Bow Speed Geography
Part II

A study of right hand integrity

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Engraved & Edited by David Connor

In Part I, we explored legato and sustain from the perspective of constant bow speeds. As teachers and learners, we describe evenness as the preparatory step to expression. How can we direct a phrase without the ability to assemble it with total uniformity? We practice orchestral strokes to be robotically unchanging in order to shape passages with pristine purpose. However, total evenness is only one preparatory stage to music making. Next, we must isolate and practice the art of being consistently inconsistent.

The building blocks of expression lie in even and controlled accelerations of bow speed. In physics, acceleration describes both increasing and decreasing changes in speed. Bow speed, rather than weight or placement, is the creator of sound, translating energy from our cells into the string, instrument, and room. Changes in bow speed create direction and gestures of sound. An increase in speed is an increase in volume, seen as using more bow over the same amount of time. Getting louder or softer can be seen as well as heard. Pure gestures come from steady and proportional developments of speed. A virtuoso can visualize changes in bow speed at the subdivided level, taking care of every gesture's detail.

Practicing bow speed acceleration is **skill building rather than repertoire refining**. We must isolate the craft, not only reverse engineer contexts taken from solo or orchestral passages. Performing music involves endlessly complex variables of timbre, vibrato colors, and articulation choices. Musical passages are too complicated for use in effectively isolating a study of changing bow speed in context.. Instead, I use the skeleton of common dynamic gestures for this work. The subtlety and complexity of any inner musical idea is only as hearable as the refined application of this tool.

In Part II of Bow Speed Geography, we further explore legato and sustain through changes of bow speed across universal dynamic gestures: long notes, separate notes, and combinations of the two. Finally, we will explore the implied direction between detached notes.

Anatomy of a Crescendo

When practicing changing bow speeds outside of repertoire, we must first set parameters for the gesture. Let's look at which decisions need to be made.
(Note: The terms "crescendo" and "diminuendo" are meant to be interchangeable.)

Dynamic Range:

Consider the minimum and maximum dynamic range of you and your instrument. Oboe pedagogue Marcel Tabuteau's numbering system can help. He used 0 – 9 (0 to include a wind player's preparation), but 1-10 or another scale of your choosing is fine. Where does the gesture span along this scale?

Pacing:

How is the dynamic shape developed over the determined number of beats? Is it perfectly incremental, exponential, or involving some type of dynamic plateau?

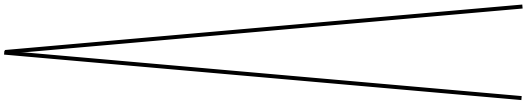
Timbre/Color:

The recipe of weight, placement, speed, and vibrato for the context. Choose timbre for an exercise as intentionally as you choose the dynamic range. For these exercises, timbre should stay constant as you work on changes of bow speed.

Deception of Notation

The visual representation of a crescendo in music notation can be misleading.

Fig. 1:

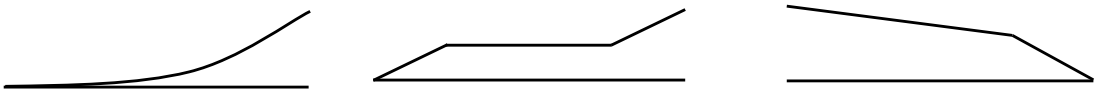


Dynamic Range: Visually, all crescendos begin at a point of silence, niente, and end in an open maw of ambiguity. Similar to the beaming of rhythms working against musical flow, this is incomplete and misleading. It is up to us to decide a fitting range for the context, despite the information we see.

Pacing: In traditional notation, all crescendos are perfectly even across their entire duration. What should be the sonic shape of this gesture instead? Decide based on context, not the ink.

Let's imagine some possible pacings for a crescendo:

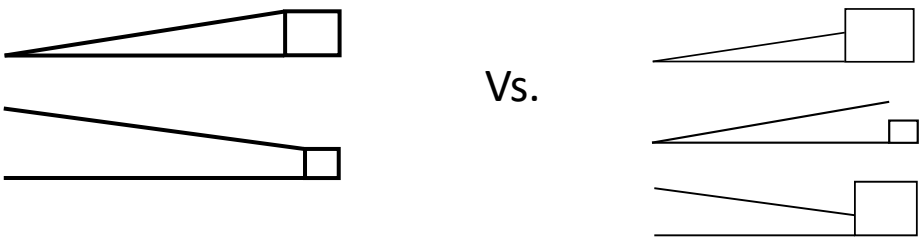
Fig. 2:



Resolutions: Crescendo/diminuendo notation does not include the arrival.

A musical shape cannot be conceived, felt, or executed without the resolution in mind. The melodic story is ruined if the arrival is over- or under-delivered. The culmination of a well-planned dynamic shape should feel inevitable.

Fig. 3:



Honesty in expression starts with decision-making. Create from an active and intentional—rather than reactive—place.

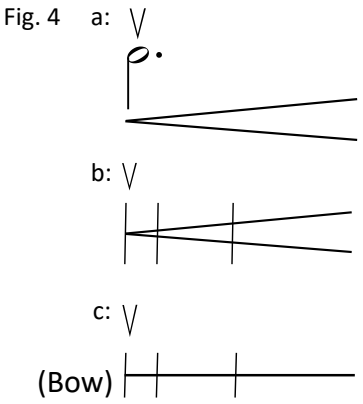
The Method

We will explore crescendos and diminuendos by segmenting larger gestures. As music gets louder within one timbre, we deploy a faster bow speed. An even crescendo requires a *constant acceleration* of bow speed, an *exponential growth* in speed. As discussed in Part I, a faster bow speed means traveling farther over the same amount of time. Segmenting long notes or a series of notes into smaller portions shows these concepts in more detail.

Proportional Segments:

Proportional changes in bow speed create intentional shapes.

Fig. 4



Segmenting tools:

I segment in two ways to study musical gestures:

Stop-time divisions to find the proportional amount of bow for each segment to execute the shape. These are noted as notes with rests between them.
(The exploratory, trial-and-error phase.)

Weight pulses knit these segments together while keeping them lightly articulated. This is the same technique as the segmenting tool from Part I of Bow Speed Geography, but with changing bow speeds rather than constant ones. (The execution, or practice phase.)

