

ARRANGING: STRINGS

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ARRANGING for STRINGS

MIMI
RABSON



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RABSON



This book is dedicated to my parents, Carolyn and Gus Rabson,
and my sister, Ann, who brought music into my life.

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INTRODUCTION

To the uninitiated, writing for bowed string instruments can seem mysterious and incomprehensible. This book is written by a string player—a string player who plays classical music and many other kinds of music that are part of today’s musical culture. You will find insight into orchestrating for strings from the player’s perspective and details about which techniques work and why. This book offers a number of techniques that are on the leading edge of string playing today. With this book, you will have the tools you need to arrange music that is familiar as well as to create music that will become familiar.

All over the world, people respond passionately to the sound of rough horsehair being drawn against a tightly wound strand. For those of us who play these instruments, there is nothing more compelling and evocative. String instruments are used to mark every occasion of the human condition—births, weddings, deaths, celebrations of triumph, moments of tragedy, and festivities of every kind.

Bowed string instruments exist in nearly every musical culture around the globe and have since the beginning of recorded history. There are lots of variations on the theme of bowed string instruments from the Chinese *erhu* to the Ethiopian *masenqo*; the Mongolian *morin khuur* to the Swedish *nyckelharpa*; and, of course, what we most commonly think of as bowed string instruments in the European violin family.

European string instruments have also been the favorites of the great artists of Western Classical music who created new ideas of what music is. The charming sonatas of Mozart, the powerful concertos of Beethoven, the intricate string quartets of Haydn, and the earthy, dramatic string parts in Stravinsky’s *The Rite of Spring* (especially my favorite part, “The Augurs of Spring, Dances of the Young Girls,” that is so often imitated) are all works that exemplify the passion and potency of well-written string parts.

In contemporary popular music, strings have often taken on the role of accompanist for support and enhancement. This has been achieved by adding to the rhythmic drive of the tune like in “Eleanor Rigby,” by the Beatles, which references a typical Baroque sound, or “Viva La Vida” by Coldplay, which adds syncopation to that Baroque sound. “Kashmir” by Led Zeppelin is another great example of this use of string parts. It also adds an air of mystery and evokes a far off land because the harmony references traditional Arabic music.

Often, strings are used to glue the sound together, with long notes adding to the harmonic definition of the tune. We affectionately call those parts “goose eggs,” referring to the look of many whole notes on a page.

Sometimes, strings are used to add class by referencing an easily recognizable classical and/or orchestral sound. And nothing can add terror to a soundtrack better than the brilliant use of strings, such as in *Psycho* (soundtrack by Bernard Herrmann) and *Jaws* (soundtrack by John Williams).

It has been said that good composers copy and great composers steal. The composer/arranger with a wide knowledge of what has come before and a broad pallet of colors and textures will have many tools at their disposal to enhance their compositions with the use of strings. This book will show you techniques and skills to add beauty and drama to your work by broadening your understanding of writing for strings.

LIVE VS. IN THE BOX

Technology has made it possible to simulate the sound of an entire orchestra without a single live player. This is a fantastic tool for composers and arrangers. But I would encourage you to use live musicians whenever possible. Using real humans is much more expensive and time consuming, but your product will be full of the life and energy that can't fit "into the box" (i.e., a computer). Live players add subtle yet exquisite musicality to their performances. Seasoned performers make constant adjustments to intonation, timbre, length and width of vibrato, articulation, and many other subtle details to evoke the most musicality out of every phrase. Those tiny adjustments would be much more time consuming to program and would not be informed with the extensive experience that live musicians have. There is an indefinable human element that live players bring to a performance, beyond notes, rhythms, articulations, and more. Live players bring the music to life in a way that computers cannot. Years of careful training and devotion make live musicians capable of conjuring musical magic—an asset that is vastly preferable to just hearing the part.

ABOUT THE AUDIO

To access the accompanying audio, go to www.halleonard.com/mylibrary and enter the code found on the first page of this book. This will grant you instant access to every example. Examples with accompanying audio are marked with an audio icon.

Audio tracks in this book are tuned to A440.



ACKNOWLEDGEMENTS

I am grateful for the help and encouragement of my esteemed colleagues, mentors, and friends Matt Glaser, Melissa Howe, David Wallace, Darol Anger, Rob Thomas, Helen Sherrah-Davies, Beth Cohen, Simon Shaheen, Natalie Haas, Jerry Gates, and Bob Pilkington. I must acknowledge the role my students have played in this book. Over the years, they have kept me current. It is a pleasure to explore the musical past, present, and future with the talented musicians around me.

I am fortunate to be able to call upon the great orchestrators who came before me for inspiration and guidance: Nikolai Rimsky-Korsakov, Walter Piston, Henry Mancini, Nelson Riddle, Sammy Nestico, and Samuel Adler.

I am greatly indebted to Jonathan Feist at Berklee Press, who believed in this book and saw it through from beginning to end, and to Dr. David Wallace whose detailed help and support was invaluable.

My deepest gratitude and appreciation goes to my partner in life and music, David Harris.

String Player Perspectives

String players are usually trained in one of two main traditions: classical or folk/roots. (Upright bass players sometimes learn in the jazz tradition as well, which for this discussion shares more characteristics of folk playing.) There are classical and folk traditions all over the world. Our perspective in this chapter will be that of an American arranger primarily writing for American-educated players, and particularly the sound of the bowed violin, viola, and cello.

CLASSICAL TRAINING

Classical training in this book refers to the traditions of eighteenth-, nineteenth-, and twentieth-century Western European classical music. Violists and cellists are mostly part of the Western classical tradition. Training of this kind has come to be called “classical,” even though music of the Classical Era specifically is only a part of this pedagogy, which also includes other sub-classifications, such as baroque, romantic, contemporary, etc.

Most string players have had some classical music training, because most schools and string teachers focus on classical traditions. Likewise, most listeners assume that string players play only classical music and are often surprised to hear about the other styles in which players may have expertise. As an arranger, it is good to know a little about classical training so that you will understand the musical conventions that string players follow.

There are three primary qualities of sound that distinguish classically influenced string playing: smooth connections between notes, soft attack/release, and constant vibrato. (Bass players are the exception to the constant vibrato rule. They usually only use vibrato in solo passages.)

Western classical music values a *smooth, connected* sound from its strings. String players work hard to obscure the beginnings and endings of notes. We strive to make our bows sound like they are infinite in length, like a singer with never-ending breath. This sound brings a wonderful, gooey cohesion to any arrangement. Many string arrangements in contemporary pop music make use of that sound in the form of “pads.” (More on “pads” in chapter 6, “The String Section.”)



Audio 1

ON THE RIVER: LEGATO

Rabson

Violin I

Violin II

Viola

Cello

Vln. I

Vln. II

Vla.

Vc.

mf

p

mf

p

mf

p

mf

mp

p

mf

mp

p

mf

mp

p

4

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The musical score for "On the River" Legato, measures 8-10, is presented for four string parts: Violin I (Vln. I), Violin II (Vln. II), Viola (Vla.), and Violoncello (Vc.). The score is written in 3/4 time and features a dynamic range from *mp* to *mf*. The first measure (measure 8) begins with a *mp* dynamic. The second measure (measure 9) features a *f* dynamic. The third measure (measure 10) features a *mf* dynamic. The score includes slurs, accents, and a breath mark (V) above the first measure of the third measure. The Vln. I part has a melodic line with slurs and accents. The Vln. II part has a harmonic accompaniment with slurs and accents. The Vla. part has a harmonic accompaniment with slurs and accents. The Vc. part has a melodic line with slurs and accents.

FIG. 1.1. "On the River" Legato

Even when the part calls for a short note, say with a staccato dot on it, string players will work to soften the beginning and ending of that note unless it is otherwise marked in their parts. I will discuss alternatives to this articulation later in chapter 6, "The String Section." For now, let's consider how a typical classical group would play this part (track 2).-

ON THE RIVER: STACCATO

Rabson

Audio 2

The musical score is arranged in four systems. The first system includes Violin I, Violin II, Viola, and Cello. The second system includes Violin I, Violin II, Viola, and Cello. The first system shows the initial four measures, with dynamics ranging from mezzo-forte (mf) to piano (p). The second system starts at measure 4 and continues with dynamics from mezzo-forte (mf) to piano (p).

FIG. 1.2. “On the River” Staccato

The third technique that is typical of classical string playing is constant vibrato. String players are taught to use vibrato all the time. We practice keeping that vibrato going no matter what other technical difficulties are present. Good players will vary that vibrato to further the expression of the musical line. But it is worth knowing that, unless marked *non vib.*, string players will always use vibrato. You can hear examples of a melody with and without vibrato in chapter 4, “Standard Techniques.”

We will discuss how to get the most out of pads and vibrato later, but it is important to know that the basic sound that most string players bring with them is smooth and connected and has lots of vibrato. If you are looking for something different, like hard punctuation or a clean even sound without vibrato, you will have to mark it in the part.

One other issue that comes up in classical training is the *avoidance of open strings*. The sound of the open string does not embody the sound of classical music, probably because it is often difficult (sometimes impossible) to add vibrato to an open string. The sound of the open E string is considered too harsh. If you are looking for that clean, clear, open-string sound, you will have to mark it with an “o” over the note in question. The “o” means no fingers: open string. Otherwise, your classically trained players will do everything they can to add vibrato to that note.



FIG. 1.3. Open, Non Vibrato, Vibrato

Many works end with the last note being the lowest open string on the instrument. Even in this case, most players will automatically add a little sympathetic vibrato by playing the note one octave above. This is a lovely sound. If you would prefer the clean, no vibrato sound, then put “non vib” over that note. Knowing which sound you are looking for and marking it in the part will help the players deliver.

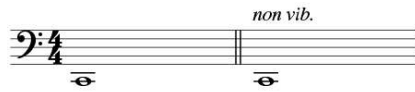


FIG. 1.4. Cello C String with Vibrato and without Vibrato

FOLK/ROOTS TRAINING

The other popular training ground for American string players is what has come to be called “American roots music,” such as bluegrass and Texas-style fiddling, among many others. Because the roots styles have their origin in rural folk music, the tone quality, rhythmic emphasis, and vibrato usage of players who have this background is different from those who are classically trained. The bow is used to bring out as much tone as possible. Generally speaking, the tone of roots players is an earthier, stickier sound, with a bit more grit than the tone of classically trained players. This strong tone can cut through the ensemble more easily than the tone commonly associated with classical training. In the fast-tempo dance tunes, there tends to be a narrower dynamic range than in the slower tunes.

It is important to note the big difference in performance practice between classical concert music and music intended for dancing. In classical music, the melodic phrase is the most important thing. If the melody needs to stretch, then the accompaniment goes with it. In dance-based music, it is just the opposite. Steady time is the most important thing to keep the dancers dancing. A good rhythm section will keep steady time no matter what the melody does.

Because roots music has this background in folk and folk dance music, roots players often have a more fixed sense of time. They are focused on making sure the time is solid, steady, and easy to hear. The roots fiddler often accents the change of bow to help draw attention to the rhythm. This helps with keeping the time when playing for dancing. This technique is just the opposite of what classically trained players do.



Audio 6



FIG. 1.5. Fast Roots Tune

Vibrato is used more for emphasis—usually in ballads, rather than all the time, as in classical music. The fast tunes often go by too quickly for vibrato, anyway. The vibrato used by roots players is often slower and wider than classical vibrato. This helps to emphasize the gentle lilt of a slow tune and play up the emotional content. It can be used to emphasize the time feel by playing the quavers of the vibrato in time.



Audio 7

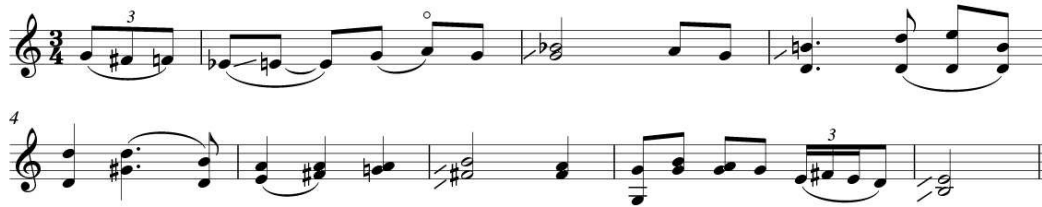


FIG. 1.6. Slow Roots Tune

Roots music is most often played on string instruments: violins, guitars, mandolins, banjos, basses, etc. Because strings are tuned to sharp keys, most roots music is played in sharp keys to bring out the optimal resonance of the instruments. The inexperienced roots player often has more difficulty playing in flat keys, since flat keys are very rare in roots music. Keep this in mind as you are choosing a key and players for your music.

Unlike classically trained players, roots players love open strings, as you can see from the above examples. There is frequently an open string doubling the string with the melodic line. Roots players sometimes retune or even restring their instruments to add possible open-string drones. For example, rather than the G-D-A-E of classical tuning, American roots players often use A-D-A-D. Sometimes even A-D-A-C#. Sometimes the D and A strings are reversed, making it possible to tune A-A-D-D with octave displacement. This practice of using and even emphasizing open strings is the opposite of what classical players do. If you are looking to add a “folksy” sound to your arrangement, this is the quickest way to do it: add a droning open string. Make sure you are writing in a key that has open strings in it.

It is possible to include a drone that is not an open string. Here is an example of a melody with a drone that is a fingered note on a lower string, in this case the A string, and a melody played entirely on the E string.



Audio 8



FIG. 1.7. Roots Tune with Fingered Drone

Most roots traditions are passed down by ear, without written music. This allows the players to learn notes, rhythms, bowings, and especially the details that are hard to notate by watching and imitating their teachers. Learning to read music is not necessarily part of roots training. While this does make for strong ears and quick studies, it can hamper the sight-reading abilities required by a studio musician.

The various roots styles boast an enormous number of brilliant players. Some of my favorites are Johnny Gimble, Eck Robertson, Byron Berline, Bruce Molsky, and Kenny Baker. There will be more about Roots music styles in chapter 7, “Stylistic Approaches.”

HOW MUCH DETUNING IS SAFE?

Detuning down is relatively safe. If you tune more than one string down more than a fourth or so, then you risk the bridge falling down. The bridge falling down is a big problem. But you can tune one string down as far as you like or several strings down a small amount.

The strings take on a different tone color as they are detuned. Tuning down adds a smokier, throatier tone than we are used to in classical music. After about a sixth, the tone color makes it hard to hear pitch.

Detuning up is a bigger problem. Strings will only go up about a minor third before they break. This high tension also puts more of a strain on the instrument. Players with good instruments may be reluctant to do this to their instruments. Tuning more than one string up at a time will compound this problem.

Detuning up adds a crisper, brighter tone color than what we are used to in classical music.

The practice of detuning has been around for hundreds of years. It is called by its Italian name, *scordatura*. If you are writing for detuned strings, it is best to write the music as if the strings were not detuned. That way, the player doesn't have to reinterpret every note on the detuned strings. The written part will not match the pitch, but it will be easier to play.

American Roots Intonation

While we are talking about intonation, I'd like to mention a couple of other intonation variations that have become a more familiar sound in American roots music. As mentioned before, roots players most often play in sharp keys because the instruments are tuned in those keys. This allows for lots of open strings, making everything more resonant. The variation in intonation in this case is marked by the ease of left-hand finger placement.

If one places the second (middle) finger of the left hand in the same place (on the violin) on the A and the E string, the notes will be C# and G# respectively. If the tune is in D major, then we get a lovely Lydian sound. This is a common sound among roots fiddle players. I've heard this sound referred to as the Appalachian Maqam. Kenny Baker's performances are a great resource for this.

Baker's “Ragtime Annie” recording will demonstrate this idea easily. (His playing also exemplifies the roots fiddle sound as described earlier in this chapter.) You'll notice that the G# is not “perfectly in tune” by Western classical standards. But the placement is clearly

intentional and familiar. The sound is unique to American roots styles and quite beautiful as well.

The rich blues tradition also stretches the classical string player's idea of intonation. The complex thirds and sevenths in the blues are impossible to notate accurately. As with all unfamiliar traditions, if you haven't heard them, they are difficult to describe. Blues is also characterized by note bending. Note bending is easy to do on string instruments, but it can sound inauthentic if it isn't done well. In the early days of the blues, the violin played a prominent role. Recordings by Papa John Creach and Don "Sugarcane" Harris display the appeal of the instrument in this genre.

If you are planning to write for strings, it is good to know what kind of background your players bring to the table. Of course, very good players will have experience in many different styles of music and will easily be able to adapt their playing to fit whatever you have written.

Tuning, Range, and Timbre

Violinists, violists, cellists, and acoustic bass players all work hard to be soloists. The repertoire they study is demanding. The standards set by composers and players have been rising steadily for hundreds of years. Many books are available with rich documentation about the enormous variety of sounds that strings can make. This book is intended to give you a basic understanding of what is possible on string instruments with a particular focus on the new techniques that have come into common usage in the last twenty years.

Many of these techniques reference different parts of the instrument. Instruments in the orchestral string family share similar proportions in addition to having many of the same component parts. A violin is shown in figure 2.1. Cellos and basses generally have bigger hips, no chin rest, and an end pin that pulls out so the instrument can be supported on the floor. Bows get thicker and shorter as the instruments get bigger.

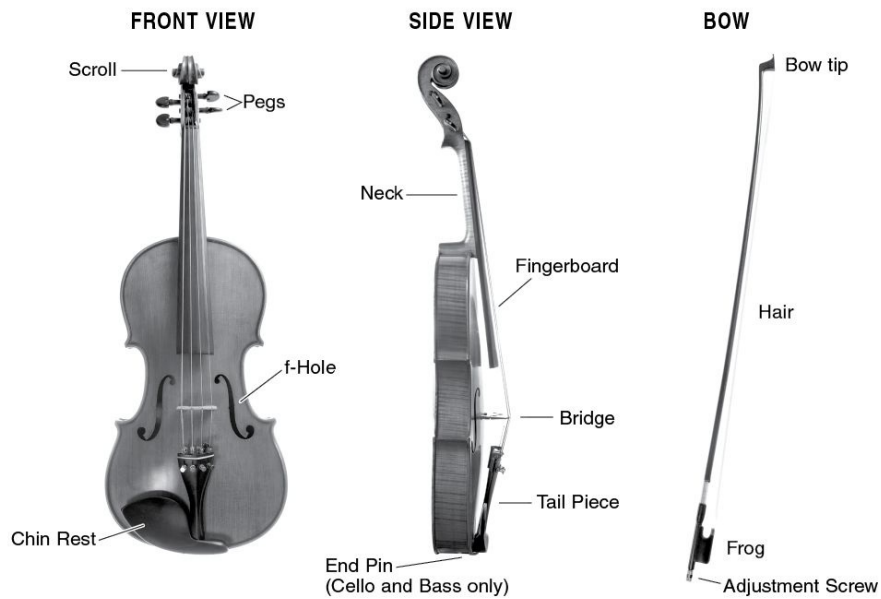


FIG. 2.1. Parts of a String Instrument. Violin shown.

A FEW WORDS ABOUT TUNING AND INTONATION

Tuning is a constant challenge for string players. The first problem stems from the fact that string instruments are made of wood. Wood is temperamental and vulnerable to a number of factors, mostly weather related, over which players have no control. These factors include temperature—in particular, quick changes in temperature and/or humidity (including dramatic shifts caused by air conditioning in the summer or dry heat in the winter), direct sunlight, new strings, change of seasons, etc. Any of those factors can have a huge influence on tuning. The second problem is that there are no frets. Getting a note in tune requires constant vigilance. Of course, good players are experts at overcoming all that adversity.

String players in large groups tend to play sharp. This is often because when they play perfectly in tune with each other, they can't hear themselves as individuals. In order to hear themselves, players may push the pitch up a tiny bit, unconsciously, to make sure they are playing their parts correctly. This may be the reason that, over the years, the standard tuning note has been moving up. A440 is still prominent in many places, but it is always moving higher. Many world-class orchestras are now at A444. Ensembles that specialize in renaissance and baroque performance usually tune below 440 (some as low as A415) to approximate the pitch that was prevalent during those eras.

It is good performance practice to allow the strings to tune in relative quiet to the most stable instrument. In an orchestra, the oboe is usually tasked with being that instrument. If there is no oboe, a piano or keyboard takes on that role. Otherwise, the first violinist gives the A for tuning the ensemble.

Many string players have tuning apps now and can take care of tuning on their own, but it is important to know what A is: 440, 442, or 444? I worked for many years with a brilliant accordionist who had a beautiful instrument made for him. He chose to have it tuned to 441 so it would be easy to tune to, no matter what other tuning situation his other band mates had been in.

If you are writing something to be recorded, it is helpful if you include a tuning note before the tracks you want to record just in case your players don't have a tuning app. Make it easy to access and be prepared to give the players several opportunities during the session to retune.

STANDARD NOTATION

Violin

Violins rule the string world. Because they play in the highest register, whatever they play is heard first by listeners. When violins are present, they play the melody most of the time. In musical accompaniments (to vocals, for example), violins must be orchestrated carefully to avoid covering or distracting from the main focus.

Violinists read treble clef.



FIG. 2.2. Violin Open Strings

Violins have a vast upper range. It is best to keep the technically challenging passages to within three or four ledger lines. But for lyrical melodies and effects like tremolo (see chapter 4, “Standard Techniques”), there is plenty of headroom.

The highest note you can work with comfortably on the violin is the E two octaves above the open E string. Notes with this many ledger lines are often written an octave lower, accompanied by the 8va symbol to indicate that the note is played an octave higher than written.

