect exactly what you pay attention to.

Instructions:

1. Come up with some general descriptions of the song. These could be a few sentences or merely a set of adjectives. These can be especially helpful if you're going to arrange the song for a different ensemble, because they'll let you focus on the general effect (which can hopefully be translated into whatever ensemble you're going for) rather than the specific details (which may not translate well).
2. Note the layers used in the song. Most songs have a melody and a bass line. Is everything else just supporting harmony? Are there prominent countermelody instruments? Is there a percussive line? And is there anywhere in the song where these change?

3. Note the form, in whatever level of detail your knowledge will allow. For example, is there a prominent return to the opening melody? Are there contrasting sections?
4. What is the “shape” of the song as a whole? Is there a climax?

# UNDERSTANDING THE PROCESS OF TRANSCRIPTION STEP-BY-STEP

---

Now we're ready to start on the technical elements that are necessary for notation!

But first, let's talk through the process. Transcription involves several steps. If each one is already pretty automatic for you, that won't be a problem; but for people who have to really work at any of these steps, putting them all together right away can be challenging. Fortunately, we can focus on them one by one to make them more manageable.

1. We always start by **setting up the context**: determining meter and key. These help us set up the beginning of our notation and also provide measuring tools to figure out exactly what's going on in pitch and rhythm.
2. Next, we listen to and **memorize a bit of the music**. It's theoretically possible to go note-by-note with trial-and-error at an instrument, but this can be painfully slow and not helpful for skill-building, so we typically

work a phrase or half-phrase at a time. Plus, memorizing these fragments helps us continue to work on our focus and memory skills.

3. Then we **analyze the music**. We should come up with rhythm information like “there are two equal notes in beat 1, then a note that lasts 3 beats, then a long-short rhythm across the next two beats,” etc. And we should come up with pitch information like “It goes scale degrees 1-3-5/*do-mi-sol*,” etc. It’s often useful to jot this information down in a “protonotation” or “shorthand” that efficiently records our understanding of what we hear without the complications of traditional notation.
4. Then we take the music we’ve analyzed and use our understanding of notation to **write it down**. It can be tempting to do this at the same time as #3, and for some people that works well. But notation can have unexpected complications that distort our understanding, so it’s often useful to separate out the steps, especially at first.
5. We repeat steps 2–4 as necessary to get through the whole piece!
6. When transcribing bass lines or inner voices, we repeat steps 2–5 while focusing on the relevant lines. As we do so, there are some new challenges for our ability to perceive what’s going on, but we can also use whatever knowledge we may have about music theory and harmony to think about the relationships between the

lines to help us figure them out.

Now, to be honest: it's very difficult to keep these steps fully separate. For example, maybe some rhythm so strongly activates our understanding of rhythmic cells that we immediately picture what the notation would look like without memorizing and analyzing first. But it's useful to separate them at first so that we can practice each on its own. As we get more and more used to the process, we can jump around more intuitively.

This chapter of the text is long, so here's a quick outline to help you decide which sections are important for you:

- After reviewing meter and key, we start by isolating the “memorize and analyze” steps separately for rhythm and pitch in three sections on “protonotation/shorthand” (introduction, rhythm and meter, pitch). If you are new to transcription, we strongly encourage you to start here and go through the whole chapter. Even those who have transcribed before may find this way of clarifying their understanding useful.
- We then move to notation—again, separately for rhythm and meter and for pitch. Readers who are very confident in their understanding of staff notation may wish to start here.
- Finally, we review the whole process. Readers who have done transcription before and are confident in their



understanding of staff notation may wish to start here; for others, this section will help you synthesize everything you have read so far.

- Then we add additional sections on transcribing bass lines, inner voices, and harmony.

### Activity: Internalize the transcription process

Goal: Memorize a structure that will help you keep track of the steps involved in transcription, reducing the load on your working memory.

Instructions: Memorize the process described above. It may be useful to memorize it in short form: **m**eter, **k**ey, **m**emorize, **a**nalyze, **n**otate (MKMAN). This may seem silly and unnecessary, but remember, transcription can be overwhelming. The more you feel you understand the process, the less stressed you'll feel and the more efficiently you'll be able to move through the steps.

# DETERMINING METER AND KEY

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Our first priority should always be to determine the context: key and meter. Key signatures and meter signs are of course written at the beginning of notated music. But beyond the niceties of writing, key and meter are also the “measuring tools” we use when figuring out exactly what we’re hearing. Figuring them out at the beginning of the process will make everything else work more smoothly.

Fortunately, we’ve already gone through the processes of determining meter and key. You may wish to return to those now, but here’s a quick review.



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This procedure helps us locate these layers in the music. The answer we come up with will tell us the top number of the time signature we will use for our notation (see table below;

we'll wait to worry about the bottom number until we get to notating rhythm). Recall that sometimes what one person identifies as the beat, someone else may identify as the measure or division, and vice-versa. So disagreements about time signatures may not mean one person is right and the other is wrong (though this is possible); they may just indicate that you're focusing on different layers.

### Guide to Determining the Top Number of the Time Signature

	2 beats per measure	3 beats per measure	4 beats per measure	5 beats per measure
simple	2	3	4	5
compound	6	9	12	15

To determine the key:



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This procedure helps us find tonic and collection in the music. If we have access to an instrument or absolute pitch, we can then figure out the note name of that tonic; otherwise, if we

need to use full notation, we will either receive that information from an instructor or write in an arbitrary key.

One more step for now: we should also determine whether the key is major or minor (or, if this is a possibility given the music you're working with, a mode). You may have an intuitive sense of this; if not, walk up through the scale, focusing on scale degree *3/mi* or *me*'s relationships to the notes immediately above and below.

### Activity: Determine tonic and meter

Goal: Develop listening habits that prioritize context (key and meter).

Instructions: Listen to the songs in the playlist below. For each, determine key and meter. We will continue working with these songs over the next few sections, so it may be helpful to get comfortable with each meter and locate the notes of the appropriate key on an instrument.



*One or more interactive elements has been excluded from this version of the text. You can view them online here:*

*<https://uen.pressbooks.pub/auralskills/?p=327#oembed-1>*

Suggest a song for this playlist!

# INTRODUCING PROTONOTATION/ SHORTHAND

---

As you may recall, the next steps in the process of transcription are to memorize a bit of music and then to “figure it out” (analyze). We’ll focus a bit more on the “memorize” step when we talk about the special case we call “dictation” in a future chapter, but for now, we will assume that you can memorize a phrase or other fragment of music simply by listening to it as many times as necessary, perhaps singing it back to test your memory until you know you’ve got it. So we’ll focus here on the “analyze” step.

As we mentioned above, notation can involve some unexpected difficulties. In our experience, students often struggle with the following, among other issues:

- compound meter
- anytime the beat is not represented by a quarter note
- beaming
- confusing the notation for similar-sounding rhythms

We don’t want these to distort your ability to demonstrate

your understanding, so we will first use something called protonotation/shorthand. Protonotation/shorthand is designed to represent your analysis as clearly as possible, to be quick to write, and to be easy to translate into staff notation.

People use several different methods. However, in the next few sections we'll focus on two: Gary Karpinski's "protonotation" (description here, about 3/4 down the page) and Jenine Lawson Brown's "notehead shorthand" (description here, starting p. 85). Both have benefits: protonotation is less tied to notation, while notehead shorthand allows more precisions with beat divisions. Other methods are also helpful. In the end, use either your preference or your teacher's instructions about what to use.

### Activity: Design a shorthand system

Goal: Consider how to intuitively and quickly write down pitch and rhythm information.

Before you start: Decide on a recorded or memorized piece of music that you think won't be too difficult to figure out (perhaps a familiar song), and find a way to write things down.

Instructions: Listen to or imagine a phrase several times, focusing on the melody if there is more than one line. As you listen, try to jot down what you hear in terms of meter, rhythm, and pitch as intuitively as you can. How did this work? Was it intuitive? Do you think it would work for most songs? As you continue in the following sections, if you feel your system is more intuitive or better in some other way than the systems we use, you are welcome to use it (unless an instructor tells you otherwise).



# PROTONOTATION/ SHORTHAND: RHYTHM AND METER

---

We start with the time element of music: rhythm and meter. In our experience, this is a little bit more helpful than starting with pitch. Of course, when actually doing full transcriptions, you may go back and forth between rhythm and pitch.

Recall that meter is important in setting up context, so we will always start there.



*An interactive H5P element has been excluded from this version of the text. You can view it online here:*

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In **protonotation**, every beat is represented by a vertical line. Every downbeat is represented by a longer vertical line. Be sure that you have a vertical line for every beat that you hear, and that you don't start with a longer vertical line unless the music starts on a downbeat. Finally, since this system doesn't

typically represent beat divisions, you should write, up above your metric grid, either “simple” or “compound.” Once you’ve set up the meter, either listen again to the music or play it back in your head while tracking your vertical lines (as beats). Fill in the actual notes as horizontal lines.

In **notehead shorthand**, every beat is represented by a symbol showing how it divides. We can use something similar to barlines to show downbeats. Once you’ve set up the meter, either listen again to the music or play it back in your head while tracking your beat divisions. Give the symbols noteheads where a new note occurs.

See the examples below for how this should look.

### Protonotation Example: Simple Meter



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<https://uen.pressbooks.pub/auralskills/?p=333#oembed-1>

## Protonotation:

Protonotation examples showing simple and compound meters with lyrics. The notation uses vertical lines for beats and horizontal lines for note durations.

**Simple Meter:**

- Label simple or compound
- Downbeat
- Beat
- Lyrics when applicable

Example 1: I may have go - ten fa - ther

Example 2: but may - be that won't ma - ter

**Compound Meter:**

- Note longer than a beat

Example 3: bo - tom line \_\_\_\_\_

Example 4: I'll win her

## Shorthand:

Shorthand notation examples showing downbeat and beat divisions. The notation uses vertical lines for beats and horizontal lines for note durations.

**Downbeat**

**Beat divisions**

**Note-head for each attack**

Example 1: I may have go - ten fa - ther

Example 2: but may - be that won't ma - ter

Example 3: bo - tom line \_\_\_\_\_

Example 4: I'll win her

## Protonotation Example: Compound Meter

\*the melody in this example starts at 0:19



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### Protonotation:

compound

Pickup

the li - ly has a smooth stock will ne - ver

hurt your hand

### Shorthand:

Pickup

the li - ly has a smooth stock will ne - ver

hurt your hand

## Activity: Notating rhythms with protonotation/ shorthand

Goal: Develop the habit of orienting to meter, and practice systems of writing down your metric/rhythmic understanding quickly.

Before you start: You'll need some way to write things down. You may also wish to work with a group, though this is not necessary.

Instructions:

1. Listen to some of a song from the playlist below and determine its meter. Draw up a metric grid appropriate to the system of protonotation/shorthand you prefer.
2. Listen to the first phrase or two of the melody of the song, trying to memorize it. Writing while you listen may interfere with your ability to memorize, so we recommend that you simply listen and memorize first without writing.

3. Replaying the melody in your mind and slowing it down as necessary, figure out how the rhythms relate to the meter, and mark them appropriately within your metric grid.
4. Repeat steps 2–3 as necessary until you are fairly confident that you have transcribed the rhythms of the passage. You are encouraged to try to listen as few times as you can in order to keep working on your memory skills.



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Suggest a song for this playlist!

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# PROTONOTATION/ SHORTHAND: PITCH

---

Regardless of whether you use protonotation, shorthand, or something else, the best way to represent the pitches of music in a key is almost always with scale degrees. For people without absolute pitch, this may be the only way to figure out what's going on. For people with absolute pitch, it makes sure we're building "tonal" hearing skills, which help us understand and track the relationships among pitches and between pitches and key.

As always, we start by determining context. Because neither notation shorthand nor protonotation directly represents the key, make sure to write "minor" or "major" above.



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*<https://uen.pressbooks.pub/auralskills/?p=335#h5p-8>*

Scale degrees are typically represented either as Arabic numerals (1, 2, 3, etc.) or as moveable-do solfège syllables. For



speed, when writing solfège syllables, we often simply use the first letter of the syllable. We can represent raised and lowered pitches with sharps or flats, with up and down arrows, or, in moveable-do solfège, by adding the relevant second letter of the syllable (“i” for raised, “e” for lowered, except “re,” which becomes “ra” when lowered). These can simply be written above or below the rhythmic protonotation/shorthand.

### Example – simple



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Protonotation:

Solfège:

Simple, major

I may have got - ten fa - ther	but may - be that wait ma - ther
bottom line _____	I'll win her

### Scale Degrees:

Simple, major

I may have got - ten fa - ther	but may - be that wait ma - ther
bottom line _____	I'll win her

Shorthand:

Solfège:

major

I may have go-Hen fa-Her but may-be that won't ma-tter

bo-Horn line I'll win her

### Scale Degrees:

major

I may have go-Hen fa-Her but may-be that won't ma-tter

bo-Horn line I'll win her

### Example – Compound

\*note that the melody starts at 0:19 seconds



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Protonotation:

Solfege:

compound, minor

d	m	s	s	f	m	r	d	d	t	d	r	m
the	li	-ly	has	a	smooth	stock	will	ne	-ver			

f	d	r	m		
hurt	your	hand			

Scale Degrees:

compound minor

the li -ly has a smooth stock will ne -ver

hurt your hand

Shorthand:

Solfège:

minor

the li -ly has a smooth stock will ne -ver

hurt your hand

Scale Degrees:

minor

the li -ly has a smooth stock will ne -ver

hurt your hand

As you figure out the pitches, it is very important to carefully consider which scale degree the melody starts on. Of course, to figure out the scale degree, you need to know where the tonic is, so it may be helpful to re-find the tonic and hum it to yourself. Then, hum or subvocalize the beginning note, and then walk down through the scale until you get to the tonic. (For most people, walking down from starting note to tonic is more reliable than walking either direction from tonic to starting note.) Counting the number of pitches you need to go through will help you determine that starting pitch's scale degree.

From that first pitch on, you'll typically find two different kinds of situations, which call for different approaches:

1. Melodies often simply step through the scale, up or down. Where this occurs, it may be obvious to you. If so, great news! Simply follow the up-and-down motion of the melody and as long as you've started in the right place, you'll be writing the correct scale degrees/solfège.
2. Of course, melodies can also leap around. At first, we strongly recommend that when you notice a leap, you treat the second note as a new "starting pitch" and walk it down through the scale until you get to tonic to figure out what it is. Over time, as you get used to more musical patterns, strengthen your internal models of scale degrees, and develop more sensitivity to harmony, you should be able to rely on intuition more often.

Finally, we invite you to bring your playback skills into this activity! Sometimes, and particularly if you are very comfortable with your primary (non-voice) instrument, imagining what it would feel like to play the music you hear is really helpful in determining exactly what is going on.

### Activity: Notating pitch with protonotation/ shorthand

Goal: Develop the habits of orienting to meter and activating instrument-based kinesthetic imagery, and practice systems of writing down your pitch understanding quickly.

Before you start: You'll need some way to write things down. You may also wish to work with a group, though this is not necessary.

Instructions:

1. Listen to some of a song from the playlist below, and determine its key. Make sure to write down whether it is major or minor. (If you already have rhythmic shorthand/protonotation from the previous section, you

can write this above and to the left.)

2. Listen to the first phrase or two of the melody of the song, trying to memorize it. Writing while you listen may interfere with your ability to memorize, so we recommend that you simply listen and memorize first without writing.
3. If you have not done so already in the previous section, write out meter and rhythm protonotation/shorthand for this passage. (See the previous section for guidance.)
4. Replay the first note in your mind, and figure out its scale degree. It may help to walk it down by step to tonic, counting the number of pitches required. Write the scale degree number or the first letter of its moveable-do solfège syllable above its rhythmic notation.
5. Replaying the melody in your mind and slowing it down as necessary, figure out how the pitches relate to the key, and write down their scale degree numbers or the first letters of their moveable-do solfège syllables likewise. As you do so, do not hesitate to repeat step 4 for any note, particularly notes after a leap, and to imagine playing the music



to help you figure it out.

6. Repeat steps 2, 4, and 5 as necessary until you are fairly confident that you have transcribed the scale degrees of the passage. You are encouraged to try to listen as few times as you can in order to keep working on your memory skills.



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Suggest a song for this playlist!

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# TRANSCRIBING RHYTHMS

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It's finally time to move to staff notation! First, make sure that the first line of your notation begins with a relevant clef, key signature, and time signature. (If it helps you remember the correct sequence, these are in alphabetical order—even if you call it a “meter signature” instead.) If you end up needing additional lines of notation, the clef and key signature are typically repeated on every line; because beaming often does a pretty good job of clarifying the meter, the time signature is usually only written at the beginning of the music and anywhere it changes.

Then, we're ready to start with rhythm and meter.

Time signatures are described in some detail in a previous section of the book. So far, our work has mostly focused on the top number of time signatures. Now that we're moving to notation, we need to decide on an appropriate bottom number. The bottom number gives us a note value that we will use as a reference point. Because note values are represented by fractional multiples of 2 (whole, half, quarter, eighth, sixteenth, etc.), the bottom number will always be a multiple of 2. This number may be specified by an instructor, or you may choose it yourself. It is particularly common for this

number to be 4 in simple meter and 8 in compound meter, but other numbers are possible and even common in certain repertoires.

Note that the bottom number of the time signature is always a point of reference, but it means something different in simple meter and compound meter. The vast majority of the time...

- ...in **simple meter** (top number usually 2, 3, or 4), the bottom number tells us what note value represents the *beat*.
- ...in **compound meter** (top number usually 6, 9, or 12), the bottom number tells us what note value represents the beat *division*.

In our experience, compound meter is the one students find confusing. Many have been taught that the bottom number of the time signature *always* represents the beat. But in 12/8, for example, you are likely to see a conductor waving their hand every *three* eighth notes, or to find yourself tapping your foot or nodding your head every *three* eighth notes. This is an indication that those eighth notes are probably (with a few rare exceptions) not the *beat*, but the *division*.

The majority of what we transcribe rhythmically will be one of the patterns we studied in the chapter on “rhythmic cells.” We can use this to help us work quickly and with “chunks” of rhythm rather than individual notes. The main complication

is that each rhythmic cell is represented differently in different meters. You may wish to review the rhythmic cells chapter to see how different cells look in staff notation.

Where we don't recognize rhythmic cells, we will use our subdivision skills to figure out exactly what is going on.

One last piece of advice: use beaming to show beats. Using best practices here is of course nice for making your notation look more professional, but also helps you immediately see rhythmic cells and beats in ways that will make it easier to double-check your notation.

## Examples

Simple:



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Rhythmic Cell S1 (half-note beat)

I may have go-tten fa-ther but may-be that won't ma-tter

bo-ttom line I'll win her

Compound:



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Rhythmic Cell C3 Rhythmic Cell C2

The li-ly has a smooth stock will ne-ver

hurt your hand

## Activity: Translate rhythms from protonotation/ shorthand into staff notation

Goal: Practice connecting your understanding of music to its written notation.

Before you start: You'll need to have some completed protonotation/shorthand. See the previous sections on rhythm and pitch for activities that lead you through this process. You'll also need staff paper to notate your transcription.

Instructions:

1. If you have not already, write the appropriate clef and time signature for the music, leaving space in between for the key signature. (Note: clef, key signature, and time signature go in alphabetical order, and if the melody continues onto additional lines, you only need to repeat clef and key.)
2. Go through the rhythms in your protonotation/shorthand, identifying rhythmic cells and/or using your subdivision skills as

necessary to map them to appropriate rhythmic note values. Be sure that you are always thinking of the beat in reference to the bottom number of the time signature, which tells us the note value of the beat in simple meter and the note value of the beat division in compound meter. If you intend to add pitches, you may simply do so intuitively as you work or simply write these rhythm values above the staff until you go to the next section on pitches.

**Activity:** Write down a rhythm in staff notation without using protonotation/shorthand

**Goal:** Practice connecting your understanding of music to its written notation.

**Before you start:** You'll need staff paper to notate your transcription. In addition, if this process is



daunting and/or you don't feel totally fluent with staff notation, we encourage you to rethink your choice to go straight to staff notation and start with protonotation/shorthand. This will help the process feel less overwhelming. With time and practice, it will get easier and more reliable to go directly to staff notation.