These segmenting tools will ensure a clean, proportional dynamic shape.

1a: Long Notes

This section uses segmenting tools to develop evenness and control of accelerating bow speeds within long sustained notes.

Progressions:

Each study moves in a similar progression.
They begin with the target gesture, move through stop time and weight pulse segmenting tools to find proportional bow segments, before reassembling the target gesture.

If no crescendo or diminuendo is printed, the arrival note sustains the resulting dynamic.

I notate arrival notes with less beats than the leading crescendo gesture to make sustaining the dynamic possible. During the rest printed after the arrival note, replace the bow to where it needs to be for the start of the gesture.

Discovery vs. Refinement:

There are two parts to each numbered exercise.
- Cycle through stop time divisions, weight pulses, and back to the unsegmented gesture to decide on bow speed segments that proportionally pace the shape.
- Next we refine the determined mapping by toggling between weight pulses and the pure gesture.

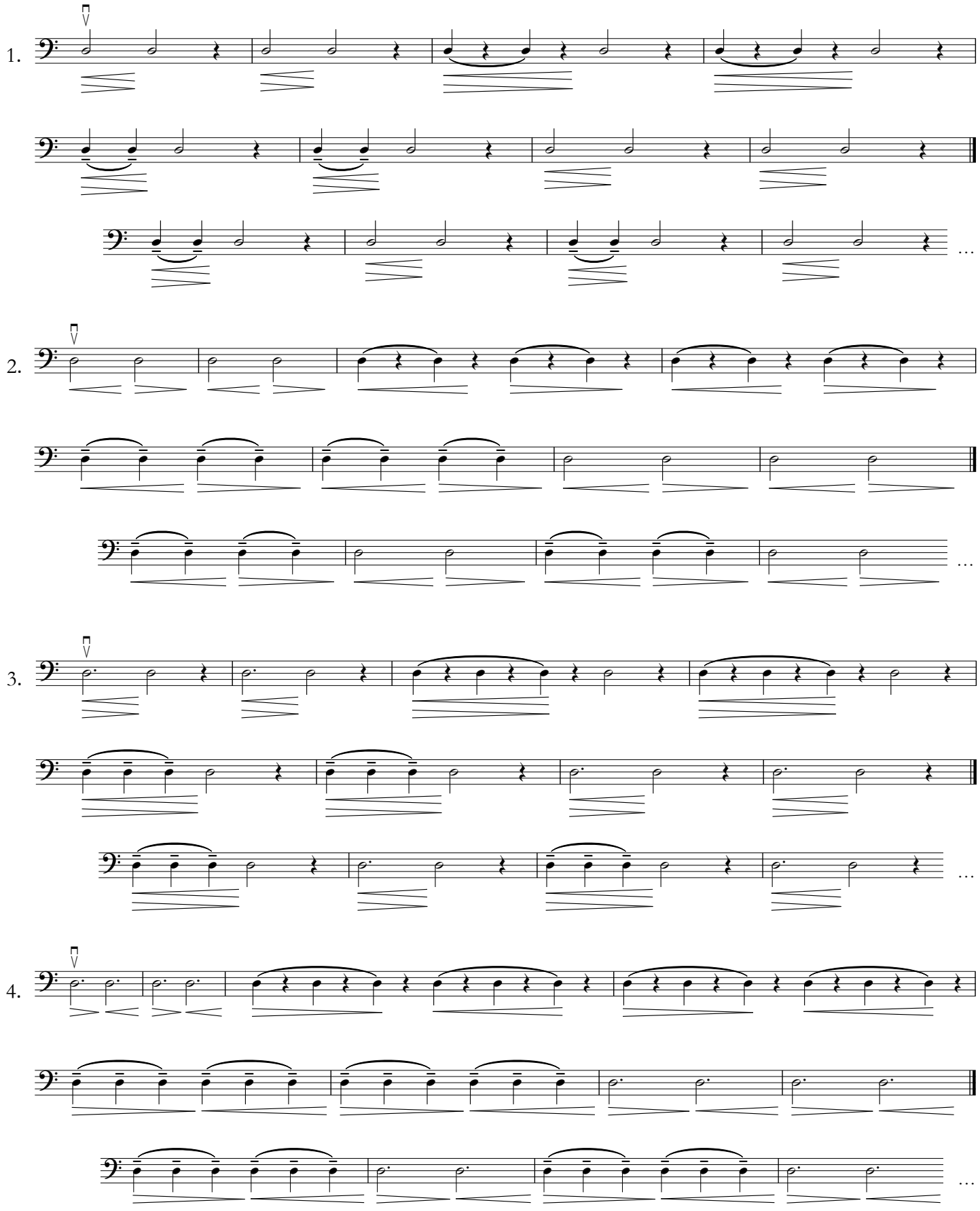
Decision-making:

The dynamic range within these templates is up to you. A typical starting point is a movement between 3 and 7 – mezzo territory. Expand outward from there.

1. Long Notes

a: Single Notes

♩ = 60

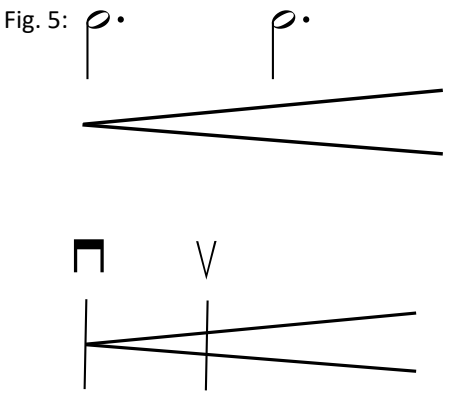


Continue with 𝅝, 𝅗𝅥𝅘𝅥, and 𝅝. for the long notes. Practice in other tempos. Play on scales and open strings.

1b: - Linking Long Notes

This section uses segmenting tools to develop evenness and control over large dynamic gestures made up of multiple long notes.