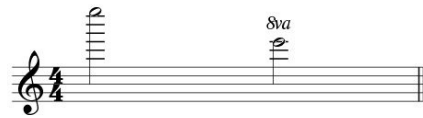


FIG. 2.3. High E on Violin



This melody will give you an idea of the sound and range of the violin.



FIG. 2.4. Violin Melody

Viola

Violas are the unsung heroes of the string section. Their wonderful, chocolately sound is what first attracted me to the string family. Their range is neatly tucked in between the glittering violins and the moody cellos. Violas can offer rich support for the melody and accompaniment. The unique timbre of the viola can be a welcome alternative to the omnipresent sound of the violin.

Violists read mostly alto (or “viola”) clef in which middle C is the middle line. They also read treble clef and some can read bass clef. It’s a good idea to change clef when there are more than four ledger lines.



FIG. 2.5. Viola Open Strings

The highest note you can work with comfortably on the viola is A two octaves above the open A string. Here are three ways to write the same note.

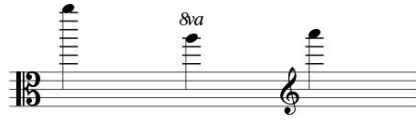


FIG. 2.6. Viola High A, Three Ways

Here is that same melody from audio track 9 (figure 2.4) transposed to give you an idea of the sound and range of the viola:



FIG. 2.7. Viola Melody

Violoncello (Cello)

Cellos add an enormous layer of richness and depth to the string section. Their low notes can fill a room. Therefore, one needs fewer cellos in proportion to the upper strings because they take up more sonic space (see chapter 6, “The String Section”). Yet, they are still dexterous enough to play brilliant, virtuoso passages.

Cellists read primarily bass clef. They also read tenor clef, in which middle C is the second highest line, and treble clef for the really high notes.



FIG. 2.8. Cello Open Strings

The highest note you can work with comfortably on the cello is A two octaves above the open A string. It may be written in four different ways, including both treble and tenor clefs.



FIG. 2.9. Cello High A, Four Ways



Here is that same melody played on the cello.



FIG. 2.10. Cello Melody

Double Bass

The large wave-form notes of the acoustic or upright bass speak more slowly than those of the other string instruments. Bassists develop the same skills and techniques as their higher-pitched siblings, but care must be taken when the focus of the arrangement is in the bass part. Low notes travel differently than high ones. The high notes of the upper strings pierce the air and quickly reach their destination. The low notes of the bass charge the room with energy from underneath. They are felt as much as heard. A melody played on the bass can have an achingly beautiful quality because it seems unusual to hear this throaty sound in the vulnerable melodic role. Bases contribute most often by creating the powerful harmonic and rhythmic support that holds up the entire orchestra.

In dance-based music such as swing and American roots styles, the bass is part of the rhythm section, not the string section. The role of the bass in this context is to maintain the time to keep the dancers on their feet and to lay down the basis of the harmony at the same time. This is where the walking bass line comes in. Most bass players have had the opportunity to play non-classical music. This versatility makes them valuable in a number of different musical situations.

Double bass players read bass, tenor, and treble clef. The notes they play sound an octave below what is written.

The double bass is the only member of the string family that is tuned in fourths rather than fifths. Many orchestral bassists have a low C extension. This makes it possible for the lowest string to be C below the E notated above.



FIG. 2.11. Double Bass Open Strings. Sounds an octave lower than written.

The comfortable high note on the bass is G, written in either treble or tenor clef. Remember, it sounds an octave lower.



FIG. 2.12. Double Bass High G

Bassists can go much higher than this with harmonics as well as natural pitches. The sound is somewhat thin and doesn't project well.

Here, again, is that melody transposed for and played on the bass. Again, it sounds an octave lower than it is written.



Audio 12



FIG. 2.13. Bass Melody

These are tunings and notation for open strings on standard instruments.

Many variations of the standard four-string acoustic instrument are starting to become popular in non-classical genres. Five- and six-string instruments are becoming more prevalent. The extra strings give the instrument more resonance, like added reverb. At the moment, the five-string violin seems to be the most common variation. A C string is added, so it is really a violin and viola in one. There are also six-string violins (with an added “F” below the viola “C”). Five- and six-string cellos are also coming into fashion. Some cellists prefer to add a higher E string. Some prefer the extra F below. Some get a six-string instrument and do both. There is also a wonderful creation called an “octave” or “baritone violin,” which is tuned the same as a four-string violin but sounds one octave lower. Companies that manufacture strings have begun developing strings that can be used on standard violins to drop the pitch an octave.

Adding strings to instruments is much more prevalent in the non-orchestral electric-instrument world. Electric basses have had five or six strings for many decades. Bowed string instruments with more than four strings are quickly becoming the favorites. Makers like Mark Wood, Ned Steinberger, Barcus Berry, and Yamaha have been adding strings (and even frets, in the case of Mark Wood) to their electric instruments for many years. For a more extensive list of the available brands of electric string instruments, check out the Electric Violin Shop and the Long Island Violin Shop.

If you work with someone who has more than four strings on their instrument, it would be well worth it to ask how they would like their music notated. Many violinists who have a low C don't read viola clef and would prefer a treble part with the 8vb notation for the low string. Likewise, cellists with an extra high string might prefer treble clef for those upper notes.

RANGE

The low notes possible on standard instruments can change with the use of an octave pedal. Many players who use electric instruments include that pedal in their rack. Or, you can add it yourself “in the box” during the editing/mixing process. The arco (bowed) sound on the low bass notes adds powerful grit. Any string instrument can be your bass player, with the use of pedals. There will be more discussion of this in chapter 9 “Recording and Sound Reinforcement.”



Audio 13

In this track, the electric five-string violin is playing the bass part with an octave pedal. The part is written in bass clef.



FIG. 2.14. “Too Few Views” Bass Line

The high notes listed for each instrument are only part of the picture. Harmonics go even higher. (See chapter 4, “Standard Techniques.”)

TIMBRE

While it is true that strings have a huge range, it is important to understand the character of each part of that range.

The low strings of any instrument generally have a relatively rich, dark tone. The lows on the bass, cello, and viola speak more slowly than those on the violin. The low register is better for adding depth and power and enhancing bass lines. The mid range of all the instruments corresponds most closely to the pitch of spoken language. If you are writing string parts behind a vocal, be sure to keep that in mind so they don’t compete for attention. The high strings on all the instruments, especially the violin, cut through the sonic palette. This range is great for emphasis or high points of phrases.

String instruments are designed to be played in 1st position—i.e., with the left hand as far from the bridge as possible (see figure 2.1). That allows the string to resonate as much as possible for each pitch. You can get many more colors and textures by asking your players to play in higher positions—i.e., with the left hand closer to the bridge. You can hear this sound in many salon pieces from the late nineteenth and early twentieth centuries. Many composers from this period such as Brahms, Wieniawski, and Sarasate took advantage of the throaty quality of the violin playing high on the G string.

The great virtuoso Jascha Heifetz used that sound in many of his encore pieces. Niccolò Paganini, another one of the greatest violinists of all time, used to plan his program so that the last piece would be played all on the G string. He added drama to his concerts by connecting a razor blade to the frog of his bow so that he could cut the strings one by one. While the audience assumed the strings breaking was an accident, Paganini would continue playing on just three, then two, then only one string effortlessly, just as he had practiced.



Audio 14

Here is a melody played on the violin all in first position using three different strings:



FIG. 2.15. “King Street Tango” on Three Strings



Audio 15

Here is an example of the same melody played all on the G string. Notice the throatier tone. Also notice the notation *sul G* and *loco* (meaning “in place,” cancelling any previous instruction) to indicate how long the G-string section is.

FIG. 2.16. “King Street Tango” Sul G

Of course, players have to play in higher positions to get the higher notes on the top string of each instrument’s range. Playing in higher positions can also be used to make fingering easier. String players are always juggling between shifting into higher positions and crossing strings. Each of these options presents unique sonic issues. Shifting can make the passage more technically challenging, and playing in a higher position will cut the richest possible resonance. On the other hand, crossing strings makes it more difficult to play a smooth, more vocal line. Unless you are looking for a particular timbre—for example, the husky quality found high on the violin G string—it is best to let your players work out their shifting vs. string crossing proportions.

Unlike the higher positions on the other strings, the notes on the E string of the violin tend to cut through clearly. The A strings on the cello and viola also cut through better than the lower strings, but because they are in the vocal range, they can easily be covered up. Be careful of your orchestration when writing melodic lines for viola and cello.

String instruments blend beautifully anywhere in their registers. Tight clusters and wide open voicings all work. It can be useful to think of your strings as if they were a chorus: Soprano, Alto, Tenor, Bass = Violin 1, Violin 2, Viola, Cello/Bass. The blend is just as good with a family of strings as with a family of voices. We’ll take a closer look at the details of voicing in chapter 6, “The String Section.”

Large Interval Skips

Large intervals can be problematic for string players. Intervals bigger than an octave (or even a sixth, in some passages) may require some difficult *string crossings*—moving from one string to the next. String crossings require some practice to execute smoothly without a sudden accent or change in dynamics. The “Preludio” of J.S. Bach’s *Partita No. 3 in E Major* is a wonderful example of brilliantly written string crossings. Intervals that require crossing over more than one string are difficult to execute smoothly.

STRING RANGE QUICK REFERENCE

Here is a quick reference for the comfortable ranges of bowed string instruments.

VIOLIN

dark, rich melodic, vocal exciting, focal point

VIOLA

dark, rich melodic, vocal impassioned, dramatic

CELLO

dark, rich melodic, vocal impassioned, dramatic

BASS (sounds an octave lower)

powerful, commanding vocal, understated delicate, intimate

FIG. 2.17. String Instrument Ranges

Basic Bowings and Articulations

BOWING

Bowing string instruments and notating that bowing is a complex language, best left to the practitioners. It is an esoteric dialect understood only by those who have access to the inside knowledge handed down by generations of insiders. And even those in the know often disagree on the best strategy for bowing. Different ensembles sometimes use different bowings for the same pieces. Each conductor may have different ideas about bowings.

The symbols used in general musical notation mean different things when they are written for different families of instruments. For example, a classically trained string player will assume that every note should have vibrato even if it is not marked in the part. A classically trained brass player will assume that every note should be played without vibrato. A slur to a wind player means that everything under the slur is one phrase, one breath. But it means something different to a string player (see figure 3.1).

The optimal situation is for a composer to work with a principal player (e.g., your concertmaster) to get the desired sound. There are often many alternatives available, each with its own character. Give your concertmaster some idea about what you want each passage to express. Singing the phrase can help in determining the sound you want. Then listen to the various ways there are to achieve that sound.

Slurs

To a wind player, the slur in figure 3.1 means that the four bars are one long phrase and should be played in one breath. To a string player, that same slur means that everything under the slur should be played with the bow going in one direction.



FIG. 3.1. Slurs

Unless the tempo for this is very fast, it would be impossible to play this passage with the bow going in only one direction. The bow just isn't long enough. Using hairpin dynamics will be much more effective. Think about the highpoint of the phrase, and use dynamics to shape it. Because string players work hard to make their bow changes sound smooth, this passage will have a legato sound.



FIG. 3.2. Slurs and Dynamics

If you want your string players to phrase with another section, say the horn players, then put breath marks in the string parts to indicate where the phrases end.

The staccato mark (.) means that the note is played short: half its written value. Use this notation to get the sound that the strings have in the Beatles hit “Eleanor Rigby,” and Coldplay’s “Viva La Vida.”



FIG. 3.3. Staccato

Wind players will be careful to make a clear ending on each of these three notes. The listener will easily hear the space in between each note.

Most classically trained string players will play this note at half its written value, but they will lift their bows gracefully at the end of each note and keep the vibrato going so that even though the bow is not on the string, the instrument will continue to resonate. As mentioned in chapter 1, “String Player Perspectives,” the general goal in classical music for string players is to obfuscate the end of each note and keep the instrument ringing as long as possible. So, a passage like this played by strings will not have the same crisp punctuation that it would have if it were played by, say, a brass section.

It will not be easy to get your string players to play this passage the way your wind players will—with absolute silence between each note. You might try adding the following instructions:



FIG. 3.4. Staccato, Non Vibrato

Then you might ask them to keep their bows on the string to make a very crisp ending. Those two instructions are far from standard Western classical procedure. So be patient with your players as they assimilate that. It is a wonderful sound to strive for.

Some arrangers and composers write eighth notes followed by eighth-note rests to indicate the desired silence between the notes. However, this approach becomes more cumbersome visually (especially at smaller note values) and is best avoided.

Here are the three versions of this measure.

FIG. 3.5. Staccato, No Vibrato, No Vibrato/Bow on String

The third version, track 18, is played as notated without vibrato and with a text direction to keep the bow on the string to make a very clear, crisp ending to each note. There is no standard notation symbol for that sound. It requires a conversation.

Down-Bows vs. Up-Bows

A *down-bow* (▼) is a bow drawn from frog to tip. The *up-bow* is from tip to frog. Typically, the down-bow makes a more powerful sound than the up-bow because the weight of the frog adds to the pressure on the string. It is used for accents and to emphasize the downbeat. Arranging your music so that the string players make hits with down-bows will greatly enhance the power of those hits. If no bowing is marked, players will assume alternate bows: down-bow, up-bow, etc.

Using several down-bows in a row creates an aggressive sound. Stravinsky used down-bow staccato notes in *The Rite of Spring* in the section called “The Augurs of Spring, Dances of the Young Girls.” This is the sound that Bernard Herrmann used in the terrifying scene in *Psycho* that is so often quoted. These are unforgettable moments that have often been quoted and imitated.

FIG. 3.6. Staccato and Down-Bows

Up-bows (v) are the opposite—the Yin to the down-bow Yang. Of course, good players work hard to make them equal so listeners can't hear the difference between down-bows and up-bows. But the natural tendency is for down-bows to be more powerful than up-bows. Here is the same passage played with up-bows:

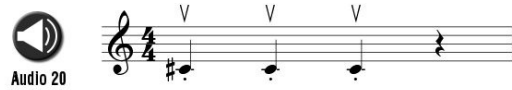


FIG. 3.7. Staccato, Up-Bows

Tenuto

The next most common symbol is the tenuto mark (-). *Tenuto* comes from the Italian word meaning “to hold.” The tenuto mark adds some intended sustain to the note. This can add a powerful driving force to your piece.



FIG. 3.8. Tenuto

If you put all of that in one bow (portato/louré), it can sound like a beating heart or an unstoppable engine pushing ever forward.



FIG. 3.9. Tenuto, Slurs

Accents

If you want to give that engine a bit of a nudge, add an accent.



FIG. 3.10. Tenuto with Accents

If you want it to sound like it is part of a larger, unstoppable machine, add a slur.



FIG. 3.11. Tenuto with Accents and Slurs

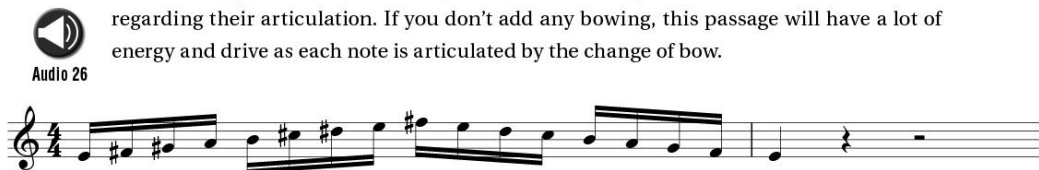
This accent can really pack a punch with all down-bows. This technique works best when the tempo is not too fast so your players have time to retake their bows and start again at the frog for each note.



FIG. 3.12. Tenuto with Accents on Down-Bows

Articulation Choices for Fast Passages

When writing runs of notes like eighths or sixteenths, you have some choices to make regarding their articulation. If you don't add any bowing, this passage will have a lot of energy and drive as each note is articulated by the change of bow.





Audio 28

Do you want a lighter, more agile sound? Add staccato dots. That will let your players know to lift their bows between each note.



FIG. 3.15. Sixteenth Notes with Staccato Dots



Audio 29

Do you want a smoother sound, like a wave? Add a slur.



FIG. 3.16. Sixteenth Notes with Slur



Audio 30

You can break up that slur in a number of ways to enhance the shape of the phrase. Here is one example that creates a build to the top and then a release on the way down.



FIG. 3.17. Sixteenth Notes with Varied Slurs



Audio 31

If you are looking for a jazzier sound, the bowing can make the difference. Because bows are binary (what goes up must come down), string players tend to use symmetrical bowings. Symmetrical bowings give a symmetrical sound. When writing jazz, you may be looking for something more syncopated.



FIG. 3.18. Sixteenth Notes with Jazz Articulation



Audio 32

If you aren't getting the swing feel you want, you can add accents to emphasize the syncopation.



FIG. 3.19. Sixteenth Notes with Jazz Articulation and Accents

If it still feels stiff, try adding a legato marking to smooth out the rough edges.

DYNAMICS

You may have noticed that in the previous few audio examples there was a change in dynamics that wasn't marked. Most musicians will naturally make a crescendo as the pitches go up and a decrescendo as the pitches go down. Higher pitches cut through more easily and are more highly charged. Unless otherwise marked, this will be the tendency.

If you want to encourage that tendency, it is best to add the dynamics. Otherwise, the players will assume you don't want that sound and work to avoid it, even though it seems so natural.



Audio 33

Here is one option:



FIG. 3.20. Sixteenth Notes with Slurs and Dynamics

Marking the dynamics you want will be more effective than trying to find the right bowing to express your musical ideas. A good string player can more easily add the bowing that works if they know what the musical intent is. The language of dynamics is the same for every instrument and not subject to as much interpretation as the language of slurs. Dynamics help shape the phrase. They show which notes are most important and which are subservient. A part with lots of notated dynamics is useful and will be a big time saver in the long run. Add the dynamics you want, and talk to your principal player about the articulation you are looking for.

These are subtle changes, but they can make a huge difference in your storytelling. You can see that the choices are rich and endless. Make good friends with your lead string players, and ask them for help in interpreting your ideas. It will be well worth the time.

Bluegrass: Hokum Shuffle

In bluegrass, there is a popular bowing called the “hokum shuffle,” “double shuffle,” or just “hokum bowing.” It became very well known in a runaway bluegrass hit called the “Orange Blossom Special.” Some people credit Joe Venuti with inventing this bowing, even though he was a classically trained violinist who was known as a jazz player and never played bluegrass. He used it in his 1928 hit “Wild Dog,” and it caught on.

The idea is to bow groups of threes over a pattern of fours.



Audio 34



FIG. 3.21. Hokum Bowing

The accented notes are alternately down-bows and up-bows. That helps to give this groove its unique feel.

We will explore a number of other bowing variations that are frequently used by string players in the next chapter, "Standard Techniques."

Standard Techniques

VIBRATO

Vibrato is the wobble around a pitch center. Vibrato is standard in classical music. In baroque music, vibrato was used sparingly. But since the late 1700s, constant vibrato has been common practice for classically trained string players. There can be a lot of subtlety in vibrato. Players can vary the speed and depth of their vibrato to convey different musical meanings. Some amplifiers come with a vibrato effect you can use to vary both of those parameters. String players can and do make those variations on the fly to emphasize the musical line.

Using constant vibrato can cover minor intonation issues in a large group and make any ensemble sound bigger and more complex.

Unless told otherwise, classically trained string players will always use vibrato. If the writing is melodic, they will vary the vibrato constantly to enhance the line more or less without thinking about it since they have been trained for many years to do just that. If you feel a passage needs more intensity, you can ask your string players to speed up their vibrato. If you want your melody to have a gentler feel, then suggest a slower vibrato.

Here is a melody with exaggerated vibrato variations. Track 35 has vibrato, as usual. Track 36 is performed without vibrato.



The musical score for "King St. Tango" is presented in four staves. The first staff (measures 1-4) shows a melody starting with a quarter rest, followed by a quarter note, a half note, and a quarter note. The second staff (measures 5-8) continues with a half note, a quarter note, and a quarter note. The third staff (measures 9-12) features a half note, a quarter note, and a quarter note. The fourth staff (measures 13-16) concludes with a half note, a quarter note, and a quarter note. The score includes various musical notations such as beams, slurs, and rests.

FIG. 4.1. With Vibrato and Without Vibrato ("King St. Tango")

String players can be asked to play without vibrato by putting “non vib” over the passage. We are used to hearing the sound of strings with vibrato. So the sound of strings *without* vibrato can offer an eerie simplicity to any passage. That simplicity can evoke peace, a pause in the action, a pensive moment, or it can imply that something is not quite right and drama is just around the corner.

Non vib can also be useful if you are writing something for a larger ensemble with brass and woodwinds. Since brass and woodwind sections don't use vibrato as often, you can get a better blend if you ask your string players not to use vibrato as well. If you want your string players to stand out, then using vibrato will help accomplish that.



Audio 37

Singers of popular music often start long notes without vibrato and then slowly add it towards the end of the note. That can be very effective for the string parts as well. There is no standard notation for this effect, but something like this notation will work.

FIG. 4.2. Vibrato Added Gradually (“King St. Tango”)

SUL TASTO

Sul tasto means to play with the bow over the fingerboard. This gives a breathy, unfocused tone great for conjuring up fog or mist or something in the distance that is hard to see or understand. It is easy to play and very evocative. Many late nineteenth-century composers used this sound to great effect.