Instructions:

1. Listen to a song from the playlist below. If you have not already, determine the meter. Write the appropriate clef and time signature, leaving space in between for the key signature. (Note: clef, key signature, and time signature go in alphabetical order, and if the melody continues onto additional lines, you only need to repeat clef and key.)
2. Listen through the first 1–2 phrases of the song, doing your best to memorize it. Writing while you listen may interfere with memorization, so we encourage you just to listen and memorize at first.
3. Play back the rhythm or full melody in your head while tracking the meter with conducting, tapping, or some other method. Use these motions to determine exactly when

each rhythm happens, and use your knowledge of rhythmic cells and subdivision to determine what note values represent what you hear. If you have difficulty, try using protonotation/shorthand first.

4. As you work out rhythms and their locations in the measure, write the appropriate rhythmic note values. Be sure that you are always thinking of the beat in reference to the bottom number of the time signature, which tells us the note value of the beat in simple meter and the note value of the beat division in compound meter. If you intend to add pitches, you may simply do so intuitively as you work or simply write these rhythm values above the staff until you go to the next section on pitches.



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Suggest a song for this playlist!

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# TRANSCRIBING PITCHES

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**If you have been writing scale degree numbers or solfège syllables in protonotation/shorthand** (or just above a staff), good news! These are fairly straightforward to translate into staff notation. You can simply skip right to the first activity at the bottom of the page—the rest of the advice here is for people who want to go straight to notation without protonotation/shorthand.

**If you have not been using protonotation/shorthand**, then you'll want to follow the following procedures. You'll note that they are extensive; if you already feel fairly comfortable with some of the steps, that may be just fine, but if this is overwhelming, start with protonotation/shorthand instead.

As always, we start by determining context.



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Once you've found the tonic, locate it on an instrument or with absolute pitch. If you have not already, write the appropriate clef and time signature—and, in between, add the appropriate key signature, remembering to keep in mind whether the key is major or minor.

If you're not yet feeling fluent with notation, we strongly recommend you start with protonotation/shorthand, but it may help to anchor your vision on the important notes of the key, particularly scale degrees 1/*do* and 5/*sol*. We describe a similar method in the sight-reading chapter.

Start analyzing the pitches by determining which scale degree the melody starts on. Of course, to figure out the scale degree, you need to know where the tonic is, so it may be helpful to re-find the tonic and hum it to yourself. Then, hum or subvocalize the beginning note, and then walk down through the scale until you get to the tonic. (For most people, walking down from starting note to tonic is more reliable than walking either direction from tonic to starting note.) Counting the number of pitches you need to go through will help you determine that starting pitch's scale degree.

From that first pitch on, you'll typically find two different kinds of situations, which call for different approaches:

1. Melodies often simply step through the scale, up or down. Where this occurs, it may be obvious to you. If so, great news! Simply follow the up-and-down motion of the melody and as long as you've started in the right

- place, you'll be writing the correct scale degrees/solfège.
2. Of course, melodies can also leap around. At first, we strongly recommend that when you notice a leap, you treat the second note as a new “starting pitch” and walk it down through the scale until you get to tonic to figure out what it is. Over time, as you get used to more musical patterns, strengthen your internal models of scale degrees, and develop more sensitivity to harmony, you should be able to rely on intuition more often.

Don't forget that sometimes imagining playing the music on your primary instrument, or even actually doing so, can be helpful here.

Then, making sure to use the appropriate rhythmic values (see previous section), simply write your scale degrees on the appropriate line or space on the staff. (Make sure, for leaps, you're paying attention to whether they go up or down.)

Examples

Simple:



One or more interactive elements has been excluded from this version of the text. You can view them online here:

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I may have go-tten fa-ther but may-be that wont ma-ther  
bo-tom line I'll win her

Compound:



One or more interactive elements has been excluded from this version of the text. You can view them online here:

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The li-ly has a smooth stock will ne-ver  
hurt your hand

### Activity: Translate pitches from protonotation/ shorthand into staff notation

Goal: Practice connecting your understanding of music to its written notation.

Before you start: You'll need to have some completed protonotation/shorthand. See the previous sections on rhythm and pitch for activities that lead you through this process. You'll also need staff paper to notate your transcription.

Instructions:

1. Make sure you have found the tonic, and locate it on an instrument or with absolute pitch. If you have not already, write the appropriate clef and time signature—and, in between, add the appropriate key signature, remembering to keep in mind whether the key is major or minor. (Note: clef, key signature, and time signature go in alphabetical order, and if the melody



continues onto additional lines, you only need to repeat clef and key.)

2. If you're not yet feeling fluent with notation, anchor your vision on the important notes of the key, particularly scale degrees 1/*do* and 5/*sol*. We describe a similar method in the sight-reading chapter.
3. Then, making sure to use the appropriate rhythmic values (see previous section), simply write your scale degrees on the appropriate line or space on the staff. (Make sure, for leaps, you're paying attention to whether they go up or down.)

Activity: Write down a melody in staff notation without using protonotation/shorthand

Goal: Practice connecting your understanding of music to its written notation.

Before you start: You'll need staff paper to notate your transcription. In addition, if this process is daunting and/or you don't feel totally fluent with staff notation, we encourage you to rethink your choice to go straight to staff notation and start with protonotation/shorthand. This will help the process feel less overwhelming. With time and practice, it will get easier and more reliable to go directly to staff notation.

Instructions:

1. Listen to a song from the playlist below. If you have not already, determine the meter. Determine the tonic and locate it on an instrument or with absolute pitch. If you have not already, write the appropriate clef and time signature—and, in between, add the appropriate key signature, remembering to keep in mind whether the key is major or minor. (Note: clef, key signature, and time signature go in alphabetical order, and if the melody continues onto additional lines, you only need to repeat clef and key.)
2. Listen through the first 2–3 phrases of the melody, doing your best to memorize it. Writing while you listen may interfere with

memorization, so we encourage you just to listen and memorize at first.

3. If you have not already done so, figure out how the rhythms relate to the meter.
4. Determine the starting pitch of the melody as a scale degree number or moveable-do solfège syllable. From there, figure out the rest of the pitches by following contour, imagining playing the music on an instrument (or actually doing so), and when necessary, walking a pitch down to tonic.
5. Using your knowledge from steps 2 and 3, write the appropriate note values on the correct lines and spaces of the staff. (In reality, you will probably find yourself moving freely between steps 3–5.)



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Suggest a song for this playlist!

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# PUTTING MELODIC TRANSCRIPTION ALL TOGETHER

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The previous sections have dissected the process of melodic transcription into many components: determining context (meter and key), using protonotation/shorthand to represent your understanding of rhythm and pitch, then actually figuring out the notation for these rhythms and pitches. We hope this helps demystify the process and make it less overwhelming. But at some point, if you want to go beyond studying the process and actually *do* transcriptions, you'll need to practice putting this all together.

We already outlined the full process of transcription in a previous section; it may be helpful to review that now, but we won't repeat it here. Instead, here is some general advice:

- Don't forget: the first step is always to determine meter and key.
- Always invite your instrument-based kinesthetic imagery into the process: imagining playing the music on an instrument, or actually doing so, can be particularly helpful in figuring out what's going on.

- Whenever you're struggling with pitches, relate them to the key.
- Whenever you're struggling with rhythms, relate them to the meter, and make sure that you're tracking the meter with physical motions such as conducting, tapping, or swaying, so that it is explicit.

### Activity: Practicing transcription

Goal: Gain confidence in practicing the skill of transcription.

Before you start: You'll need staff paper to write down your transcription.

Instructions: Transcribe the first 1–2 phrases of the melodies of the songs in the playlist below into staff notation. Whenever you have difficulty, review the advice above or a previous section of this chapter.



*One or more interactive elements has*

*been excluded from this version of the  
text. You can view them online here:  
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Suggest a song for this playlist!

# TRANSCRIBING BASS LINES

---

As we discussed in the chapter on attention, of all the non-melody lines we could listen to, bass lines may be both the most important and the most well-defined. Since they are often so prominent and associated with chord progressions, it is often useful to transcribe them alongside a melody to get a fuller picture of what's going on in a piece of music.

In a way, bass-line transcription is the same as melodic transcription. As long as you can follow the line and figure out its scale degrees and rhythms, you can just notate it the same as a melody. Indeed, for some people, it's just that easy. If that's you, awesome.

There are plenty of people, however, who find that first part—"as long as you can follow the line and figure out its scale degrees and rhythms"—challenging when applied to bass lines, in a way that melodies are not. This is probably for two main reasons.

First, evidence suggests that most people's attention is drawn first to the highest voice sounding, so we need to practice directing our attentional focus to a different part of the texture. In the chapter on attention, we worked on



directing our attention to the bass through a series of practice exercises. You may wish to return to those now.

Second, we are best at paying attention to familiar objects, so the more acquaintance we have with the common patterns associated with bass lines, the easier it will be to follow them.

Finally, think about what your goal is in transcribing the bass. If it's to figure out the bass line in detail in order (for example) to play it yourself, you'll want to get whatever level of detail you can. But if you are using it as a tool to figure out the chord progression, you may not need every detail of the bass line in order to get most of the helpful information.

### Activity: Learn to be a bass

Goal: Internalize common bass-line patterns in order to identify them in heard music

Before you start: Choose to use your voice or other instrument, as you wish.

Instructions: Several common bass lines are described below. Play or sing these in several different keys in order to internalize them. If you

sing, sing on solfège syllables to help direct your attention to how they relate to the key. The more these patterns are internalized, the more success you will have in following these bass lines.

- scale degrees 1-4-5-5-1/*do-fa-sol-sol-do*; if you go up from scale degrees 1-5/*do-sol*, consider dropping the octave on the second scale degree 5/*sol*
- scale degrees 1-5-6-4/*do-sol-la-fa* in a major key
- starting on a relatively high pitch and going down for the next two pitches, scale degrees 1-6-4-5-1/*do-la-fa-sol-do* in a major key and *do-le-fa-sol-do* in a minor key
- the “circle of fifths”/“circle of fourths”: scale degree 1-4-7-3-6-2-5-1/*do-fa-ti-mi-la-re-sol-do* in a major key and *do-fa-te-me-le-re-sol-do* in a minor key

Activity: Transcribe bass lines

Goal: Follow and notate bass lines in heard music

Before you start: You'll need some way to write things down.

Instructions: Transcribe the bass lines of the first 1–2 phrases of each song in the playlist below. If you have not already worked with these songs in a previous section, make sure to start by identifying the key and meter.



*One or more interactive elements has been excluded from this version of the text. You can view them online here:*

*<https://uen.pressbooks.pub/auralskills/?p=341#oembed-1>*

Suggest a song for this playlist!

# TUNING IN TO, AND NOTATING, INNER VOICES

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Once we've transcribed melody and bass, there may be additional lines that seem important to add. As you might guess from the section above on bass lines, this skill relies on two foundations:

1. The ability to train our attention on different parts of a musical texture, and
2. Familiarity with how the kind of line we're transcribing tends to work.

So there's not really anything new to teach here; instead, simply practice your attentional focus exercises, and learn as much about the style you're working with as possible. For example, the more you work with bluegrass harmonizing, the better you'll be able to guess what a harmonizing line is doing; the same is true of fugue countersubjects.

## Activity: Transcribe Inner Voices

Goal: Train attention on inner voices and apply our transcription skills to them.

Instructions:

1. Listen to a song from the playlist below. Optionally, transcribe the melody's first 1–2 phrase(s), making sure not to give your notation plenty of space so that any inner-voice activity that may be faster than the melody will be able to fit aligned with the melody.
2. Even more optionally, transcribe the bass. This is great practice and will help add context, but we recognize you only have so much time and our focus is on inner voices.
3. Then add another line of music to represent the most prominent inner voice. Give it an appropriate clef (as well as the same key and time signature as the other line(s)), and then transcribe this inner voice.

What to listen for:

- Hallelujah: the harmonizing melody that enters under the primary melody at “It goes like this...”
- The Rose: at 1:35, the altos sing a new version of the melody that is heard throughout the song, starting with “when with moss and honey....” Try to notate up through the word “and,” where the line leaps downwards
- We Don’t Talk About Bruno: see if you can follow and notate each individual line in the layered verse at 2:42



*One or more interactive elements has been excluded from this version of the text. You can view them online here:*  
<https://uen.pressbooks.pub/auralskills/?p=344#oembed-1>

Suggest a song for this playlist!

# GETTING STARTED TRANSCRIBING HARMONY

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There are many reasons to transcribe the harmonies of a piece of music. Perhaps you are transcribing a jazz solo and want to understand the relationship between the improvised notes and the underlying chords. Or perhaps you're transcribing a choral texture and an understanding of the chords will help you figure out what's going on in the inner voices.

It felt important to put this acknowledgment here, since harmony can be such an important part of transcription. But we will treat the actual skills involved in the later chapter on harmony. Something to look forward to!





# CHAPTER 11 - SIGHT READING SKILLS



You've likely read notated music before, and you might have already judged whether you are "good" or "bad" at it. We've seen this tendency in our students and in ourselves. Unfortunately, if we invest ourselves in a judgment like this, it can inhibit our willingness to take risks, grow, and learn. Fortunately, sight reading is a skill, and it has

components that can be taught. That means that self-described "good" sight readers can continue to get better, and self-described "bad" sight readers can learn tools for improvement.

Sight reading practice serves two purposes. First, we are trying to build the skill of internal hearing. Since the voice

usually has the most direct connection to the brain, we will start by focusing on vocal sight reading of melodies (sight singing), as we did in the chapter on internal hearing. Second, and more obviously, sight reading is a practical skill that musicians use for different purposes, including taking auditions and learning new music efficiently. To support this, we will also discuss strategies for applying sight-reading skills on various kinds of instruments, including going beyond melodies, as well as advice on sight reading with “musicality.”

### Learning Objectives

Students will be able to:

- Internally set up appropriate key, meter, and tempo contexts for a notated passage of music.
- Identify important “anchor points” in notated music, including important scale degrees and beats.
- Perceive notated music in visual/conceptual “chunks.”

- Maintain tonic stability and tuning while singing notated pitches.
- Use solfège and stepwise connections to maintain pitch accuracy in sight singing.
- Use rhythmic cells, subdivision, and (if appropriate) rhythmic solmization to maintain rhythmic accuracy in sight singing.
- Perform music at sight with at least a basic sense of “musicality.”
- Look ahead in the music as they perform as sight.
- Apply strategies for instrumental sight reading as appropriate to their instrument type.
- Use their understanding of harmony to improve their “chunking” abilities and musicality.

## Image Attributions

- Figure 11.1 “White Cat on Black Piano” by cottonbro studio licensed under a Pexels License.
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# SETTING UP THE CONTEXT

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I vividly remember a time when I auditioned to be a music theory teaching assistant at a graduate school, and accidentally sight-read an entire long melody in the wrong clef.

Fortunately, not all applications of sight reading are high-stakes, with success based entirely on a first reading. But in any situation, sight reading confidence improves when we take the time to consciously set up the context for the notated melody. This means noting the clef, key, meter, and (if designated) tempo. It can help to speak these items out loud, at least at first, until we are more secure in this habit.

Note that while most of the symbols at the beginning of a score are relatively straightforward in their meaning, a key signature only defines a collection of notes, not a tonic. There's a lot that goes into a determination of key, but we particularly recommend looking for emphasized notes a fifth or fourth apart that could be scale degree 1/*do* and 5/*sol*. These notes are likely to be particularly prominent in bass lines (if given) and at phrase/section/piece endings.

In some cases, and particularly when an individual is singing and/or when focusing on relationships within a key, it may be appropriate to perform a notated melody transposed to

any comfortable key. In other cases, and particularly when performing on an instrument and/or when focusing on reading specific pitch names, it may be most appropriate to perform exactly the notated pitches. Make sure that you are clear on which of these is the priority for any given practice session or assessment.

Once we've noted this information, we need to set up the key, meter, and tempo as aural realities. Fortunately, we've worked on these skills before! Be sure that you can really “hear” the key and “feel” the meter before you start.

Meter:



*An interactive H5P element has been excluded from this version of the text. You can view it online here:*

*<https://uen.pressbooks.pub/auralskills/?p=422#h5p-2>*

Major key:



*An interactive H5P element has been excluded from this version of the text. You can view it online here:*

*<https://uen.pressbooks.pub/auralskills/?p=422#h5p-6>*

Minor key:



*An interactive H5P element has been excluded from this version of the text. You can view it online here:*

*<https://uen.pressbooks.pub/auralskills/?p=422#h5p-7>*

While these procedures are particularly necessary when sight singing, setting up the key internally can be useful even when sight reading on an instrument. Our playing tends to be most musical and convincing when we have some idea of what sound is going to come out of the instrument even before it actually emerges. In addition, research suggests that we sight read with better accuracy when we can predict what might come next, and making the key an aural reality before we start can help with this.

Activity: Given a short melody, identify critical preparatory elements from the score necessary to begin sight reading.

Goal: Develop the habit of first identifying the clef, key, and meter of a musical excerpt.

Before you start: Find a sight-reading anthology containing melodies for singing. You may use any chapter/excerpt that has different keys, meters, and clefs.

Instructions:

1. Randomly select an example melody and verbally identify the following notational symbols: clef, time signature, and key signature (i.e. the number of sharps or flats).
2. Study the melody, especially its resting-point notes and any accidentals, to determine the key (i.e. tonic note and mode).
3. Conduct the beats per measure, tap beat divisions, and verbally identify the durational value of the beat note and divisions.
4. Repeat the above steps with multiple melodies until it becomes habituated. Throughout your day, apply these steps when you encounter scores in other areas of your study.



## Activity: Setting the right tempo

Goal: Develop the musical- and self-awareness necessary to choose a tempo that enables an accurate and consistent performance.

Instructions:

1. The focus of this activity is on developing the ear, not providing a finished performance. The work of the ear takes place between the notes, as the ear and mind work together to anticipate the sound and solfège of the following pitch in the sequence. (The duration of the following pitch is important too, but the rhythmic element of performance is processed differently, often in an embodied manner.)
2. Study the melody and locate the passages with the shortest durations as well as any spots that present difficulties.
3. Establish the key, and then sing through any fast passages at a tempo that allows you to audiate each following note while singing the

previous note. Similarly, sing through any difficult passages, noting the general amount of time it takes for your ear and mind to navigate the tricky spots.

4. Set a tempo based on the amount of time needed to handle the fast and difficult passages in a melody.
5. Practice singing the melody at the selected tempo, focusing between every note on hearing the following sound before you sing it in performance. If this activity is going well, you will likely find that your performance seems incredibly slow, but that your ear and mind are working quite fast between each note to hear the following pitch.

Later activities and reading strategies in this chapter will help reinforce this process, enabling you to become a strong sight reader and laying the foundation for reading faster as you develop (without losing poise, control, accuracy, or expression). Ultimately, remember that there is no “default” tempo or “right” tempo that someone should always use. Rather, musicians need to learn how to set an appropriate tempo for the music they

are reading to ensure a fluid, accurate, and consistent performance.

# ESTABLISHING VISUAL ANCHOR POINTS

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Now it's time to look at the notes!

Inexperienced sight readers often find notated music to be overwhelming. There are a lot of symbols on the page, and they convey a range of information about pitch, duration, volume, articulation, phrasing, and more—often in a single symbol. If that doesn't overwhelm you, great, you can just skim this section. But if it does, also great! We have some advice for how to start organizing and making sense of the many symbols on the page.

The two parameters that are typically prioritized in sight reading are pitch and rhythm, so we'll focus there. For each parameter, we can establish visual “anchor points”—some of the most distinctive and noticeable pitch/metric locations—within the notation. From there, we should be able to work out anything else that might occur as well, with reference to these anchors.

In pitch, the most important locations to establish visually are typically scale degrees 1/*do* and 5/*sol*, so we'll focus there. (Nevertheless, if other anchor points seem more useful based on your experiences and/or the way a particular piece of music seems to work, that's fine; just adapt the methods we're about

to describe.) Once we've established the key, we will visually "call out" these scale degrees on the staff. Keep in mind that these scale degrees repeat at every octave; we'll visually call out the octaves that seem most important to the melody we're reading. In the example image below, we highlight these staff locations with colors; you can certainly highlight your scores at first, but over time you will be more flexible if you can simply do this mentally.

### Twinkle Twinkle Little Star

— Scale degree 1 / *do*  
— Scale degree 5 / *sol*

The image shows the first two staves of the song 'Twinkle Twinkle Little Star' in G major (one sharp). The first staff contains the first 10 measures of the melody. The second staff starts at measure 7 and contains the next 10 measures. Red horizontal lines are drawn across the staves at the first line (G4) and the fourth space (B4). Blue horizontal lines are drawn across the staves at the second line (B4) and the fifth space (D5). These lines highlight the positions of the scale degrees 'do' (G) and 'sol' (B). The lyrics are written below the notes.