Fig. 5:



Bow distribution:

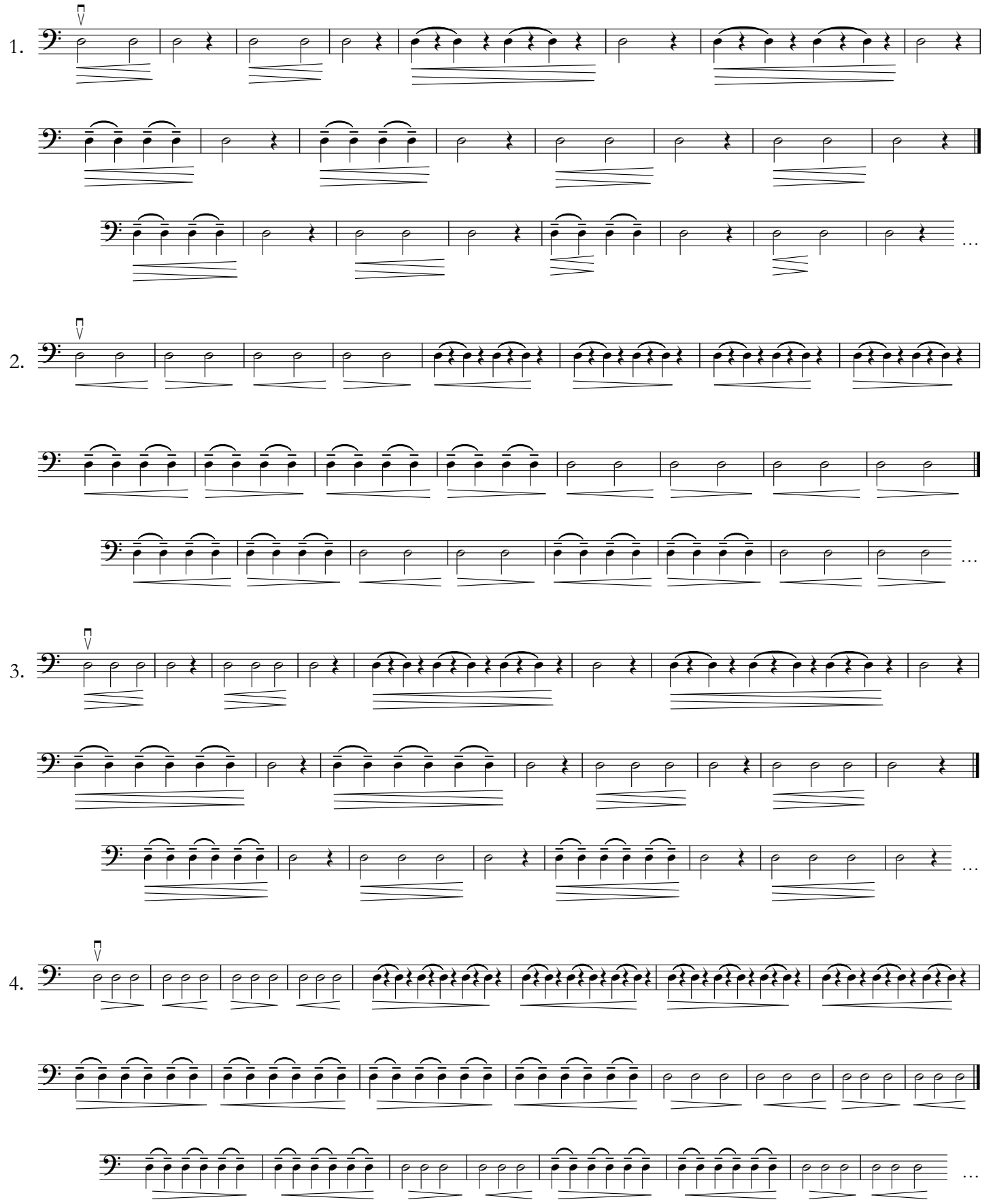
Mapping proportional bow segments is crucial for these exercises. Different gestures require starting in different areas of the bow.

Handoffs:

Two long notes creating one dynamic gesture depends on the transition and pacing between them. The last bow speed segment of one note must be proportional to the first segment of the next.

Remember, see your dynamics physically represented by bow speed.
Louder = faster bow speed = farther traveled over same amount of time.

1b. Linking Long Notes

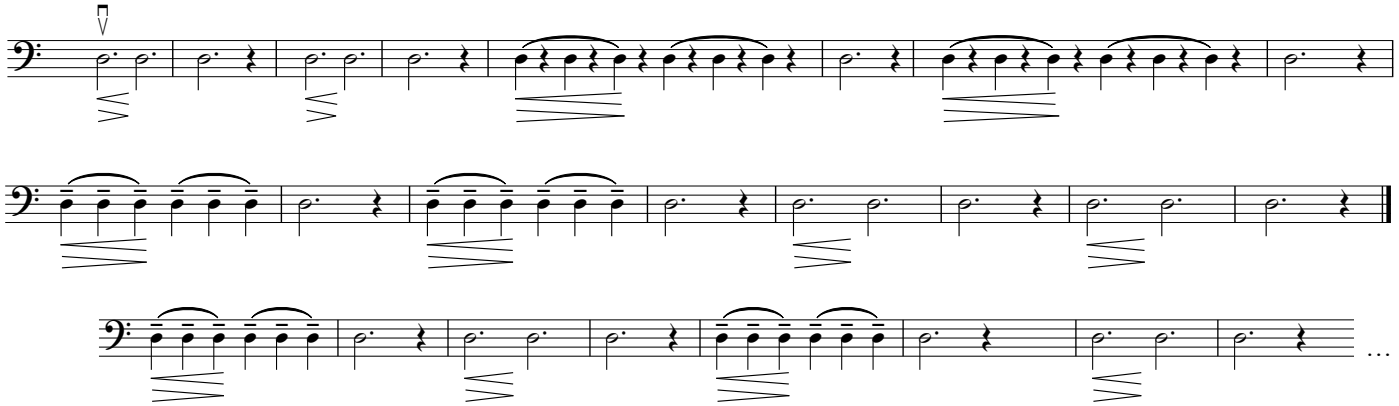


Continue with other rhythmic values, combinations and tempos. Play on scales and open strings.

1b. Linking Long Notes
(continued)

♩ = 60

5.