Audio 38

FIG. 4.3. Sul Tasto (“King St. Tango”)

PIZZICATO

Pizzicato means plucking the string rather than bowing it. This is most commonly done with the right hand while the left hand fingers the pitch. The notation for this effect is *pizz.* The end of the pizzicato section is notated by *arco*, meaning “bow.”



FIG. 4.4. Pizzicato

Pizzicato is normally played in a way that allows the string to ring as much as possible. If you are writing something a little funkier, you might ask your players to mute the pizzicato by releasing the pressure of their stopping fingers right after the note sounds, giving it more rhythmic punch. Staccato dots can help indicate that you do not want the sound to ring.

Track 40 is the same example played with muted pizzicato.



It is important to leave enough time for the player to arrange the right hand for pizzicato and enough time to get back to arco. These movements are not instantaneous. It doesn't take much time, but at least a second or two in either direction is helpful.

Speed can be an issue with pizzicato. There is a limit to how fast pizzicato notes can be articulated. Usually, players use only the index finger for pizzicato. In faster passages, it is possible to alternate the index and the middle fingers, but even with this, there is a limit.

You can ask your players to strum across the strings like a guitar player would. These are called “arpeggiated pizzicatos.” You can even indicate which way you'd like the strum to go, using up and down arrows.



Audio 41

A *down-stroke* is from the low string towards the high string; an *up-stroke* goes the opposite direction, from high to low.

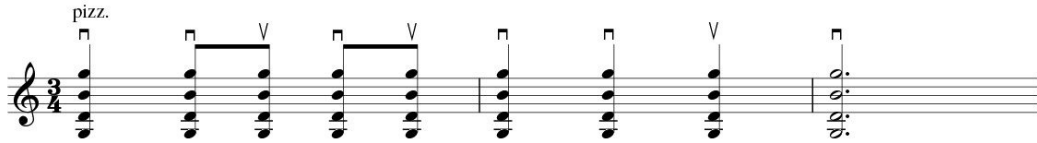


FIG. 4.5. Arpeggiated Pizzicato

It is also possible to play pizzicato with the left hand, particularly if open strings are involved. Because the string length is so short when doing *pizz* with the left hand, tone and dexterity are somewhat compromised. Also, the player can only use the fingers that are not being used to finger the pitches.

The “+” sign over the note indicates that it is a left-hand *pizz*. It also helps to write “LH *pizz*” in case there is any confusion.



Audio 42



FIG. 4.6. Left-Hand Pizzicato

String length makes a big difference in pizzicato. Cello open strings, when played *pizz.*, make a much bigger sound than violin strings. Bass pizzicato open strings ring for a long time, setting the harmonic foundation beautifully. *Pizz* in the upper registers will not resonate as well. The very highest notes on the violin played pizzicato are more of an effect because it is hard to distinguish the pitch from the percussive sound.

One difficulty with pizzicato is coordinating it with the other instruments. Pizzicato notes are relatively short and have little sustain compared to bowed notes, so they have to be perfectly in time, like hits from a drummer. The discrepancies are particularly noticeable in smaller groups. An excellent conductor and some extra rehearsal time can be very helpful in getting the *pizz*'s together. If the tempo is steady, then a click track or drum part to play along with can pull the passage together quickly. The effect is worth the trouble.

USING A CONDUCTOR

Most classically trained string players have worked in a situation that requires a conductor. Good conductors help the music come to life and keep the orchestra together not only in time, but also in musical intent.

Players and conductors have to get to know each other, what to expect from each other. In higher-level orchestras there are some interesting subtleties. One of those can be very complicated for a pizzicato passage.

It may seem like the downbeat of the music should correspond with the down stroke of the conductor's baton. But in reality there is often a small gap between these two moments. This gap is more pronounced in better orchestras. The gap can vary based on the speed, dynamic, or emotional meaning of the piece. A new player in an established orchestra has to get used to this gap as it may vary from conductor to conductor and from orchestra to orchestra. This makes pizzicato passages even more difficult to coordinate because there is no room for error. If you are using a conductor for your session, be sure to allow time for the players and the conductor to get to know each other and find the sweet spot between the downbeat of the baton and production of sound.

BARTÓK PIZZICATO

The twentieth-century composer Béla Bartók popularized a particular kind of pizzicato in which the string is plucked so hard that it snaps against the fingerboard, giving an added powerful accent to the note. This over-accented pluck has come to be called the “Bartók pizzicato” (♯). Bartók may have heard it used in the traditional Hungarian music that he archived. There is an instrument called an ütőgardon that is played with this technique almost exclusively. Jazz and rockabilly bass players use this technique regularly. It is usually followed by a slap on the fingerboard with the left hand. Used together, those techniques help bass players project in loud situations and add solid punctuation to any note, keeping the rhythm strong.

Violinists, violists, and cellists are reluctant to use the Bartók pizz, partially because it pulls the string out of tune, making it difficult to play the ensuing passages. There is also some concern about damaging the fingerboard. String instruments are typically very expensive and easy to damage because they are made of wood. String players are often reluctant to experiment with techniques that may be dangerous to their instruments.

The Bartók pizzicato requires extra time and effort to play. It should be used for emphasis, not in passages that require rapid dexterity.

Here is the notation.



FIG. 4.7. Bartók Pizzicato

The notation for Bartók pizzicato (♯) should not be confused with the notation for thumb position (♮). Thumb position is used by cellists and bassists in passages that are in very high positions on the fingerboard (close to the bridge). The thumb is anchored to the fingerboard on the lowest note of the passage making it easier for the other fingers to keep the passage in tune.



	Bartók pizzicato
	Thumb position (cello and bass)

FIG. 4.8. Bartók Pizzicato vs. Thumb

PIZZICATO BASS

As mentioned, the bass is the member of the string family that is most commonly found in ensembles that do not play classical music. Basses are frequently found in non-classical ensembles playing rock, jazz, pop, etc. In those ensembles, it is common for the bass to be played only pizzicato. This allows the bass player to set up not only the harmonic structure for the music, but the rhythmic structure as well. The punctuation that pizzicato adds is a wonderful way to create a rhythmic foundation. The “walking” jazz bass line is a perfect example of this: pizzicato quarter notes that outline the harmony. Some bass players who do not play classical music may not have fluency with a bow.

Bass players in non-classical bands such as rockabilly, Western swing, and other American roots styles are known to slap the fingerboard on the off beats to add even more rhythmic emphasis. This “slap” technique is unique (in the bowed string family) to bass players. It is very effective and even more so on electric instruments, where a lighter touch can be heard just as easily. Even a slight tap on the string can create a powerful accent on an electric bass. Lots of electric bass players, such as Larry Graham (“Super Bass Slapping” on YouTube), Flea (“Higher Ground”), and Francis Rocco Prestia (“What Is Hip”) use the slap technique frequently along with a pop from pulling the string hard enough to slap against the fingerboard—what the upper strings call a Bartók pizz.

TRILLS

Trills are a great way to up the excitement. They can have the same effect as “jazz hands,” adding a dash of drama.



String players most often trill upward to the next scale degree.

Written: 

Played: 

FIG. 4.9. Standard Trill, Written and Played

The speed of the notes depends on the tempo of the tune. Faster tempos have time for fewer repetitions, and slower tempos have time for more. Notes with longer durations make it possible to add more repetitions in the trill. Notes with shorter durations have less opportunity for repetitions.

There are a couple of assumptions that string players make when they see a notated trill. First, as mentioned, they will go to the next scale degree. Second, they will start on the written note and trill to the note above. That has become standard practice, although it was not always the case. In baroque music and music from the early Classical period, players would start on the note above and trill down to the written note. That is a lovely sound that adds to the suspense of the line by slightly delaying the resolution. If you are looking for that sound, you can notate it like this.



FIG. 4.10. Trill from Above

The grace note indicates that you would like the trill to start from the note above.

If you want your players to trill to a non-scale tone then you can indicate it like figure 4.11. This indicates that you want your players to trill to C natural rather than C#, as indicated in the key signature.

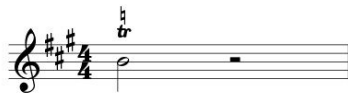


FIG. 4.11. Chromatic Trill

You can add even more excitement to your trills by asking your players to trill between non-adjacent tones, such as thirds or fourths.



FIG. 4.12. Trill to a Third

This makes your music even more thrilling. This kind of trill adds a certain instability to the line that craves some sort of resolution.

Trills of more than a fifth for violins and violas and a fourth for the cellos have a different sound. Those intervals usually require some string crossings, which make the trill less compact. If the bottom note is an open string, then the string crossing is not required.

TREMOLOS

Tremolos are a way to add a shimmer or sense of urgency. They are notated as shown in figure 4.12.



FIG. 4.13. Tremolo

String players play tremolos by playing as many repetitions of each note as possible by changing bow directions as fast as they can. This is usually a subtle motion, and it is played more easily at the tip of the bow. At that part of the bow, the dynamic is relatively soft. A louder dynamic will be played more towards the middle of the bow. A tremolo is most effective with more than three players on a part. With one person, you will hear any imperfections in the repetitions. With two players, you will hear the imperfections between performances. With more than two players, it will be a wonderful mass of sound.

MUTES

Mutes are devices that fit on the bridge of string instruments. They are made out of a wide variety of materials: wood, leather, plastic, or even a rolled up dollar bill. They dampen some of the higher frequencies, making the timbre warmer, fuzzier, and less focused. Mutes are usually used in softer passages. You can notate this in Italian (part of the classical pedagogy) or in English. In Italian, *sord* is short for *sordino*, meaning “mute.”

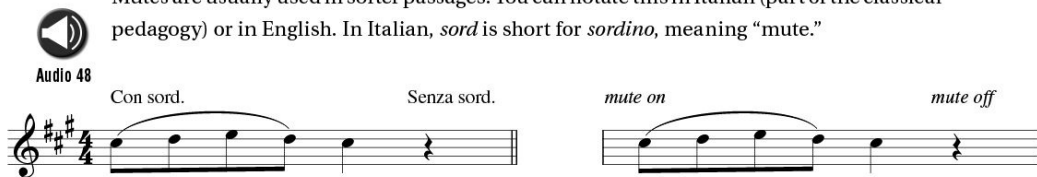


FIG. 4.14. Con Sordino. Italian and English.

Make sure to leave enough time for your players to put on and take off their mutes. It doesn't take much time but it is not instantaneous. Three seconds should be enough.

One thing to watch out for is the sound of putting on and removing mutes. It is a quiet procedure, but if you are recording something that is very exposed, there might be some soft rustling as the players make the motions required.

HARMONICS

Harmonics are a different way string players can produce sound. Harmonics produce a clear, clean, ethereal sound that penetrates somewhat more than conventional notes. In normal playing, players push the string all the way to the fingerboard making the string shorter creating a higher pitch. Harmonics are produced by lightly touching the string (without pushing it all the way to the fingerboard) at a *node*—a place where the amplitude of the vibrating string is zero. Harmonics generally do not project as much as stopped notes.

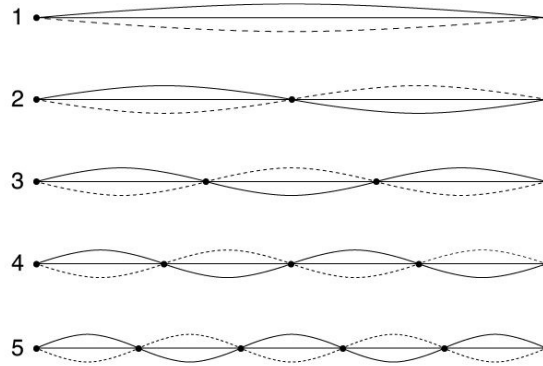


FIG. 4.15. Harmonics

String players use two kinds of harmonics: natural and artificial.

Natural Harmonics

Natural harmonics are the ones that occur on an open string by lightly touching the nodes. The easiest one to play and the most resonant is the harmonic that divides the string in half. It is the most resonant because the string length that is vibrating is the longest of all the harmonics.

If you lightly touch the open G string in the middle, at the node that divides the string in half, you will get the same pitch that you would get by putting your finger down on the fingerboard but with a clear, brilliant quality of sound.

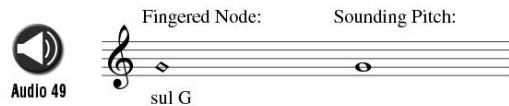


FIG. 4.16. Natural Harmonics

Most string players have mastered this harmonic by their second year of study.

If you divide the string into thirds, the note you hear is now an octave above the note you touched.

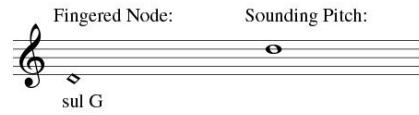


FIG. 4.17. Harmonic Octave

If you divide the string into fourths, the pitch is now an octave and a fifth above the note that you touched.

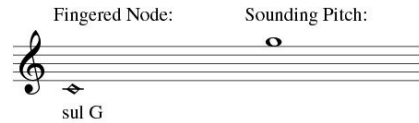


FIG. 4.18. Harmonic Octave Plus a Fifth

The last two harmonics are a little harder to master, but most players have some experience with them. The great swing violinist, Stéphane Grappelli, was fond of using the last two examples together to punctuate his phrases. His tune “Daphne” uses those particular harmonics as the basis of the melody.



By playing the first four written pitches as harmonics, Grappelli sounded the last four notes.

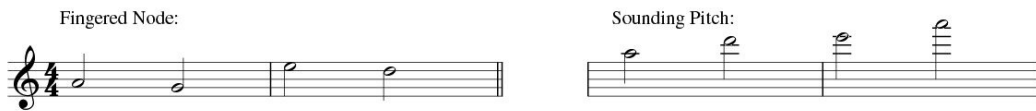


FIG. 4.19. Grappelli Harmonics

There is often confusion about notation for harmonics both for players and composers. Standard practice for natural harmonics offers two choices:

1. Write diamond note heads at the pitch where the desired node is.
2. Write a small circle over the pitches you want to hear as harmonics.

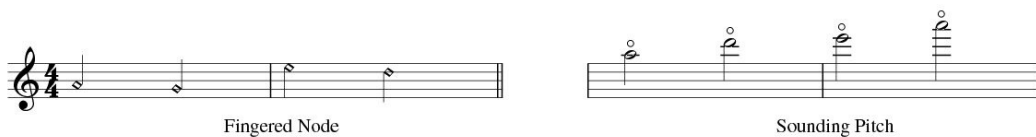


FIG. 4.20. Natural Harmonics. Diamond noteheads show where the notes are fingered. Harmonic circles indicate sounding pitches.

It is also helpful to write “harmonics” at the top of any passage in which you want that effect. Write *nat.* (short for “natural”) when that passage is over, just to confirm that the notes are no longer harmonics.

It is worth it to add fingering to any harmonics passage. If you are unsure, then run the passages with harmonics past your friendly neighborhood string player to make sure they are playable.

The above passage would be even clearer if written like this, using “sul” to indicate the string.

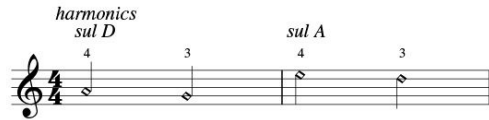


FIG. 4.21. Written Harmonics

The diamond heads indicate harmonics. Sul D and sul A mean that those notes should be played on the D string and A string, respectively, so that the correct nodes are played. The numerical fingering clears up any confusion the player might have about adding shifts. Some composers add an “o” on top of the fingering indicated to emphasize the idea that this is a harmonic.

Generally speaking, natural harmonics have a pure, brilliant sound. It is possible to divide the string in fifths, sixths, and so on, but it becomes increasingly difficult to get a clean sound and to play those notes accurately.

Some composers have gotten a wonderful eerie effect by asking their players to slide quickly between the harmonics on a string like this.

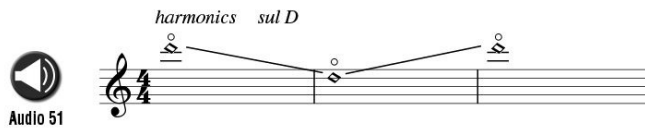


FIG. 4.22. Harmonic Glissando

Natural harmonics are usually played without vibrato because the normal vibrato technique doesn’t work when the finger is not on the fingerboard. It is possible to slide the finger back and forth within the note to create the effect of vibrato.

Artificial Harmonics

Artificial harmonics are created by dividing the string into quarters as above, but because of the fingering, it is possible to play that harmonic on any pitch.



FIG. 4.23. Notated Artificial Harmonics

In this notation, the bottom note is a regular note, either an open string like the first note or using the first (index) finger pushed all the way to the fingerboard. The top note is fingered lightly with the third finger on the open string and the pinky on the other notes to achieve the artificial harmonic that divides the string into quarters. (The index finger is considered the first finger on string instruments. The fingers are numbered up to the fourth or pinky.)

This passage sounds like this.

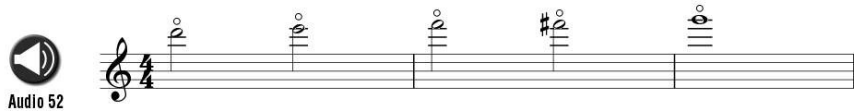


FIG. 4.24. Artificial Harmonics

Artificial harmonics generally do not have the brilliant clarity of natural harmonics, but they do have a different timbre than regularly fingered notes. They also can be used with vibrato.

It is possible to write melodic passages with artificial harmonics, but players cannot achieve nearly the same dexterity as they can with conventional notes, since two of their fingers are tied up in playing each note.

DOUBLE, TRIPLE, QUADRUPLE STOPS

String players can play two, three, or even all four strings together for a fuller sound.

Violins, violas, and cellos are tuned in perfect fifths. It seems like that would make playing perfect fifths easy, sounding like power chords on guitar. But in fact, perfect intervals—fourths, fifths, and octaves—are the hardest to play for strings. That is because perfect intervals must be just that: perfect. The intonation must be perfect. Other intervals have some room for interpretation. String players often adjust their thirds, sixths, and sevenths to enhance the tonality of the piece. Major thirds and major sevenths can be a little wider, minor sixths a little narrower. But fourths, fifths, and octaves must be perfect, and that is a challenge even for good players.

HARD				EASY		
Fifth	Fourth	Octave	Second	Third	Seventh	Sixth

FIG. 4.25. Double Stops in Order of Difficulty

Triple stops that are primarily melodic rather than rhythmic and all quadruple stops are most often “broken” or “rolled”—that is, the notes on the bottom strings are played first as grace notes, and then the notes on the top are played.

The issue of playing the grace notes before the beat or on the beat should be discussed with your players. There is often confusion around this point.

A passage written as four-note chords can be broken in pairs.



Audio 54

FIG. 4.28. Quadruple Stops

Some variations are possible. The grace notes can be played quickly to make it seem like all four notes are being played at the same time. It is also possible to play the top notes as grace notes and play the bottom notes longer. This is a technique that classical players use when playing passages of the unaccompanied sonatas written by Bach in which the melodic line is in the bottom notes. You can hear it in the “Ciaccona” from *Partita No. 2*, one of the most beautiful and challenging pieces for violin.

The examples used here are written for violin. The same rules apply to viola and cello. Keep in mind that because the violin plays higher pitches, the sound will cut through more cleanly. The viola and cello will sound muddier playing double and triple stops in the lower registers. The bass only typically plays triple and quadruple stops in the solo literature.

All of these double, triple, and quadruple stops can be played pizzicato—another great way to combine techniques. Using pizzicato can reduce the problem of breaking the quadruple stops. Pizzicato chords on the cello can be very powerful, especially perfect fifths, which sound like power chords on the guitar. This sound is particularly forceful if open strings are involved. Fingered fifths are a little harder to get in tune, but good players can do it. And it is worth it. On the bass, the parallel fifth is a powerhouse of sound.

The second movement of the Ravel *String Quartet* is a gorgeous example of the masterful use of pizzicato in all its forms. Complex lines are broken up between the players, so each part is easier to execute. The double, triple, and quadruple stops are used in the peaks of phrases where a broken or rolled chord adds to the drama.

RICOCHET/JETÉ

String players can allow their bows to bounce on the string at various levels of control, depending on tempo. At slower speeds, the bounce is controlled; the beginning and end of each note is under the command of the player. As the tempo speeds up, it becomes harder and harder to control each individual note. At some point, it feels like the bow is bouncing of its own volition. That “uncontrolled” bounce is called *jeté* (French for “thrown”) or *ricochet*. As a player, it feels as though the horse has suddenly broken into a gallop. It sounds like that, too. It is a lot of fun to play and adds the rhythmic pounding of beating hooves. It is most effectively used on repeated notes at a fast tempo.



FIG. 4.29. Ricochet

USING THE STICK OF THE BOW

There are two techniques in which players turn their bows over and use the stick to produce a sound. Not much volume is produced with the stick on the strings, but the effects are unusual and interesting.

Col legno is Italian for “with wood.” *Col legno battuto* (Italian for “beaten”) or just *battuto* is the technique in which the string is struck with the stick. This makes a wonderfully articulate sound like insects with tap shoes. Pitch can be heard as well. Radiohead uses this technique in their 2016 song “Burn the Witch.”



FIG. 4.30. Battuto

(Note the *nat.* at the end. That is short for “*naturale*” and indicates that the *battuto* section is over.)

The other *col legno* technique is *col legno tratto*. Again, the bow is turned upside down, but this time, it is drawn across the strings as if the stick were the hair of the bow. This produces a very soft, unique, ethereal sound.