Twin-kle, twin-kle    litt-le star.    How I won-der    what you are.    Up ab-ove the    world so high,

7  
like a dia-mond in the sky.    Twin-kle, twin-kle    litt-le star.    How I won-der    what you are.

In rhythm, we anchor ourselves primarily to the beats. Helpfully, standard notational practice uses beams on anything smaller than a quarter note to show the metric structure, so use these clues to help your eye quickly scan over the music. Even with these, however, at least at first it sometimes helps to draw in some kind of symbol such as a "tick mark" for each beat so that they are easily kept track of.

# Felix Mendelssohn's Werke No. 31 - Aria (Alto Excerpt - German Only)

Sei stil\_ le dem Herrn und war\_ te auf ihn, der wird dir ge\_ ben, was dein Herz

5  
wüuscht; sei stil\_ le dem Herrn und war\_ te auf ihn, der wird dir

8  
ge\_ ben, was dein Herz wüuscht, der wird dir ge\_ ben, was dein Herz wüuscht.

Activity: Finding anchor points in music you are working on

Goal: Recognize and mark structural tone and beats

Before you start: Find a piece of music. This could be a new piece of music that you are working on privately or in an ensemble, or music from a sight-reading anthology.

Instructions:

1. Start by noting the key (remember that songs may modulate away from the key associated

with the key signature and that each key signature has at least two possible tonics, one major and one minor) and the meter.

2. Using your determined key, identify the tonic (scale degree 1/*do*) and dominant (scale degree 5/*so*) locations on the staff, as appropriate, and call out these locations visually in some way.
3. Using the meter, identify how many structural beats are in a measure and what note value typically receives the beat, marking the beats in some way in your music

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## Image Attributions

- Figure 11.2 “Twinkle Twinkle Visual Anchor Points” by Meghan Hatfield licensed under a CC BY-SA License.
  - Figure 11.3 “Werke Excerpt – Rhythm anchor points” by Meghan Hatfield licensed under a CC BY-SA License.
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# SIGHT READING IN CHUNKS

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Sight readers are often incredibly worried about accuracy. That's normal! We want what we do to sound and feel good. But this can go too far: when we're so focused on getting each note absolutely perfect, we might miss that they can be perceived in small (and, sometimes, large) groups. Seeing those groups actually facilitates greater accuracy, since a three-note group requires less processing power per note than three individual notes. It also facilitates greater musicality, since this "chunking" helps us see the larger picture: not just each note in and of itself, but where it has come from, where it is going, and perhaps why. So ironically, focusing on the perfection of each note often actually distracts from each note's true "perfection."

We covered chunking in detail in the chapter on Memory. You may wish to revisit that chapter. Now, we just need to put it into practice!

Our chunking abilities probably improve over time merely by learning, reading, and performing a lot of music. But to make our learning more efficient and quicker, we'll pair that intuitive, unconscious learning with a conscious effort.

One way to focus on chunking is to choose a common



chunk type, then scan some actual music, identifying that chunk type wherever you can find it as quickly as you can. Particularly common types of chunks include arpeggios, neighbor tones, and rhythmic motives (repeating rhythmic patterns).

Another way is to look at a new piece of music and, given a short amount of time, simply describe it in as few words as possible. This forces us to think about how we might group the notes together.

A certain number of chunks are common across many styles, and we've tried to focus on those. However, any given repertoire (based on composer, genre, historical style, ensemble type, etc.) will likely have its own characteristic chunks. As you learn more and more music in any given style, you will internalize more and more of its characteristic chunks, improving your ability to work with it efficiently. Don't forget to note those chunks consciously as you learn, to strengthen whatever intuitive learning might be happening.

### **Activity: Chunking Practice**

Goal: Develop the habit of seeing notated music in 3-to-5-note units (chunking).

Before you start: This can be a group activity or an individual activity. If working in a group, do step 2 individually and then discuss together to compare the ways different members of the group found to chunk the melody.

Directions:

1. The list below includes links to several melodies. Choose one, open the link, and then click the notated first note to show the full notation.
2. Scan over the melody, looking for ways to group the notes together. Be sure to put these into words: for example, “tonic triad arpeggio followed by a repeated rhythmic motive on scale degree 7.” As you get comfortable with this skill, you may wish to give yourself a 20- or 30-second timer and see how many ways of grouping/chunking you can find in this amount of time.
3. Optionally, try to sing the melody, and then use the embedded recording to check your performance. (Use the “starting pitch” sound file to make sure you’re in the same key as the recording.
4. Repeat steps 1–3 as necessary.

Excerpts for activity:

- Hollis Exercise
- Sullivan Exercise
- Somervell Exercise 1
- Batchellor-Charmbury 1884 Exercise
- Crowell Exercise
- Batchellor-Charmbury 1887 Exercise
- Somervell Exercise 2
- Wedge Exercise

### Activity: Getting Used to Chunk Types

Goal: Learn different approaches to chunking, including based on rhythm and meter, repetition/motives, melodic contour, and harmony.

Before you start: Choose a manageable piece or excerpt of music (likely 4–12 measures). You may wish to select an excerpt from a sight-singing

anthology or to use some music for your primary instrument.

Instructions:

1. Take about 30–45 seconds to look through the music, describing the relationship between **rhythm and meter**. For example, you might say, “Short pickup leading into long note on the downbeat; then short notes on beat 4 leading into another long note on the downbeat; then rhythm in beats 1–2 repeated in beats 3–4.”
2. Take about 30–45 seconds to look through the music, describing any repeated **musical ideas (“motives”)**. These often feature exact rhythmic and/or melodic repetition, but there may also be some more “hidden” repetition, such as similar rhythms on different beats of the measure or pitch patterns repeated at different levels of transposition.
3. Take about 30–45 seconds to look through the music, describing any **common melodic gestures** you notice. It may be particularly useful to note scalar passages (e.g., “scale from 1 up to 5”), suspensions, and neighbor or double-neighbor tones.

4. Look through the music one more time for 30–45 seconds, considering how the melody relates to underlying **chords**. This is most obvious when the melody is an arpeggio, but you might also notice that (for example) an authentic cadence is implied at the end of an excerpt despite some non-chord tones.
5. Think back through what you've noticed about the music. Which ways of describing it seem most useful in understanding it in small groups?
6. Optionally, sight-read your way through the music vocally or instrumentally.

### Activity: Applying Chunking to Your Music

Goal: Develop the habit of seeing chunks when reading music on your primary instrument

Before you start: Choose a piece of music written for

your primary instrument that you are not yet familiar with. It could be completely new to you, such as an excerpt from a sight-singing anthology or it could be something (or a section of something) you are just starting to learn. Choose a manageable excerpt (likely 4–16 measures). You may wish to use your primary instrument or to sing.

Instructions:

1. Scan through the excerpt, looking for chunks. Remember to look at rhythm and meter, melodic contour, repetition of any kind, and relationship to chords/harmony. It may help to describe these out loud to make sure you have a clear idea of what groups them together.
2. Sight-read through the excerpt.
3. Evaluate how your sight reading went. If there were sections that gave you difficulty, be sure to look at those sections again, rethinking how you might chunk them. You might also consider how you'd play each chunk, imagining or practicing the physical motions associated with them.
4. Repeat steps 3–4 as appropriate.
5. If you wish to repeat steps 1–5, you might

choose a new piece or simply move to another section of the same piece. As you learn the piece, you may find that noticing the ways it tends to be “chunkable” comes more and more easily as you get to know it.

# TUNING

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We turn now to tuning, which we'll do primarily with our voices.

It's probably obvious why vocalists should focus on vocal tuning when reading music. But what about instrumentalists? For instrumentalists, we're trying to build our internal hearing and connect it to sight reading, and using our voice can be useful here even if our end target is instrumental. Being able to internally “hear” the sound that is about to come out of the instrument before it emerges is helpful for musicality; on certain instruments such as unfretted strings, it gives us a reference point from which to judge the sound; and on other instruments such as brass that have a single fingering for multiple notes, it helps us picture the sound that we want to hear to make sure we're hitting the right note.

There are two issues we face with tuning. The first is that our point of reference—which usually means our key—needs to be stable. The second is that individual pitches should also be well-tuned.

Some people can sing in a stable key without much effort. But for people who are challenged by this, it can be helpful to work with a drone or consistently remind yourself of the tonic.

When your key is stable but individual pitches are poorly



tuned, sometimes the issue is simply having a hard time “picturing” the correct pitch. This should improve with time spent with solfège and practicing sight reading. In addition, sometimes students benefit from practicing singing scales with a pitch reference, to make sure their internal models match the desired tuning system. This is best implemented one-on-one.

### Activity: Singing Over a Drone

Goal: Develop key stability when singing

Before you start: Choose a melody. This can be something from music you are performing in solo or ensemble settings, a simple folk song, or the melody of music you like to listen to. You'll also need a drone, which can be played by someone else or by a tuning app or drone website such as this one.

Instructions:

1. Play or have someone else play a drone on any note. The drone is now your tonic (scale degree 1/*do*). (Optionally, you may add scale degree 5/*sol*.)

2. Take note of which scale degree the melody starts on. It may be useful to sing up or down by step from the drone to that scale degree so that you start on the correct pitch.
3. Sing the melody over the drone, taking note of where it becomes difficult to tune with the drone. This may not be because you are out of the key, as there are notes that are dissonances with the tonic, but most melodies will end on a note that should feel comfortable in relation to the tonic.

If you find this getting more comfortable, you might try playing the drone only some of the time, and then eventually taking it away and trying to imagine it in your head.

Activity: Returning to tonic

Goal: Develop key stability when singing

Before you start: Choose a melody. This can be something from music you are performing in solo or ensemble settings, a simple folk song, or the melody of music you like to listen to. It may be useful to choose a melody with a limited range if you are not someone who typically sings in different ranges so that you can do it in multiple keys.

Instructions: Choose a tonic note and play it. Sing the melody in that key, and at good breaks in the music, sing the tonic note again. The tonic should be interspersed throughout the melody, and you should also end the melody by going back to the tonic if it didn't already end there. Check that the tonic you sang at the end matches your original tonic.

Twinkle Twinkle example ([ ] mark returns to scale degree 1/*do* that are not in the melody):

- *do-do-sol-sol-la-la-sol-[do]-fa-fa-mi-mi-re-re-do-[do]-so-so-fa-fa-mi-mi-re-[do]-so-so-fa-fa-mi-mi-re-[do]-do-do-sol-sol-la-la-sol-[do]-fa-fa-mi-mi-re-re-do-[do]*
- scale degrees  
1-1-5-5-6-6-5-[1]-4-4-3-3-2-2-1-[1]-5-5-4-4-3-3-2-[1]-5-5-4-4-3-3-2-[1]-1-1-5-5-6-6-5-[1]-4-4-3-3-2-2-1-[1]



# EYE MOVEMENTS

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Research on improving sight reading can be confusing and contradictory, but one fairly consistent result of this research is that eye movements matter. Specifically, there are two principles that can improve our sight reading:

1. When we're taking in information from the notated score, we are most effective when we do visual chunking; that is, when our eyes don't focus separately on each note, but rather can take in small groups of 3–5 at a single glance. To improve this, work on the exercises in the previous section on “chunking,” working for speed.
2. As we're performing, we are most effective when we are looking ahead at what we're about to do rather than at what we are doing right now. This will be our focus here.

We have all already built certain automatic habits of eye movements, and simply telling you to look ahead as you're performing may or may not override these. To build new habits in something so intuitive as where our eyes are looking, it's probably more effective to practice forcing them to do what we want for a while using a method such as the activity below. As this becomes more automatic, we can hopefully take

away the mechanism enforcing the habit and still be able to use it. Note that our desired eye movements are the same whether we are sight reading vocally or on an external instrument.

This is challenging if you don't do it naturally! It places heavy demands on our working memory to store and implement some music while we're scanning ahead and trying to plan for what we're about to perform. Remember that we're not aiming to make your life tough here—we're simply trying to build habits. So use music at a level that makes this possible for you, and choose an instrument that you are comfortable with to reduce your cognitive load and focus on those eyes.

### Activity: Practice sight-reading eye movements

Goal: Develop the habit of looking ahead while sight reading.

Before you start: You will need some notated music to sight read. You may wish to use a sight-reading anthology or music for your instrument. You can choose whether to perform the music vocally or on another instrument since we're just working on eye movements.

### Instructions:

1. Optionally, do any preliminary steps you or your instructor prefer, such as noting the clef, key signature/key, time signature, and tempo, scanning over the melody for chunks or challenging passages, etc.
2. Determine the amount of music you will be able to consistently take in at a glance. Ideally, this is either a measure or a half measure. (Your instructor may determine this for you.) We'll call this amount the "eye unit."
3. Look at the first eye unit's worth of music without playing it. Then either cover it up with your hand/an object or have someone else do it so that your eyes can't linger there as you perform it. (Having someone else cover it lets you focus your whole attention on reading and performing.)
4. Perform the music! As you do so, make sure that the eye unit you are playing at any given time is always covered up, forcing your eyes to scan ahead to the eye unit they're about to get to rather than the one they're playing right then.

# PITCH ACCURACY

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If you're able to maintain a stable key (see the section on Tuning), then you're most likely to make pitch mistakes when either something happens too fast for your brain to process or you're asked to find a pitch for which your internalized model of key doesn't provide a ready answer. If things are happening too fast, there's only so much we can do. Keep practicing, and you'll be able to think and perform more quickly. But what to do when we're asked to produce an uncommon or challenging pitch?

This question is most relevant when singing. When we are playing an external instrument, most often our fingering and/or embouchure will help us find that pitch even if we're not 100% sure where it is. So we'll focus on finding that pitch when singing. And we'll assume you don't have absolute pitch, though the same strategies may be useful for those with absolute pitch in certain circumstances, as when trying to find a certain pitch in transposition.

It may be helpful to scan a passage of music before singing through it, to find pitches that are likely to be challenging. These particularly include notes following a large leap, and chromatic notes, especially when following a leap of any size.

Finding these pitches accurately almost always comes down



to relationships. Our internalized models of key typically have a few levels of security when trying to find isolated pitches:

1. We are usually best at finding the “structural” pitches of a key, particularly scale degrees 1/*do* and 5/*sol*.
2. This may be as strong or stronger than #1 in some people: we are often fairly good at finding the pitches of the currently sounding chord (if there is one).
3. From there, the notes that are “diatonic” to the key (in the key signature) are usually the next easiest to find.
4. Finally, “chromatic” notes (marked with an accidental) are typically the hardest to find.

Anytime we can find a relationship between a tough note and a more secure category on this list, we can use that relationship to find the pitch. For example, if there is a large leap to scale degree 6/*la* followed by a stepwise descent to scale degree 5/*sol*, it may be helpful to find scale degree 5/*sol* first, or even to practice the excerpt leaping to scale degree 5/*sol* until that is secure, and only then to add scale degree 6/*la*.

Activity: Work out difficult leaps

Goal: Develop skills that are useful in finding difficult notes, especially after leaps

Before you start: You'll need a source of notated melodies with difficult-to-find leaps, perhaps from a sight-reading anthology. A few open-access examples are linked below. You should use your voice for this activity.

Instructions:

1. Determine the excerpt's key and meter, and set these up for yourself as appropriate.
2. Scan through the notation, looking for a pitch that you think you might have trouble finding. Leaps to notes that aren't members of the tonic triad are especially good candidates.
3. For each difficult note, determine a more stable pitch that may help you find it. Find that more stable pitch in your head or aloud, then find the difficult pitch from it. Be sure to practice finding the difficult pitch from the previous pitch or two in the melody.
4. Sing the full melody.
5. If you had difficulty with the pitch anyway, repeat step 3.

Activity: Using a challenging new piece of repertoire (one with leaps or with various accidentals), identify “cracks in the road”

Goal: Find and prepare for difficult portions of a piece.

Before you start: You'll need a source of notated melody. You might find this in a sight-reading anthology or in music for your primary instrument.

Instructions:

1. Try sight-singing through your piece slowly but in rhythm. Mark all places/ notes where you had significant difficulty finding the next pitch.
2. After making it through the piece once (or twice), return to your marked passages. Using the skills you've learned, practice making the jumps between difficult leaps.
3. Making connections: What helps you

remember this leap? Can you identify the interval between the two pitches? Does this interval remind you of a leap in another familiar song? Making intervallic connections between familiar and unfamiliar musical passages can help us build muscle memory when singing specific leaps.

### Activity: Building Independence

Goal: To sing through a piece of repertoire without the support of an instrument.

Instructions:

1. Play through the melody of a new piece of repertoire on the piano (or another instrument of your choosing) under tempo. Sing along with the pitches giving extra attention to intonation.

2. Using the skills learned in the “Chunking” section above, separate the melody into groups of 3-5 pitches. Play the notes on your instrument and sing them back. (Or – for more of a challenge – sing first and play on the instrument second to check your accuracy.)
3. Continue chunking the melody with the assistance of an instrument until you feel comfortable singing the chunks WITHOUT the instrument’s help.
4. Using the skills from the “Tuning” section above, try singing through the melody (in chunks, if needed) while sustaining the tonic pitch below the melody.
5. Would you feel comfortable singing this piece a cappella? Try it!

# MUSICALITY

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We can't teach you perfect "musicality," because it can be very personal: people often disagree about whether a given performance was "too mechanical," "overdone," or "just right." We'll leave the details to your mentors and your own taste.

But there are two principles that we feel pretty comfortable will be useful regardless of the details of your approach:

1. Musicality goes beyond accuracy of pitch and rhythm;  
and
2. Musicality benefits from focusing on larger groups and  
shaping more than on details.

The first principle, of course, means that we should ideally observe any written-in indications of dynamics, tempo, and articulation. To follow such instructions while also accurately performing pitch and rhythm requires a lot of "brain space," so don't expect it to happen with extremely difficult melodies right away. Rather, to practice following these markings, work with music whose pitches and rhythms are simple enough that they occupy only some of your brain, leaving space for everything else.

We may also wish to “fill in some gaps,” either where there seem to be insufficient markings, we disagree with the written markings, or we wish to do something with a parameter that isn’t often notated (rubato, timbre). There are few hard-and-fast rules here, but common principles include playing the second time through a repeated passage a little softer, and slowing down as we approach the end of a section—the bigger the section (phrase, group of phrases, formal section, entire piece), often, the bigger the slow-down.

The second principle, fortunately, is aided by chunking. But the more we can see those chunks as participating in larger processes, the more we will craft them into something with even larger-level coherence and beauty. Once you have identified the mostly-3-to-5-note chunks of a passage, see if you can describe the passage as a whole in a sentence. Different musicians will be comfortable with different levels of abstraction and interpretation, but as long as it works, it’s good! Consider the following approaches, which can all be valuable to different people:

- “There is a gradual increase in tension until the climax, and then suddenly it’s all released” (abstract)
- “It’s like the music is running from something, with more and more desperation, until suddenly it finds a hiding place and feels safe” (highly personal interpretation)
- “The dynamics and pitches both rise until measure 7,

then abruptly fall” (more concretely musical)

### Activity: Sight Reading with Musicality

Goal: Develop the habits of observing notated markings beyond pitch and rhythm and of adding your interpretations.

Before you start: You'll need a manageable excerpt of melody (ideally 1–2 phrases) of an appropriate length and difficulty to leave “brain space” for thinking about musicality. You may wish to choose something written for your primary instrument or an excerpt from a sight-reading anthology. This activity may be done either with the voice or with your primary instrument.

Instructions:

1. Prepare to read through the melody. As you go through the procedures we've been practicing, however, be sure to observe any notated dynamic, tempo, phrasing, and articulation markings.



2. Consider whether there are locations where it might be appropriate to add your own ideas for dynamics, tempo, phrasing, and articulation. This is particularly appropriate when there is a section or excerpt without many markings from the composer, but you can also experiment with adding new ideas to music that gives more detailed instructions.
3. Sight-read through the melody, balancing pitch, rhythm, and other factors.
4. Evaluate how it went! If you were unable to think about all of this at once, you may wish to repeat the exercise with a less-difficult excerpt. If you didn't like how it sounded, repeat steps 3–4, revising your interpretation.

# RHYTHMIC ACCURACY

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Just like pitch accuracy, rhythmic accuracy comes down to relationships. In pitch, we oriented ourselves to the key and its structural pitches; in rhythm, we orient ourselves to the meter and its strong beats.