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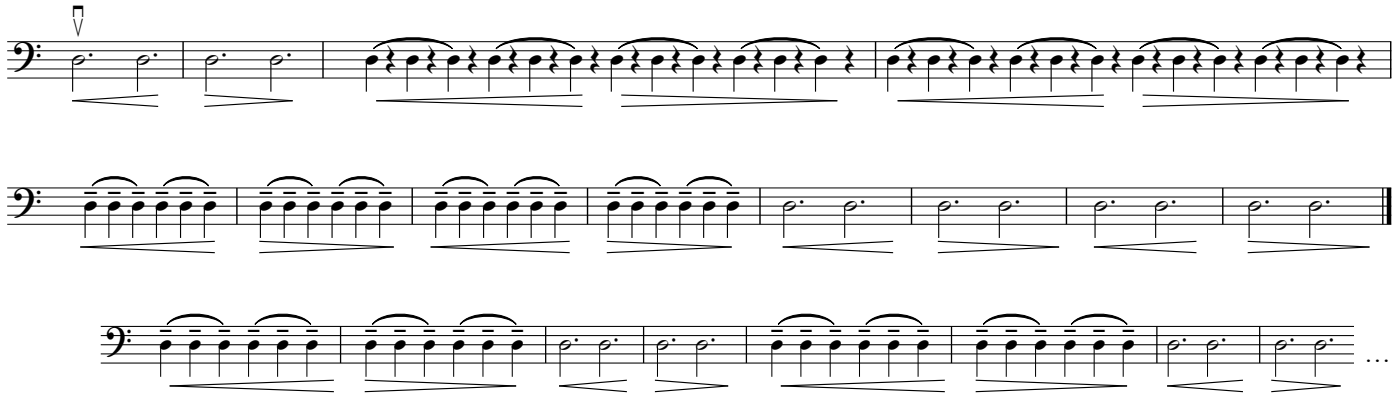

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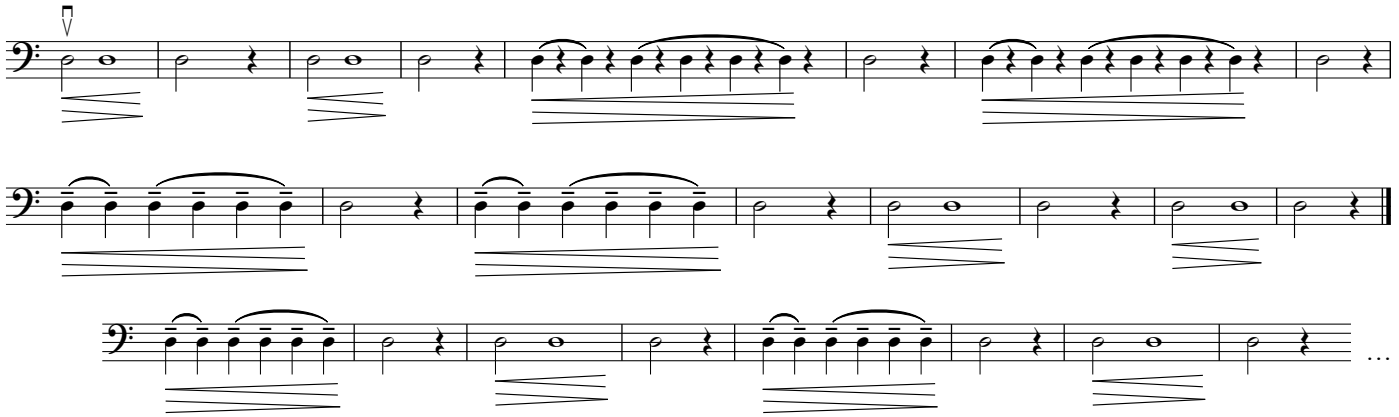

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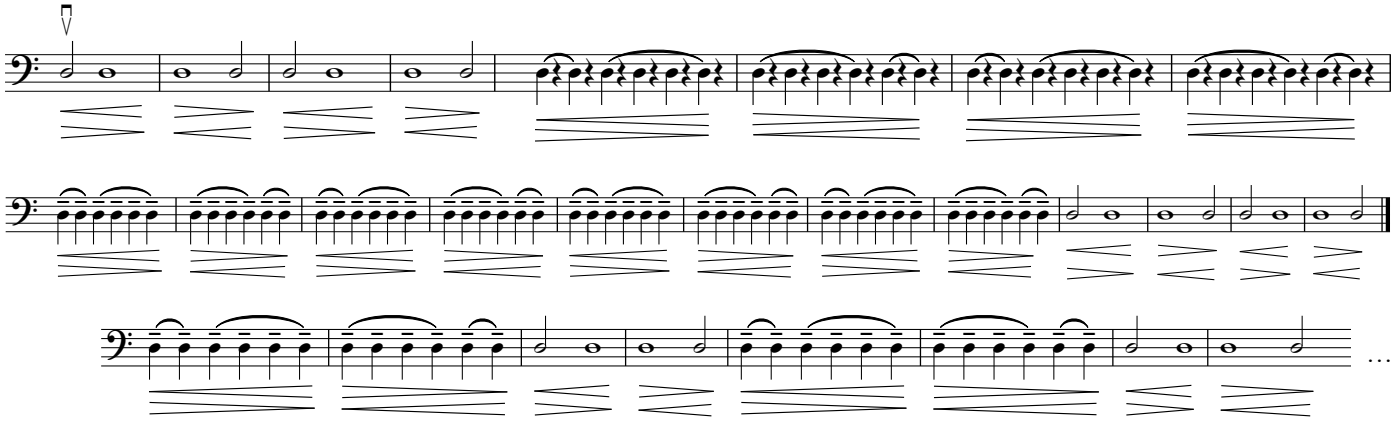


Continue with other rhythmic values, combinations and tempos. Play on scales and open strings.

2. Separate Notes

This section uses segmenting tools to develop evenness and control of accelerating bow speeds over separate notes.