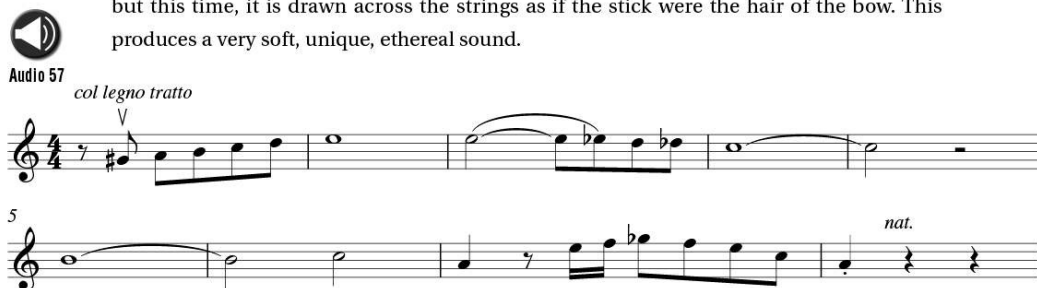


FIG. 4.31. Col Legno Tratto

String players are generally not fond of either of these effects because wooden bows are delicate, expensive, and not intended to be used in this way. There is always a reasonable concern that some irreparable damage will be done by scraping the stick across the string or hitting the string with the stick. This is of even more concern if the passage in which the technique is required uses a loud dynamic. Intonation is also at risk when one hits the string.

Carbon fiber bows are not likely to be damaged playing *battuto* or *col legno*, but there may be some damage to the strings themselves. Let your players know ahead of time if you intend to use these techniques so they can bring the right bow. Allow ample time for tuning after the section with these techniques.

Chops, Ponticello/ Feedback, Portamento, and Falls

CHOP TECHNIQUE

Chopping refers to a relatively new group of percussive bowing techniques that allow string players to function in the rhythm section. It is not yet part of the standard string pedagogy because it is not used in classical music, but more and more “choppers” are emerging every day.

Chopping is prominent in bluegrass and other American roots styles. Most string players who are familiar with roots music can easily add chopping to anything.

Violinist Richard Greene is generally credited with being the first to popularize the technique. Darol Anger has refined and disseminated chopping with his playing, writing, and “how to” CD. Casey Driessen has added substantially to the technique. Composer, violinist, and master “chopper” Tracy Silverman is contributing a number of new works that use chopping. Violinists are not the only ones using this technique. Cellists Mike Block, Natalie Haas, and Rushad Eggleston are also brilliant practitioners.

If you are thinking of writing with this technique, be sure to use string players that are familiar with it before they start working for you. Good choppers can add rhythm to whatever they are playing and even substitute for a drummer.

In its simplest form, chopping begins with lightly dampening the strings with the left hand, so we don't hear a specific pitch. Then, the bow drops heavily on the string, with a slight pull—not enough to get a tone or hear a note, but enough to produce a short, scratchy sound. It is very similar to the sound that guitar and mandolin players make when they strum with a pick while dampening the strings with the left hand.

Guitar players in rock and funk bands use this technique frequently. Just like guitar players, string players can add a wah pedal to emphasize the underlying groove. It gets funky very quickly.

There isn't a universally accepted notation for chopping yet. Darol Anger, Casey Driessen, and David Balakrishnan (founder of the Turtle Island Quartet) are working to codify notation for chopping. The Berklee String Department plans to make a white paper available on its website with current preferences for chop notation.

You can write a rhythmic part with slash note heads and write "chops" on top of the staff. Players familiar with this technique will know what to do. In this example, the stems without note heads indicate a non-accented chop.

Here's an example of a standard chop pattern for an up-tempo rootsy tune.



FIG. 5.1. Chops

Here's an example of chops in a rock feel. You can see that this is similar to what the drums might play in rock. Notice that you can change the timbre of the chops by chopping on the lower strings or the upper strings.

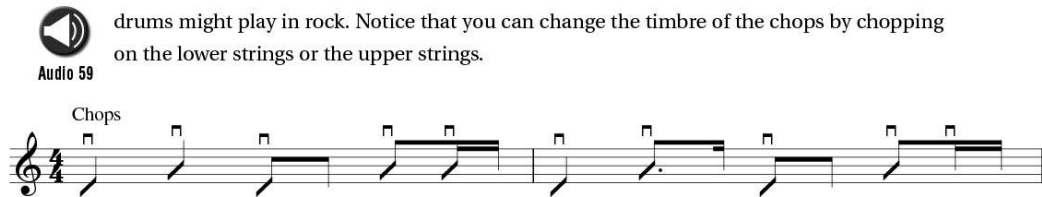


FIG. 5.2. Chops for Rock

Players who are proficient in this technique can include some pitch with their chopping adding harmony to the groove. Here is an example of a Nirvana-like groove.

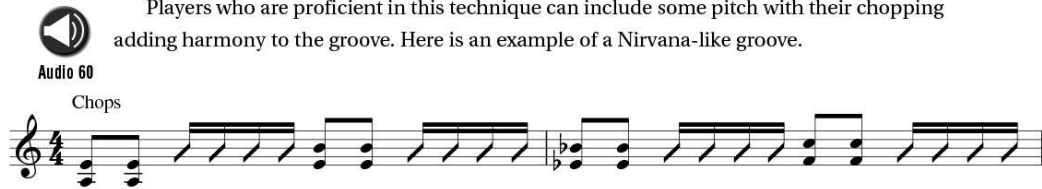


FIG. 5.3. Chops Alternating with Pitches

If you have players who are already good choppers, just let them come up with something that complements the groove. That might be more effective than actually writing something out. They will find something to play that is appropriate and comfortable.

If you are writing for more than one player, it is a good idea to write a complementary chopping pattern for each one. One player can double the bass drum part and another the snare. Or, for a heavier feel, you can have all your players play the same pattern. It will give it a dense and complex sound.

It is essential to use players who are already familiar with this technique. Even brilliant players who are new to chopping will not be able to master this technique on short notice. Just like any bow technique, chopping takes some work to play effortlessly.

Soft Chop

In a *soft chop*, the bow is gently rubbed along the length of the strings instead of perpendicular to them. They can be notated without note heads for a purely percussive sound or with “x” note heads for a gentle ghost note. The arrows pointing to the right indicate that the bow scrapes the string away from the body. The arrows to the left indicate towards the body. When playing soft chops for a percussive effect without ghost notes, it is useful to hold onto the frog as if the bow was a stick or club. The gentle swishing can sound like the waves on a beach or a far away train chugging along.

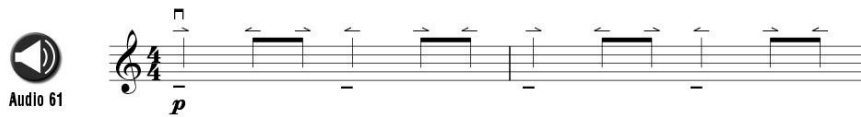


FIG. 5.4. Soft Chops or Scrapes

Even an experienced chopper will need some direction from you to use this sound rather than the more common chopping sound. But little things like the tenuto mark and soft dynamic give the idea of what is required. An experienced chopper will have this sound in their repertoire and recognize the need for it in a soft passage.

Accomplished choppers will put together combinations of these techniques and add real depth to the rhythm section. Check out Casey Driessen’s “Tanuki Attack” for a brilliant display of chopping possibilities.

CHUNKS

Chunks are another percussive sound available to string players. The difference between chunks and chops is this: When playing chunks, the bow lifts after touching the string, giving it a lighter sound than a chop. Often, chunks are pitched. Chunks are most often associated with bluegrass. Check out Alison Krauss and Michael Cleveland for great examples. There is no dedicated notation for this, and the name has not come into common usage. If you are looking for this sound, you can tell your players to lift their bows at the end of each note.



FIG. 5.5. Chunks

PONTICELLO

Ponticello, from the Italian word for bridge, is not a new technique but recently it has taken on a new dimension.

String players usually keep their bows about halfway between the fingerboard and the bridge (the structure that holds the strings off the body of the instrument, see figure 2.1). Moving the bow closer or farther from the bridge changes the timbre. Good players constantly adjust the distance between their bows and the bridge based on dynamics and phrasing requirements.

When the bow is drawn very close to (and even right on top of) the bridge, the sound is analogous to the sound of a guitar using a distortion pedal. Lots of harmonics become prevalent, sometimes more so than the intended pitch, similar to the feedback from an electric guitar. The timbre is scratchy and distorted.

This is a wonderful way to add distortion to your string parts. No electronics are needed, and you will get a distorted sound. Just mark the part as *ponticello* or *sul pont* (see figure 5.6). It helps to add a forte dynamic.

To make the feedback even richer, you can ask your players to use a very light touch with the fingers on the left hand on the fingerboard. This heightens the potential for harmonics to pop out. Coupled with the bow on the bridge, this sound is deeply evocative of Hendrix, Van Halen, etc.



Audio 63

“NIRVARKY” PONTICELLO

Rabson

A *ponticello*

ff

Violin

Cello

ff

3

Vln.

Vc.

5

Vln.

Vc.

7

Vln.

Vc.

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FIG. 5.6. Ponticello (“Nirvarky”)

This technique is more effective on electric instruments. The “feedback” sound is greatly pronounced.

Enhanced Ponticello

Players can enhance the distorted sound even further by using very little pressure on the fingerboard with their left hands simultaneously with the ponticello. This will pull out the distorted harmonics even further.

The best notation for this effect is *molto sul ponticello*. Players who are fluent in contemporary classical techniques will be familiar with *molto sul ponticello* and have good control over the technique. Italian avant garde composers Salvatore Sciarrino and Stefano Gervasoni use it in their works. Players who focus on older classical music may be hesitant to use this technique. This distorted sound is not part of the classical pedagogy and is antithetical to that desired timbre. You may be able to discuss this sound with your players ahead of time to ask for that effect. Or work with someone who has some experience with rock, electronics, and distortion. They will know exactly what you are looking for. Again, ponticello is much more pronounced on electric instruments. This example is played on an electric five-string violin.



Audio 64
Excerpt from
"Metalyptica"

GLISSANDO/PORTAMENTO

Many string players use the terms *glissando* and *portamento* interchangeably. There is a subtle difference between glissando and portamento. *Glissando* implies that each individual note is expressed. Harps and pianos play runs this way. We used to call these "Broadway runs," because those fast, flashy runs are used a lot in Broadway musicals.



FIG. 5.7. Glissando

Glissandos can cover a huge range. Glissandos going up naturally evoke a crescendo in dynamics and spine-tingling intensity. String players can fly through these glissandos, especially if they are composed of familiar scales that are already part of the players' regular practice and vocabulary.

True *portamentos* are only possible on instruments that can easily play all the notes between half steps, such as strings, fretless guitars and basses, trombones, and fretted guitars when they bend their strings.



FIG. 5.8. Portamento

Portamentos offer a different sort of spine-tingling excitement. It is important when writing for strings to be sure that your portamento can be played on one string. If more than one string has to be covered, then there will be a break in the smooth line. That break can be covered if there are enough people playing the same thing because they will most certainly switch strings at different times.

In a moment like the one in figure 5.7, there is the question of when exactly you want the portamento to start. Do you want it to begin right away and take two whole beats to arrive at the top note? Or do you want to establish the lower note and hear the portamento at the last minute? If you prefer the latter, it is probably better to write the portamento like this:



FIG. 5.9. Portamento Rhythm

Even with this clearer notation, it is a good idea to explain what you have in mind to your players just so there is no confusion.

Portamento is an easy technique on string instruments. Because of that, it can be overused. People who are just beginning to improvise often use portamento too frequently and with little finesse. In jazz and roots-based music, the portamento begins with little pressure on the fingerboard from the stopping finger and moves into the final pitch. (It is similar to the fall in reverse, discussed next.) This can keep the portamento from sounding like a caterwaul. Make sure that all the portamentos help tell the story of your music.

Papa John Creach Portamento

One more type of portamento deserves discussion: a combination of a portamento and a very wide vibrato. It is a sound that is common in late nineteenth-century salon music. It can be a bit comical in its melodramatic sound. The great rock violinist Papa John Creach used this technique to create a very dramatic effect.

There is no standard notation for this sound, but this will work.

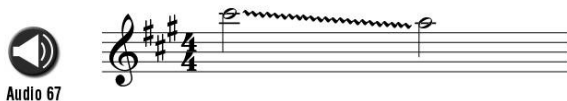


FIG. 5.10. Papa John Creach Portamento

Papa John Creach sometimes paired this effect with a trill in thirds. Check out his recording of “Over the Rainbow.”

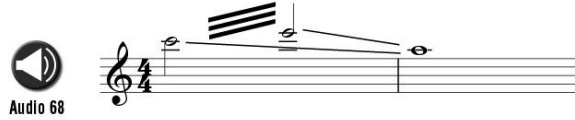


FIG. 5.11. Portamento Trill in Thirds

This is another technique that is not found in the classical canon, and the notation is a little awkward. Papa John Creach gave us a great example of how it is possible to combine effects to create a unique, recognizable sound.

FALL

Falls are short, descending portamentos that end on an indefinite pitch. They give the feeling of release after an arduous task. Wind players more commonly use falls, especially in big bands. Falls are easily played by string players as well, but they are not part of the classical canon and may require some explanation. The questions that your string players will have are (1) “How long should the fall be?” and (2) “What is the arrival point?”

The answer to question (1) depends on the tempo and the style of the piece.

The answer to question (2) is, “The arrival point should be indeterminate.” That is an unfamiliar technique for most string players but one that can be easily assimilated with a moment to try it out.

Here is accurate notation for a fall.



FIG. 5.12. Fall

(*Niente* is a dynamic term that means “nothing” and indicates that the sound at the end of the note should disappear. An experienced wind player would make the assumption about the dynamic, but a string player would need an explanation, since this technique is not part of their regular study or repertoire.)

The String Section

Strings can fulfill many different roles in an ensemble. Many composers and arrangers think of the strings as the most flexible and expressive section. Strings can play the melody, add countermelody, insert fills between melodic phrases, hold the harmony together with pads, and comp with the rhythm section. Each of these roles has some distinct requirements.

STRING QUARTET

String sections can take many forms, but most of the examples in this chapter are presented as string quartets, for clarity's sake: two violins, viola, and cello. String quartets are a large part of the chamber music repertoire. Classical composers and most classically trained string players have spent some time working in this format.

Classical string quartets are brilliant microcosms of possibilities. Some of my favorites include:

- Mozart, for his crystal clarity
- Haydn, for his sense of humor and brilliant plot twists
- Beethoven, for his power and portrayal of drama
- Mendelssohn, for his achingly beautiful melodies
- Ravel, for his forays into new harmonic and emotional territory
- Bartók, for breaking new ground with dangerous earthy vitality

See the "Selected Listening" appendix for my particular favorites from each composer.

MELODY/COUNTERMELODY

Strings, especially violins, have long been used to present the melody. If you are thinking of adding strings to your arrangement but aren't sure what to do with them, you can always start with the melody.

Consider what octave best suits your needs. The low strings of the cello are warm and rich, but don't cut through many arrangements as well as the high strings of the violin. The viola is in the perfect speaking range but might not soar through like the higher-pitched violin. While violins are used to playing the melody, they may interfere with the other parts—like vocals, for example. Listen to string quartets from the standard repertoire to get an idea of what register works best for each instrument.

Doubling the melody in octaves will bring the melody to the front of the arrangement. For example, you can give the melody to the violas in a quiet section. As the music gets louder, you can add the violins an octave up, at a softer dynamic. That will help emphasize the line without putting it only in the high register. Cellos and violins playing the melody one or two octaves apart is a wonderful way to increase the scope of your intent. You can also double the melody with the cellos an octave below, to add a more ominous sound.

Here is an example of a melody first with the violin and viola doubling the melody in octaves, then with the two violins doubling in octaves and the cello tripling the octave for added power.



Audio 70

KING STREET TANGO

Melody in Octaves

M. Rabson

The musical score is arranged in four systems, each with four staves: Violin I, Violin II, Viola, and Cello. The key signature is one flat (B-flat major/D minor) and the time signature is 4/4. The score begins with a dynamic marking of *p* (piano). The first system shows the initial entry of the melody in octaves, with the Cello and Viola playing the lower octave and the Violins playing the upper octave. The second system, starting at measure 6, shows the melody continuing with more complex rhythmic patterns and slurs. The third system, starting at measure 11, concludes the piece with a final cadence. The score includes various musical notations such as slurs, accents, and dynamic markings.

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FIG. 6.1. "King Street Tango" Melody in Octaves

If your melody is clearly presented by other instruments or voices, then use the strings for a *countermelody*. Think of a countermelody as a complementary melodic line—like two people talking simultaneously about the same thing, adding appropriate emphasis and interruptions. Putting the countermelody in a different register from the melody is a good way to make sure the melody remains the prominent voice.

In this example, Violin I has the singable melody and Violin II is adding some flourishes.

THE THEME

Countermelody



Audio 71

Rabson

The musical score is arranged in two systems. The first system includes Violin I, Violin II, Viola, and Cello. The second system includes Violin I, Violin II, Viola, and Cello. The score is in 12/8 time and features a variety of dynamics including *f*, *sub. p*, and *sub. f*.

System 1:

- Violin I:** Melody starting on G4, marked *f* in the first measure and *sub. p* in the third measure.
- Violin II:** Flourishes starting on B3, marked *f* in the second measure and *p* in the third measure.
- Viola:** Accompaniment starting on G3, marked *f* in the first measure and *sub. p* in the third measure.
- Cello:** Accompaniment starting on G2, marked *f* in the first measure and *sub. p* in the third measure.

System 2 (measures 4-6):

- Violin I:** Continues melody, marked *sub. f* in the second measure.
- Violin II:** Continues flourishes, marked *f* in the second measure.
- Viola:** Continues accompaniment, marked *sub. f* in the second measure.
- Cello:** Continues accompaniment, marked *sub. f* in the second measure.

The image shows a musical score for a string quartet (Violin I, Violin II, Viola, and Cello) for measures 7 through 11. The score is written in 4/4 time. The key signature has one sharp (F#). The music features a melodic line in the upper strings (Violin I and II) and a counter-melody in the lower strings (Viola and Cello). The score includes dynamics such as *f* (forte) and vibrato instructions: "gradually no vib → vib". A fermata is present over the final measure of the excerpt.

FIG. 6.2. "The Theme" with Countermelody

Strings are also effective at adding harmony to a melodic line. Luckily, strings blend beautifully with nearly every melody. The only thing to watch out for when adding harmony is voicing tight intervals too low. As you get below the G below middle C, the arrangement can get muddy if the notes are too close together. It's also best to keep cellos to the roots or fifths once you get much below middle C. The rich harmonic overtones of the cello make tight harmonies in the low register confusing to the ear. Basses need to be on the roots or fifths most of the time.

Here is an example of a harmonized melodic line. Parallel harmony is a common sound in some Eastern European styles and also American roots traditions, especially in the vocal lines. Great players can add harmony to any melodic line easily. Note the characteristic klezmer "limp" in bars 3 and 11. There will be more on klezmer music in chapter 7, "Stylistic Approaches."



Audio 72

KLEZZIFIED with Parallel Harmony

Rabson

Violin I

Violin II

Viola

Cello

6

Vln. I

Vln. II

Vla.

Vc.

11

Vln. I

Vln. II

Vla.

Vc.

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FIG. 6.3. "Klezzified" with Parallel Harmony

FILLS

Strings are consummate responders. When a vocal line stops for breath, add a melodic string *fill* as a rejoinder—a witty or sympathetic comment on what was just sung. It is important, in moments like these, to be sure that the rejoinder is as catchy and singable as the original melody itself. It is effective to keep the rejoinder in the same octave as the vocal to make it sound more conversational. Putting the fill in a higher octave is a good way to add some drama, like a gasp from the audience begging the question of the vocalist, “And then what happened?”

Good voice leading is critical here. Your players will play much better, and your composition will be of much higher quality if every line you write has a singable beginning, middle, and end. If your voice leading has the leading tone played by one instrument and resolved by another, then find another way to voice it. Everyone will play better if they can make a complete line out of their own part. Be sure you can easily and enthusiastically sing every part you write.

The best fills are those that use some musical element from what has come before—a motif from the melody or part of the rhythm-section groove. That way, the composition as a whole has some continuity. You can hear, in well-composed pieces, that every single note has a good reason to be there. Don't feel you have to start from scratch when writing fills. Find some small part of the melody (or groove), and develop that idea. This will reinforce the melody (or groove) and keep your listeners intertwined with your composition all the way through.

In audio example 73 (figure 6.4), you can see and hear that the fills played by the viola reference the melodic line in bars 4 and 7.

KING STREET TANGO with Fills



Audio 73

M. Rabson

The musical score is arranged in four staves: Violin I, Violin II, Viola, and Cello. The key signature has one flat (B-flat) and the time signature is 4/4. The score is divided into two systems. The first system contains measures 1 through 4. The second system, starting with a measure number '5' above the first staff, contains measures 5 through 8. The Violin I and II parts feature long, sweeping melodic lines with slurs and accents, marked with a forte 'f' dynamic. The Viola and Cello parts provide harmonic support with rhythmic patterns and chords, also marked with a forte 'f' dynamic. The score concludes with a double bar line at the end of the eighth measure.

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FIG. 6.4. "King Street Tango" with Fills

There is an occasional exception to the rule of using melodic information from within the piece to inform your fills or counter lines. Introductions to vocals in contemporary music rarely use any information from the melodic line to come. Singers often like to be the first to introduce the song. Check out the iconic string intro by Riley Hampton to "At Last" by Etta James. Wonderful, unforgettable material, but it doesn't give away the melody. Songs in opera and musical theater do use the melodic material from the song as introduction.