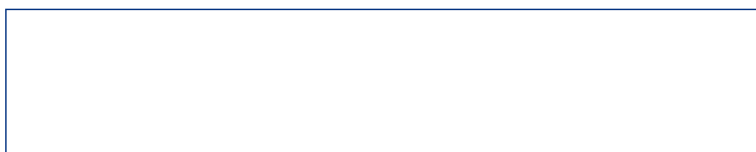


*An interactive H5P element has been excluded from this version of the text. You can view it online here:*

*<https://uen.pressbooks.pub/auralskills/?p=435#h5p-2>*

Once you can feel the meter securely, we use our internalized rhythmic cells and subdivision skills to place rhythms correctly within that meter. These will be most effective if we practice them at different tempos.

Most of the time, we can relate more complicated rhythms to the rhythms we learned as cells in order to perform them. For example:





*One or more interactive elements has been excluded from this version of the text. You*

*can view them online here:*

*<https://uen.pressbooks.pub/auralskills/?p=435#oembed-1>*

## Activity: Practicing rhythmic accuracy in sight reading

Goal: Gain confidence in using knowledge of rhythmic cells and subdividing to improve sight reading.

Before you start: You'll need some notated music to read that has a certain level of difficulty. If you're using a sight-reading anthology, you may wish to draw from a chapter on ties and dots, divisions/subdivisions of the beat, syncopation, or complex rhythms.

Instructions:

1. Look at the time signature and, if indicated, tempo. Set up the meter physically to make sure you can feel it.
2. Scan over the music, visually noting where the beats occur. Look for spots where you don't see comfortable rhythmic cells, and either figure out how they relate to more familiar rhythms or use subdivision to figure those spots out.
3. Remind yourself of the meter (conducting is a good way), and perform the rhythm vocally ("ta" or another syllable) or by tapping or clapping. (Optionally, add pitches by singing or performing on your primary instrument.)
4. Evaluate how you did. If there was a difficult passage, revisit it with your strategies in mind before performing the whole thing again.

# SIGHT READING ON AN INSTRUMENT

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Everything that you have already learned in the above sections, including eye movement habits, audiation/internal auditory imagery, and chunking, is relevant to sight reading on a non-voice instrument. There are some additional challenges and helpful hints, however, that apply to instrumental sight reading. Some of these are instrument-specific: for example, pianists often focus on reading harmonies and patterns rather than taking in each note, while brass players need to consider the combination of embouchure, fingering, and adjustment for better tuning. These are skills best practiced in private lessons.

We'll work on a more universally-helpful process here: specifically, making sure your ear (or, more accurately, your internal auditory imagery) is involved in the playing of your instrument.

Many instrumentalists have done a good job of building connections between notation and fingerings/embouchures on their instruments. This is helpful, but sometimes bypasses our internal images of sound. By intentionally giving yourself specific goals while reading, it is possible to rewire the brain and put the ear in control of physical gestures. This is not to

say that all musical ideas originate in the ear, but for purposes of getting started, we'll focus on giving the ear primary control over physical gestures.

In the activities below, let your ear guide your playing as much as possible. In some exercises, you will intentionally use your ear to focus on specific notes (e.g. the sounds on consecutive downbeats); in others, you will continue to strive toward audiating all sounds in advance but at a slower tempo.

### Activity: Bringing the ear into instrumental sight reading

Goal: Promote the ear's control over all physical gestures while reading music

Before you start: You'll need a non-voice instrument that you're comfortable with and a piece of music for that instrument that is technically well within your grasp.

Instructions:

1. Determine the key and meter, and set these up as appropriate. You are encouraged to set/conduct a slow tempo, so you have time to

concentrate on your process.

2. Begin reading the music, but allow your audiation to regulate your bodily movements. Relax your body as completely as possible (torso, arms, hands, face, back, legs), and commit to not moving any part of your body until your ear has internally “heard” the following note(s) in the passage.

As you read, be (hyper-)self-reflective regarding whether your body is moving to the next note before you have audiated this note. If your playing mechanism is operating at any point independently from the prompting of sounds in your inner ear, slow down, relax, and return to step 2 to try again.

Activity: Incorporating the ear at faster tempos

Goal: Apply internal hearing skills to music

performed at a faster tempo (i.e. music that is too fast to audiate/process every single note or “chunk”).

Before you start: You’ll need a non-voice instrument that you’re comfortable with, and a piece of music for that instrument that is technically well within your grasp. This time, it’s ok if it’s a little faster or more complicated than in the previous exercise, or if it features some faster passagework; we just don’t want your technique to be distracting you from the task at hand.

Note: this activity is based on the piano pedagogy of Abby Whiteside.

Instructions:

1. Determine the key and meter and set them up as appropriate. Try to keep the tempo close to performance tempo.
2. Practice reading the music by playing only the notes found on the downbeats. Even though you are leaving out a majority of the notes, play the downbeats as musically as possible. Use your torso and other physical gestures to “connect” the downbeats, and try to hear them internally before they sound.



3. Play through the passage again, and continue audiating and focusing on the downbeat arrivals. This time, begin observing the other notes in each measure and focus on how they fit into the space between each downbeat. Draw on skills developed in the previous activities (audiating, chunking) as you take in this intermediate information.
4. Depending on the piece, repeat steps 2 and 3 by playing the music on beats 1 and 3, always focusing on audiating those notes and creating gestural arcs that connect each downbeat. (Try to “tuck” the third beat note into that arc on the way to the next downbeat.)
5. Finally, play through the entire passage as notated, but keep your ears focused on audiating the goal notes on each downbeat. Any attention given to notes within the measure should utilize and apply the audiation/chunking skills developed above, but not in a manner that distracts you from following your gestural arcs (and audiation) to the following downbeat goal.



# SIGHT READING AND HARMONY

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Do you remember where you put your “magic chord goggles” after using them in the chapter on improvisation skills? You may want to go find them, because they’re useful in sight reading as well! Recall: “Wearing these imaginary goggles, you can ‘see’ the harmonies around the chords in the melody. In other words, with these goggles in hand, you no longer have to ‘make up’ the chords! They are right there in the music.”

Given all the information we already have to interpret from notation when sight reading, why in the world would we want to add even more information? Perceiving the implied harmonies of a melody is useful in at least three ways:

1. To the extent that we have internalized models of harmony (which maybe you haven’t yet, but they will come!), they can help us “picture” the notes to perform and thus improve our accuracy and tuning.
2. Chords are such an important part of how many songs create a sense of tension and release that being aware of them can be very helpful as we think about musicality and shaping.
3. Harmony is an important factor that affects “chunking,”

so as we become more and more able to be explicit about harmonic implications, our chunking abilities will become more and more powerful.

We'll save detailed discussion of implied harmony for the relevant chapter of this text. Simply consider this an invitation to bring that perspective to your sight reading to the extent that you are able, and to keep returning to sight reading as your understanding of harmony grows!

# CHAPTER 12 - ENSEMBLE SKILLS

So much of what musicians do is collaborative that it would be a shame to restrict our learning to individual music-making and listening. In this chapter, we look at how we can apply the skills we've been learning to ensemble situations.

It's honestly a little odd how little traditional aural skills teaching centers around ensemble work,

given the importance of ensembles to so much music making. But thanks to this situation, there aren't a lot of established ways to teach these skills. We'll use what knowledge we have, and our creativity, to give you advice and instruction. But to a certain extent, this chapter will have to rely on simply asking you to apply these skills in ensembles.

Much of what we will be doing here has to do with communication, particularly nonverbal communication. If



you have trouble picking up on other people's subtle communicative cues, this may be a challenge for you. But we'll do our best to point out elements you might look for in particular.

### Learning Objectives

Students will be able to:

1. Set up and communicate a key, meter, and tempo for an ensemble.
2. Follow a meter and tempo established by another member of an ensemble.
3. Tune to an ensemble.
4. Teach music to an ensemble in a "musical" way.
5. Detect pitch and rhythm errors within an ensemble and offer advice for correction.
6. Communicate and perceive ad-hoc decisions about expressive timing, dynamics, and other elements of musicality within an ensemble.
7. Improvise music within a group.

## Image Attributions

- Figure 12.1 “People Singing with Piano” by cottonbro studio licensed under a Pexels License.
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# SETTING UP CONTEXT FOR AN ENSEMBLE

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Are you tired yet of chapters that start by practicing setting up a key, meter, and tempo? Sorry. Here's one more. These are just so important! Key is particularly important to set up for vocal ensembles, though helping to internalize the key can also help instrumentalists make music more accurately and musically. Meter and tempo are always crucial for an ensemble, whether you are a conductor or a member of a chamber group.

We'll start with meter and tempo since these are so universally important. The methods for setting these up differ from ensemble to ensemble: for example, jazz band leaders often start with "a-one, a-two, a-one-two-three-four"; orchestra, band, and choir conductors often give a single preparation beat with their arm/hand; and chamber ensembles often give a preparatory beat with an in-breath and slight raising of the upper body. It's worth practicing all of these since they're all different but effective ways of communicating.

There are a few methods that will make any of these methods of communication more effective:

- Make sure your internal image of what you want is clear before you communicate it to others. This should take

into account whatever effect you want the music to have (“frantic,” “relaxed,” “walking speed,” etc.). Be sure you can feel not just the beats but also the divisions and cycles/measures, and that you can hear the beginning of the music in your head to make sure it sounds “right” at your chosen speed.

- Think about what point(s) of reference your ensemble may need. In many cases, simply giving the beat will be enough, but if there are a lot of complicated or fast rhythms at the beginning, it may be important to communicate the beat division as well.
- Finally, consider your fellow musicians’ reaction times. You’re not just setting up the tempo, but also helping them start together! If your preparatory cue is short (usually just a single beat), make sure that the time from the cue till the musicians should start playing is clear. It may be helpful to think of your cue not as a clock’s “tick,” which doesn’t tell you when the next tick will be, but rather as the tossing of a ball for which the effect of gravity determines when it will arrive at its destination. You might even make a gesture with your upper body, arm, or head that imitates the shape of a tossed ball’s (shortened) trajectory through the air to help your ensemble see exactly when their entrance will arrive.

Now it’s time for key! If you want your ensemble to lock into the key right from the beginning, remember that half

steps typically help us lock in to the collection, and tonicizing gestures help us hear the tonic as tonic. If we don't want to rely on an accompanying instrument, it may help to teach the ensemble how to hear the context of their starting note by adapting the formulas we used in the chapter on tonic/collection and solfège as appropriate and teaching them to the musicians.

### Activity: Synchronized reading

Goal: Develop the ability to synchronize musicians with appropriate starting cues.

Before you start: You'll need at least one other person or a small group, and a poem—ideally one with a pattern of stressed and unstressed syllables. Identify one group member as the leader.

Instructions:

1. The leader looks over the poem and begins imagining it recited at a specific tempo.
2. Once solid in how it should sound, the leader decides what gesture they will use to prepare the group to recite it together. (Our goal is for

everyone to read the poem together at the exact same speed.) You are encouraged to use gestures associated with music, such as those described in the text above.

3. The leader makes the preparatory gesture, and everyone reads the first few lines of the poem together.
4. Evaluate: how together was the ensemble, both in time and in affect/character? Was there anything about the preparatory gesture that could have better prepared everyone for the intended tempo and character?

### Activity: Set up context for an ensemble

Goal: Develop the habit of orienting an ensemble before you begin to rehearse or perform.

Before you start: You'll need some notated ensemble

music, ideally with 3–4 parts. Many sight-reading anthologies have multiple-part excerpts, though you may need to scan through the anthology or read a dedicated index in the back to find them; alternatively, if you have access to a choral music library or chamber music library, you can check out scores from there. You'll also need a small ensemble to work with. We encourage you and your ensemble to use your voices, since this requires an understanding of context, but you can also work with instruments.

Instructions:

1. Each person takes charge over a certain excerpt or piece of music and looks it over, noting the opening key and meter. They should consider the opening melodies in light of that context, in particular how the rhythms relate to the beats and tempo and what scale degrees each part is singing, and create a plan to orient their ensemble to that context.
2. Each person takes turns leading the ensemble. First, carry out your plan to help your ensemble orient to key and meter, then have them sight-read through the first phrase.

3. Evaluate: did it seem like your musicians knew what they were doing? How helpful was it to orient them to how they relate to their context?

# MOVING/PLAYING TOGETHER AS A GROUP

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One hallmark of really great ensembles is that they seem to be synced together as if they were a single, multi-human organism. Sometimes this means they are perfectly locked into a solid, steady beat or groove; other times it means they are expressively slowing down and speeding up perfectly together. These are, of course, different experiences, but they rely on similar processes and principles, foremost of which is the ability to predict what each other will do. Of course, to some extent this comes with lots of practice, but there's a lot we can also do consciously with our nonverbal communication to share our tempo and timing.

Sorry for stating the obvious, but rule number 1 is this: make sure you are paying attention to your fellow musicians! Obviously, it's hard to be looking around if we're lost in sight reading notes or not sure what's going on. That's why we've been working on these skills! As they become more automatic—for example, as we are able to sight read more efficiently in chunks—we have more “brain space” for paying attention to other things, like our fellow musicians.

For groove-based music, where we want to play “in the pocket” (that is, perfectly aligned with the important elements

and timing of the groove), there are two elements that can be really helpful. First, the more familiar we are with the groove, the better we'll do. Of course, that just comes with practice. Second, think about repetitive/cyclical bodily movements you can do to help you keep track of the groove's cycle. Sway back and forth, or stick your head out and back, or whatever feels right for the groove you are playing. As you do so, see if you and your fellow musicians can align your motions to make sure you're together. This is almost like using dance to keep track of the music!

For more flexibly-timed music, rely on looking around, plus two kinds of movements: bigger, broader, more expansive movements are associated with slowing down, while smaller, more compressed movements are associated with speeding up. For example, a string quartet might lean in a little as they follow an *accelerando*, and then lean back and move their upper bodies slowly from side to side as they relax into a more expansive section.

Activity: Playing together in time

Goal: Develop nonverbal communication skills for staying together with an ensemble, and develop



sensitivity to others' nonverbal communication within the ensemble.

Before you start: You'll need a small ensemble (any instrument or combination of instruments), and some music to perform together. The music can be something you all already know or something you're learning for the first time from notation or aurally. Sight-reading anthologies often have multiple-part exercises, but it's even nicer if you can check out some 3–4-part music from a score library or find some on IMSLP or CPDL. (More parts can work, it just gets complicated.)

Instructions: Perform through a phrase or small section of the music together, doing your best to synchronize your playing in time. You may wish to start by playing without too much variation in tempo, but as you get comfortable, you should designate someone to come up with some tempo changes they feel are appropriate to the music and see if they can lead the ensemble through those changes nonverbally as they play without discussing them beforehand.

## Activity: Grooving together

Goal: Develop the ability to stay strictly in time, sharing a common pulse with your fellow musicians.

Before you start: You'll need a small ensemble (ideally 3–8 people) to work with. For this activity, we encourage you to use instruments with a sharp attack, such as plucked strings (including guitar and bass), piano, and percussion instruments.

Instructions:

1. One member of the ensemble should come up with a meter and tempo, and start playing a “groove”—a repeating pattern—that lasts 1–2 measures. Pick something pretty doable, because you'll keep repeating it for a while. The rest of the ensemble should listen for a few repetitions, really getting used to the first person's groove and starting to move to it.
2. One by one, the other members of the ensemble come up with another repeating pattern on their instrument that complements

what's already sounding, and start playing along.

3. Once everyone is playing together, try keeping the tempo steady for 30–60 seconds. If the various layers seem to be coming apart, make sure you are synchronizing your bodily movements.
4. At this point, you can stop and start the process over, or one member of the ensemble should decide to try to lead the ensemble in speeding up or slowing down.

# TUNING TOGETHER

---

Tuning is another way to express “togetherness” as an ensemble. When paying attention to tuning, it’s important to think about the kinds of instruments you’re working with. If some have fixed pitch, such as a piano, then other pitches that align with those of that instrument will need to tune to it. If not, then there is more flexibility. We’ll focus on the latter case, and encourage anyone whose primary instrument has fixed pitches to use another instrument, such as their voice, for this section.

While different approaches may be appropriate for different situations, perhaps the most common way to tune a chord is to “build” it up in the following order:

1. start with the root of the chord;
2. add the fifth, adjusting until it sounds “pure” and seems to “ring”;
3. add the third, adjusting until it sounds “sweet”;
4. add any other notes.

For any note performed by more than one musician, start with the lowest and then add the higher one(s).

Here is an example:



*One or more interactive elements has been excluded from this version of the text. You*

*can view them online here:*

*<https://uen.pressbooks.pub/auralskills/?p=450#oembed-1>*

As a rule of thumb, when we want chords that sound “perfectly in tune,” fifths should typically sound extremely pure, with no “roughness” or “beats”; major thirds should be played just a little on the low side; and minor thirds should be played just a little on the high side. Experiment, however, with what sounds good to you.

### Activity: Tune a chord as an ensemble

Goal: Develop sensitivity to vertical tuning and practice strategies for tuning with an ensemble.

Before you start: You'll need a small ensemble of at least three musicians, each with an instrument that can sustain tones and adjust its tuning (voice is fine).

Players of fixed-pitch and/or quick-decay instruments such as piano, guitar, harp, and marimba should either sing or choose an alternative instrument. Tuning will be easiest if everyone uses the same instrument; a good second-easiest is to mix instruments within families (winds, brass, strings).

Instructions:

1. Assign each member of the ensemble a pitch. Choose the pitches to create a chord. As you repeat this activity, experiment with different tunings and, if you have more than three people, doubling different members of the chord.
2. Have each musician start to play their pitch as a sustained tone, one at a time in the order root-fifth-third-anything else. With each new pitch, the person who just joined should adjust as necessary to achieve excellent tuning. If the ensemble is singing, make sure everyone is using the same vowel. If someone is having trouble, it may be helpful for them to get feedback from other group members.
3. Once steps 1–2 are working well, choose a second chord to move to and assign everyone

a pitch in that chord. (Ideally, each person's note in the second chord will be the same or just a step away from their note in the first chord.) Start by "building up" the first chord, then move all together to the assigned pitches in the second chord and see if everyone can listen and adjust tuning there too.

# TEACHING MUSIC WITH AURAL SKILLS

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If you're leading an ensemble or a member of a chamber ensemble that shares leadership, you have the responsibility to think about how to teach the music that you will be performing. This is often very difficult, particularly if you're working with inexperienced musicians, and leaders sometimes resort to teaching by rote. There's nothing wrong with this as long as it fits your goals, but sometimes it can slow the learning process down and feel "unmusical."

In addition, many ensemble directors—especially those who work in schools, colleges, and universities—have educational goals for their students. Integrating aural-skills thinking into the rehearsal process can help ensemble members learn to think for themselves in terms of key, meter, and more.

Recall that one of the central themes of this text is the importance of context, particularly key, meter, and tempo. Though we haven't discussed it much yet, we should also add harmony/chord progression to that list. Adding an awareness of these factors from the beginning of the learning process can make that process more effective and sometimes quicker. In addition, if musicians learn music without that context (say, a part at a time), then when they are suddenly faced with



the context (all playing together), it can be disorienting and require yet another learning process.

How can we teach music in a way that supports our musicians while making sure they have the context they need to facilitate their learning and understand the music? This is a huge question, with many nuanced answers. We'll just give three principles here:

1. When communicating with your musicians, make sure you're referencing the context. For example, it is our experience that choral directors often reference intervals when helping their singers find difficult notes. This gives a certain small amount of context, but it may be even more musical and effective to draw on the larger context of the accompanying chord(s) (pointing out, say, that they are moving from the root of one chord to the third of the next, and perhaps playing that chord progression for context) or the key (pointing out that they need to find, say, scale degree 6/1a). The way you do so will of course depend on the education your musicians have and their standard practice: you might use solfege and technical terms, or merely demonstrate while helping them track the chord/key with an accompanying instrument.
2. Use the bass to help your musicians hear their relationship to the key and chord progression. The bass is strongly associated with chord progressions, so having

it sound while another section is practicing or learning their part will help that part hear some of the context without being distracted by large numbers of other sounds.

3. Finally, think about which parts have natural relationships. These might be similarities (say, two parts often move in parallel thirds) or pointed contrasts (say, one part always rests while the other plays and vice versa). These parts can be very useful to learn together since each provides crucial context for how the other will sound.

### Activity: Rehearse a sight-reading ensemble

Goal: Integrate fundamental aural skills into the rehearsal process (the director); practice sight reading in an ensemble (everyone else).