Gesture vs Mechanism:

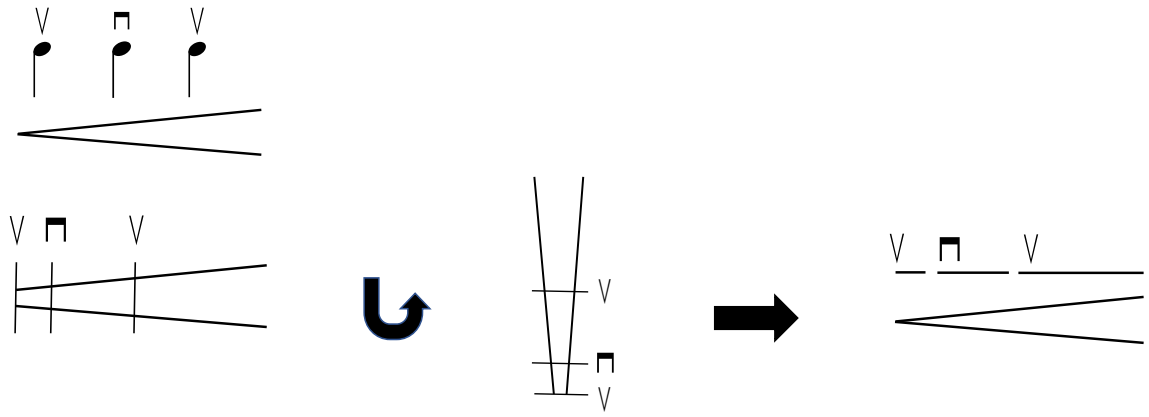
Separate notes can express a larger dynamic gesture.
Find proportional segments of changing bow speed on long sustained notes.
If the number of beats is too long for one bow, use multiple long notes.
Then, articulate those same proportional segments with separate bows.

Be a Translator:

Printed crescendos display range vertically, through height. **Taller = louder**.

Our bow, through changes in bow speed, shows volume left to right.
Louder = faster bow speed = farther traveled over same amount of time.
Rotate the crescendo's axis 90 degrees to better visualize the correlation.

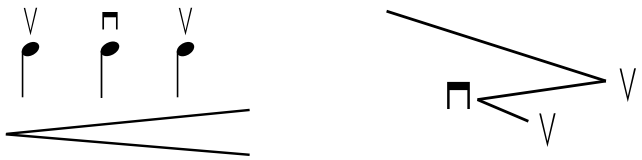
Fig. 6:



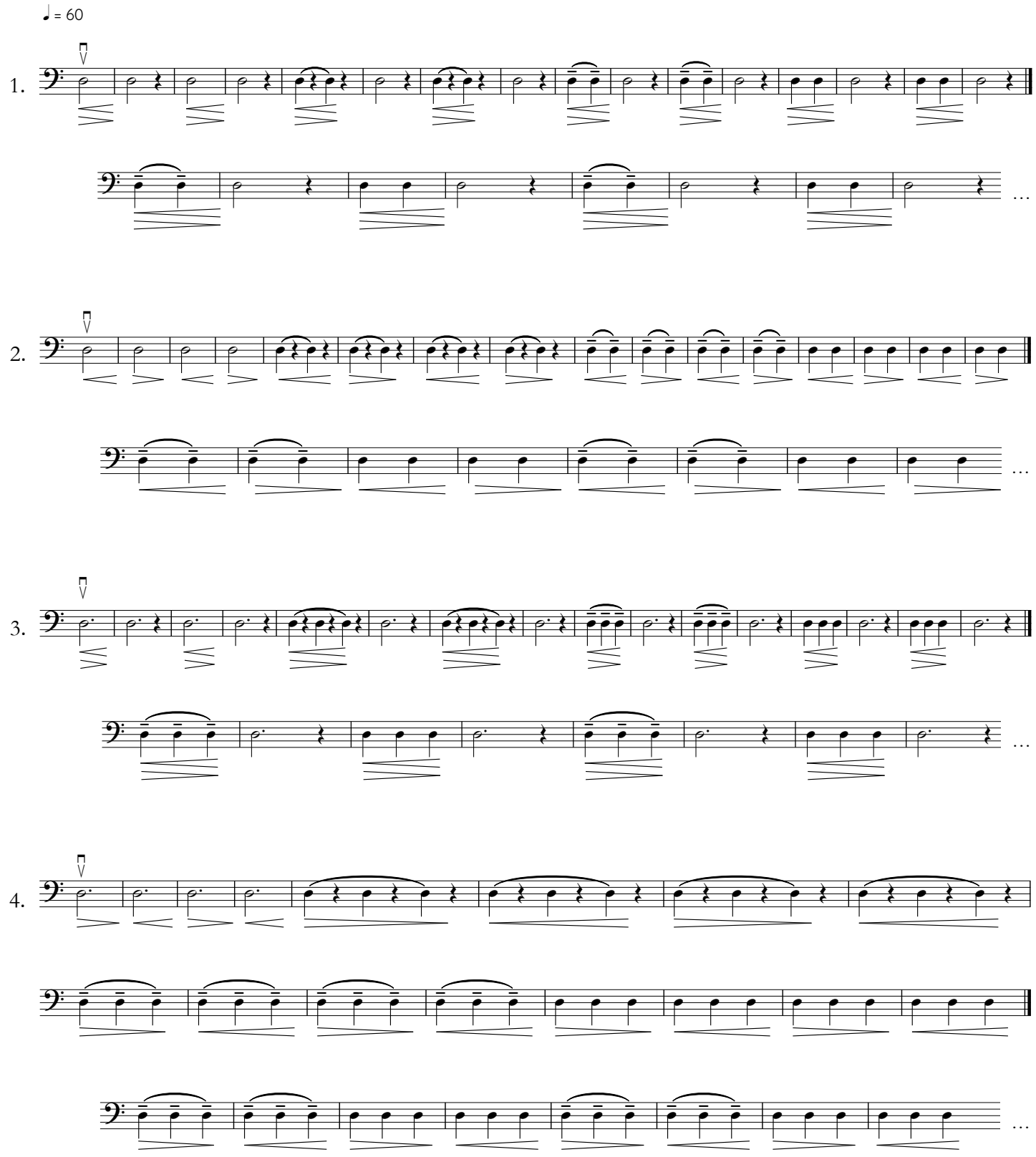
Zigzags:

Mapping bow speed geography is crucial for these exercises. Crescendos/diminuendos over separate notes, faster/slower segments of bow speeds, create zig-zag patterns.
Get used to exercises starting in all areas of the bow for the proportionality of the segments to work out.