PADS

String *pads*, the long notes or “goose eggs” that strings often play, can be the glue that holds an arrangement together because strings can hold notes forever. Since they have infinite sustain, string sections are wonderful for presenting the harmonic content without interfering with the rhythmic or melodic content. For the smoothest possible pads, ask your string players to stagger their bowing—i.e., make a point of changing bow direction at different times. With this technique, we don’t hear the interruption in sound that we would hear when all the bows change direction at the same time.

Including an up-bow mark and a down-bow mark next to each other like this will indicate staggered bowing.



FIG. 6.5. Pad with Staggered Bowing

When choosing pitches for your pads, the sky is the limit. Clusters work, open voicings are also great, and parallel harmony is fantastic. Strings blend as beautifully as voices. S-A-T-B can easily be converted to Violin 1-Violin 2-Viola-Cello. A string quartet can hold down the entire harmonic palette. The bass can be used to augment the low end.

If you have only one string player to work with, then you can add harmony using chord tones. Be sure your line has good voice leading and can stand alone as an interesting melody. In figure 6.6, the top line is the melody. The second line could be played by a violin, viola, or cello.

Audio 74

 A musical score for two staves in 4/4 time. The top staff is labeled 'Melody' and the bottom staff is labeled 'Harmony'. The melody consists of five notes: G4, E5, A4, D5, and G5. Above the melody are chord symbols: GMa6, Emi9, Ami9, D9, and GMa7. The harmony consists of five notes: C3, G2, C3, F#3, and G2.

FIG. 6.6. String Voicings for Two Players

If you’ve got two players accompanying the melody, then use the strings for the *guide tones*—the notes that give the chord its color and flavor, usually the 3 and 7.

Here is an example with two accompaniment players. As always, good voice leading makes a huge difference and is more important than making sure every guide tone is covered. You can see that in the second measure, I chose to leave out the 9 (B) because there was no way to include it with good voice leading. If I put it in the lower part, then the next interval skip is a fourth—not quite as elegant as the third, which was the same interval skip in the first measure of that same part.

 Audio 75




Melody

Harmony 1


Harmony 2

GMa6 Emi9 Ami9 D9 GMa7

FIG. 6.7. String Voicings for Three Players

 Audio 76

Here is a melody with three accompanists.



Melody

Harmony 1

Harmony 2

Harmony 3

GMa6 Emi9 Ami9 D9 GMa7

FIG. 6.8. String Voicings for Four Players

If the guide tones are covered or not required, then use the strings to add the notes that create tension—the notes outside the chord that build the drama in your arrangement, such as the 9, 11, and 13.

Avoid voicing tensions and guide tones too low. As mentioned, it is a good idea to keep the tense notes above the G below middle C. Occasionally, the 3 can go as low as E below middle C.

How you voice your pads can add a lot to the arrangement. The octave surrounding middle C is good neutral territory for voicing. It is still in the vocal range, so even tensions

aren't too scary here. Keeping the voicings close (within the span of an octave) is also somewhat neutral. We tend to hear the color of the chord but aren't distracted by it. That way the melodic line can still come out.

As you move higher in pitch, the timbre will add more drama. Pads using the high notes of the violins tend to leave the listener feeling like they are suspended from above. Pads in the high register can draw attention from the melody. Careful use of dynamics can mitigate that potential problem. The lower registers of the viola and cello add a more grounded, rooted sound.

Using a wide voicing where there is more than a tenth span between the cello and the first violin is a great way to open up the scope of your arrangement. The expansive range broadens the soundscape.


Here is an example of good string voicing. I've included the grand staff version with chord symbols of this first. The first three measures show close voicing. Measures 4 to 6 show a wide range.

The musical notation for FIG. 6.9 is presented on a grand staff (treble and bass clefs) in 4/4 time. It is divided into two systems of three measures each. Above the treble clef staff, chord symbols are provided for each measure: GMa6, Emi9, Ami9, D9, GMa7, GMa6, Emi9, Ami9, D9, GMa7. The first system (measures 1-3) illustrates close voicing, with notes clustered within a narrow range. The second system (measures 4-6) illustrates wide voicing, with notes spread across a much larger range between the two staves.

FIG. 6.9. Strings Voicing Alternatives on a Grand Staff

Figure 6.10 arranges figure 6.9 for strings. Violin I has the melodic line. In measures 4 to 6, you can see that the upper voices are following the ascent of the melodic line to strengthen that motion.

Notice that the bass is always on the root. The viola gets double-stops in bars 5 and 6. As mentioned, sixths are usually easy to play and keep in tune. If you have a bigger orchestra, you might want to mark that double stop as *divisi*.

 Audio 77

GMa6 Emi9 Ami9 D9 GMa7 GMa6 Emi9 Ami9 D9 GMa7




FIG. 6.10. Voicing Alternatives for Strings

Be sure to orchestrate so that the important part of your arrangement can be heard. Sometimes, orchestration is more effective than dynamics. Haydn rarely used dynamics in his string quartets because he didn't need them. His orchestration is so brilliant, there is never any confusion about which part is in the forefront.

When writing pads, it is useful to think about how and when you want to hear vibrato. To add drama, you can begin without vibrato (using the *non vib* notation) and then add vibrato to enhance the peak of the story. This idea may take some rehearsal since it is not common practice for classical musicians.

 Audio 78



FIG. 6.11. Variations in Vibrato

Careful use of dynamics with pads is another way to make sure the contour of your line is where you want it. Small hairpin dynamic markings can breathe life into a static line.



Audio 79

FIG. 6.12. Variation in Dynamics

In the 1970s, synthesizers that could imitate string sounds came into fashion. It then became much easier and less expensive to ask the keyboard player to add some string pads than to bring a string section to every gig. Synthesizers have gotten better over the years, and keyboard strings are still common. As mentioned in the introduction to this book, live players bring a lot of added excitement and musicality to any performance. A simple marking like “*espressivo*” can bring a thrilling vitality to a human performance that wouldn’t be there if the part were played by a computer or synthesizer.



Audio 80

FIG. 6.13. Espressivo

COMPING

Strings are often used for rhythmic emphasis. In *charanga* (the grandfather of salsa), the strings are often used as pitched rhythm instruments playing the *montuno* (the melodic line that emphasizes both the internal rhythm and the harmonic motion) or melodic versions of the percussion parts. Listen to Orquesta Aragón, Orquesta Broadway, and Pupi Legarreta for great examples of strings smoothly going back and forth between melody, pads, and rhythm section.

In American roots styles such as bluegrass, all the instruments take turns in the melody and the rhythm section. This is where “chopping” got its start. (See chapter 5, “Chops, Ponticello/Feedback, Portamento, and Falls.”)

One of the most commonly used devices to enhance the rhythmic feel of a piece is the repeated note. It’s the sound used in lots of Beatles tunes like “Eleanor Rigby” and “Fool on the Hill,” as well as Coldplay’s “Viva La Vida.” This technique has been used for centuries in all styles of music. It adds drive and excitement to any composition pushing the story line forward. Listen to the accompaniment parts in Vivaldi’s *The Four Seasons*. In all of these examples (and lots more), the chord tones are voiced out for strings and act as a metronome or click track with harmony.



Here's an example of that repeated, rhythmic sound.

Audio 81

The musical score consists of five staves: Violin I, Violin II, Viola, Cello, and Double Bass. All parts are in 4/4 time. The key signature has one flat (B-flat). The music is a rhythmic exercise consisting of a steady eighth-note pattern. The dynamic starts at *p* (piano) and ends at *ff* (fortissimo). The melody in bars 5-8 is doubled by two players, creating a slight chorus effect.

FIG. 6.14. Rhythmic Repetition

Lines in parallel fifths between cello and viola sound great just like the bass and guitar in metal bands. Here is an example played with a live string section. Note that there are two players doubling the melody in bars 5–8. This creates a slight chorus effect. See the section called “More than One,” later in this chapter, for more on this phenomenon.



Audio 82

METALYPTICA

Parallel Fifths

Rabson

Violin I

Violin II

Viola

Cello

3

Vln. I

Vln. II

Vla.

Vc.

5

Vln. I

Vln. II

Vla.

Vc.

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The image displays a musical score for four string instruments: Violin I (Vln. I), Violin II (Vln. II), Viola (Vla.), and Violoncello (Vc.). The score is divided into three systems, each containing two measures. The first system starts at measure 7, the second at measure 9, and the third at measure 11. The key signature is one sharp (F#), and the time signature is 7/8. The Vln. I and Vln. II parts play a melodic line with a half note followed by a quarter note, then a quarter note followed by an eighth note, and finally a quarter note. The Vla. and Vc. parts play a rhythmic accompaniment of eighth notes in a pattern of two beamed eighth notes followed by a quarter note. The Vc. part has a sharp sign above the first measure of each system. The score ends with a double bar line and a repeat sign at the end of measure 11.

FIG. 6.15. "Metalyptica" for Parallel Fifths

Another effective way to add rhythm to your string parts is to divide up the rhythm-section parts and arrange them for your string section. In a typical string quartet, give the bass part to the cellist, the drum groove to the violinist or violist who has some experience with chopping, the rhythm guitar part to one violinist, and the horn lines to the other violinist. Here is the opening of a tune called “Strap” that illustrates how to split up the rhythm-section parts.

STRAP

Rabson

Audio 83 Play 4X

Tacet 1st, 2nd, and 3rd Time

Tacet 1st and 2nd Time

Tacet 1st Time

3

Vln. I

Vln. II

Vla.

Vc.

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FIG. 6.16. “Strap” with Voiced Rhythm Parts


Just about any tune can be fully realized by a string quartet. Bass lines, rhythmic structure, melody, and harmony can be easily conveyed by the four voices of this ensemble. There are many arrangements on the market of popular tunes arranged for string quartet. Check out the catalogue at Stringletter Media. The Vitamin String Quartet also publishes

some great arrangements of pop tunes. Eric Gorfain with the Section Quartet does a lot of arrangements in this category.

Lots of variations of this idea are possible. Find the rhythmic essence of your piece, and write it for the strings in unison. Use the string section as a substitute for the rhythm section while the members of the rhythm section take a solo.

One issue that can come up when asking your string players to act as a rhythm section is related to the classical training that most string players get. In classical music, as mentioned in chapter 1, “String Player Perspectives,” string players work hard to obfuscate the change of bow. When your strings are functioning as rhythm section players, ask them to keep their bows on the string at all times to *emphasize* the change of bow direction. This is a subtle but powerful technique. When the change of bow direction is emphasized or even accented, then the end of the note is crisp, adding tremendously to the punch and dance feel of your writing.

Here is the viola part from figure 6.16 played with typical classical technique: with vibrato and a lifted bow.

 Audio 84



Viola 

FIG. 6.17. “Strap” Viola Part with Vibrato and Lifted Bow

Here is the same passage with no vibrato and the bow kept on the string to emphasize the ends of notes and the change of bow direction.

 Audio 85


Viola 

FIG. 6.18. “Strap” Viola Part without Vibrato, and Bow on the String

Keeping the bow on the string in this way is rarely done in the classical world. There is no special notation for it, and you may get some resistance from your players when you ask them to use it. With the right players, it can make a huge difference in performance.

SECTION SIZE

In the past, composers used big string sections because one string player wouldn't be heard in a large ensemble. But that limitation is different today thanks to contemporary sound reinforcement technology. One string player can be an equal voice in any band. Each player can be thought of as an audible single part, whether that part is featured or blending with the horn or rhythm section. It is wonderful to have the sound of a full string section, but it is no longer a necessity in many circumstances.

One Player

A single violin can add a lot to a group's sound. Jerry Goodman with the Mahavishnu Orchestra and Boyd Tinsley with the Dave Matthews Band are great examples. Violin is also an important part of the country music scene. As a single instrument, the violin can harmonize with the melody, add a countermelody, function in the rhythm section, and be a soloist.

Want to punch up the groove? Write a repetitive rhythmic part for your violinist, like in “Ants Marching” from the Dave Matthews Band. You can double one of the parts in the rhythm section (like the snare or tom part) or write a part that complements the rhythm section.

Want to add some romance? Think of the string part as a secondary melody or a counterpart to the main line, singing a duet with the storyteller. It can soar into the upper register with joy and longing, or it can growl on the lower strings with pain and regret. Viola and cello can also be very effective in this role.

Let the violin have the solo. That can make the whole thing very romantic and emphasize the emotional content of your tune. It will also set your music apart from every other tune that features a guitar solo.

Since the violin and the voice are often in the same register, it is best, during the verses, to leave the violin out or write something very simple and unobtrusive. A single, voice-led guide tone behind the melody on the second verse is a good way to add some subtle drama without obscuring the focus. Then, let the violin soar when the chorus comes along.

My favorite of all instruments, the viola, is also well suited to this role. The warm, rich, chocolatey sound of the viola C string is what first drew me into playing a string instrument. It has an earthier, more human sound than the ethereal violin and is just as compelling in the rhythmic moments.

The cello can add an even more romantic sound to your ballads because it has a bigger range. It digs deeper into the emotional pits and soars almost as high to dramatic ecstasy. The cello can drive the band with a rhythmic part in the lower register. It will fatten up any groove when doubled with the bass or bass drum part. Check out *Apocalyptica*, the rock cello trio, for the power of the cello.

More Than One

Be careful when using two individual players on the exact same part. The slight discrepancies in intonation and vibrato will add a chorus effect. You will hear the variations of pitch, and it will sound like two individuals playing that part instead of a section. This is a common sound in vocal parts, but it can sound like a fight between two out-of-tune string players.



Audio 86

FIG. 6.19. “King Street Tango” Melody with Two Players

If you are looking for a fuller section sound, be sure to have at least three people playing the same part. The variations in intonation and vibrato come together beautifully when played by three or more players. The result will sound like a section rather than three individuals. (I’ve added the bass line in figure 6.20.)



Audio 87

FIG. 6.20. “King Street Tango” Melody with Three Players

In a larger ensemble with three or more players on a part, the minute variations in intonation and vibrato add to the overall wash of sound.

One way to get two people on the same part is to separate them by an octave or two. That way, you’ll have the reinforcement of the single line but without the chorus effect. When doubling the octave, make sure the lower octave is brought out more. Everyone should tune to the lowest note.

KING STREET TANGO
With Melody in Octaves

M. Rabson

Audio 88 ♩ = 96

Violin I
Violin II
Viola
Cello

6
Vln. I
Vln. II
Vla.
Vc.

11
Vln. I
Vln. II
Vla.
Vc.

p *mf* *cresc.* *f*

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Fig. 6.21. "King Street Tango" Melody in Octaves

RANGE

Our ears hear higher pitches differently than lower ones. High pitches tend to cut through and become prominent. Lower ones are more likely to fill the room and be “felt” as much as “heard.” Keep this in mind as you are crafting your string parts. Harmony is harder to hear in both extremes of the range. Use dynamics to keep the focus on the melody.

Violins usually capture your listeners’ attention because they play higher pitches. If you want the violins in a background role, then mark your dynamics accordingly.

The sound of the cellos fills the room with its rich sonority. If you want the cello to play a melodic part in the sonic foreground, then use dynamics and orchestration to make sonic space for that.

The viola in the middle is the most versatile, since it can do some of both. Because it is in speaking range, the viola’s sound has the most human quality. It is often buried between the dominant violins and the resonant cellos. Like the voice of reason, the viola can bring both sides together. Orchestration and dynamics must be carefully designed to let that voice come through.

Get to know the sounds of strings in various combinations and as solo instruments by listening to the works and studying the scores of composers who have written for strings. Listen for the subtle shading and the expressive qualities that are not yet available in music writing software and are difficult to notate.

Stylistic Approaches

Bowed string instruments are played the world over. There are an enormous variety of bowed string instruments and a great variety of musical cultures that host those instruments. Even if we limit ourselves to just violins, violas, and cellos, there is still a huge assortment of musical styles played on those instruments.

This chapter is by no means a comprehensive listing of musical instruments or cultural styles. It is a brief introduction to just a few of the styles that are becoming more familiar as the world gets smaller. It is also an invitation to become acquainted with the rich trove of possibilities. New genres are often created by the unexpected combination of familiar ideas.

The violin is the string instrument of choice in most of the styles discussed here. Violas play a unique role in Hungarian music (see page 83). Otherwise, they are rarely found in the traditional forms of these styles. Five-string violins are becoming more and more prevalent among players who are interested in many of these styles. With five strings, players can have the rich sound of the viola as well as an extended range.

Cellos, when present, are usually in the role of accompanist either doubling bass lines or adding rhythmic parts such as chops. But cellists are now emerging as melodic players and expanding the vocabulary for players and composers. Basses, when they appear, are most often in the rhythm section. The astute arranger/composer/producer can take advantage of this information and create work in front of the curve.

All of the genres listed here have their roots in music that is intended for dancing. A strongly conceived rhythmic part is essential for an authentic sound.

Ideally, the best way to evoke an authentic sound in any of these styles is to hire players who are steeped in the tradition.

AMERICAN ROOTS

Music that can be traced to rural and early American music from the first half of the twentieth century has come to be called American roots music. It is a vast genre that includes blues, bluegrass, Cajun, classic country, early gospel, early jazz, folk, old time, polka, Tex-Mex, Western swing, and lots more. Violins in particular have always played a large part in the music that makes up the American roots classification. Next to Western

classical training, roots training is the most common background for string players in the United States. Some of the basic differences between the roots sound and the Western classical sound were discussed in chapter 1, “String Player Perspectives.”

Each American roots style has its own set of unique technical and musical elements such as bowing, ornamentation, chord structure, rhythmic feel, intonation, etc. Many of those details are significantly different from those used in classical music. As a composer/arranger, it is important to become as fully immersed as possible in those details. As a music producer, it is important to find players that are well versed in the genre in order to make a convincing contribution.

There are several elements to keep in mind when writing in these styles.

Strong Rhythm

A powerful characteristic that American roots styles share is an emphasis on rhythm. Most of this music is played for dancing, so rhythmic expression is of paramount importance. The time must be solid and constant. It is expressed by constant running eighth notes. The bow never leaves the string. Rests are extremely rare. In this way, roots styles are reminiscent of the unaccompanied works for violin and cello by Bach. Sometimes those notes are part of the melody, sometimes they are part of the bass line, sometimes just filler in between melodic ideas. But every subdivision is accounted for.

Roots players often emphasize every change of bow direction to add to this rhythmic drive. This is contrary to classical training. There is no standard notation symbol for this. Be prepared. You can use text to explain the sound you are looking for.

If your writing is to mimic this style, be sure to add lots of accents that emphasize the strong beats. Often, those strong beats are 1 and 3. This is true in polka, Tex Mex, and classic country music. If you are writing bluegrass or Western swing, 1 and 3 are still your strong beats, but 2 and 4 should get a nice kick, too, just like jazz and blues.

Fiddle Keys

Roots music is always written in sharp keys so that the open strings can ring and be used as drones as well. The drone and the ringing sound of the fiddle are very characteristic of this sound. Players should be encouraged to use open strings whenever possible. This, again, is contrary to classical training.

First Position

Most roots players play only in first position where the left hand is as close to the scroll as possible. That finger placement allows the strings to vibrate as much as possible producing that open ring so common in these styles.

WESTERN SWING

In addition to the techniques mentioned for roots styles, Western swing is characterized by the wonderful sound of three or more violinists playing the melody in very close harmony. Typically, the person playing the melody will be sandwiched between a violinist playing a harmony above the melody and another violinist playing the harmony below the melody. All players use the same rhythm. The harmonies need to be as close as possible. The harmony follows the chord changes. When harmonizing the melody in this way, emphasize chord tones as well as 6 and 9. Augmented dominant chords (1, 3, #5, b7) are also used frequently.

In figure 7.1, notice that there is a notation for swing feel. It may be useful to write “Western Swing” to indicate the emphasis on the strong beats in addition to the swing eighth-note feel. The key is string-friendly. The open strings are marked with “o” to keep everything ringing in 1st position. The accents are added to distinguish the important notes from the ghost notes. The bowing emphasizes the syncopation.

In this example, Violin I is playing the melody. You can see that Violin II is playing higher than Violin I, and Violin III is playing lower. In classical music, the first violin almost always plays the highest notes.

 Audio 89 Swing ♩ = 160



The musical score consists of two systems of three staves each, labeled Violin I, Violin II, and Violin III. The music is in 4/4 time with a key signature of one sharp (F#). The tempo is marked as 'Swing ♩ = 160'. The score shows three measures of music. The first measure has a G chord, and the second and third measures have a D7 chord. The Violin I staff plays the melody, while Violin II and Violin III play in close harmony above and below it. The score includes various musical notations such as accents, bowing marks, and open string indications.

FIG. 7.1. Western Swing Harmony

Bob Wills and Milton Brown are the best-known Western swing bandleaders. Recently, the Quebe Sisters and the Hot Club of Cowtown, fronted by fiddler Elana James, are keeping the Western swing tradition alive and well.

CELTIC

Many different musical cultures have come under the umbrella title of Celtic music because those varying cultures can claim a common Celtic ancestry. The most familiar forms of Celtic music are heard in Ireland, Scotland, and much of Atlantic Canada, such as Newfoundland, Cape Breton, and Prince Edward Island. Each region has a distinct accent including a particular assortment of bowings, ornaments, and rhythmic feels. But they do share some distinct commonalities. Many tunes are part of the Celtic repertoire in every region, even though they may be played differently depending on who is playing them and where they are being played. The Dorian mode (built on the 2nd degree of the major scale) is heard frequently in Celtic music. The 6/8 meter divided into two groups of three beats is used regularly.