Before you start: You'll need an ensemble; we recommend a 1- or 2-on-a-part choir; working with singers typically requires the highest level of thinking about context, since singers don't have the aid of an external mechanism in finding pitches.

You'll also need some music to rehearse; we recommend notated choral or instrumental music with 3–5 independent parts. You may be able to find such music in a sight-singing anthology, but it'd be great if you can check some music out from a score library or find some on IMSLP or CPDL.

Instructions:

1. Assign each member of the group to a different piece of music or section of a piece. Each person will act as ensemble director for their assigned excerpt. It will be helpful if everyone has some time to look over their section, consider how to orient the ensemble to key and meter, consider what in the excerpt will be most difficult, and relate everything to context (key/scale degrees, meter/rhythmic cells).
2. Each person should take 10 minutes to lead the ensemble in sight-reading and rehearsing their assigned excerpt. Whenever there are difficulties, the leader should offer advice related to aural skills—the numbered list of ideas above may be helpful. Since the group is not working towards a performance, you can focus on integrating aural skills into the

process rather than teaching the music in the quickest way.

3. Once everyone has taken a turn leading the ensemble, engage in self-evaluation or discuss how things went as a group. What types of aural skills were the most helpful to the ensemble? How was each director able to integrate these into their rehearsal? What might have been able to be done better?

# ERROR DETECTION AND CORRECTION

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Detecting errors in an ensemble is complicated. If you're working from a notated score, then it uses both your sight reading and your listening skills. Not only that, but ensembles typically play multiple parts at once, giving us a lot to listen to.

Fortunately, we've already worked through the skills you will need—now you're just putting them together! Here's what we'll be using:

- Perception of context (key, meter and tempo)
- Identifying rhythmic cells and other kinds of chunks to verify they are correct
- Sight reading, listening, and practicing internal hearing to compare the score to what we hear
- Directing our attention to different parts of the texture to assess where problems might be

Once we've found an error, then we can also use the principles in the previous section to help our fellow musicians (or ourselves!) correct it. As a reminder, those principles are: make sure you're referencing the context, use the bass to help hear

the chord progression and key, and think about which parts have natural relationships.

### Activity: Error detection on your own

Goal: Integrate listening and reading skills by comparing sounding music to a notated score.

Before you start: You'll need to find an error-detection exercise. You can find such activities on the internet with a search for "aural skills error detection practice"—results may include videos and websites.

Instructions: Identify any discrepancies between the notated and performed music. If you have difficulty, it may be helpful to scan through the notated music and hear it in your head (or out loud) before listening through the performed version. Then use your "thinking ahead" sight-reading skills to anticipate each note based on the notation before it sounds.

## Activity: Rehearse a sight-reading ensemble

Goal: Integrate error-detection skills into the rehearsal process (the director); practice sight reading in an ensemble (everyone else).

Before you start: You'll need an ensemble; we recommend a 1- or 2-on-a-part choir; working with singers typically requires the highest level of thinking about context, since singers don't have the aid of an external mechanism in finding pitches. You'll also need some music to rehearse; we recommend notated choral or instrumental music with 3–5 independent parts. You may be able to find such music in a sight-singing anthology, but it'd be great if you can check some music out from a score library or find some on IMSLP or CPDL.

Instructions:

1. Assign each member of the group to a different piece of music or section of a piece. Each person will act as ensemble director for their assigned excerpt. It will be helpful if

everyone has some time to look over their section and hear it in their heads as much as possible. Many people struggle to hear a whole ensemble in their heads, but it is often helpful to work through at least the melody and the bass.

2. Each person should take 10 minutes leading the ensemble in sight-reading and rehearsing their assigned excerpt. The director should concentrate on identifying errors in performance, and then offer advice. Since the group is not working towards a performance, you can focus on integrating aural skills into the process rather than teaching the music in the quickest way.
3. Once everyone has taken a turn leading the ensemble, engage in self-evaluation or discuss how things went as a group. What skills did you need to bring to bear to identify errors? What were the most productive methods of fixing those errors?



# IMPROVISING TOGETHER

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Making music with a group, and coming up with your own music on the spot, are both wonderful and challenging activities. Putting them together is also wonderful—and challenging! You may never plan to get on stage and improvise a song on the spot with a bunch of co-performers. But even so, group improvisation is a wonderful way to practice your listening skills and your creativity.

The exact details of how a group improvisation might work are heavily depending on the instruments involved, the styles of music each member of the ensemble is comfortable with, and more. But there is some general advice we can give.

First, it is usually helpful to set up some kind of structure beforehand. This structure might include a key or order of keys you want to go through, a meter or order of meters to go through, a general idea of who will start and when everyone else will join in, an agreement on a style or approach to music, and a sense of the length and shape of what you will come up with together.

Second, it can be useful to think of the music in relatively consistent layers. That is, each performer will decide on a role such as bass line, chords, mid-range melody, high melody,

countermelody, rhythmic interest, etc., and commit to mostly performing that role. It might even be simplest, at first, to mostly focus on looping melodies or progressions so that they are easy to predict; if loops are comfortable, you can try changing melodies or chord progressions but with consistent range, shape, and length. If a single performer used their whole range of possibilities all the time, it'd be hard for others to figure out how to interact with them effectively. Of course, there should usually be changes in dynamic, character, melody, and harmony as the improvisation goes on, but performing them in a predictable, probably slow manner will help the other members of the ensemble work with you.

Third, listening is crucial. If you are not the first person to start playing, listen carefully to what is happening in the music before you join, and consider how you can add to it. As the music continues, make sure you are synced in time and meter with your ensemble. And when everything seems to be working together, try to stay alert to changes in the music. Is it speeding up? Slowing down? Getting more exciting? Calming down? Changing key/meter? Once you notice a change, consider whether you can contribute to it or whether you should simply continue what you're doing and let the other musicians accomplish the change on their own.

Activity: Improvise together

Goal: Have fun with creativity, and integrate improvisation, ensemble skills, and listening skills.

Before you start: You'll need a (probably small) ensemble. Any combination of instruments can work, but to help everyone come up with an appropriate role, it may be advisable to make sure there is at least one bass instrument, one melody instrument, and one chord instrument.

Instructions: Work together to decide the basic structure of the improvisation:

- What key or keys will it be in?
- What meter or meters will it be in? A free-flowing sense of meter is just fine; it's often also effective to start relatively free-flowing and then gradually build up a sense of meter.
- Is there a style or approach to music you will use to unify the ensemble?
- Approximately how long will your improvisation last?
- What dramatic shape do you want your improvisation to have?
- Who will start first, and when will everyone else enter?

Then, try out the improvisation. If there is time afterwards, discuss how effective you thought the music was and how much you enjoyed it, and consider another time through with the same plan to see if you can make it more effective and/or more fun.

# CHAPTER 13 - DICTATION



In this chapter, we will take your transcription skills and apply them to the specialized task called “dictation.” Some people use these terms interchangeably. But we will differentiate the two:

- **Transcription** refers to any time we write down something we hear; we will use the term particularly when the task allows (theoretically) unlimited time and plays to work through the process and/or when we are

transcribing multiple parts.

- **Dictation** refers to a more limited kind of transcription, most commonly done in a classroom, with a limited number of plays and a limited amount of time, and usually focuses only on rhythm, melody, or harmony.

Honestly, we feel that aural skills classes often focus too much on dictation. Transcription offers many of the same benefits and may be a better learning tool than dictation, particularly when we're trying to develop aural analysis and notation skills. Dictation can indeed uniquely focus us on attention and memory, but those are limited capacities that are negatively affected by the stress that may accompany dictation. These capacities can also be affected by neurodivergence, mental illness, and outside-of-class stressors. We don't think the ability to take dictation at an extremely high level is absolutely necessary for success in a music career. And while the National Association of Schools of Music requires its member schools to teach all students "the ability to take aural dictation," it's entirely possible that they would count transcription.

Nevertheless, some instructors may be required by their institutions to use dictation, others may not be ready to deemphasize or abandon it, and there may be some learning benefits that are better built with dictation than with transcription. So we felt it best to give support resources, and particularly to give advice on how to approach dictation in the most helpful and productive ways we know.

Dictation requires a slightly different focus from more permissive forms of transcription. In particular, it requires a higher degree of focus and makes greater demands on our use of memory. As such, our chapter on transcription focused more on analysis/understanding and notation, while here we will focus more on the earlier stages of attention/focus and memory.

It's pretty well established in cognitive science that we can't increase the size of our working memory. So what's the point of focusing on this? All people, and especially musicians, benefit from developing good attention and memory *habits* to most efficiently use the memory capacity they have. So we'll give what advice we can for building these habits and strategies.

Keep in mind that building new habits and strategies requires what cognitive scientists call "executive function," referring to the mechanism in our brains that makes decisions about what to pay attention to and how to approach it. Executive function, however, can be impaired by tiredness, anxiety, and stress, so anytime we're affected by these, we may have a harder time building our skills.

Of course, if you had to work a night shift and you're now in a morning aural skills class, there's only so much you can do. But both instructors and students need to keep in mind the negative effects of stress on executive function. To the extent that dictation becomes a high-stress event, the habits and strategies we're looking to reinforce will probably become impossible. That defeats the purpose!

So as much as possible, we encourage students to practice mindfulness and centering, and we encourage instructors to create welcoming environments and grading policies that show students that they are not under threat.

### Learning Objectives

Students will be able to:

1. Describe the processes necessary to take dictation, including how they differ from the similar process of transcription.
2. Determine an appropriate meter and key for music they wish to dictate.
3. Set an intention in order to engage in goal-directed listening.
4. Use chunking and extractive listening to strengthen their memory of dictation melodies.
5. Notate music they hear, relatively quickly.



## Image Attributions

- Figure 13.1 “Adult frowned male writer working on typewriter at home” by Andrea Piacquadio licensed under a Pexels License.
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# UNDERSTANDING THE PROCESS OF DICTATION STEP-BY-STEP

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In a previous chapter, we focused on the steps involved in transcribing music. Since dictation is a specialized form of transcription, the steps are much the same; we'll just focus on a different part of the process. You may wish to review the transcription process here.

Like transcription, dictation involves several steps. If they're already pretty automatic for you, that won't be a problem; but for people who have to really work at any of these steps, putting them all together right away can be a problem. Fortunately, we can focus on them one by one to make them more manageable.

1. On our first hearing, our primary goal is to set up the context: determine meter and key.
2. On our second hearing, we focus on and memorize a bit of the music. If the music is short enough, maybe it will be the whole thing, but if not, we'll have to focus on one portion at a time. This is a challenge for our focus and memory. It can help to set an intention before this

second hearing, based on our first-hearing impression: for example, “I’m going to really focus on the first half this time.”

3. After that second hearing, we have a short period (typically of relative silence) to analyze and notate the music we memorized. This is really two steps: analysis is figuring out what’s going on in the music, then notation is using our knowledge of how notation works to write it down.
4. Depending on the length of the music and the number of times we get to hear it (which are hopefully related), we may repeat steps 2–3 a few more times, focusing on different portions of the music. Anecdotally, we believe it’s particularly common to receive 3–6 hearings for a typical dictation.
5. Ideally, we will have the music mostly notated before our final time hearing the music; if so, we use the final hearing to double-check our answer and/or fill in any remaining gaps.

How is this different from transcription? Here are the most important new challenges:

- Since we have a limited number of times to hear the music, there is greater pressure on our focus and memory. This is especially true if the music is long enough that we have to focus on one section at a time.

- Since we have a limited amount of time between hearings, it can be tempting to leap right to notation without carefully thinking through the beats and scale degrees. This sometimes leads to errors.

### Activity: Internalize the dictation process

Goal: Memorize a structure that will help you keep track of the steps involved in dictation, reducing the load on your working memory.

Instructions: Memorize the process described above. It may be useful to memorize it in short form:

**m**eter, **k**ey, **m**emorize, **a**nalyze, **n**otate (MKMAN).

This may seem silly and unnecessary, but remember, dictation can be overwhelming. The more you feel you understand the process, the less stressed you'll feel and the more efficiently you'll be able to move through the steps.

# DETERMINING METER AND KEY

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The first step of dictation is, fortunately, exactly the same as for transcription: determining the context (meter and key)!

Of course, given the limited time and hearings, we do need to figure these out more quickly. Hopefully, based on our work with transcription, these processes are starting to become more intuitive and automatic. If not, it's really important to focus here before you get too deep into dictation. If these aren't determined correctly, the rest of the stages of dictation will not work.

If you're having trouble figuring out meter and key, it's important to focus your efforts on these skills. If resources allow, you may wish to work intensively with a tutor or instructor. If not, it may be appropriate to spend in-class dictations working primarily on these skills rather than trying to go through the full process of dictation, which is likely to be frustrating without these skills solidified.

The rest of the text here is simply taken from the similar section of the chapter on transcription.

Figure out the meter:



*An interactive H5P element has been excluded from this version of the text. You can view it online here:*  
<https://uen.pressbooks.pub/auralskills/?p=468#h5p-3>

This procedure helps us locate these layers in the music. The answer we come up with will tell us the top number of the time signature we will use for our notation (see table below; we'll wait to worry about the bottom number until we get to notating rhythm). Recall that sometimes what one person identifies as the beat, someone else may identify as the measure or division, and vice-versa. So disagreements about time signatures may not mean one person is right and the other is wrong (though this is possible); they may just indicate that you're focusing on different layers.

### **Guide to Determining the Top Number of the Time Signature**

	<b>2 beats per measure</b>	<b>3 beats per measure</b>	<b>4 beats per measure</b>	<b>5 beats per measure</b>
<b>simple</b>	2	3	4	5
<b>compound</b>	6	9	12	15

To determine the key:



*An interactive H5P element has been excluded from this version of the text. You can view it online here:*

*<https://uen.pressbooks.pub/auralskills/?p=468#h5p-8>*

This procedure helps us find tonic and collection in the music. If we have access to an instrument or absolute pitch, we can then figure out the note name of that tonic; otherwise, if we need to use full notation, we will either receive that information from an instructor or write in an arbitrary key.

One more step for now: we should also determine whether the key is major or minor (or, if this is a possibility given the music you're working with, a mode). You may have an intuitive sense of this; if not, walk up through the scale, focusing on scale degree 3's relationships to the notes immediately above and below.

Activity: Determine meter and key quickly



Goal: Establish the habit of starting with meter and key, and practice doing so quickly.

Instructions: Start a song from the playlist below. Once the first phrase has played, stop the recording and see if you can determine meter and key without playing it again. It may be helpful to have others available to check and discuss your answers with.



*One or more interactive elements has been excluded from this version of the text. You can view them online here:*

*<https://uen.pressbooks.pub/auralskills/?p=468#oembed-1>*

Suggest a song for this playlist!

# SETTING AN INTENTION

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When we're unprepared for something, it often goes by without us even realizing what's happening. As a result, one of the most important new habits to build as we work with dictation is setting an intention before each hearing.

What does it mean to set an intention? Basically, we make a plan and prepare to carry it out. That intention will often be something like, "I'm going to focus on memorizing the second half of the melody," or "I'm going to double-check the rhythm in the second measure."

What are the benefits of setting an intention? Perhaps most obviously, it helps us not get distracted by other elements, making sure we're on track while taking dictation. But in addition, it's a really good habit to have in general. Ensembles are typically most productive if they set an intention for each time through a piece. Jazz musicians typically improvise with more direction if they set an intention for each solo. Music theorists typically come up with better analyses if they set an intention for what they are looking/listening for. These are different kinds of intentions, but all rely on the habit of going into an experience prepared.

We also encourage you to use your attentional focus skills

that we worked on in the relevant chapter of this text. You may wish to review those as we dive into dictation.

That said, attentional focus is a limited capacity, and its exact capacity varies among people. It is also affected, like memory, by stress, tiredness, and anxiety. If you find that you are consistently having trouble focusing on dictations, it is worth discussing what to do with your instructor. You may not be able to build the desired skills if you're not able to focus, so your instructor may decide it's more valuable for you to focus on transcription, work with a tutor or in a different environment, or something else. This doesn't reflect poorly on you as a person; dictation can be beneficial but can also require an unrealistically high level of executive function.

### Activity: Practice setting an intention

Goal: Develop the habit of goal-directed listening.

Before you start: This activity can be done anywhere you listen to music—at home with a playlist, in an ensemble rehearsal, or in an aural skills class. We don't necessarily always want you practicing goal-directed listening (that might be exhausting), but the

more situations in which you practice it, the more you'll be able to integrate it into your musical life.

Instructions: Set an intention before listening. Most dictation-relevant intentions are about what you will try to remember or what you will try to work out, such as "I will focus on and remember the first phrase of the melody" and "I will work out the rhythm of the cadence." Nevertheless, other kinds of intentions are also useful.

# MEMORY: CHUNKING AND EXTRACTIVE LISTENING

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Memory and attention are closely related. We can better focus on objects for which we have already stored models in our memory, and we are better able to hold objects in memory when we have been able to truly focus on them. So the first step in remembering a dictation melody is to apply the focused attention we talked about above and in chapter 1!

Beyond that, there are two ways to increase your ability to remember music, which is particularly necessary when taking dictation: **chunking** and **extractive listening**.

Extractive listening is especially connected to focus and attention. It refers to the ability to focus on, and remember, a portion of the music. We use it whenever the music is too long to remember in its entirety. We use it by setting an intention and focusing our attention. Consider reviewing the materials on extractive listening from the chapter on Memory.

We use **chunking** when we remember notes in groups that work together in some way rather than as individual bits. It can be helpful to practice chunking by describing music in words, for example, “there was a short scale from scale degree 1/*do*

to *5/sol*, then a syncopated rhythm on *5/sol* that lasted for a measure,” etc.

Consider reviewing the materials on extractive listening and chunking from the chapter on Memory, both of which include activities.

### Activity: Apply chunking to the process of dictation

Goal: Use chunking and extractive memory to make your work in dictation and elsewhere more intentional.

Before you start: You will need a source of melody for dictation, and optionally staff paper to write down your dictation. A useful source of melody can be found at [trainedear.net](http://trainedear.net): once you click on a number, you can click on “Recording” to hear the melody. You are encouraged not to listen to the starting pitch or scale and not to look at the first note of the score so that you continue to practice identifying key and meter. Finally, it may help to have other people available, as several steps below advise discussing your intention and chunking to make sure these processes are explicit.

### Instructions:

1. Play the dictation melody once and determine its key and meter; set them up as appropriate on your staff paper.
2. Before the second hearing of the melody, set an intention for what you will remember (extractive listening). If there are other people around, it may help to declare your intention to them to help you commit to it.
3. As you listen to the second hearing, focusing on the passage you committed to, try to consider the notes in groups such as “arpeggio up the tonic chord, scalar passage from scale degree 5/*sol* up to 1/*do*,” etc.
4. After that second hearing, if there are other people around, it may help to turn to them and describe the chunks you heard in whatever level of detail you perceived. Then, optionally, notate what you heard.
5. Repeat steps 2–4 for any additional hearings, setting new intentions as appropriate. Perhaps the most difficult decision you’ll make is whether to repeat the same intention if you didn’t catch everything, or whether to move on to focusing on a new portion of the

melody. Over time, you may get used to which decision is appropriate, or you may wish to rely on an instructor's guidance.



# PROTONOTATION/ SHORTHAND IN DICTATION

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In our chapter on transcription, we introduced protonotation/shorthand as a way to record our understanding/analysis of a melody without worrying about the details of notation. The limited time allotted to dictation may make it impractical to come up with both protonotation/shorthand *and* staff notation. Nevertheless, protonotation/shorthand can be useful in two ways. First, an instructor may ask you to dictate in protonotation/shorthand instead of or before staff notation so that they can assess your understanding of what you hear independently of your knowledge of notation. Second, because you have limited time, it is useful to have a quick way of jotting down some notes about what you hear to support your memory and help you distinguish the stages of analysis and notation. We encourage you to review the sections on these systems from the Transcription chapter.

If your instructor wishes for you to take dictation in protonotation/shorthand, they will define the parameters.

If you wish to use protonotation or shorthand during a

notation-focused dictation process, we think that's a good idea! Here's our advice:

- Writing while you listen can distract from your ability to use your attentional focus and memory. We usually advise students to wait to write anything until they have heard the whole thing. Of course, everyone is different, and you should do what works for you.
- A small body of research suggests that rhythm may be more helpful to write down first, rather than pitch. Again, everyone is different, and you should do what works for you.
- We particularly recommend using protonotation/shorthand when there's potential for confusion: for example, when you're working with some less-familiar notational complexities (say, compound meter, or a 2 on the bottom of the time signature), or when you're having trouble figuring out a particular section.