Fig. 7:



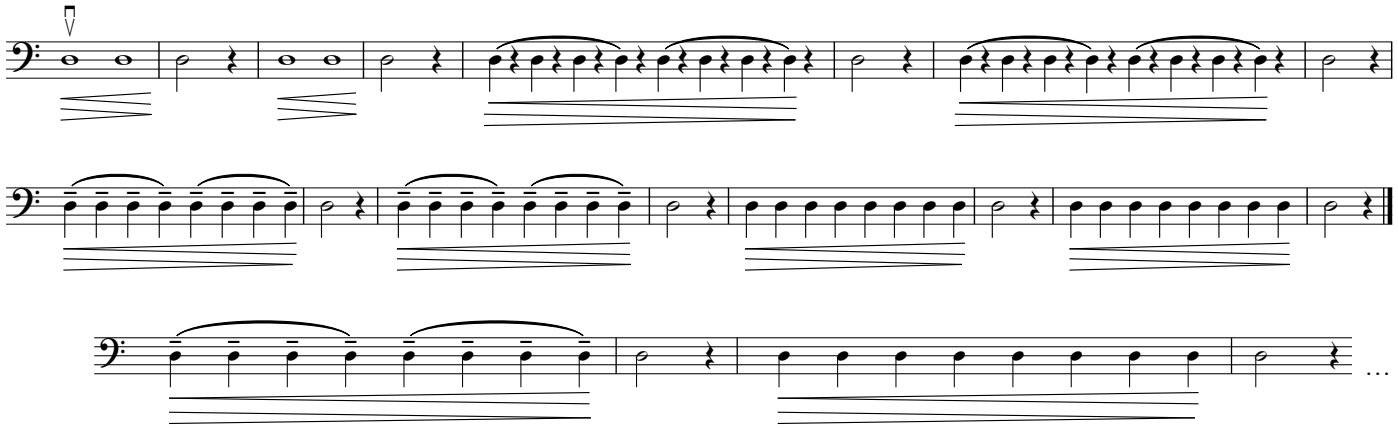
2. Separate Notes



Continue with other rhythmic values, combinations and tempos. Play on scales and open strings.

2. Separate Notes
(continued)

5.



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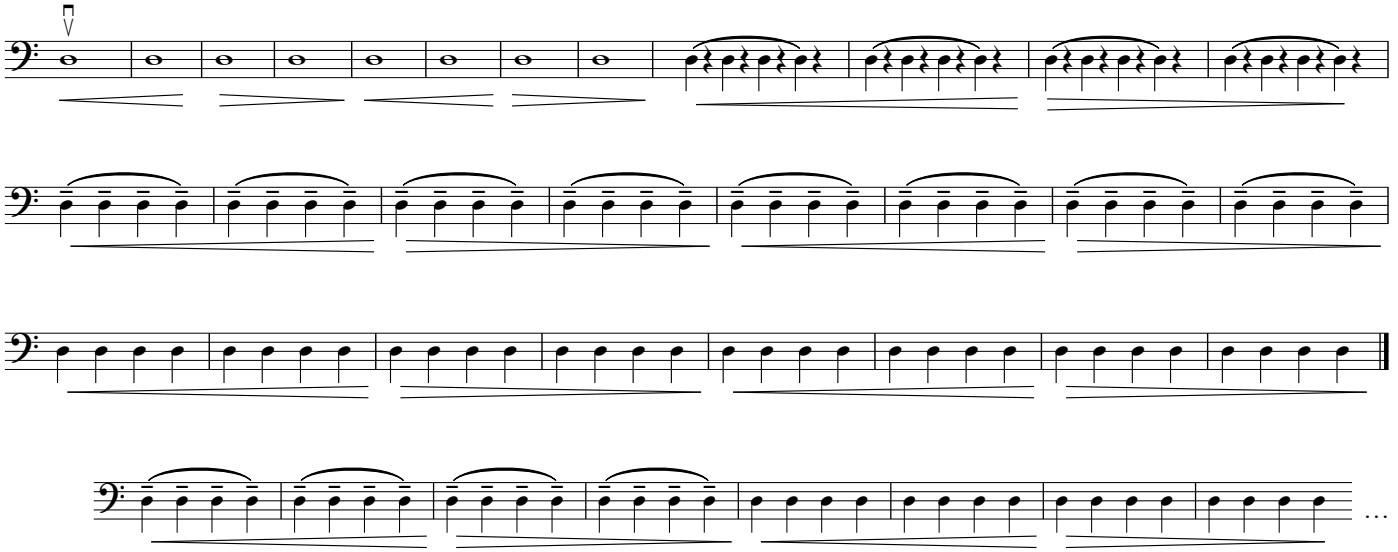


3. Mixed Material

This section uses segmenting tools to develop evenness and control of accelerating bow speeds over combinations of long and separate notes.

Gesture vs. Mechanism:

As discussed in II. Separates, groups of notes can express a larger dynamic gesture.

For each exercise, the targeted rhythmic figure is printed next to the number title. Find proportional segments of changing bow speed on long sustained notes. If the number of beats is too long for one bow, use multiple long notes. Then, articulate those some proportional segments with the targeted rhythmic figure.

Bow Distribution:

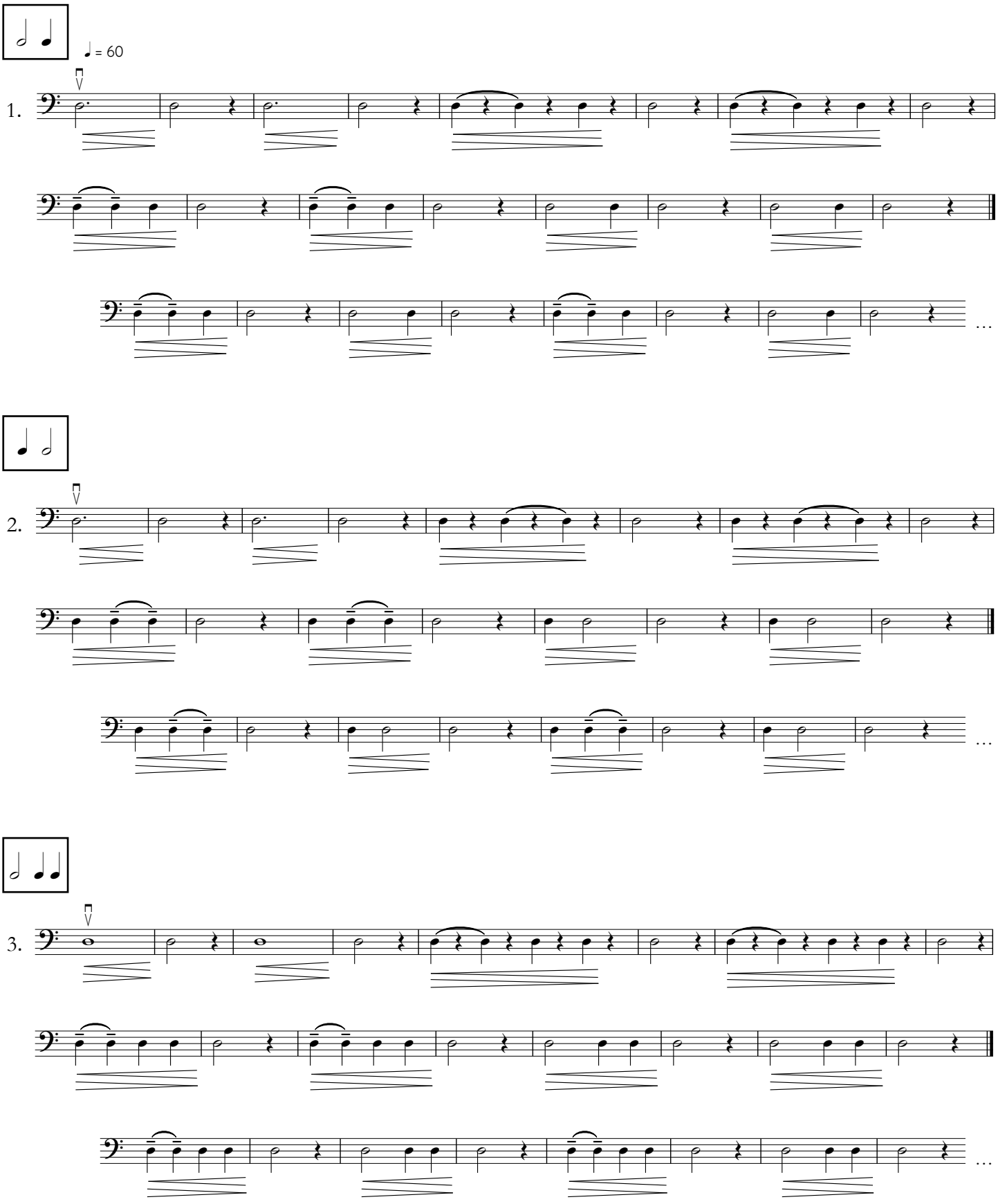
Mapping proportional bow segments is crucial for these exercises.
Get used to starting in all areas of the bow.

Compilation Exercise:

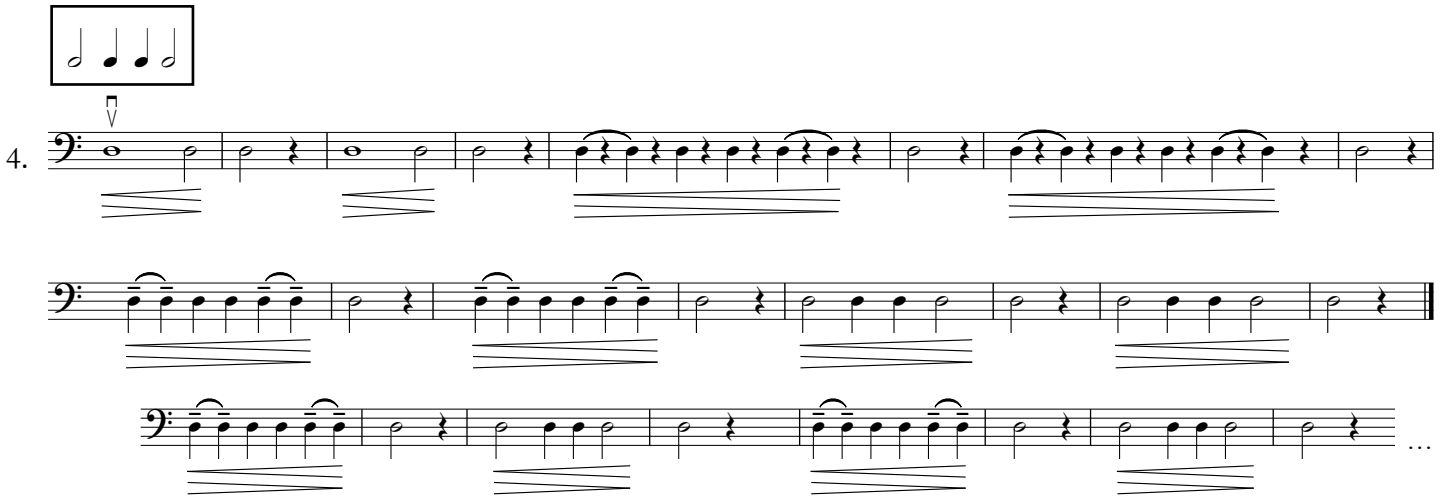
Concluding this section is an exercise combining rhythmic figures from sections I – III.