Fiddles are an integral part of Celtic music. Many of the ornaments of Celtic music are familiar to the classically trained string player because they resemble Baroque ornamentation. But, as always, the distinct feel and bowing vocabulary can be elusive to notate accurately. There is a lot of dynamic shading that makes this style unique. In classical music, players work on making sure that each note has a full, round sound. In many other styles, there is a lot of dynamic shading within an ornament that adds a unique sound.

As usual, the best way to evoke a truly Celtic sound is to hire players who are steeped in the tradition.

Two characteristic techniques of the Celtic string tradition are the roll and the cut.

Here is an example of a typical *Celtic roll*. An x note head indicates a ghost note. The roll should be played quickly enough that those notes are only hinted at.



Audio 90



FIG. 7.2. Celtic Roll

One ornament that is not part of the Western classical pedagogy, and particularly difficult for the uninitiated, is the *cut*—the rhythmic crunch that so beautifully accentuates the melodic line.

The sixteenth notes are played very quickly and with a tiny bit of bow. The effect is made by a tensing and releasing of bow pressure between the middle and the tip of the bow, using a short spasm of the wrist. Cuts are heard as more of a rhythmic punch rather than a melodic line. I have indicated an up-bow to start here, but good Celtic fiddlers can do this starting on a down-bow, too.



Audio 91



FIG. 7.3. Celtic Cut

Cellists are being heard more and more in the Celtic tradition. They can take the role of melodic players and provide strong chopping to propel the rhythm. Scottish fiddle master Alasdair Fraser works with cellist Natalie Haas. She can be heard playing the melody and creating a number of accompaniments for his traditional sound.

Hanneke Cassel, Martin Hayes, Frankie Gavin, Liz Davis Maxfield, and Liz Carroll are just a few of the well-known Celtic musicians working today.

FIDDLE VS. VIOLIN

I am often asked about the difference between a fiddle and a violin. There is no difference in the instrument itself. Both words derive from a Latin ancestor. Sometimes, the distinction is in the music being played. For example, “violin” is for Western classical music, and “fiddle” is for folk music. But players themselves rarely make that distinction, and many use the two words interchangeably.

JAZZ/SWING

The most important musical element that differentiates jazz and swing from Western classical music is the feel. String players who have only studied classical music have a difficult time creating a convincing swing feel. Part of the reason for this is the inadequacy of notation. Most classical string players are trained to interpret the written page in the context of the classical genre. If you don’t have any experience listening to and playing a swing feel, there is no amount of notation that will help you understand and execute it convincingly. Swing isn’t exactly dotted eighths and sixteenth notes. It isn’t exactly groups of triplets. It certainly isn’t straight eighths, as it is often notated for players who are already initiated into the genre. To make things more complicated, the swing feel has changed over the decades. Since classical training does not include any sort of attention to swing feel, string players often fall short.

Luckily, more and more string players are learning to play jazz and swing accurately and beautifully. A string player who can swing and read is a valuable asset.

To make things easier for your players, notate with as much accuracy as possible. Adding dynamics, accents, and ghost notes in the right places will help make your intentions clear. Ghost notes (mentioned in the Celtic section) are also prominent in jazz and swing.

Here is an example of a jazz run with accents and bowings and ghost notes (indicated by “x” note heads). The last two notes are articulated to help the player make the “bebop” ending.



Audio 92



FIG. 7.4. Jazz Line

The pioneers of jazz violin include Joe Venuti, Stuff Smith, Eddie South, and Svend Asmussen. Jean-Luc Ponty crossed many genre borders with his playing. He began as a classically trained violinist at the Conservatoire de Paris. He went on to play jazz, rock (with Frank Zappa), and fusion (with the Mahavishnu Orchestra). Ponty continues to tour with his own bands. Zbigniew Seifert was a Polish violinist who contributed greatly to the genre before his untimely death at the age of thirty-two. The more contemporary players include Christian Howes, Rob Thomas, Sara Caswell, Regina Carter, Jason Anick, Billy Contreras, and Mark Feldman, among many others.

GYPSY JAZZ

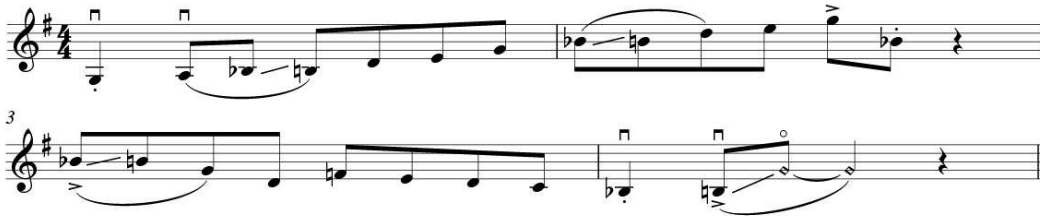
Gypsy jazz is a familiar sound in the string world. It is characterized by strong classical technique combined with a swing feel. Vibrato and virtuosic left-hand dexterity are prevalent. Sweeping arpeggiated runs from one end of the range to the other are common.

A strong swing feel is necessary to play this music convincingly as well as syncopation and asymmetrical phrasing. Gypsy jazz players also use rubato occasionally in their phrasing. Sometimes, a run or arpeggio is pulled or stretched out of time to emphasize the dazzling brilliance of the melodic sweep.

The “slurp” is common in this style. It is very easy for string players to make a small portamento between two notes. This can be a charming, evocative sound when used occasionally. (It can become a cloying caterwaul when used too often.)



Audio 93



GYPSY VS. ROMA

The people called “Gypsies” started out in northwest India. They migrated through the Middle East and North Africa and finally moved into Eastern and Western Europe. They call themselves “Roma.” The term “Gypsies” came into use because the Europeans thought they came from Egypt, but it is now generally considered an ethnic slur. However, the term persists in discussions of musical styles and theory. We use it here because it is a fixture in the common parlance, but acknowledge its problematic history.

ROCK/POP

The use of strings in rock and pop is a familiar sound. The various feels in these categories are easily notated and understood by classically trained string players. Strings have been part of many rock and pop bands over the years, both as soloists and in sections. Contemporary artists continue to use strings.

Rock and pop bands tend to use strings the same way that the classical composers used them. Any classically trained string player can fit into a string section in a rock or pop band without any big changes in technique or feel.

Repeated Notes

The drive in rock and pop often comes from repeated notes with intense rhythm. Strings are ideally suited for this. Vivaldi did it (*The Four Seasons*), Rossini did it (*The Barber of Seville*), Stravinsky did it (*The Rite of Spring*), the Beatles did it (“Eleanor Rigby”), Led Zeppelin did it (“Kashmir”), and Coldplay did it (“Viva La Vida”), just to name a few.

Be sure to add accents and let your string players dictate the groove. It is a powerful sound.

The music in these styles requires string players to make those same technique changes from classical training previously discussed, namely curtailing vibrato and keeping the bow on the string at all times to emphasize the intense rhythmic drive and syncopation.

String players who can make those adjustments to their technique are ideally suited for both funk and fusion. Funk is characterized by its intense groove. String players who are well-versed “choppers” can easily realize the intense grooves of funk. Fusion shows off fast lines with a great deal of harmonic complexity. String players have been doing that for centuries. Most classical composers write fast, harmonically complex sections specifically for strings, making strings ideally suited for dazzling fusion riffs.

HIP-HOP/R&B

String players with a strong classical background and contemporary tastes are often drawn to hip-hop and R&B. Many classical techniques are heard in the work of these players. Strong vibrato, rhythmic double stops, powerful accents, and solid tone on every single note are just some of the characteristics that distinguish this sound. The energy of hip-hop mimics the flair and drama of many virtuosic works that classical players study. Paganini would probably have been drawn to hip-hop, had he lived in our time.

Like jazz and swing, hip-hop has a unique feel. The rhythm of the lyrics is probably the best indicator for the accurate feel. Again, like jazz and swing, music notation has a limited capacity to describe the feel of hip-hop. For classically trained string players, this can be difficult. Asking your players to match the rhythms of the lyrics and the rhythm section is a good way to get them into the right feel.

String players who are working hard to incorporate non-classical ideas into their playing of hip-hop and R&B include Daniel Bernard Roumain, Paul Dateh, Miri Ben-Ari, Chelsey Green, and the duo called Black Violin. Hip-hop/R&B artists who use strings (such as D’Angelo) tend to keep them in the role of pads, wrapping the sound in that delicious, stringy warmth.

CHARANGA

Charanga is the ancestor of salsa. This style developed in Cuba in the late nineteenth and early twentieth centuries. Charanga is a combination of African rhythms and European harmony and, most importantly for this book, European instrumentation. Strings play a very prominent role in charanga. In fact, in addition to playing the melody and holding together the harmony, strings are part of the rhythm section playing the montuno (the syncopated vamp played under solos), or voicing out rhythmic riffs with the percussion instruments. This suggestive use of strings was somewhat scandalous in its day. It gave rise to the dazzling horn sections in salsa bands.

Charanga is one of the few genres where strings with a classical sound and technique are playing melodies in the rhythm section. Classical technique is well suited to charanga. Many of the original players were Europeans, or were trained by Europeans. This is another genre where clean accents are important to the rhythmic drive. Keeping the bow on the string at

all times will easily accomplish that goal. This venerable tradition is a beautiful example of how strings can add rhythm as well as harmony and melody.

Here is an example of a typical montuno that string players might play in a charanga band. Notice how the “clave,” the underlying rhythm, is expressed. This example is a 2–3 clave.



FIG. 7.7. 2–3 Clave



Audio 95

You can see and hear the 2–3 clave in this example because the first bar starts on the beat and most of the syncopation comes in the second bar.



FIG. 7.8. Charanga Montuno



Audio 96

The string montunos are often harmonized in the same way that harmony is added to Western swing, but usually the melody is kept on the top line.

FIG. 7.9. Charanga Montuno Harmonized

Orquesta Aragón is a Cuban band that has been playing charanga for decades. Pupi Legarreta led a spectacular charanga for many years. New York-based Orquesta Broadway is one of the style's most popular and long lasting groups.

EASTERN EUROPE

String bands have been around for centuries in many parts of Eastern Europe. Perhaps the most famous ensembles have been bands of gypsies or Roma musicians. It has been said that they are the fastest players on earth and certainly the most passionate. Roma bands inspired many works by composers in the Romantic period. Because of that, classically trained string players are able to create a gypsy sound with some authenticity.

Much of Eastern European string music uses modes of the harmonic minor scale as the basis for its harmony.



FIG. 7.10. G Harmonic Minor Scale

The mode built on the fifth degree of this scale is commonly used as the tonic.



FIG. 7.11. Scale Built on the 5th Degree of G Harmonic Minor

You can see that the tonic chord is a dominant 7 (D, F#, A, C). And the lowered 2 and 6 add the flavor of this music.

The chord built on the 7th degree of the scale (C, Eb, G) is often used as the second most important chord.



Audio 97

Here is an example to help hear the sound of the mode. Note the rhythmic parts in the viola and cello and tight harmony in the violins (all in thirds).

$\text{♩} = \text{c. } 160$

FIG. 7.12. 5th Degree of Harmonic Minor as Tonic

In Hungary and Romania, there are string bands made up of a “primas” violinist playing the melody, a bass player playing the downbeats, and a kontra comping rhythmic triple stops. A *kontra* is a viola (or violin) with three strings (G, D, A) and a sawed-off bridge, making it easier to play chords on three strings at the same time. The traditional band Muzsikás has many great examples of that sound.

As with the other genres, each region of Eastern European folk music has unique ornaments, techniques, bowings, and tune structures.

The trill in traditional Hungarian music is unique. Folk violinists from Hungary hold their instruments slightly differently than classically trained musicians. The left hand is flattened out against the neck of the violin. When the neck is held like that, the trill changes. In classical music, trills are two independent notes played one after the other. But, when the left hand is pressed up against the violin, the player can put those two fingers next to each other and add a little vibrato. It's a very different sound and unique to this area.

There is no universally used notation for this, but here is what it sounds like. Notice that all trills in Hungarian traditional music are half-step trills regardless of the key signature.

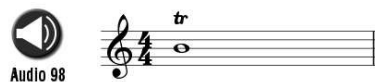


FIG. 7.13. Hungarian Trill

Everyone has heard about Gypsy violinists. For centuries Gypsies have produced the fastest and most expressive violinists in the world according to many accounts. They appear frequently in literature and, of course, many composers were drawn to their passionate playing. Itinerant bands of the Middle Ages were not complete without at least one Gypsy fiddler.

Because of the interest of late nineteenth-century composers in this music, there is an affinity between classically trained musicians and Eastern European styles. We are familiar with the classical version of this music. Composers such as Brahms, Liszt, Wieniawski, Bartók, and many others drew inspiration from the fiddle music of Eastern Europe. Probably the best-known gypsy/classical works are Brahms' *Hungarian Dances*, the “Czardas” by Vittorio Monti, and Pablo de Sarasate's *Zigeunerweisen*.

For more traditional performances, including the fine details that make the genres unique, you can begin by checking out Muzsikás and the Ókrös Ensemble from Hungary, Aleksandar Šišić from Serbia, and Taraf de Haïdouks from Romania.

KLEZMER

Klezmer music started out as the celebratory music of Eastern European Jews. Like many Eastern European musical traditions, klezmer music has been around for centuries. Unlike most folk music traditions, klezmer has actively sought to explore and incorporate the music from other musical traditions. Traditional klezmer repertoire includes music with Turkish, Bulgarian, Romanian, Russian, and Polish roots. Today's klezmer bands include

jazz, rock, hip-hop, and much more in their music. So the question is, what distinguishes klezmer?

Here are two characteristics of klezmer that set it apart from the other Eastern European styles.

The first is the ornament that has come to be known as the “doit-da.” It is meant to imitate the catch in the throat when singing something with overwhelming emotion. It can be heard in cantorial music as well as in the Islamic call to prayer. Instrumentalists imitate that sound.

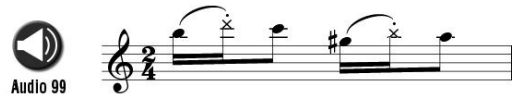


FIG. 7.14. Doit-da

The “x” note heads are ghost notes. The pitches are indeterminate. They are just there to stop the sound.

The great klezmer violinist, Alicia Svigals, always plays those ghost notes with her fourth finger (left-hand pinky), making the ghost note always a perfect fourth away from the initial pitch. Even though the ghost notes are not heard, using the fourth finger does give it a unique sound.



FIG. 7.15. Doit-da Variation

The other unique element of klezmer music is the underlying rhythmic phrasing. You can see that it is similar to the “three” bar in the Latin clave.



FIG. 7.16. Klezmer Freylach Rhythm

ARABIC MUSIC

Intonation is cultural. It has changed over time and is very different from one musical culture to another. There are several non-classical tuning systems that are worth mentioning here, for the arranger who is looking to expand the possibilities.

Arabic music uses many ancient scales called “maqam” that have important differences in intonation from scales used in Western classical music. Those of us who are trained in classical music refer to the notes that we are not used to hearing as “quartertones” as we attempt to make sense of the sound through the lens of our training. Those notes are part of conventional practice for Arabic musicians.

There are more and more musicians around who can play both classical and Arabic music well. It will be worth it to get the authentic sound and bring a gorgeous color into your writing.

Typical bands consist of a featured soloist with bowed and plucked strings and Arabic percussion, making a breathtaking blend of melodic and rhythmic elements. One compositional element worth noting is the use of repetitive interjections. Often, in an Arabic song, you will hear brief unison flourishes from the strings in between the melodic phrases. These interruptions are similar to the fills from the horn section you might hear in an American pop tune.

If you look up “violin taksim” on YouTube, you will find wonderful examples of this sound. This music may sound “out of tune” in spots. The performances may be out of Western Classical intonation, but they are very much in tune in Arabic music. You’ll also hear a lot of portamento and typical Arabic ornamentation.

Some great Arabic violinists are Simon Shaheen, Aboud Abdel Al, Ahmad al-Hifnawi, and Saad Mohammed Hassan.

AND MORE...

There are many bowed string traditions around the world that contribute enormous beauty to the art of music, many more than can be addressed within the covers of this book. Argentina is the home to tango, in which the violin has always played a prominent role, second only to the bandoneon. The music of Astor Piazzolla has a lot of inspiring string writing. Mexico and Brazil claim string traditions. The violin and other bowed string instruments figure prominently in the music of India. There are an enormous number of stringed instruments that have been popular throughout the vast regions of Asia for many centuries, including the kamanche popular all over Asia, the haegeum of Korea, and the erhu of China. The Mongolians play a family of strings known as the morin khuur. These instruments and the music played on them trace a 2,000-year-old tradition that is deeply connected to their relationship to their horses—the same horses that Genghis Khan used to conquer Europe. In Ethiopia, bards keep the history of their tribes in song accompanied by the single-stringed masenqo. Violinist Noise Khanyile was the leader of a South African pop band.

Many bowed string instruments around the world carry their own reverb with them in their sympathetic strings. The nyckelharpa from Sweden, the Hardanger fiddle of Norway,

the gadulka from Bulgaria, and the sarangi from India all use sympathetic strings that are only there to amplify the resonance of the strings that are played.

Enjoy the wide world of bowed string instruments. These sounds and styles may help you create a new sound that will become a genre of its own. There are many artists around who are working to blend traditional styles in a way that creates new vocabulary. Yo-Yo Ma, known primarily as a classical cellist, is working on bringing the world together through the music of the Silk Road. Itzhak Perlman has made recordings of tango and klezmer music. I've mentioned Jean-Luc Ponty several times. His contribution has been significant. Classically trained, Ponty has been an icon in the jazz, rock, and fusion worlds. Liz Davis Maxfield has opened up doors for the cellist with *The Irish Cello Book* (Berklee Press, 2013). Natalie Haas is also adding Celtic vocabulary for cellists in her performances with Scottish fiddler Alasdair Fraser. Fiddler Mark O'Connor mastered many American roots styles and went on to create new jazz vocabulary as well. Also on the forefront of creating new vocabulary are violinist/violist Jeremy Kittel and cellist Mike Block. Mike compiled a book of etudes using contemporary techniques (*Contemporary Cello Etudes*, Berklee Press 2017), which is a great resource for string players looking to expand their skills.

Improvisation or Written Part

Most contemporary classical music training typically does not include improvisation in any form, despite the fact that until the middle of the nineteenth century, classically trained musicians were expected to be able to improvise. Many classically trained string players have developed their skills as improvisers. But the vast majority of string players are deeply intimidated by the idea of making something up on the spot.

String players who have a background in American roots styles are much more likely to be comfortable making up a part. Bass players are also more likely to have some experience in music that requires improvisation.

AN IMPROVISED PART

Asking your players to improvise a part is really only practical if you work with one player at a time. One common scenario is to ask a solo string player to fill in the spaces between phrases. That is a great way to enhance the storytelling.

If you want an improvised part, be sure to hire someone who has experience with this skill. Offer as much guidance as possible. It will save a lot of time and effort if you can articulate your ideas about what you are looking for. Even small directions like “gently,” “head-over-heels,” or “rhythmic” can make a huge difference for the player.

Some producers offer only the lyrics as direction. The lyrics are useful for setting the mood of the piece and knowing where the gaps are between vocal lines, but it is also useful to have the chords and especially the form of the tune as well. Some composers use the Nashville number system to indicate chord changes. (Instead of using letter names for chords, the Nashville System uses scale degree numbers.) This can be very useful in diatonic music. Again, it is important to choose a player who has some experience with reading and improvising over changes or using the Nashville system.

If you have an idea about the shape of the piece ahead of time, let your player know about that. Dynamics, timbre, accents, note density, and harmonic ideas are all part of the improviser’s palette. Any counsel you can offer on any of those ideas helps your player to bring your idea to life. If your plan is to hire someone whose playing you love and ask them to fill in those gaps, then be sure to use specific language regarding those parameters as you hone in on the final part. A good player will be glad to have the direction and appreciate the guidance.

SOMETIMES

Rabson

Gospel Feel ♩ = 40

Chords: G, B7/F#, Bmi7b5/F, E7, EbMa7, CMa7/D, D7, A7/C#, Cmi6, G/B, BbMa7, Ami7, D7, Emi7, D7/F#, Ami7, D7, GMa7, F7, GMa7, F#mi7b5, B7(#9), Emi /D# /D /C#, Cmi, D7, Emi, A7, Ami, D7, G, B7/F#, Bmi7b5/F, E7, EbMa7, CMa7/D, D7, A7/C#, Cmi6, G/B, BbMa7, Ami7, D7, G

1. Ami7 D7 Emi7 D7/F#

2. Ami7 D7 GMa7

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FIG. 8.1. "Sometimes"

If you are asking your player to make up a part on the spot, it's a good idea to provide them with some staff paper. That way when they come up with something you like, they can write it down and reuse it throughout the piece, giving their part some continuity.

Frequently, producers will *comp* together a part from several recorded passes—that is, combine the best elements from several takes. This is a useful technique. The player can try out several ideas and, with some good editing, a fabulous part can emerge.

Typically, an improvised part will take longer to record than a written part. It should take a few tries to flesh out the part that best fits the mood and storyline of the music. Using an improviser to create a part can be rewarding. They may bring in new ideas that are particularly idiomatic to string playing.

Figure 8.1 is an example of a lead sheet with the melody, chords, and form. There are no dynamics on this lead sheet, but the higher pitches towards the end will naturally lift the dynamics.