# NOTATION

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Just as in transcription, the final stage of dictation is to notate each section we've memorized and analyzed. Of course, given the quicker pace of dictation, it can be hard to develop the skills associated with notation here. If you're having difficulty with notation, we strongly encourage practice with the Rhythm Skills and Transcription chapters. Only once those skills are solid in an untimed context will they be reliable in dictation.

## Activity: Dictation

Goal: Practice synthesizing the various skills exercised in dictation.

Before you start: You'll need a source of dictation melodies. Online, you can find open resources at The Trained Ear (click on a number, then use the "recording") and at The Dictation Resource. Both use

piano sounds. You will also need staff paper. You are encouraged to set up your work by deciding on a clef, tonic note, and bottom number of the time signature; other aspects, such as whether the key is major or minor, which scale degree the melody starts on, and the number of beats in a measure, can be detected by ear. If you wish to use the open resources linked here, you may need to have a partner or mentor give you the clef, tonic note, and bottom time signature number because the sites are not necessarily designed to restrict other information.

Instructions: Dictate a melody into notation. A range of 4–5 hearings is standard for most melodies. If you have difficulty, try a less-difficult example or revisit previous sections of this chapter to practice relevant skills.

# ADDITIONAL DICTATION ADVICE

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Because dictation is time-limited and requires a lot of component skills, it's often not the best activity for developing those skills in the first place. If you find yourself having trouble with one of them, it's best to work on it in isolation, making it as intuitive and automatic as possible, then re-integrate it into dictation.

- If you have trouble with focus, work on focus exercises or find another way to build these skills.
- If you have trouble with memory, work on extractive listening and chunking.
- If you have trouble with analysis, you can either practice transcription to slow down the process or work on figuring out melodies that are familiar to you.
- If you have trouble with notating something that you understand, most likely you should review the chapter on rhythmic cells.

Finally, don't forget that knowledge resides in your body! Dictation can feel like a very passive, utterly still task, beyond the scribbling of pencils. But the more you allow yourself to

move to the beat, imagine playing on an instrument, subvocalize, follow the contour of the melody with your hand in the air, and otherwise activate your internalized knowledge structures, the more you will be able to figure out.

# ASSESSMENT OF DICTATION

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This section is addressed to teachers as much as to students.

It has long been traditional to grade dictations by assigning a certain number of points for each pitch and a certain number of points for each beat's rhythm, plus perhaps a few "global" points for setting up the right key and time signature and perhaps for good notation. When applied at the beginning of a learning process, this rewards students who are already skilled and penalizes those who most need to learn. Applied at any time, it communicates that perfection is expected. While high standards can be a good thing, it is important to remember that dictation (as compared to transcription) focuses on skills of memory and attention that are negatively affected by feelings of threat or stress. This can result in students who are not immediately successful experiencing a downward spiral of feelings of failure causing negative self-image and stress, which in turn causes additional feelings of failure. When this happens, those who meet initial difficulties may feel like they are never able to improve.

We encourage both teachers and students to consider their specific goals for doing dictation and to use those goals to motivate their practice and grading procedures. The grade

communicates to students what is important, motivates working on specific skills, and gives the instructor a clear way to connect dictation to specific outcomes. Here are a few examples:

- If you are working on identifying key and meter by ear, then the majority of the student process and the grade could be focused on whether students apply an appropriate time signature, seem to be using rhythmic notation appropriate to that time signature, write an appropriate key signature (or tonic and mode above the staff), and begin and/or end on the right note.
- If you are working on simply understanding/teaching the process of dictation, then students should focus on structuring the process, a completion grade might be appropriate.
- If you are working on a specific musical device—say, arpeggiations of the subdominant chord, or dotted rhythms in simple meter—the majority of students' focus and the grade might be focused on detecting where these occur and notating them correctly.



# CHAPTER 14 - CLOSURE, REPETITION, AND CONTRAST



On the one hand, humans have been shown to like things they are already familiar with. Since we already have experience with them, they're easy and therefore pleasant for our brains to process. (This is sometimes called the “mere exposure effect.”)

On the other hand, we need novelty to keep our interest, since we tune out elements of our environment that are always the same in order to pay attention to new stuff. For example,

you might hear a lot of background noise upon entering a room, only to realize just a few minutes later that you're no longer paying attention to it.

The play of repetition and novelty in music is often referred to with the term “form,” and that's our focus in this chapter.

Students sometimes think their teachers expect them to be aurally analyzing absolutely everything they hear. Don't aim for that! But we'd love for you to be able to turn this mode of listening on and off as you wish. For example, maybe you're trying to plan your approach to arranging a piece of music for an a cappella group, so you want to think about the way sections relate to each other and make some decisions about shortening or combining them—so you turn on your “analysis of form” listening skills. But then maybe you go to a concert of one of your favorite ensembles, and you just want to enjoy the wash of sound. We value both of these ways of listening. (We also think you can enjoy both.)

One last note before we dive in. A lot of how form works in music is very style-specific. For example, the ways an electronic dance music (EDM) track builds up tension over time are often very different from the shape of a classical set of variations on a tune. Our goal in this chapter is to sensitize you to some principles that we believe are relatively style-neutral: closure, repetition, and contrast. As you learn more about styles and genres in your practicing, performance, and listening, you will need to learn the detailed principles and terms associated with whatever you end up working with.

## Learning Objectives

Students will be able to:

1. Identify exact repetition of passages of heard music lasting at least 5 seconds.
2. Identify and describe altered repetition of passages of heard music lasting at least 5 seconds.
3. Identify important moments of contrast in heard music.
4. Identify the ends of heard single phrases as either closed (ending on tonic) or not.
5. Use the above skills to come up with a basic formal diagram of a piece of heard music.

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## Image Attributions

- Figure 14.1 “Assorted Color Kittens” by Pixabay licensed under a CC0 License.
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# REPETITION

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In some ways, repetition is the easiest aspect of form to listen for and is fairly intuitive. This is especially true since right now we're focused on exact repetition. Just listen for something that's the same!

And yet, repetition doesn't always leap out at us when we're listening. One study found that on an initial listen, many of us are great at hearing really short, quick repetition (say, two notes that instantly repeat) but not at hearing larger-scale repetition (say, of an entire section). As we listen to the same music more and more times, we get better and better at hearing larger-scale repetition—and, surprisingly, worse at hearing the short, quick repetition! This suggests that as we get used to a song, we start grouping it into larger chunks.

We'll focus here on the repetition of larger segments, specifically in melodies. As a rule of thumb, we'll consider something important to note if it involves a repeated unit that lasts at least 5 seconds. This makes the task a little more manageable than if we focused on absolutely every little repetition, while still keeping us focused on the bigger picture, which often gets lost as we get buried in details when we're doing other aural skills tasks.

Remember the study mentioned above: on a first hearing,

you're likely to focus most of all on little details. How can we move quickly to hearing the larger-scale? This is basically a challenge of attention. As you listen, try to pay attention to groups of notes—even full themes—rather than individual notes. And don't stress over perfect accuracy right now. Depending on your experiences and ways of processing music, you might not be totally sure (for example) whether something is repeating in the same key or a new key, and that's ok. We're just trying to build habits of listening that we could follow up in more detail if needed, not aiming to produce an exact score based on one hearing.

Your instructor may give you guidance on exactly how to convey what you hear. Here are a few options:

- You might convey your hearing through prose. Depending on whether you have access to timings in the recording, this might be very specific (“I heard a section from 0:58–1:05 that repeated at 1:30–1:38”) or more general (“I heard a section, maybe two phrases, near the middle that repeated at the end”).
- You might instead use a form diagram. Form diagrams often represent phrases with slurs, lines, or brackets, and use color-coding or letter names to indicate repetition (with anything labeled “a,” for example, indicating the same music). Your instructor will indicate whether you need to mark all phrases or just stuff that repeats.
- You might use the Variations Audio Timeliner tool.

Instructions can be found on the app's website.

### Activity: Identify repetition

Goal: Develop a sensitivity to repetition when listening, and strengthen the general habit of paying attention to form

Before you start: You'll need some way to convey what you hear. This might be writing it down, drawing a form diagram, or simply discussing it with someone else.

Instructions: Play a song from the playlist below. Listen to each melodic theme as it occurs, and try to identify when these themes repeat. Optionally, you may wish to write down the exact timings of the themes.



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Suggest a song for this playlist!



# MODIFIED REPETITION

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Perhaps the most obvious way to negotiate the play of repetition and contrast is to incorporate repetition with modifications. These modifications, which might be small or very large, might include changes in:

- rhythmic values
- metric placement
- individual pitches/intervals
- level of transposition
- key
- harmony
- timbre/instrumentation
- complete rewriting of portions of a melody

Such changes are common between phrases, but also between larger repeated/altered sections (verses in popular songs, choruses in popular songs, variations, outer sections of ternary forms, etc.). As a result, with longer pieces, you may need to create more than one “level” of analysis. Most often, two work well to represent a piece: one tracking phrases to show how they are repeated (and altered) within sections, and the other showing how larger sections are repeated (and altered).

As we get into formal listening, especially if you have some knowledge of the terms associated with a style, you might be tempted to label sections with jargon like “exposition,” “binary form,” and “pre-chorus.” In order to be as style-neutral as possible, and to make sure our attention is focused primarily on modified repetition, we urge you instead to use descriptive language. For example, instead of “second verse,” you might instead say, “repetition of the melody and chords of opening section, but words are different and there is an added high-register synth pad.” This is a little unwieldy, but much more detailed.

### Activity: Identify altered repetition

Goal: Develop a more detailed sensitivity to repetition

Before you start: You'll need some way to convey what you hear. This might be writing it down, drawing a form diagram, or simply discussing it with someone else.

Instructions: Play a song from the playlist below. Listen to each melodic theme as it occurs, and try to

identify when these themes repeat. Many of these repetitions will have small or large changes; try to describe what is different each time. You are encouraged to note the exact timings of the themes and to write down any alterations you hear.



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Suggest a song for this playlist!

# CONTRAST

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Music also, of course, includes dramatic contrasts. When these are significant, they really grab our attention! Less significant contrasts may slip by us. And the least significant contrasts—like, for example, “the second phrase is a different melody from the first”—are often not worth noting.

We’re not going to draw a line between important and unimportant contrasts, because they’re all important. But we need to give ourselves a manageable and meaningful task, since we have a limited capacity for attention, so we will focus on the more dramatic contrasts. After all, anywhere we don’t indicate a repetition, we’re presumably indicating that there’s some level of contrast.

There are certain factors that, on their own, can create a clear sense of contrast. For example, changes in key, timbre/instrumentation, and meter often create the sense that something new is happening. Often, though, strong contrasts come from a combination of factors that result in what we might call a new “character.” Often it’s easiest to describe these changes in metaphorical language (say, “it goes from excited and bouncy to subdued and depressed”). We should absolutely use that language because it helps us think about the overall

effect, but we also want to think about the combinations of technical factors that contribute to this change.

As a result, as you articulate your perception of contrast in a given piece of music, do your best to include both explicitly metaphorical and more technical language. For example, you might label one section “excited and bouncy: lots of syncopation in simple meter, high register, fast tempo” and the next “subdued and depressed: slower tempo, drone, melody now in lower register, compound meter.”

### Activity: Identify contrast

Goal: Develop a sensitivity to contrast when listening, and strengthen the general habit of paying attention to form.

Before you start: You'll need some way to convey what you hear. This might be writing it down, drawing a form diagram, or simply discussing it with someone else.

Instructions: Play a song from the playlist below. Note the timing of any significant contrasts, and list

factors in the music that contribute to that sense of change.



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Suggest a song for this playlist!

# CLOSURE/CADENCES

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So far, we've focused on units/sections of music that either repeat or contrast with each other. Our focus in this section is a little different: we'll pay particular attention to the ends of phrases/sections. These endings often contain important clues as to how the various sections are intended to be heard together. In particular, if a segment of music is intended to sound like a single, coherent section, its beginning and middle phrases are likely to have less-conclusive endings, while its last phrase is likely to have a more-conclusive ending.

Many factors contribute to a sense of conclusion, including long notes, silences, and predictable rhythms. Hearing a new beginning afterward is also a clue that something just ended. But because it is particularly important across a range of classical, jazz, and some popular music, we'll focus here on the concept of **cadence**, or a formulaic chord progression that indicates closure in tonal music. (Note: the chord progressions associated with cadences also occur at beginnings and middles of phrases. We'll only call them "cadences" where they are paired with other factors like long notes or low points in the melodic contour to clarify that they are intended to feel like an "ending.")

Locating cadences can sometimes be difficult. In Classical

and contemporary popular music, there are often but not always points of rest at regularly-spaced intervals of time (often described as a default of “every four measures”). But even here, there is sometimes ambiguity, and other styles are less apt to be regular in this way. Locating cadences is a useful skill, but here our focus will be primarily on identifying them.

One other note: music theorists sometimes argue at great length over whether a given chord progression is “truly” a cadence or not. We will not worry too much about this. If something feels like it has some level of conclusiveness, we’ll call it a cadence.

Music theory classes that focus on written score analysis often define a large variety of cadences; standard definitions can be found here and with more specificity here. Since listening is a more in-the-moment, attention-limited activity, we’ll focus on the most important distinction:

- **Closed cadences** end on the tonic chord. These include Perfect Authentic Cadences (PACs), Imperfect Authentic Cadences (IACs), and Plagal Cadences.
- **Open cadences** end on some other chord, particularly the dominant. These include most prominently Half Cadences (HCs) and Deceptive Cadences.

There is a range of how conclusive/inconclusive each of these categories might be. For example, Imperfect Authentic



Cadences are typically heard as less conclusive than Perfect Authentic Cadences, as implied by the names people have chosen for them. If you can hear that level of detail, great, but our primary focus is simply on the more general categories of “closed” and “open.”

There are several ways to attune yourself to this distinction. The first and most powerful is simply using your intuition, which is likely to work pretty well if you are deeply involved in the style of music you’re listening to. If your intuition isn’t reliable, however, you might focus on whether scale degree 1/*do* fits in the final chord of the phrase, perhaps humming it along to hear if it sounds right. If so, it’s most likely a closed cadence. Open cadences are more strongly associated with scale degrees 7/*ti* and 2/*re*. As you gain skills in harmonic hearing (see next chapter), you can use this more detailed mode of hearing to determine whether the chord is truly tonic or not.

Finally, note that when a song modulates to a new key, we change our frame of reference: so a cadence to the new tonic would be considered “closed” (even though it may not feel as final as when we get a closed cadence in the home key).

Activity: Identify cadences as open or closed

Goal: Develop a sensitivity to cadences and how they relate to each other.

Before you start: You'll need a source of sounding music that uses cadences. You could use harmonic dictations from chapters 22 and following of The Dictation Resource; these are written in chorale style (four simultaneous notes, all moving together, without a consistent harmonic rhythm) and use a piano sound. You could alternatively simply listen to the first phrase or two of any song.

Instructions: Listen to the phrase or the first phrase or two of the song and identify cadences as closed (ending on tonic) or open.

# PUTTING IT ALL TOGETHER

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At this point, we'll put together all the skills we've been working on so far to create a form diagram. As before, we encourage you to use descriptive language ("new key, now the melody is in the horns, melodies are now shorter") rather than style-specific terms ("development"). This language is more detailed, focusing you on exactly what you're hearing.

It might be a little overwhelming to listen for all of what we've focused on thus far all at once: exact and modified repetition, contrast, and elements of closure/cadences. So we'll typically engage in several "hearings" of a given piece of music.

Don't stress about perfection, but do see if you can focus on what's most important about a piece of music's form. It may be useful to think about trying to divide any given piece of music into 2–4 most-important sections or an overall description (e.g., "a series of variations on a theme"). This is even true in songs with a seemingly larger number of sections: for example, a popular song may have 3–5 verses, 3 prechoruses, 3 choruses, and a bridge, but they often group together into a smaller number of verse-prechorus-chorus "cycles" (explained here).

## Activity: Create form diagrams by ear

Goal: Develop aural sensitivity to form.

Instructions: Listen to a song from the playlist below and create a form diagram. You may wish to purchase a song and use Variations Audio Timeliner, which makes the relationship between the music and the diagram especially straightforward. As you create the diagram, focus on the following:

- any repetition of something at least 5 seconds long, including any differences from the original
- any contrast that lasts at least 5 seconds
- cadences—if it is unmanageable to note every single cadence in the song, you might focus just on large section-ending cadences



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# CHAPTER 15 - LISTENING FOR CHORDS



Let's say you're at a party. Music is playing. You turn to a friend nearby and say, "Hey, this song goes 'one sus-four, five in first inversion, six in second inversion, four!'" Your friend is very impressed.

That's a cool party trick!

Many aural skills curricula approach listening for chords in a way that might suggest this party trick is their primary goal.

But it's not ours. Some people seem able to do this with relative ease, and others don't, and that doesn't always correlate with their success in other musical pursuits. We aren't going to treat chords as facts to be correctly identified, but rather as useful tools that let us do new things.

Listening for chords is useful for a few reasons. It can help us detect errors in our ensembles and our own playing. It is useful in helping us chunk and understand music we are reading, playing, or listening to. It guides us as we improvise. Fortunately, none of these goals requires perfect perception of every detail of every chord. So while we will introduce some strategies that help people identify chords more accurately, we will ultimately focus on these outcomes: what can we do with our listening? That's helpful for everyone, not just the folks who can do the party trick.

Two more things to note about harmony. First, it's really style-specific. The chord progressions you find in the string quartets by Joseph Haydn are different from those you find in contemporary loop-based popular music. Whatever style you are most familiar with will be the one where you're likely to have the most success in identification. Second, there's not always a single right answer. There may be different ways of interpreting which notes are chord tones vs. non-chord tones, missing notes that we have to fill in based on what we think is most likely, or decisions to make about whether to prioritize accompaniment or melody when they seem to clash. Fortunately, since we're not concerned with "perfect chord



identification” as a goal, we can embrace these situations. Instead, our goal will be: what does this moment allow or encourage me to do? In which case, different answers and ambiguity are both fine.

### Learning Objectives

Students will be able to:

1. Use strategies such as the “Do/Ti Test,” listening for chord quality, and following the bass to more accurately identify chords.
2. Vocally arpeggiate a currently sounding chord.
3. Follow/hum the bass line of a full musical texture.
4. Improvise a melodic line over a chord progression in a way that reflects an awareness of chord tones and non-chord tones.
5. Aurally identify I, IV, V (major key) or i, iv, V (minor key) chords with a high degree of accuracy.
6. Identify strategies for further growth in

aurally identifying chord progressions.

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## Image Attributions

- Figure 15.1 “Group of Young Men Singing Together while Sitting on Concrete Steps” by Zain Ali licensed under a Pexels License.
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# THE DO/TI TEST

Daniel Stevens

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Some methods of hearing chords depend on correctly identifying many elements within the texture, often beginning with the outer voices, quality, and function. One problem with these approaches is that mistakes about minor details (e.g. mishearing a single bass note) can lead to compounding errors. How might we listen for chords in a way that doesn't demand 100% accuracy in perceiving each and every detail?

The Do/Ti Test is an alternative approach to hearing chords, one that helps students develop a more holistic understanding of individual chords and complete phrases before paying attention to more atomistic details such as outer voices. The method is straightforward: as you listen to a piece of music, sing and sustain scale degree 1/*do*, and if the chord requires it, move to scale degree 7/*ti* (or *te*, for certain chords in the minor mode). This simple technique allows many listeners to quickly and accurately categorize harmonies as “*do*-chords” and “*ti*-chords.” (“1-chords” and “7-chords” can sound like we’re talking about chord roots, so while we usually use both solfège syllables and scale degree numbers, we’ll use “do” and “ti” in our text when talking about chords.)

Give it a try! As you listen to the excerpt below, sing either

scale degree 1/*do* or 7/*ti* with each chord. For now, don't worry about whether the sung guide tones are right or wrong. Rather, sing them as if you were on stage as a member of the band, with all the participatory energy you can muster. If the guide tone you are singing doesn't seem to "fit" well with the rest of the band, try changing to the other. Keep listening and singing until you feel that your line matches the music you are hearing.