There are a number of options here. One would be to have your string player improvise some long tones or “goose eggs” to fill up the harmony behind the melody. Pitches that are not in the melody are the best ones to flesh out the chord. Good players can add double stops in this context to add as much harmony as possible. Include rhythmic hits at the ends of phrases to add to the drama of the storytelling.

Another choice is to add some fills during the long notes of the melody like in measures 10, 14, and 19 in figure 8.1.

Finally, you can leave room for an improvised solo in any of the sections. If you have any ideas about the shape you'd like that solo to take (“end with a big flourish,” or “start big and fade out”), this is the time to let your soloist know.

A WRITTEN PART

If you are writing a part, the optimal path is to get the part to the player ahead of time along with any audio that is already recorded. Give your player a sense of what you are looking for emotionally. Guide them through the phrasing with dynamics. Ask for comments or suggestions about how to make the part add to your vision.

Always try to have a general idea of what you want, but be open to new ideas that your player might bring in as well.

Strings in the Score

The string section is typically included at the very bottom of the score. As with all instruments, the strings are scored with the highest pitched instruments on top: violins first, then violas, then cellos, and finally basses. All the examples in this book are written that way.

If your bass player is functioning more in the rhythm section than in the string section, then it is beneficial to put the bass part near the rhythm section, particularly next to the drums. Basses and drummers form a tight rhythmic unit. It is useful to see their parts close together on the score. Often, the left hand of the piano doubles the bass part and the guitar can be part of that as well.

Here's how the strings look in an orchestral score and jazz band score.

ORCHESTRAL SCORE

Piccolo

Flute 1

Flute 2

Oboe

English Horn

Clarinet in Eb

Clarinet in Bb 1

Clarinet in Bb 2

Bass Clarinet

Bassoon 1

Bassoon 2

Contrabassoon

Horn in F 1

Horn in F 2

Trumpet in C 1

Trumpet in C 2

Trombone 1

Trombone 2

Tuba

Timpani

Percussion

Harp

Piano

Violin I

Violin II

Viola

Cello

Contrabass

JAZZ BAND SCORE

Alto Sax 1

Alto Sax 2

Tenor Sax 1

Tenor Sax 2

Baritone Sax

Trumpet in Bb 1

Trumpet in Bb 2

Trumpet in Bb 3

Trumpet in Bb 4

Trombone 1

Trombone 2

Trombone 3

Trombone 4

Violin

Viola

Cello

Guitar

Piano

Acoustic Bass

Drum Set

FIG. 8.2. Orchestral and Jazz Band Scores with Strings

STRING PARTS

There is an overused convention in score preparation where it is considered ideal to set four bars in a system. While this is sometimes helpful for seeing form and keeping harmonic phrases intact, string players are used to reading parts that have more measures on each line, particularly if the music is not rhythmically dense. Also, professional engravers work to make the page turns easy, and often that requires many measures on each line. Opt for easy page turns that make sense in favor of four bars per staff.

Enharmonic Spelling

It's much easier to sight-read a B than a C \flat , although there are times when C \flat is the right choice. Make your parts as easy to read as possible. String players like sharps and sharp keys because open strings are tuned to the tonics of sharp keys. The instruments resonate more in the sharp keys because some of the overtones match the open strings. If it is easy and makes sense with the other parts, substitute sharps for flats. Watch out for F \flat 's and C \flat 's. Sometimes E and B work better and are easier to read. It will be well worth it in time saved during rehearsal and better intonation if your parts are readable.

Music Writing Software

If you are writing on Finale, Sibelius, or other music writing software, be prepared for things to sound different when played by humans. Every musician hates the in-the-box sounds of their own instrument. Strings are no exception. One major difference is the use of vibrato. Music notation software typically uses one kind of constant vibrato. Classically trained string players do use vibrato most of the time; however, it is anything but constant. Good players are always varying the speed and depth of their vibrato to enhance the melodic and emotional content of the piece. A fast, narrow vibrato is used to exaggerate moments of heightened excitement. A slow, wide vibrato can be used for moments of release. Strings can also be asked to play without any vibrato or vibrato only on the ends of long notes like a singer. Those variations in vibrato can add dramatically to your storyline but are hard to get notation software to understand.

Another difference between human string players and software string players is intonation. Because string instruments have no frets or keys, string players are able to "enhance" their pitch to intensify the melodic line. The major third in a major triad is often played a bit sharp to boost the rising feeling. Leading tones are often pushed up slightly to increase the drama of the tension resolving to the tonic. Likewise, minor thirds in a minor triad are lowered a tiny bit to add to the melancholy of a minor key.

Many composers lose sight of these subtle yet powerful enhancements that are added by human performers. Try to think of the software playback as the outline of your music. Living string players can add color, depth, and perspective to that outline.

If you have written your string parts with music writing software, but are going to ask real humans to play the parts, then be sure to give the humans a chance to read through the part a few times to understand your vision. You have lived with the music for a long time. Your players may be great sight-readers, but it may still take a few times through to unravel your expectation. Any guidance you can give, either in the parts (dynamics, phrasing, etc.) or verbally (sad, happy, expectant, etc.), will be useful.

Recording and Sound Reinforcement

RECORDING ACOUSTIC STRINGS

Make Tuning Easy

Intonation needs constant attention on fretless, wooden instruments. During a recording session, be sure to provide an A tuning note that can be easily accessed. That A should be 440 (or whatever A you are using) and should not have any vibrato, reverb, or chorus on it. A repeated piano sound is ideal. Many players now use tuning apps on their phones for quick touch-ups anytime. But it is still advisable to provide the A that you are using for your recording, recorded onto a track if possible.

Mic Technique for Solo Strings

Getting a rich, round sound on a bowed string instrument in the studio is an art. A room with a gorgeous acoustic sound, a warm ribbon mic, and a good player are not enough. Placement of that mic is critical.

Think of the body of the string instrument as its amplifier. Amplifiers are designed to be heard from some distance away. It is the same with strings. I've heard people say that if you stood right next to the brilliant violin virtuoso Jascha Heifetz, all you would hear would be "pffftfpfpssp." Likewise, if you place the mic up close to the strings and the bridge, you will get the sound of the bow scraping across the strings rather than the warm sound of the instrument resonating. This is especially true for the very highest range of the violin way up on the E string.

If you really want the full sound of the instrument, it is better to mic the instrument from a few feet away. Take a moment before recording and walk around the instrument to hear where that instrument sounds best in that room. Sometimes, the best sound comes from behind the instrument close to the floor. Most often for violins and violas, it is in front and above the instrument (4 to 6 feet away) aimed at the fingerboard. The best sound for cellos and basses most often comes from the wood below the f holes.

Here is a melody played on a violin, with the mic placed relatively close to the f holes facing the fingerboard.



FIG. 9.1. Melody for Microphone Variations. Track 101 at 2 feet, track 102 at 6 feet.

Audio 102

Track 102 is the same melody miked from farther away. Imagine a clock face on the floor. The player is facing 12:00. For this instrument, the mic is placed at about 10:00, 2 to 3 feet above and 4 to 6 feet away from the instrument aimed at the fingerboard.

Audio 103

You can always mix them together. Track 103 is a blend of the two mics.

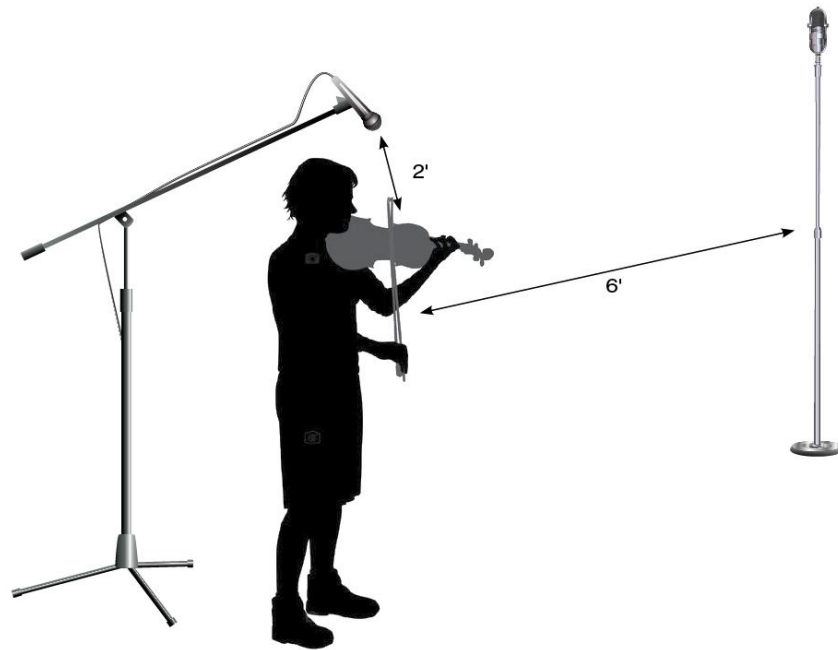


FIG. 9.2. Mic Placement Options

If you are lucky enough to be in a room with warm, rich resonance, then use an omni mic to pick up some of that sound. If your room is not very resonant, then use a cardioid pattern to pick up as much of the instrument sound as possible without including the room sound. You can always add reverb later in the process.

MIC TECHNIQUE FOR STRING SECTIONS

Quartets or Less

If your session calls for a string section, there are several ways to handle the placement of players and mics. The standard small string ensemble instrumentation is the string quartet: 2 violins, 1 viola, 1 cello. Most composers have written for this instrumentation, and most players have spent some time playing string quartets. It is a familiar and comfortable setting both for players and listeners.

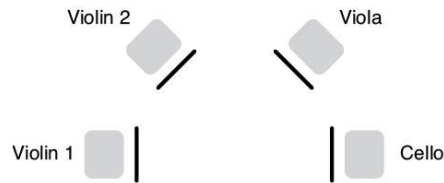


FIG. 9.3. Quartet Placement

When recording sections of four (or less), it is ideal to mic them as if you are listening to them play a concert. Surround the players with as much wood as possible (wooden gobos behind this group are very helpful), and put up some good room mics. Ribbon mics tend to give strings the richest sound. The players will use their best performance skills in this simulated concert setting. In addition to room mics, you can add some overhead mics on the violins and viola if you feel you want some more control. Be sure they are far enough away to optimize the warm sound of the instruments. You can also add a shotgun mic on the cello to mix in some added bottom.

A number of engineers who specialize in classical music are placing the cellist on a wooden platform about 6 inches off the ground. This helps to emphasize the richness of the low notes and gets the sound of the cello closer to the mics.

The first violin is always located stage right. Usually, the cello is stage left, though sometimes, the viola is in that position. The players can work that out themselves.

More Than a Quartet

If you'd like to make these four players sound like more than four, you can triple-track the group. (See below regarding doubling.) Don't feel compelled to add each performance into the headphone mix. (See below regarding headphones.) Let your players record each track as if it were the first. Adding the other tracks in the headphone mix usually just adds clutter. If there are any subtle discrepancies, those will be amplified during second and third passes, making it hard to know which pass to match.

Track 104 is the sound of a string quartet. Track 105 is the same music triple-tracked.



Audio 104
Quartet



Audio 105
Triple-Tracked

MIMI'S MINOR MAMBO

for String Quartet

Rabson

Violin I *f*

Violin II *f*

Viola *f*

Cello *f*

Vln. I ⁴

Vln. II

Vla.

Vc.

Vln. I ⁸

Vln. II

Vla.

Vc.

ff

ff

ff

ff

The image shows a musical score for a string quartet, specifically measures 12 through 15 of the piece "Mimi's Minor Mambo". The score is written for four parts: Violin I (Vln. I), Violin II (Vln. II), Viola (Vla.), and Violoncello (Vc.). The key signature is one flat (B-flat major or D minor), and the time signature is 4/4. The music begins at measure 12, marked with a dynamic of *mf* (mezzo-forte). The Violin I part starts with a half note G4, followed by quarter notes A4, Bb4, and C5. The Violin II part starts with a half note F#4, followed by quarter notes G4, A4, and Bb4. The Viola part starts with a half note G3, followed by quarter notes A3, Bb3, and C4. The Violoncello part starts with a half note G2, followed by quarter notes A2, Bb2, and C3. The music continues with eighth and sixteenth notes in all parts, with a *mf* dynamic throughout. There are some markings above the notes, including a 'V' and a square symbol, which likely indicate bowing or fingering techniques.

FIG. 9.4. "Mimi's Minor Mambo" for String Quartet

SEATING

Seating is a big deal for string players. It is a coveted honor to be the first chair player and a big responsibility. It is the first chair player's job to create and communicate the bowings, the phrasing, and even the musicality to the other players, and to translate and transmit the conductor's wishes to the rest of your section. Most professional string players have spent time in the first chair and time not in the first chair. It is best if you can create a seating chart rather than have your players figure it out for themselves. Choose a concertmaster that you can work with and who will command the respect of the other players. Ask your concertmaster to suggest where everyone else should sit before the session so that there won't be any confusion at the session.

Your concertmaster is a great resource. In addition to setting up a seating chart, the concertmaster can help you get the most out of your music by suggesting bowings and fingerings that will convey your musical wishes. There are lots of options available, and your concertmaster can help sort through those options to find the most effective ones. Any time you can spend with the concertmaster before the session will save you time and energy in the studio. (See Chapter 1, "String Player Perspectives," for more on this.)

Another way to add to the depth of your section is to move the players around the room, while keeping the stereo pair of mics in place.

If you have the space in your studio, you can set up twelve chairs and have your quartet move to a different seat on each pass. Start with the first chair, and move to the back seats. That's how track 105 was recorded.

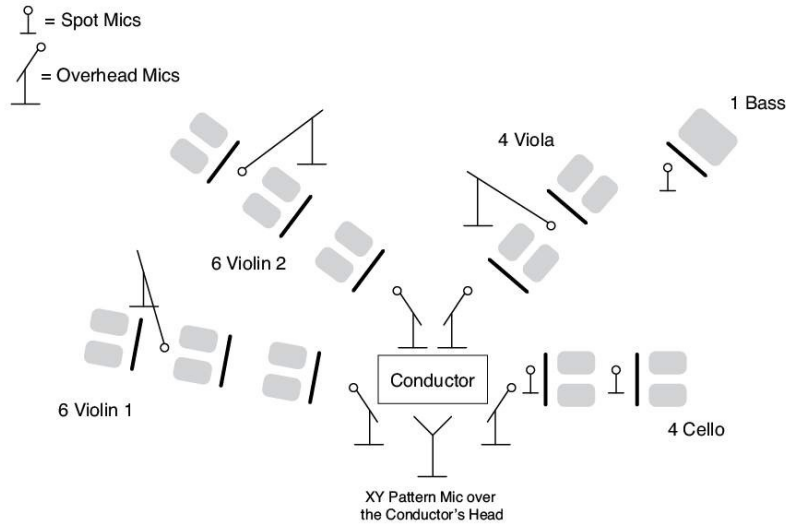


FIG. 9.5. Mixed Seating for Triple-Tracking

Typically, string players sit two to a stand. Bass players often use one stand per player. The first violin section is at stage right. Usually, the cellos are stage left, though like a quartet, sometimes the viola (or second violins) and cello sections switch positions. The first chair players sit closer to the audience.

String players cannot be grouped as closely together as brass or wind players because of their bows. Make sure there is enough room between chairs for enthusiastic bowing. Armless, straight back, non-folding chairs will go a long way with your players.

The number of players in each section can vary. Most often, the number of first and second violin players is equal. The number of cellists and violists is close to equal but less than the number of violins. There are fewer basses than cellos. The lower notes of the basses and cellos fill the room and can obscure the other sounds. Typically, we need more violins to cut through the resonance created by the lower strings.

In the example in figure 9.5 we have six first violins, six second violins, four violas, four cellos, and one bass player. This is a typical medium-sized ensemble.

If you are lucky enough to be able to work with a large section, then mic each group with two overhead mics per three to four players. Make sure the mics are at least three feet away. You may want to add spot mics for the cellos and basses for some added control in the mixing process. Keep the room mics up to help the group sound like it is in an acoustically rich concert hall. In this situation, it is generally better to use a cardioid pattern for the overhead mics positioned in an XY pattern. You can also use a Decca tree as a sole source over the conductor's head.

Isolation

String sections are just that: sections. Using too much isolation will hamper the group energy. That energy cannot be created by software. The subtle changes in intonation, vibrato, and expression will be diffused and lost if your string players are isolated from each other. Consider the quality of the performance when you are thinking about isolating each player.

If you must isolate the players, then be sure they can see each other. That will help to engender the feeling of a group performance.

Beware of Doubling

If you are looking for an orchestral sound in your recording, it is better to triple-track, instead of just doubling. As discussed in chapter 6 (tracks 86 and 87), doubled strings have a unique sound. It is more like a chorus effect. Since most string players use vibrato, there will always be a noticeable discrepancy in pitch when there are two players on a part. It sounds like two players who don't quite agree. If you instruct your players not to use vibrato, then the slightest intonation issues between them will be magnified and sound like a battle.

Headphones

Everyone uses headphones a little differently. The style of music and the instrumentation can make a big difference in how headphones are used. Getting the headphone mix right can be a big waste of expensive studio time. Here are some techniques for saving that time and getting a great product.

I find that the most effective use of headphones for string players is to have the right ear on and the left ear off. Cellists in particular need one-ear headphones because the “can” on the left gets in the way of the cello neck. Since the players can hear themselves in their left ear acoustically, there is rarely a need to put their own sound in the phones.

Additionally, there can be a slight delay between the acoustic sound they are hearing in their left ear and their sound in the headphone, which can create confusion while tracking. In large string groups, it is hard to hear yourself when you are playing in tune. The tendency in this situation is to play just a little sharp in order to hear yourself. If you are tripling tracks, this will add to intonation problems.

The elements that string players need the most in their headphone mixes are the click track (if there is one) and the bass part, so they can stay in tune. Good players should tune to the lowest note. Anything else tends to clutter up the sound and add confusion to good execution. Vocals can be problematic in string players' phones. Vocals are usually in the same range and have much more leeway in terms of tempo and pitch. Think twice before including vocals in the headphone mix. Remember to create a mono sound for the headphones and pan everything into the can going on the right ear. If the players have their own control for the monitors, make sure to let them know how to adjust it.

A BIG SECTION WITH A SMALL BUDGET

It has become customary to record a large string section “in the box” with a library of orchestral sounds and then to add one live player to give it that “human touch.” This is a cost-effective measure that can deliver a compelling product. But there are some pitfalls to watch out for. Intonation is the first.

Because string instruments have no frets, they are able to enhance their intonation to highlight the harmonic function of each note they play. String players often play leading tones a little sharp to help lead the listener to the resolution of the tonic. When appropriate, they play the third of a minor triad a little flat and the third of a major triad a little sharp, magnifying the emotional content. It is a subtle practice but can be very effective. The problem arises when a live player is playing with musicians in a library of orchestral sounds. That library was created to be neutral—all notes in equal temperament—so they can play in any key. Therefore, any accentuation that a live player adds will sound out of tune with the library sounds. Most professionals are used to playing with recorded tracks and can easily temper their intonation. But it is something to keep in mind during the recording process.

RECORDING: PICKUPS vs. ELECTRIC INSTRUMENTS

Amplification: Acoustic Instruments with Pickups

Pickups are devices that translate acoustic sound into electronic signals. Pickups on acoustic string instruments are getting better all the time. There are many kinds and brands, and no industry standard has emerged as of yet. Some pickups mount on or under the bridge, some on the instrument itself. Pickups are problematic because they amplify the sound right on the instrument. Acoustic string instruments are designed to be heard from a few feet away. So, often, the sound from pickups does not present the instrument at its best. This is particularly true for violins and violas. Some pickups sound better than others, but most players feel there is some compromise that needs to be made. If given the choice when recording, most players would opt for a good mic in a warm, rich room.

Pickups tend to highlight the parts of an instrument's sound that most players would prefer to de-emphasize. Because pickups are mounted on the instrument, the sound of the bow scraping across the string is prevalent rather than the tone of the instrument itself.

One of the wonderful things that Stradivarius did for bowed string instruments was to carve out the wood in such a way that the high frequencies are accentuated. This made it possible for the soloist to be heard over the larger orchestras that were becoming fashionable at the time. Most instruments of today are modeled on that idea. That means when you add a pickup to an instrument, the highs are further emphasized. Because of the accentuated highs, most pickups on violins and violas sound nasal. Many violin and viola players want a warmer tone and usually turn down the highs on any amplifier they use regardless of the pickup. Generally, pickups sound better (in terms of tone quality) on cellos and basses than on violins and violas. Work with your players to get a tone they love.

If you do use a pickup, then consider taking two tracks for each string player. One track should be a DI from the pickup. (The DI signal should preferably go to a tube mic pre, which

will tend to add a darker, warmer sound compared to a solid-state pre.) The other track should come from the amp, just like you would do for a guitar player. If any effects pedals are being used, consider taking another track that is after the pedals but before the amp. That way, you will have lots of choices about how to mix the signals together. Figure 9.6 details these various options.