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Identifying a chord as a *do*-chord or as a *ti*-chord is a great first step on the way to a complete and accurate determination of a chord's identity. But recall that "perfect" identification of chords is not necessarily our goal. A great strength of the Do/Ti Test is that it focuses us on a fundamental distinction. *Ti*-chords, and particularly the so-called "five" and "seven" chords, are often experienced as more "tense" or "unstable," while *do*-chords often seem to have different degrees of relative

“stability” or “resolution.” Being alert to this distinction helps us be more sensitive to this fundamental aspect of chords.

Only one chord, the so-called “two” or “supertonic” triad, is unusual in that it contains neither scale-degree 1/*do* nor scale-degree 7/*ti*. However, this chord is so often combined with scale degree 1/*do* (creating a “two-seven” or ii<sup>7</sup>, often in first inversion) that this scale degree often feels like it “fits” even when it is not actually sounding. It’s your choice whether you hear this relationship and consider the supertonic chord a *do*-chord, or whether you’d like to complicate the system a bit and add scale degree 2/*re* to the system to sing when you hear this chord.

Remember that the Do/Ti Test is a pragmatic tool, a heuristic device for participating creatively in the music while listening. The Do/Ti Test is not an analytical tool, so we shouldn’t be too disturbed that we might sing a guide-tone scale degree 1/*do* in a chord that does not contain it, such as a root position supertonic. The power of the Do/Ti Test is that it can be flexibly applied and developed when hearing real music to identify numerous harmonies and patterns, including chromatic chords that you will learn in later semesters, and sequences. The method can easily be adapted for the minor mode by including scale degree 7/*te* as a guide tone and adjusting the guide tone figurations to suit the chords in the minor mode. Simply put, singing guide tones provides a critical point of reference when hearing chords that can be

combined with other perceptions (such as chord quality and function) to readily and accurately identify chords by ear.

### Activity: Follow Do/Ti lines

Goal: Develop sensitivity to important structural tones and what they mean for harmonic progression.

Instructions:

1. Play a song from the playlist below. As it sounds, find the tonic.
2. Restart the song and play the opening 1–2 phrases while humming, singing, or imagining either scale degree 1/*do* or scale degree 7/*ti* (or, if you wish for supertonic chords, scale degree 2/*re*) as appropriate to the sounding chord. Repeat if necessary to clarify.
3. Optionally, write down your guide-tone line as solfège syllables or on a staff.



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Suggest a song for this playlist!

# CHORD QUALITY

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The term “triad quality” refers to whether a triad is major, minor, diminished, or augmented. When we hear these triad types sounding in isolation, they can feel very different from each other: some people find, for example, that major triads feel brighter, happier, and lighter, while minor triads feel darker, more serious or sad, and heavier. Diminished and augmented triads, since they are less familiar, may be harder to distinguish, though it may help to hear diminished triads as “tense” and augmented triads as “otherworldly.”

This concept extends to other types of chords, such as seventh chords and extended chords. For example, some people hear these associations with seventh chords:

- Dominant seventh: “dominanty,” rich, “bluesy,” “leading”
- Minor seventh: somber, dull
- Major seventh: bright, nostalgic
- Diminished seventh: tense, scary, dramatic
- Half-diminished seventh/minor 7 flat 5: mysterious

These associations can be helpful when we’re listening to chords and trying to figure out what’s going on. They can



be particularly useful when trying to distinguish two similar chords such as vi and IV in a major key.

Nevertheless, we need to add a caution: chords in isolation are very different from chords in context. We use the terms “major” and “minor” with intervals, triads, and keys. A minor triad, for example, has a major third in it somewhere (between the third and the fifth of the chord), and can be used in a major key. These “major” aspects of the chord and context may sometimes outweigh the “minor” effect of the chord itself in our perception.

In the end, we see no reason to avoid using listening for chord quality as a strategy when listening for details of chords. But keep in mind the effects of context, and practice with these in mind.

### Activity: Identify chord qualities in isolation

Goal: Develop sensitivity to chord quality.

Before you start: You'll need a source of isolated chords. You can find quite a few websites that will do this for you by searching “chord identification,” or you can have someone else play your chords. You

will likely want to start with root-position triads; once these are comfortable, the next step is usually adding inverted triads and/or seventh chords. Identifying inverted seventh chords is not likely to be very useful at this point, with the possible exception of the dominant seventh.

Instructions:

1. Listen to the first chord, and describe it with whatever adjectives seem appropriate to you.
2. Identify the chord's quality with your best guess.
3. Either reveal or ask your friend to identify the quality of the chord. If you were incorrect, listen to the chord again, paying attention to how that sound, your adjectives, and the correct quality go together.

Activity: Identify chord qualities in context

Goal: Develop sensitivity to chord quality in musical context.

Before you start: You'll need a source of chord progressions. You could use the harmonic dictations in chapter 22 and later in The Dictation Resource, or a recording.

Instructions: Listen to the chord progression. Stop it after a random chord and try to identify the quality of that chord.

# FOLLOWING THE BASS

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Bass lines are strongly associated with chord progressions. In popular music and mainstream jazz, root-position chords (at least on downbeats) are by far the most common, so figuring out the bass scale degrees translates fairly directly into the identification of chords. Even within classical music, the relationships between bass and chords are fairly constrained, with root-position chords remaining common—along with a fair number of first-inversion chords, particularly over certain scale degrees, and a small number of very constrained second-inversion chords and third-inversion seventh chords.

We encourage you to revisit two earlier sections of this textbook to review listening to bass lines:

- In the chapter on Attention, we worked on “tuning in” to bass lines.
- In the chapter on Transcription, we worked on internalizing common bass lines so that we could recognize them when they occur.

Once you have a bass line figured out, it’s worth knowing what chord is most likely to accompany each bass scale degree. These are not rules, but rather “most-likely” defaults. They

give us something to listen for. Because popular music and mainstream jazz often feature root-position triads and seventh chords, the table below focuses on norms for classical music.

Bass Scale Degree	Likely Chords in a Major Key	Likely Chords in a Minor Key
1/ <i>do</i>	I	i
2/ <i>re</i>	ii <sup>or</sup> vii <sup>6</sup> or V <sup>4</sup> <sub>3</sub>	vii <sup>6</sup> or V <sup>4</sup> <sub>3</sub>
3/ <i>mi</i> or <i>me</i>	I <sup>6</sup>	i <sup>6</sup> or III
4/ <i>fa</i>	IV <sup>or</sup> ii <sup>6</sup> or V <sup>4</sup> <sub>2</sub>	iv <sup>or</sup> ii <sup>6</sup> or V <sup>4</sup> <sub>2</sub>

<i>5/sol</i>	$\begin{array}{c} \text{V} \\ \text{or} \\ \text{cad. } \frac{6}{4} - \text{V} \end{array}$	$\begin{array}{c} \text{V} \\ \text{or} \\ \text{cad. } \frac{6}{4} - \text{V} \end{array}$
<i>6/la or le</i>	$\begin{array}{c} \text{vi} \\ \text{or} \\ \text{IV}^6 \end{array}$	$\begin{array}{c} \text{VI} \\ \text{or} \\ \text{iv}^6 \end{array}$
<i>7/ti</i>	$\begin{array}{c} \text{V}^6 \\ \text{or} \\ \text{vii}^\circ 7 \end{array}$	$\begin{array}{c} \text{V}^6 \\ \text{or} \\ \text{vii}^\circ 7 \end{array}$

# IDENTIFYING COMMON CHORDS THROUGH EXPOSURE

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We are best at identifying familiar objects. As a result, you will likely find it easiest to identify certain most common chords in certain most common contexts. In this section, we'll do activities to get used to listening for what are sometimes called the "primary triads" of a key (the "one," "four," and "five" chords).

As you listen, make sure you're paying attention to how you perceive each chord in relation to the chords around it. After all, the primary triads of a major key are all major triads: there's nothing about them in and of themselves that distinguishes them. Their only differences lie in how they relate to each other.

The relationship that is most likely to be helpful here is the relationship between the "one" chord and the major "five" chord (which is often used in minor keys even though it requires an accidental there). In the vast majority of classical music and jazz, and a significant amount of broadly-defined popular music, the "five" chord most often leads to a "one" chord, especially at cadences/points of rest. If you've heard



this progression enough, you will feel a sense of tension when you hear a “five” chord, as your brain waits for the expected “resolution.” When the “one” chord arrives, you’ll feel more relaxed as your expectation was satisfied.

### Activity: Identifying primary chords.

Goal: Develop a sensitivity to certain particularly common chords.

Instructions: Listen to the songs below and identify the chords as tonic (“one”), subdominant (“four”), or dominant (“five”). If you are having trouble, it may be helpful to start with a Do/Ti Test guide-tone line.



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Suggest a song for this playlist!

# ARPEGGIATING CHORDS

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Once we have some basic information about a chord, such as whether it has scale degree 1/*do* or scale degree 7/*ti* in it, its bass note, and/or its quality, it can be helpful to arpeggiate the notes of the chord to figure out other details about it. Doing so can help us confirm via trial-and-error whether or not certain notes are indeed in the chord. It also helps us practice directing our attention around different parts of the texture. This arpeggiation can be sung or played on an instrument, though most people with a decent amount of voice control will probably find it easiest to do with their voice.

There is something a little unmusical about arpeggiating a chord to figure out its details. After all, chord progressions often exist in a state of continuous motion. Taking a moment to arpeggiate takes a chord out of its context and may require you to pause the actual music for a moment as you do so. Nevertheless, as you practice and get faster, you may be able to do these arpeggiations at a high enough speed to allow the music to continue; and even if not, using pieces of this skill occasionally (say, just arpeggiating certain chords or notes) can still be useful.

There are two obvious places to start this arpeggiation, depending on your other skills. If you can locate the bass note,

this is probably the most logical place to begin the arpeggiation. You're most likely to find a third above the bass, and then either a third or a fourth above that. On the other hand, if you find it more intuitive to locate scale degree 1/*do* or scale degree 7/*ti* with the Do/Ti Test, you may wish to start from there.

If starting from the bass, you should try arpeggiating the chord as if it is in “closed position”—that is, as if all the other chord tones were as close to the bass as possible. For example, if you hear an E3 in the bass, C4 in the tenor, G4 in the alto, and C5 in the soprano, you would arpeggiate up E-G-C.

If you find it more practical and intuitive to arpeggiate from scale degrees 1/*do* and 7/*ti*, you can find advice in the next section, on extensions to the Do/Ti Test.

### Activity: Arpeggiate chords

Goal: Develop the ability to arpeggiate a heard chord.

Before you start: You'll need a source of songs with chord progressions that are slow enough for you to sing arpeggios before they change. A series of

exercises designed to facilitate such chord arpeggiation can be found at Cynthia Gonzales's [listen-sing.com](http://listen-sing.com), or you can use other music recordings.

Instructions: Listen to the music and choose a phrase, likely the opening phrase of the music. Start by finding the bass line as a reference point; make sure you can securely sing along to this line. Then restart the phrase and arpeggiate the chords up from the bass, in closed position, as best you can. If necessary, you can stop the recording at a difficult-to-figure chord, trying to retain it in memory, and arpeggiate through it by trial-and-error.

# DO/TI TEST EXTENSIONS

Daniel Stevens

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The Do/Ti Test is a listening strategy that promotes linear, horizontal listening as a way to clarify and organize perceptions of vertical chords. One advantage to listening horizontally is that you can learn to hear through difficult passages without losing your sense of tonic. It isn't necessary to hear every chord with 100% accuracy to maintain your tonal orientation (i.e. keeping scale degree 1/*do*) and to identify the most important harmonies (e.g. tonic, cadential chords).

While 100% accuracy isn't necessary, when it's helpful, the *Do/Ti* Test can be extended to improve our accuracy.

There are two ways to build on singing guide tones that can help you identify the chords: singing “guide-tone figurations” or singing “secondary guide tones.” The first way is useful when the harmonic rhythm is slow, but it can also be used to check your work in faster pieces.

Singing guide tone figurations involves singing a pattern of intervals around your primary guide (scale degree 1/*do* or 7/*ti*) to create chords that you know. If the chord that you know and sing matches the chord that you hear, then you've

effectively identified the harmony. For this method to work, take some time to practice the following figurations, being sure to begin and end each figuration on a primary guide tone:

Chords in a major key:

Chord	Primary Guide Tone	Guide-Tone Figuration (solfège)	Guide-Tone Figuration (scale degrees)
I	scale degree 1/ <i>do</i>	<i>do-mi-sol-mi-do</i>	1-3-5-3-1
ii	scale degree 1/ <i>do</i> or 2/ <i>re</i>	<i>do-re-do-la-fa-la-do</i> or <i>re-fa-la-fa-re</i>	1-2-1-6-4-6-1 or 2-4-6-4-2
iii	scale degree 7/ <i>ti</i>	<i>ti-sol-mi-sol-ti</i>	7-5-3-5-7
IV	scale degree 1/ <i>do</i>	<i>do-la-fa-la-do</i>	1-6-4-6-1
V	scale degree 7/ <i>ti</i>	<i>ti-re-ti-sol-ti</i>	7-2-7-5-7
vi	scale degree 1/ <i>do</i>	<i>do-mi-do-la-do</i>	1-3-1-6-1
vii <sup>o</sup>	scale degree 7/ <i>ti</i>	<i>ti-re-fa-re-ti</i>	7-2-4-2-7

Chords in a minor key:



Chord	Primary Guide Tone	Guide-Tone Figuration (solfège)	Guide-Tone Figuration (scale degrees)
<b>i</b>	scale degree 1/ <i>do</i>	<i>do-me-sol-me-do</i>	1-3-5-3-1
<b>ii</b> <sup>o</sup>	scale degree 1/ <i>do</i> or 2/ <i>re</i>	<i>do-re-do-le-fa-le-do</i> or <i>re-fa-le-fa-re</i>	1-2-1-6-4-6-1 or 2-4-6-4-2
<b>III</b>	scale degree 7/ <i>te</i>	<i>te-sol-me-sol-te</i>	7-5-3-5-7
<b>iv</b>	scale degree 1/ <i>do</i>	<i>do-le-fa-le-do</i>	1-6-4-6-1
<b>V</b>	scale degree 7/ <i>ti</i>	<i>ti-re-ti-sol-ti</i>	7-2-7-5-7
<b>VI</b>	scale degree 1/ <i>do</i>	<i>do-me-do-le-do</i>	1-3-1-6-1
<b>VII</b>	scale degree 7/ <i>te</i>	<i>te-re-fa-re-te</i>	7-2-4-2-7
<b>vii</b> <sup>o</sup>	scale degree 7/ <i>ti</i>	<i>ti-re-fa-re-ti</i>	7-2-4-2-7

When the harmonic rhythm gets past a certain speed, it is no longer practical to sing the patterns above while listening.

At both fast and slow tempos, many listeners prefer to sing “secondary guide tones” while listening, effectively creating a *mi*-line (around scale degrees 3/*mi* or *me*, 4/*fa*, or 2/*re*) and *sol*-line (around scale degrees 5/*sol*, 6/*la*, and 4/*fā*). A listener who can accurately notate a *mi*-line and *sol*-line above their notated Do/Ti Line has all the information they need to identify the harmonies.

However, it is important to note that identifying harmonies by ear isn’t a skill that can be developed by focusing only on atomistic details and later deducing the harmony. Rather, we encourage you to develop a synthesizing mode of perception, in which your ears are constantly integrating every possible perception (primary guide tones, secondary guide tones, guide tone figurations, quality, and function) to identify the harmony holistically, much like we might recognize the face of a good friend at a single glance. Paying attention to multiple streams of evidence while listening can help you auto-correct when a single perception is incorrect.

Activity: Arpeggiate chords

Goal: Develop the ability to arpeggiate a heard chord.

Before you start: You'll need a source of songs with chord progressions that are slow enough for you to sing arpeggios before they change. A series of exercises designed to facilitate such chord arpeggiation can be found at Cynthia Gonzales's [listen-sing.com](http://listen-sing.com), or you can use other music recordings.

Instructions: Listen to the music and choose a phrase, likely the opening phrase of the music. Start by figuring out an appropriate Do/Ti Test guide-tone line to use as a reference point; make sure you can securely sing along to this line. Then restart the phrase and arpeggiate the chords from your reference point as best you can. If necessary, you can stop the recording at a difficult-to-figure chord, trying to retain it in memory, and arpeggiate through it by trial-and-error.

Activity: Find secondary guide-tone lines

Goal: Use a series of guide-tone lines to develop a more holistic understanding of a chord progression.

Instructions:

1. Listen to a song from the playlist below and choose a phrase to figure out.
2. Listen to that phrase again and work out the appropriate “do/ti” guide-tone line.
3. Choose another location in the scale to begin another, secondary guide-tone line, and work out the appropriate secondary guide-tone line.
4. If appropriate, work out a third guide-tone line.
5. Optionally, identify the chords active in the passage. If you do this, listen back through, listening for how each chord “feels” within the progression, attempting to synthesize your various perceptions of the chord progression.



*One or more interactive elements has been excluded from this version of the text. You can view them online here:*

*[https://uen.pressbooks.pub/  
auralskills/?p=937#oembed-1](https://uen.pressbooks.pub/auralskills/?p=937#oembed-1)*

Suggest a song for this playlist!

# USING A CHORD INSTRUMENT

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People sometimes worry that it's "cheating" to use an instrument in an aural skills class. We prefer to think of it differently: instead of asking whether or not it's cheating, we ask, is it useful in building skills?

As we're listening for chords, an instrument absolutely can be a useful tool. Compared to just listening and guessing at chords, playing an instrument can be like having a dialogue with what you hear: you hear something, then play something back and see how the two relate. In addition, playing an instrument can build and activate your physical, instrument-based kinesthetic imagery. We encourage you to use an instrument on which you are comfortable playing chords. Ideally, use an instrument that can play chords all at once (piano, guitar, harp, marimba, autoharp) rather than having to arpeggiate.

In this section, we'll listen to a chord progression and try to replicate it on an instrument. We encourage you to listen first, then play, then repeat as necessary to figure things out. But if necessary, you may wish to play as you listen.

The only approach that we will discourage, here, is random guessing of chords. For the most part, this shouldn't be a very

rewarding strategy anyway, but in addition, it will short-circuit the kinds of thinking we're trying to build. Instead, after listening, come up with a hypothesis and then try it out; then compare what you played with what you heard.

### Activity: Playback chords

Goal: Connect instrument-based kinesthetic imagery to chords.

Before you start: You'll need a chord-capable instrument, or to work with a group of people who have access to at least one such instrument.

Alternatively, you can do this on your own with a melodic instrument and arpeggiate the chords, but this tends to be much more difficult to compare to the chords you hear.

Instructions: Listen to the a song from the playlist below and determine its key. Choose a phrase, listen to it, and then play back the chord progression on your instrument. Try to alternate listening to a phrase and then playing it back; however, if you have difficulty, you may wish to play along as you listen.



*One or more interactive elements has been excluded from this version of the text. You can view them online here:*

*<https://uen.pressbooks.pub/auralskills/?p=540#oembed-1>*

Suggest a song for this playlist!



# IMPROVISATION OVER A CHORD PROGRESSION

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We've already worked on improvising a melody over a chord progression in the chapter on Improvisation. You may wish to revisit that section now.

We return to this activity for two reasons. First, as our ability to perceive details about a chord progression increases, our improvisations should become more intuitive and fluid. Second, we can use our improvisation to explore how different notes sound against the chords. For example, chord tones may feel one way; harsh dissonances may feel another way; and notes that may not be in the chord but add something interesting to it (often a seventh) feel yet again another way.

In the following activities, improvise at a speed that allows you to feel the connection between what you are doing and the chords. Try out different approaches, using chord tones, dissonances, and more. See if you can pay attention not just to what fits the chord and what doesn't, but also to the way each note feels in the context of its chord.

## Activity: Improvise over a repeating progression

Goal: Develop a “feel” for how melodies and harmonies relate.

Before you start: You’ll need some way to make music. You can use your voice or another instrument.

Instructions: Start one of the songs from the playlist below. Each one has a repeating chord progression. Listen to it once or twice to get used to it, then start making music over it. Experiment with long, flowing melodies and short fragments; experiment also with chord tones and non-chord tones. As you play, think about what notes you’re playing and how they fit the chords—or not. Optionally, identify the chord progression with Roman numerals.



*One or more interactive elements has*

*been excluded from this version of the  
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Suggest a song for this playlist!

# IMPROVISING A CHORDAL ACCOMPANIMENT TO A MELODY

Daniel Stevens

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Creating a simple chordal accompaniment to a melody is a beneficial skill for many musicians, including both instrumentalists and vocalists. Not only is this skill useful when teaching others, but the activity of learning to improvise a chord progression will help you better appreciate how other composers harmonize melodies.

Improvising a chordal accompaniment involves the development and integration of several musical skills at once. To list every such skill would be a daunting task and perhaps intimidating for some students, but rest assured that by this point in your studies, you have worked on the reading, audiation, listening, and thinking skills needed to embark on this rewarding activity. Accordingly, we present two activities below, the first of which invites you to rely primarily on your musical intuitions as you develop a chordal accompaniment. The second, longer activity risks being overly prescriptive to

spell out a more detailed process. We encourage you to work through one or both of the activities depending on your own needs and preferences as a learner. And most importantly, as you work through either process, self-reflect on what works best for you. The insights and strategies you develop through discovery will far outlast the suggestions we make below.

To get started, pick a children's song or another diatonic melody that you know by ear. We'll focus on "Twinkle, Twinkle Little Star" in the activities below, but we encourage you to apply any helpful strategies that you read or discover to other melodies that you know. At the bottom of this chapter, we've provided some additional melodies that you can use to develop this skill. Before beginning either activity, learn the given melody as well as you can, either by singing the melody using solfège or scale-degree numbers.

Activity: Improvise a chordal accompaniment to a melody that you know by heart.

Goal: Use your ear and musical intuitions to develop a chordal accompaniment.

Before you start: You'll need a piano, guitar, or another chord instrument.

Instructions:

1. Choose a simple figuration (e.g. boom-chuck, block chords, arpeggiation) that you will use to activate the chords.
2. Most simple songs invite starting on the tonic harmony. Try that option first, but depending on the style, you may wish to try other starting chords as well.
3. Begin singing the melody while playing your opening chord. As the melody progresses, listen for notes that seem to call for a chord change, making changes that seem appropriate. We recommend singing in solfège since the scale degree of the note that invites a chord change also provides a clue as to what change to make.
4. Continue the process of singing, listening, and responding to the melody, and use your theory knowledge to help consider different chordal options when changes are required.

How might you apply the steps in the activity above to create a chordal accompaniment to “Twinkle, Twinkle?” To start,

you might begin by exploring a range of accompanimental figurations. As you sing the melody in solfège or scale degree numbers, you'll probably notice that it begins with *1/do*, *1/do*, *5/so*, *5/so*, which invites a tonic opening. This harmony *interprets* the melody by encouraging listeners to hear the first two pitches (*1/do* and *5/so*) as a chordal skip within the tonic triad. You might decide to interpret the first two melody tones differently and try other harmonic settings, but to be sure, a tonic start is the most common and stable solution.

Let's assume that you begin on a tonic harmony. As a general rule, it is advisable (and practically expedient) to stay on the same harmony until the melody requires a change. In "Twinkle, Twinkle," the *6/la* that arrives on the downbeat of measure 2 clashes with the tonic harmony and calls for a chord change. Because the note is *6/la*, it invites the subdominant harmony (IV, or the four-chord). Other harmonies that contain *6/la* include the supertonic and submediant. Feel free to try all three, and consider which options you like the most and why. That said, since this is a practical skill that you may be learning for the first time, you might also find it helpful to stick as closely as you can to three common harmonies: the tonic (I, or the one-chord), the subdominant (IV, or the four-chord), and the dominant (V, or the five-chord).

As the melody continues, listen to the changes of melodic tones that continue on strong beats in the measure (beats 1 and 3). If the notes that arrive on these strong beats clash with

the previous chord, a chord change may be needed. Follow your ear as you develop your chordal accompaniment. See how many different harmonizations of the same melody you can create. You can try adding things like first-inversion harmonies or chromatic notes in the bass to find new harmonies.

If you are struggling to produce satisfying results as you work on the exercise above, try the suggestions or alternative approaches given below the second exercise. Like any skill that involves the integration of sub-skills, improvising a chordal accompaniment may take time and intensive practice before you reach proficiency. The slower, more intentional, and more consistent your practice, the faster this skill will develop. Be patient!

Activity: Improvise a chordal accompaniment to a notated melody.

Goal: Apply principles from written theory to develop a chordal accompaniment.

Before you start: You'll need a piano, guitar, or another chord instrument, as well as a notated



melody appropriate for harmonization. A sight-reading anthology is a useful source.

Instructions:

1. If you are not familiar with the notated melody, begin by singing the entire melody several times. Consider its overall shape and phrase structure, and listen for which notes seem to be structural or embellishing. Generally, structural notes require a chord change, while embellishing tones (e.g. passing notes, neighbor notes, chordal skips) do not.
2. Begin at the end. Does the melody invite cadential closure? If so, which type, and where will the cadential dominant and tonic chords go? Before the cadential dominant, is there a place in which a predominant chord could be used? (If the melody does not seem to require a cadence, consider other ways that it might invite closure.) If the melody consists of multiple phrases, are there other cadence points to consider?
3. Study the opening of the melody to determine how you will begin your harmonization. By default, many (but not all!) melodies invite starting on the tonic chord.

4. Once the beginning and ending chords of each phrase are set, there usually aren't many chords needed to fill in the middle.

Generally, try to use as few harmonies as possible, changing only when the melody (or your ear) requires it. This principle has strategic value: an accompaniment with fewer chord changes is easier to play and will lead to a better overall performance. Think of this principle like a musical Newton's law: chords at rest tend to stay at rest unless acted upon. Melodic tones on strong beats that don't fit the prior harmony often cause the harmony to sound like it needs to change.

5. If possible, emphasize tonic chords or chords that lead back to the tonic (for example, IV, or the four-chord, or V, or the five-chord).
6. As you develop your chordal accompaniment, be mindful of harmonic rhythm (the rhythm of the harmonic changes, not the rhythm of the figuration). Generally, it is practically expedient to use a consistent harmonic rhythm that uses longer durational values (for example, whole notes and half notes). Doing so enables you to use the same

accompanimental figuration without needing to make constant adjustments. If you make a chord change that uses a short duration or that falls on an off-beat, listen carefully to see if it fits well within your overall accompaniment.

7. As you harmonize the melody, consider the contrapuntal relationship between the bass and melody. In some styles, you may wish to avoid consecutive fifths and octaves and other problematic voice-leading relationships, but in other styles, more freedom may be exercised.

Applying the process above to “Twinkle, Twinkle,” you might have made observations similar to the ones below at each step. The score to this simple tune is given below; it may be helpful to imagine that you do not know this melody already.



1. “Twinkle, Twinkle” has a simple three-phrase form (ABA). Aside from the opening leap from 1/*do* to 5/*so*, all other note changes occur on strong beats and invite a change of harmony. In other words, almost every note of “Twinkle, Twinkle” will be treated as a structural tone requiring its own harmony.
2. The A phrases of “Twinkle, Twinkle” end with 2/*re* to 1/*do* in the melody, thus inviting authentic cadences, while the B phrase invites a prolonged emphasis on the dominant harmony (with 5/*so* in the bass throughout). At the end of the A phrase, the repetition of 2/*re* also admits using a predominant (ii<sup>6</sup>, or two-chord in first inversion) on the first 2/*re* followed by the cadential dominant (V, or five-chord) on the second 2/*re*.
3. In the case of “Twinkle, Twinkle,” the first four notes of the melody (1/*do*, 1/*do*, 5/*so*, 5/*so*) call for starting on the tonic chord.
4. In “Twinkle, Twinkle,” the first two melodic tones (scale degrees 1/*do* and 5/*sol*) both fit the opening tonic; neither note forces the chord to change, so a single tonic chord is an excellent choice. On m. 2 (the word “Little”), the move in the melody to *la* on a strong beat suggests a harmonic change, and the move back to *sol* on beat 3 invites yet another change.
5. To emphasize the tonic, the 6/*la* in m. 2 and 4/*fa* in m. 3 could be harmonized by a IV (four-chord) and V<sup>7</sup> (five-seven-chord) respectively since these chords lead back to

the tonic chord.

6. In “Twinkle, Twinkle,” the melody invites chord changes only on strong beats (1 and 3), resulting in a harmonic rhythm of whole-note and half-note durations.
7. If you are creating a harmonization of “Twinkle, Twinkle” that reflects conventional tonal practice, you might find, for example, that the interior scale degrees 4-4-3-3/*fa-fa-mi-mi* in the A phrase would fit the harmonies IV–I6. However, these chords would create outer-voice parallel octaves between the bass and melody, and in this style, should be avoided. Similarly, if the melody has a tendency tone (e.g., chordal seventh, leading tone), avoid placing that note in the bass of the chord progression.

Here are some tips and strategies to employ if you are struggling to create a chordal accompaniment:

1. The go-to solution for most students and problems is to play incredibly slowly. Set the metronome at 15-25% (or less) of the tempo

marking at which you are currently struggling. Remember: mistakes in music are usually a symptom that your ear, mind, and body didn't have the time they needed to hear, know, and move *in advance* of the next required sound. The purpose of going slowly is to give your ear, mind, and body the time they need to coordinate each sound. If you practice too fast, those three components are never given the opportunity to learn how to coordinate, and so no growth or improvement can possibly occur. By going incredibly slowly, you are being a good teacher to yourself by giving your "students" the time they need to learn how to work together. Students who practice slowly for one week are often surprised at how quickly real improvement follows.

2. Focus on audiating both the melody and the harmony *before* you play them. Anytime you find yourself singing and playing notes that you haven't anticipated internally by ear, your playing process will tilt toward rote learning rather than authentic, creative musicianship. Musical creativity, poise, and control are developed in the ear before you play.

3. If you find yourself repeating the same figurations and wish to expand your creative horizons, try opening a volume of *lieder* (German art songs) by Clara Schumann or Franz Schubert and trying one of the accompanimental patterns that they developed.
4. Watch out for non-chord tones that fall on strong beats. For example, the “Happy Birthday” song places an upper neighbor on the downbeat of the song. Look at the entire melodic context when choosing harmonies, not just one note (even if that note is on a strong beat). Relatedly, if a non-chord tone falls on a strong beat, you may find it helpful to use an accompanimental figuration that employs only the bass note on these beats, and wait for the upper voices to enter after that melody tone has resolved. Always aim for a simple, playable accompaniment, even when the melody does something unusual.
5. Trust your ears; they will point you in the right direction and help you avoid awkward harmonizations. Just like good writers read their texts aloud to find poor wording, listen

carefully to the chord progressions you create and let your ear guide the process from start to finish. Remember: every creative act of music-making—whether in composing, improvising, or performing—is an opportunity to develop your ears!

Creating a chordal accompaniment involves quite a lot of careful thinking, listening, and creative exploration. Luckily, the entire process can be aided by donning a pair of “magic chord goggles.” Wearing these imaginary goggles, you can “see” the harmonies around the chords in the melody, and in many cases, you may only need to add one note to fill in the remainder of the chord. Better still, you can often follow the voice leading indicated within the melody. In other words, when you wear your magic chord goggles, you no longer have to “make up” the chords! They are visible right there in the music. For example, consider the melody below, given in its original form and as seen through the magic chord goggles.

Mozart, Symphony No. 39, K. 543, third movement:





You can use the melodies below to try the magic chord goggles for yourself and to practice implementing the instructions for the activities above. After you have created your own chordal accompaniment, you can listen to the original by accessing the playlist below.

[in progress]

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## Image Attributions

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  - Figure 15.46 “Mozart Symphony 39 mvt III K543\_graphic” by Daniel Stevens licensed under a CC BY-SA License.
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# STRATEGIES FOR FURTHER GROWTH

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Chances are, if you started out unable to identify chords by ear with a high degree of accuracy, you're still not 100%. That's fine! Remember, the most useful applications of this skill don't require perfect perception of all tones (if that is even possible). But there are ways to continue to improve this skill, if you wish.

Here are the ways you'll improve:

1. Play lots of music on a chord-capable instrument, thinking about the scale-degree functions of what you're playing. The great thing about playing chords is that you're building both an abstract understanding of chord progressions and models of physical motion and hopefully making stronger connections between the two.
2. Pay attention to the patterns associated with the music you're working with. Baroque arias, Classical sonatas, 1990s commercial pop, and 1940s jazz each have their own common "stock" patterns that will show up over and over. As you learn these, you will learn to identify them in context, and you'll be able to compare them to

similar-but-not-quite-the-same passages when they occur.



# AURAL SKILLS PEDAGOGY RESEARCH

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While this textbook is inevitably shaped in part by its authors' ideologies and experiences, it is also grounded in research in aural skills pedagogy. We will list here some of the research that has influenced how we approached this text, both as a way to thank the scholars who have been important to us and to invite curious musicians and pedagogues to further reading.

## General Influences

Gary Karpinski's book *Aural Skills Acquisition* (2000) is foundational to current aural skills pedagogy. This text is particularly helpful in understanding how complex skills like dictation and sight reading rely on component skills such as perception of key and meter. We have also been influenced by Karpinski's emphasis on the importance of context.

Timothy Chenette's article "What are the Truly Aural Skills?" (2021) helped us think through the various fundamentals required for students to acquire aural skills, and along with the article "Taking Aural Skills Beyond Sight Singing and Dictation" (2019) helped us think about how

these skills relate to multiple fields of music study outside of music theory.

We have also been more obliquely influenced by the challenges to current instructional models in Philip A. Ewell's article "Music Theory and the White Racial Frame" (2020) and Cora Palfy and Eric Gilson's article "The Hidden Curriculum in the Music Theory Classroom" (2018). Jade Conlee's presentation "Audiation, Musical Aptitude, and Racial Epistemology" (2021) and Elizabeth Monzingo's presentation "Hidden Aural Skills: Implicit Learning through Experience" (2019) similarly helped us think about who aural skills classes are currently built for, and how we might think about new paths forward.

## Chapter 1 (Attention)

Our understanding of attentional control and how it is affected by instruction is still very much incomplete. However, we have learned a lot from Michael I. Posner et al.'s chapter "Probing the Mechanisms of Attention" (2007) and other readings from outside of music, which Timothy Chenette speculatively applied to aural skills instruction in the chapter "Attentional Control: A Perceptual Fundamental" (2021).

## Chapter 2 (Meter)

Our treatment of meter as a culturally-specific manifestation of the general human ability to predict periodic events is influenced in part by Justin London's book *Hearing in Time: Psychological Aspects of Musical Meter* (2012).

## Chapter 3 (Tonic/Collection and Solfège)

Gary Karpinski's book *Aural Skills Acquisition* (2000) was particularly influential in how we approached finding and "setting up" tonic. Karpinski's tonic-location methods are extended in Timothy Chenette's chapter "Finding Your Way Home: Methods of Tonic Perception" (2020).

## Chapter 4 (Music's Materiality)

Timbre, envelope, dynamics, texture, and register are unfortunately underdeveloped in the aural skills classroom. We are aware of the pioneering work of Will Mason, Paul Thomas, and others on bringing skills involved in music

production and recording into aural skills instruction and look forward to learning more.

## Chapter 5 (Musical Memory)

Our understanding of memory and music was shaped first by Gary Karpinski's book *Aural Skills Acquisition* (2000). The insights we gained there have been refined by reading about working memory in sources such as Nelson Cowan et al.'s article "On the Capacity of Attention: Its Estimation and Its Role in Working Memory and Cognitive Aptitudes" (2005) and Klaus Oberauer's article "Access to Information in Working Memory: Exploring the Focus of Attention" (2002), and then by speculatively applying these insights to music in Timothy Chenette's article "Reframing Aural Skills Instruction Based on Research in Working Memory" (2018).

## Chapter 6 (Internal Hearing and Intonation)

Early foundational advice on internal hearing was published by Edward Klonoski ("Teaching Pitch Internalization Processes," 1998) and Kate Covington ("The Mind's Ear: I Hear Music and No One is Performing," 2005). We have also been inspired by Sarah Gates's article "Developing Musical Imagery:



Contributions from Pedagogy and Cognitive Science” (2021), particularly in understanding the rich internal representations that support musical imagery and the insight that this ability may not develop in all musicians if we do not teach it explicitly.

## Chapter 7 (Rhythm Skills)

Our treatment of rhythm skills draws on many other pedagogical sources: focusing on rhythmic cells and subdivision is common to many approaches.

## Chapter 8 (Improvisation)

Ideas about improvisation in the aural skills classroom can be found in Jeffrey Lovell’s article “We Know It’s Important, But How Do We Do It? Engaging Beginning Aural Skills Students Through Meaningful Improvisation Activities” (2019) and Jena Root’s chapter “Teaching Improvisation: Starting Points” (2021).

George E. Lewis’s article “Improvised Music After 1950: Afrological and Eurological Perspectives” (1996) also helped us think about what is valued in improvisation.

## Chapter 9 (Playback)

Our embrace of this non-notation-based practice was influenced in part by Alexandra Jonker’s presentation “Notation-Free Dictation: A Case Study in ‘Blind Hearing’” (2022).

It was also inspired in part by unpublished results referencing instrument-based imagery from a survey about how people perceive chords, conducted by Timothy Chenette, Alexandra Phillips, and Emily Wood in 2019.

## Chapter 10 (Transcription)

While Gary Karpinski’s book *Aural Skills Acquisition* (2000) focuses more on dictation, Karpinski’s “four-stage model of melodic dictation” helped us think through the skills involved in translating sound into notation. This model gave us a framework within which to understand the relevance of the research listed above under Attention, Moving to Music (Meter), Tonic/Collection and Solfège, and Musical Memory.

The system of “protonotation” is based primarily on Karpinski’s book and on advice from the textbook *Manual for Ear Training and Sight Singing*.

The system of “notation shorthand” is derived from Jenine L. Brown’s article “‘Notehead Shorthand’: A Rhythmic Shorthand Method for Melodic Dictation Exercises” (2020).

## Chapter 11 (Sight Reading)

Our understanding of what activities help people improve at sight reading is largely based on meta-analyses by Jennifer Mishra (“Improving Sightreading Accuracy: A Meta-Analysis,” 2014) and Marjaana Puurtinen (“Eye on Music Reading: A Methodological Review of Studies from 1994 to 2017,” 2018).

Our understanding of the value of “vocabulary-building” to sight reading has been influenced by Gary Karpinski’s book *Aural Skills Acquisition* (2000) and by Kris Shaffer’s blog post “Promoting Musical Fluency -or- Why I De-Emphasize Sight-Singing and Dictation in Class” (2013).

## Chapter 12 (Ensemble Skills)

Ensemble skills in aural skills classrooms have not been well-addressed in the literature. We hope that changes and we can list more sources here someday! For now, we’ll simply mention that the discussion of tuning was informed in part by Timothy Chenette’s conversations with Fry Street Quartet violinist Robert Waters.

## Chapter 13 (Dictation)

Gary Karpinski's research, particularly his article "A Model for Music Perception and its Implications in Melodic Dictation" (1990) and book *Aural Skills Acquisition* (2000), has been foundational to how we understand the value of and processes involved in dictation.

## Chapter 14 (Closure, Repetition, and Contrast)

Our attempt at being relatively style-neutral in our treatment of form is influenced in part by Brian Jarvis and John Peterson's presentation "Don't Count Your Cadences Before They Hatch: Advocating for Discussions of Closure in Pedagogical Contexts" (2020) and Elizabeth Hellmuth Margulis's research on repetition in music, as shared especially in her book *On Repeat: How Music Plays the Mind* (2013) and in her presentation "Repetition and Musicality" (2015).

## Chapter 15 (Chords)

The "Do/Ti Test" was first described as the "Guide-Tone Method" by Jay Rahn and James R. McKay in 1988. Daniel Stevens has extended the method in multiple publications,

including “Symphonic Hearing: Mastering Harmonic Dictation Using the Do/Ti Test” (2019) and “Bending to Real Music: Harmonic Hearing in the Aural Skills Classroom” (2021).

Timothy Chenette has also explored the complexity of identifying chords by ear in publications like “Does Gestalt Hearing Exist?” (2021).

# SIGHT-READING ANTHOLOGIES

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Many exercises in this text benefit from using sight-reading anthologies. These anthologies typically present manageable excerpts of music that are organized by different rhythmic, tonal, or other categories. There are several commercial anthologies available, most of which are very good.

If you wish to use an Open Educational Resource, you may wish to consider one of the following:

- *Eyes and Ears: An Anthology of Melodies for Sight-Singing* by Benjamin Crowell is an open-source sight singing anthology, downloadable as a pdf or as source code (LaTeX and Lilypond), with printed copies available for a low price.
- *The Trained Ear* by André Mount includes many public domain melodies, formatted to permit either dictation or sight reading, as well as downloadable Sibelius and MusicXML files for these melodies.