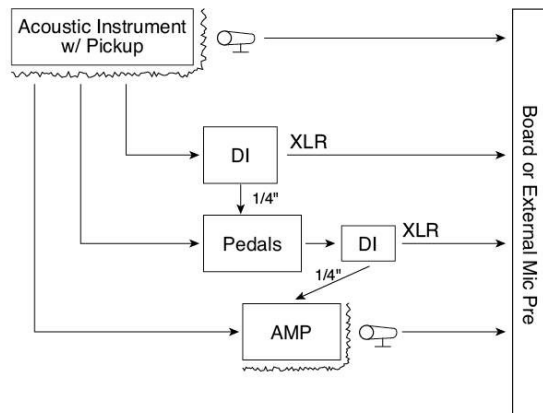


FIG. 9.6. Recording Options

Amplification: Electric Instruments

There are a number of good electric instruments on the market. Many players who play with bands are opting to avoid feedback problems by using solid-body electric instruments. This is similar to the transition that guitar and bass players made from acoustic to electric instruments. It is taking longer for violinists, violists, and cellists to convert in part because amplifying bowed instruments is somewhat more complex. There are many players who have worked hard to get an electric setup that they love.

In the studio, it is helpful to work with players who have developed their own electric sound. Let them bring in their own equipment and create that sound in the studio. If your players would rather use the studio's equipment, then take some time to find the amp and combination of gains that makes the sound you want.

Electric instruments do not sound like acoustic instruments. They have a different timbre. This is true for guitars and basses the same way it is for bowed string instruments. Jean-Luc Ponty was one of the first violinists to make the switch. He comments that we don't expect electric guitars to sound like acoustic guitars. We should embrace the new timbres available to string players and create with those sounds in mind.

As with electric guitars and basses, the amplifier is a big part of any electric instrument's sound. Many string pickups have a nasal sound with emphasis on the high-mids. Most guitar amps work hard to emphasize the highs with knobs like "presence" and "bright." Unfortunately, those are exactly the frequencies that string pickups are already accentuating. Finding a good sound with guitar equipment can be a challenge. It's true that the

sound will cut through the band clearly, but that “knife” may have too sharp an edge to it. Sometimes, using a bass or keyboard amp instead of a guitar amp can help round out the sound. A powered speaker designed to pick up a wide range is a good choice for a clean sound. Using a preamp is another way to warm up the sound while boosting the level.

When you record an electric instrument, consider taking three tracks: a DI directly from the pickup, a DI from the amp with effects, and a mic on the amp with effects. That will provide the greatest flexibility.

Effects

Generally speaking, string players who are using electric instruments or pickups with any regularity are also using effects. Most string players work with some sort of preamp to help the sound of the pickup. After that, there is a long list of effects that are in heavy rotation among electric string players: volume, wah, distortion, chorus, delay, reverb, harmonizers, looping pedals, etc. Singer/songwriter/violinist Andrew Bird is a prolific user of looping pedals. Tracy Silverman, Casey Driessen, Mark Wood, Zoë Keating, and Joe Deninzon are among the many string players who are using effects of all kinds brilliantly.



Audio 106

Track 106 is an example of an electric violin with delay, distortion, and reverb.

Headphones

I have always found that there is more musicality when the players can play together in the same room as if it were a performance. But that is often not possible. If players must record independently or in isolation, then electric string players will need both headphones covering their ears, since (like electric guitars and basses) the instruments make no sound on their own. A lot of time will be saved if each player has control over their own headphone mix. It may be a good idea to offer the direct sound as well as the sound after effects in the headphones.

If your players are in the studio together and can hear each other playing, then it might be effective to have one headphone on and one off just like in an acoustic setting. Hearing the live sound directly is energizing.

SOUND REINFORCEMENT ON STAGE

Many of the issues that come up in the studio present themselves in live situations as well. Let's start with amplifying acoustic string instruments.

Acoustic Strings

Acoustic string instruments are designed to be heard from a few feet away. Putting the mic close to the bridge or the f holes will get you a clear representation of the bow scraping the strings—not the rich sound of the body of the instrument. However, the constraints of the stage or the other instruments playing may make it impossible to put the mics anywhere else. Sometimes, the strings can be walled off with plexiglass like drummers often are. That can give the mic a little more room. Be sure to use a cardioid or super-cardioid mic

instead of an omnidirectional mic to ensure minimum pickup of surrounding players and help control feedback.

There are a number of good clip-on mics designed for live performance. Many players have their own. The potential for feedback is always a problem lurking in a situation like this, but seasoned professionals can keep that potential under control.

Many players today also have pickups on their acoustic instruments. That can help with the feedback issue, but beware that each pickup has its own sonic issues. Blending a section of players each with a different pickup can be a challenge for the front-of-house engineer.

Headphones/Monitors

Headphone technology is changing fast. The best option here is for each player to be able to control their own monitor mix and to be able to add their own sound into what they are hearing. If in-ear monitors are used, it is often more important to have the click track and the bass in the phones than anything else, in a live performance. String players should have the option of hearing (in order of importance) the click track, the sound of the bass or lowest instrument, their own sound, and the sound of their section. Good players tune to the lowest note. All the other parts can be useful, but are not necessary for a clean performance.

Electric Strings

If you are working with string players using electric instruments, then outfit them as you would an electric guitar or bass player. Each player should have their own amp and on-stage sound. Usually, electric string instrument players have worked long and hard on getting that on-stage sound. That is the sound that should be heard by your audience. Mic the amp, and allow the player to share the effected sound they have created.

CELLISTS SITTING VS. STANDING

Many cellists are choosing to stand when they play. There are several electric cellos made to do this, and there is an item called the Block Strap that makes standing while playing a possibility for acoustic players as well. Standing string players add a wonderful visual component to a performance. Mike Block (inventor of the Block Strap) and Rushad Eggleston are pioneering this new technique.

AFTERWORD

NEXT BIG STRING THINGS

Music played on bowed string instruments goes back eons, but there are lots of new trends just around the corner. New mic and pickup technology is emerging every day. My own feeling about amplifying string instruments is that there is still an opportunity for an iconic electric violin sound that is analogous to the iconic electric guitar sound we all love. I look forward to being able to plug in an electric instrument and having it sound good—iconic, even—as is, without any extra equipment.

Even More New Techniques

There are several easy-to-play techniques that are used both by musicians who play “free” (improvised music without preconceived parameters) and by classical musicians who specialize in music of contemporary composers. These techniques will become more familiar as more adventurous arrangers, composers, and performers use them.



Audio 107

The first is bowing the very short part of the string that is between the bridge and the tail-piece. The sound here is unique. The pitches are fixed and can only be changed by detuning the string. The pitches are also somewhat unpredictable and will be different for each instrument. The high pitch of these notes creates a great haunting effect.



Audio 108

The second is the idea of pulling the winding on the bow across the strings rather than the hair. This unique sound effect could be more utilized, although most players may react the same way they react to *col legno*—namely, with trepidation about the damage that it will cause, in this case, to the strings. Players who use pickups or electric instruments may be more open to this technique because it doesn't take much pressure to make this sound if the instrument is amplified—hence, less chance of damage.



Audio 109

Expanding on the idea of chopping is the idea of overpressure—using a lot of pressure to get a gritty sound. Players use a heavy bow hand similar to the one used for chopping but pull the bow fast and far enough to actually produce a pitch.

I'd like to take this moment to mention two of my favorite “free” players: Leroy Jenkins and Billy Bang. Whenever I play their performances for my classes, the class instantly splits right down the middle. Half the class says, “That's the coolest thing I've ever heard!” and the other half, with just as much vehemence, “That's not music!” In my opinion, any music that can draw that much controversy is worthy of exploration.

There are two composers worth mentioning in this field as well: Lawrence D. “Butch” Morris, who invented *conduction* (or conducted improvisation), and Walter Thompson who invented soundpainting. In each case, the conductor uses the orchestra as an instrument and improvises on/with that instrument using only hand gestures. In the case of conduction,

those hand gestures can be interpreted differently by the players. Soundpainting carries a dictionary of hand gestures that are more codified.

Last on the list of new techniques are sub-harmonics. At the moment, the only person who is playing sub-harmonics regularly is the great violinist Mari Kimura. She is able to play many notes below the lowest note on the violin with enormous accuracy. Ms. Kimura has written a number of etudes that show off this range on the instrument. She works with computers and guitar-bots and is frequently found at physics conferences where attendees try to figure out how those sounds are possible.

This reminds me of the story I heard about Stravinsky's iconic bassoon part in *The Rite of Spring*. When he wrote that melody in 1913, it was at the very upper reaches of the bassoon range. He did that on purpose because he wanted it to sound raw and primal. Now, the bassoon range easily covers those notes. Current performances feature the smooth, rich sound of the bassoon without the edge. Stravinsky commented late in his life that if he were to rewrite it, he would set the bassoon's range even higher in order to recapture that more precarious sound.

I am sure that in the not-too-distant future many players will be able to play sub-harmonics and that Ms. Kimura's etudes will be regularly studied and performed. Find her performances online; they are astounding. Be sure to play them for your colleagues who are string players.

Go Forward and Create

Today's string players are exposed to and involved in a lot more music than ever before. String players are bridging the gap between the music they study in their formative years and the music that is all around them. At Berklee College of Music, we require our performance majors to be fluent in at least four styles of music before they graduate. Many other music schools are offering a more varied course of study for their students than they did in the past.

Because of advancing technology, it is no longer necessary to use a sea of strings for them to be heard. A soloist or a small group can participate and compete with the volume levels of the other sections. This adds to the agility and practicality of using strings. Nothing will ever replace the gorgeous sound of an enormous string section, but now, there is a viable alternative.

Arrangers must know the tropes that have come before. A lot of your work as an arranger will be to create something that sounds like something that already exists. But you will also have opportunities to create new ideas and push the art forward. I hope this book offers you some ideas about how to use strings in both of these scenarios.

Selected Listening

This list is meant to offer an entry into these styles and an enticement to investigate the wide world of string music further. The few artists, genres, and song titles mentioned here are intended to whet your appetite. As mentioned in the “Introduction,” string music exists all over the world in the most wonderful variety. This list barely scratches the surface. Enjoy the exploration!

Classical

Bach, unaccompanied works for violin and cello
Antonio Vivaldi, *The Four Seasons*
Gioachino Rossini, *The Barber of Seville*
Ludwig van Beethoven, *Symphony No. 5*
Igor Stravinsky, *The Rite of Spring*, “The Augurs of Spring” and
“Dances of the Young Girls”

String Quartets

Wolfgang Mozart, *String Quartet No. 3 in G Major, K. 156*
Joseph Haydn, *Opus 76, No. 1*
Ludwig van Beethoven, *Opus 18, No. 4*
Felix Mendelssohn, *Opus 44, No. 1*
Maurice Ravel, *Quartet in F Major* (second movement for pizzicato)
Béla Bartók, *String Quartet No. 5*

Movie and TV Scores

Fred Steiner, *Perry Mason Theme Song*
Bernard Herrmann, *Psycho*
John Williams, *Jaws*
Ramin Djawadi, *Game of Thrones*

Chopping

Violinists:

Darol Anger, *Chops and Grooves* (instructional DVD)
Casey Driessen, “Tanuki Attack”
Tracy Silverman, “Europa”

Cellists:

Rushad Eggleston, “Fluffy Arabian Cat Disease”
Natalie Haas, “Salamanca”
Ben Sollee, “Letting Go”

American Roots

Solo Artists:

Eck Robertson, “Sally Gooden,” “Arkansas Taveler,” “Ragtime Annie”
Kenny Baker, “Jerusalem Ridge,” “Gold Rush,” “Ragtime Annie”
Byron Berline, “Sally Goodin,” “Panhandle Rag”
Johnny Gimble, “Panhandle Rag,” “Ragtime Annie,” “Take Me Back to Tulsa”
Michael Doucet, “Jolie Blonde,” “La Danse De La Vie,” “Parlez-Nous a Boire”

Western Swing

Bob Wills, “San Antonio Rose,” “Stay a Little Longer,” “Faded Love”
Asleep at the Wheel, “Route 66,” “Miles and Miles of Texas”

Old Time Country Music

Solo Artists:

William Hamilton Stepp (Kentucky), “The Ways of the World”
Violet Hensley (Arkansas), “Uncle Henry”
Benny Thomasson (Texas), “Midnight on the Water”
Tommy Jarrell (North Carolina), “John Bown’s Dream”
Hazel Dickens (West Virginia), “Pretty Bird”
The Georgia Yellow Hammers (Georgia), “Fourth of July at a County Fair”

Celtic

Irish Solo Artists:

Michael Coleman, John Doherty, Tommy Potts, P.J. Hayes, Martin Hayes

Irish Tunes:

“Boys of the Lough,” “O’Carolan’s Concerto,” “Drowsy Maggie,” “Sí Bheag Sí Mhór”

Scottish Artists:

Hanneke Cassel, Niel Gow, James Scott Skinner, Boys of the Lough, the Tannahill Weavers, Alasdair Fraser with Natalie Haas

Scottish Tunes:

"The Ale Is Dear," "Da Slockit Light," "Donald Willie & His Dog," "Farewell to Ireland"

Jazz and Swing**Solo Artists:**

Stéphane Grappelli, "Minor Swing," "Sweet Georgia Brown," "Daphne"
 Joe Venuti, "Sweet Georgia Brown," "The Wild Dog," "Stringin' the Blues"
 Stuff Smith, "Bugle Call Blues," "You're a Viper," "I Hope Gabriel Likes My Music"
 Eddie South, "Rose Room," "Blues in the Night," "Sweet Georgia Brown"
 Jean-Luc Ponty, "Renaissance," "Mirage"
 Chris Howes, "Isn't She Lovely," "Crazy"
 Rob Thomas, "The River of Orion," "East of Mintaka," "Journey Platz—Part Five"
 Sara Caswell with 9 Horses, "Snow Musik"
 Regina Carter, "Mood Indigo," "When I Hear Your Name"
 Jason Anick, "Stomped Out," "Sleepless," "Caravan"
 Billy Contreras, "Groove Merchant," "Emelia"
 Mark Feldman, "A Nice Idea," "Jazz Violin Solo No. 2"
 Roby Lakatos, "Czardas," "Minor Swing," "Those Were the Days"
 Zbigniew Seifert, "Man of Light"
 Turtle Island String Quartet, "A Night in Tunisia," "Skylife," "Stolen Moments"

Ensembles:

Henry Mancini, "The Pink Panther Theme," "Moon River"
 Nelson Riddle, "Mona Lisa" with Nat King Cole, "I've Got the World on a String" with Frank Sinatra, "Witchcraft" with Frank Sinatra
 Don Sebesky, "God Bless the Child" with Kenny Burrell, "Summertime" with Paul Desmond
 Riley Hampton, "At Last" by Etta James

Rock/Pop**Solo Artists:**

Don "Sugarcane" Harris, "Eleanor Rigby," "Sugar Cane's Got the Blues," "Directly from My Heart to You"
 Papa John Creach, "Milk Train," "Somewhere Over the Rainbow"
 Jean-Luc Ponty, "King Kong," "New Country"

Jerry Goodman, "Brick Chicken," "Going on 17"
Mark Wood, "Fire and Ice"
Joe Deninzon, "Shock Therapy," "One Foot in the Next World"

Ensembles:

The Beatles, "Eleanor Rigby"
Led Zeppelin, "Kashmir"
Dave Matthews Band, "Ants Marching"
Coldplay, "Viva La Vida"
Apocalyptica, "Sandman"
Michael Jackson, "Get on the Floor"
Radiohead, "Burn the Witch"
Resolution 15, "Sufferers Rise"

Funk/Fusion**Solo Artists:**

Sid Page, "Thank you," "I Scare Myself"
Zach Brock, "Mr. Montauk"
Ben Karas, "The Amateur Arsonist's Handbook"

Hip-Hop/R&B**Solo Artists:**

Daniel Bernard Roumain, "Filter"
Paul Dateh, "Paul Dateh and Inka One"
Miri Ben-Ari, "Symphony of Brotherhood"
Black Violin, "A Flat"

Charanga**Solo Artists:**

Jose "Chombo" Silva, "Para Ti," "Para Bailar y Gozar"
Miguel Barbón, "El Niño Prodigio"
Felix "Pupi" Legarreta, "Yo Soy el Guaguancó," "Quimbo Quimbisa"
Alfredo de la Fé, "Bongo Fiesta," "El Manicero"

Ensembles:

Orquesta Aragón, "El Bodeguero," "Cha Cha Cha en la Playa"
Felix "Pupi" Legarreta, "Hay Que Gozar La Vida," El Platanal de Bartolo"
Orquesta Broadway, "Arrepietete," "El Ritmo Changui"

Eastern Europe

Solo Artists:

Aleksandar Šišić (Serbian), “Hora Martisor,” “Ciganski Orijent,” “Srbijanski Vez,”
 “Ciganski Stakato”
 Ion Dragoi (Moldovian), “Suita de Melodii,” “Hora Moldoveneasca”

Ensembles:

Muzsikás (Hungarian), “Kalotaszegi Hajnali Csardas es Szapora,” “Együttes Szól a Kakas Már”
 Taraf de Haidouks (Romani-Romanian). There is a wonderful YouTube video called simply “Balkan Gypsy Folk Music.”

Classical Versions of Eastern European and Roma Music:

Johannes Brahms, *Hungarian Dances*
 Vittorio Monti, *Czardas*
 Pablo de Sarasate, *Zigeunerweisen*

Klezmer Music

Alicia Svigals, “Klezmer Medley”
 Klezmer Conservatory Band, “Meron Nign,” “A Freylekhe Nakht in Gan Eydn”
 The Klezmatics, “Spin Dreydl, Spin,” “Shprayz Ikh Mir”

Arabic Music

Solo Artists:

Aboud Abdel Al
 Ahmad Hifnawi
 Saad Mohamed Hassan
 Abdo Dagher

Free Improvisers

Leroy Jenkins, “Keep on Truckin’ Brother”
 Billy Bang, “Live at the Knitting Factory”

Subharmonics

Mari Kimura, “Gemini for Solo Violin”

Conductors of Improvising Ensembles

Lawrence D. “Butch” Morris, Conduction
 Walter Thompson, Soundpainting

ABOUT THE AUTHOR



Photo by Sage Etrers

Mimi Rabson is a violinist, violist, composer, and educator. Dubbed a “dazzling violin phenom” by the *Boston Globe*, Mimi Rabson has distinguished herself as one of Boston’s most creative and versatile musicians. She appears regularly in classical, jazz, Klezmer, and other eclectic performances. She is a first-prize winner of the Massachusetts Cultural Council Fellowship in composition. Ms. Rabson was a founding member of the Klezmer Conservatory Band and appeared with Itzhak Perlman on the recording

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For more information about Ms. Rabson and her music, visit mimirabson.com.

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Mimi Rabson is a violinist, violist, composer, arranger, and educator. As a multi-stylistic performer and recording artist, her credits include the Klezmer Conservatory Band, Itzhak Perlman's recording *In the Fiddler's House*, Stevie Wonder, Robert Plant and Jimmy Page, Joel Grey, and *The Late Show with David Letterman*. Ms. Rabson is an award-winning composer, providing many pieces for *Strings Magazine's* sheet music division. Her other books include *The Berklee Practice Method* editions for violin, viola, and cello (Berklee Press). She is a professor at Berklee College of Music.

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"Having had the privilege to record, and perform worldwide, gorgeous music created by Mimi Rabson, I am also overjoyed and impressed by her book *Arranging for Strings*. I could not put it down, fascinated with Rabson's stunning wealth of expertise, as well as the exquisite level of care with which she guides, instructs, enlightens, and inspires the reader. Styles, techniques, effects, cultural traditions, various approaches, and recording advice are discussed with crystal clarity, and from the impeccable platform that Mimi Rabson occupies in the string world as a distinguished and versatile artist, educator, composer, and arranger. Her book *Arranging for Strings* is truly indispensable!"

—Elmira Darvarova, Grammy®-nominated, Award-winning Concert Violinist, Former Concertmaster of the Metropolitan Opera, New York

"Mimi Rabson has done a lot of folks a *huge* favor by putting together a truly contemporary book about writing for string instruments in this day and age of DIY arranging/production. Common performance techniques as well as techniques unique to genres of music are covered—but most importantly, with clear and concise audio examples that exhibit the *musical and emotional impact* achieved through these notations and techniques! While it is useful for arrangers and orchestrators at all levels, the truth is that experienced string players looking to expand their technique, other musicians, producers, live/studio engineers, and conductors will also benefit from Mimi's professional insight and detailed explanations.

"Mimi's book looks at a variety of factors that will aid in getting string parts to be their most effective, and most importantly, keep the string players happy, which will most definitely result in a superior performance/recording of what we care about most: the music!"

—Brad Hatfield, Emmy-winning Composer, Orchestrator, Jazz Pianist, and Berklee Online author

"Mimi Rabson, a highly skilled and creative composer and performer, has written an exceptionally useful book on traditional and contemporary string arranging techniques. Her *Arranging for Strings* is a valuable contribution to the field and is sure to become an essential part of the practitioner's library."

—Kari Juusela, Dean of Professional Writing and Technology, Berklee College of Music

"What is wonderful about Mimi's book is that it not only covers traditional string writing, but it also focuses on folk, bluegrass, jazz, non-western, and experimental string techniques, and does so with the same rigor and attention as that applied to classical string arranging. What a joy it is to see a serious arranging textbook include discussion of electric amplification and recording techniques, roots tuning concepts, gypsy and klezmer feel, and even sections on how to notate chopping. Equally wonderful is to see a serious discussion of budget string writing, and how to arrange for smaller groups to get a big, effective sound.

"The modern composer/arranger knows that all of these 'non-classical' techniques are available, valuable, and form an active part of our contemporary string vocabulary. Finally there is a book that treats them seriously, and gives us the understanding that we need to work effectively in the real world of modern music production."

—Sheldon Mirowitz, Emmy®-nominated composer, Professor of Film Scoring, Berklee College of Music



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