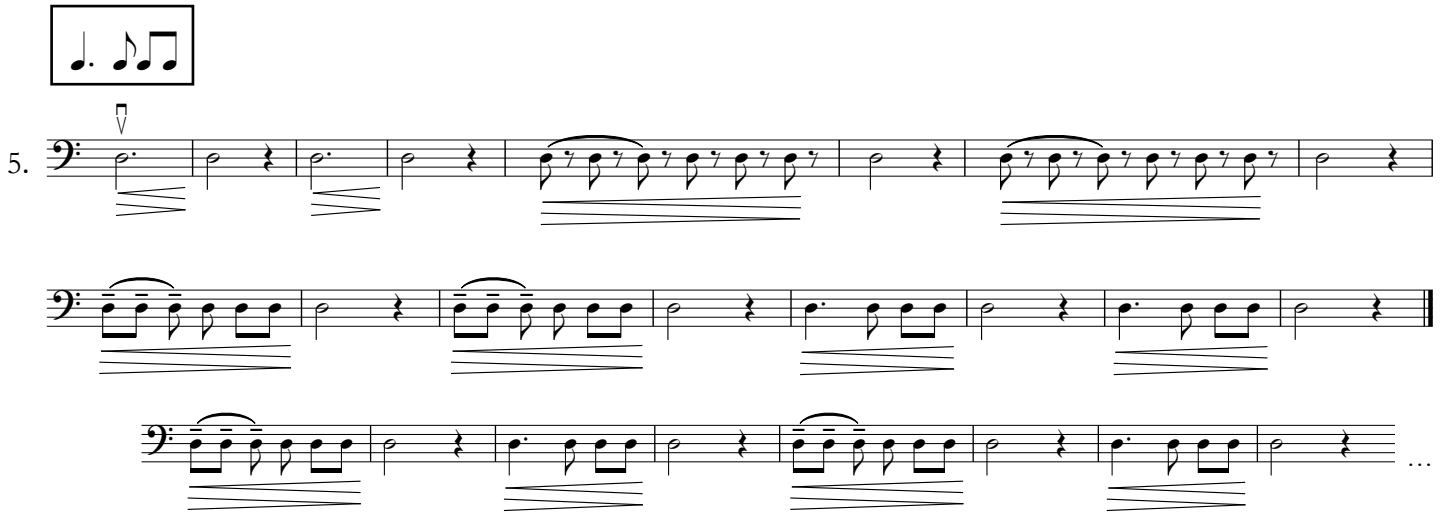
Choose the dynamic range and pacing of a gesture. Articulate that shape with proportional bow speed segments expressed across long notes, separate notes, and mixed material of the same number of beats.

3. Mixed Material

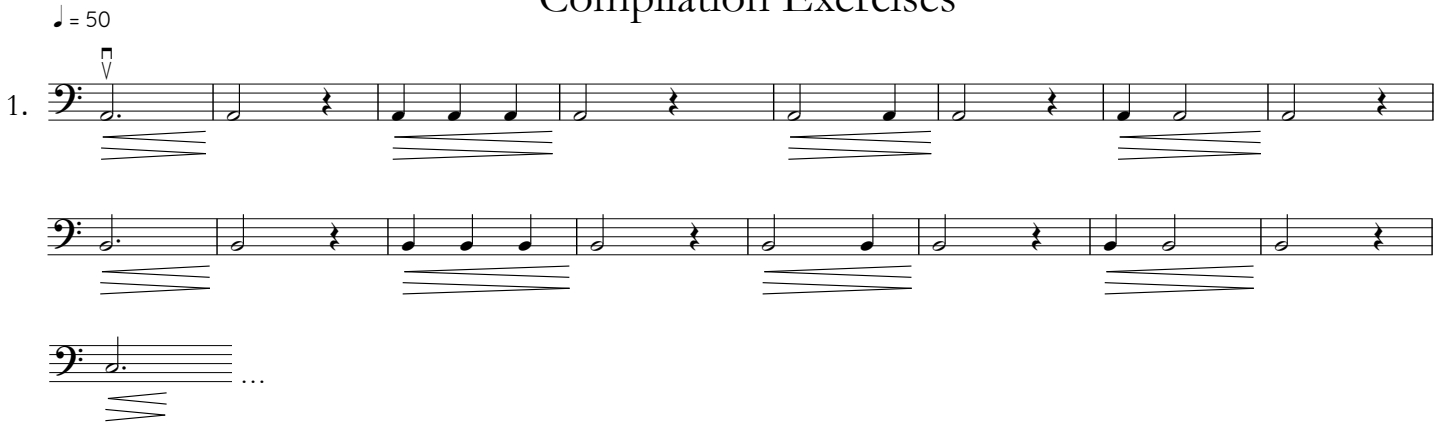


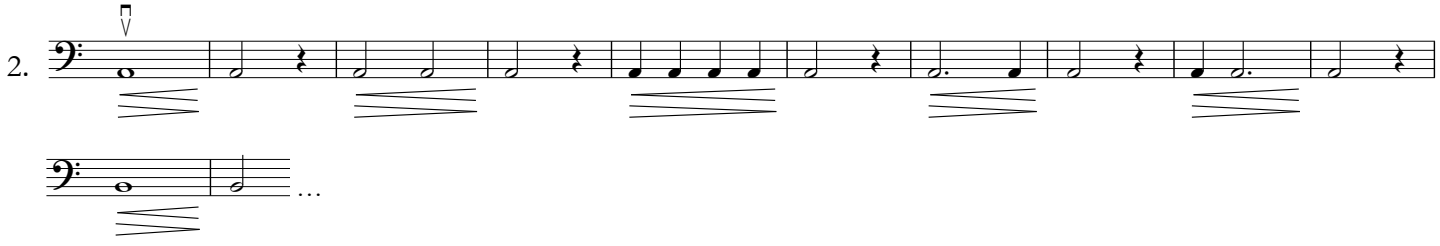
3. Mixed Figures
(continued)





Compilation Exercises





4. Detached Material

This section develops evenness and control of dynamic gestures executed by non-legato notes.

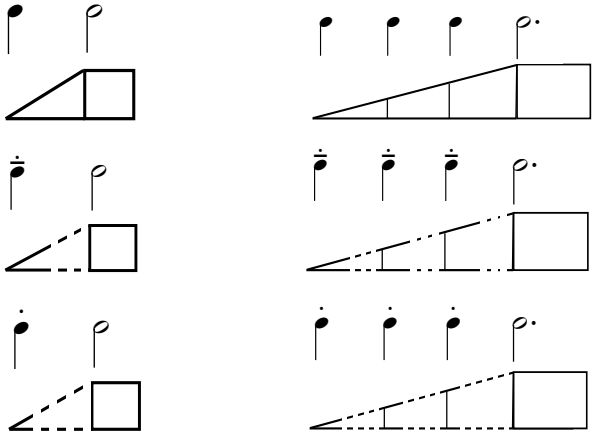
Legato vs. Detached:

Changes in bow speed during completely on the string legato passages are visible as distance traveled within the bow.

Changes in bow speed during detached notes, such as staccato or mezzo-staccato (dashed dots), are visible as distance traveled on the string as well as in the corresponding follow-throughs, out of the string.

Each note and follow-through should be one expression of bow speed acting as a proportional segment of the larger dynamic gesture.
A successful gesture is undisturbed by gaps in active string contact.

Fig. 8:



Brushstrokes vs Pointillism:

Pianists, percussionists, and harpists make sound by striking or plucking the instrument. They shape dynamics through successively louder or softer points.

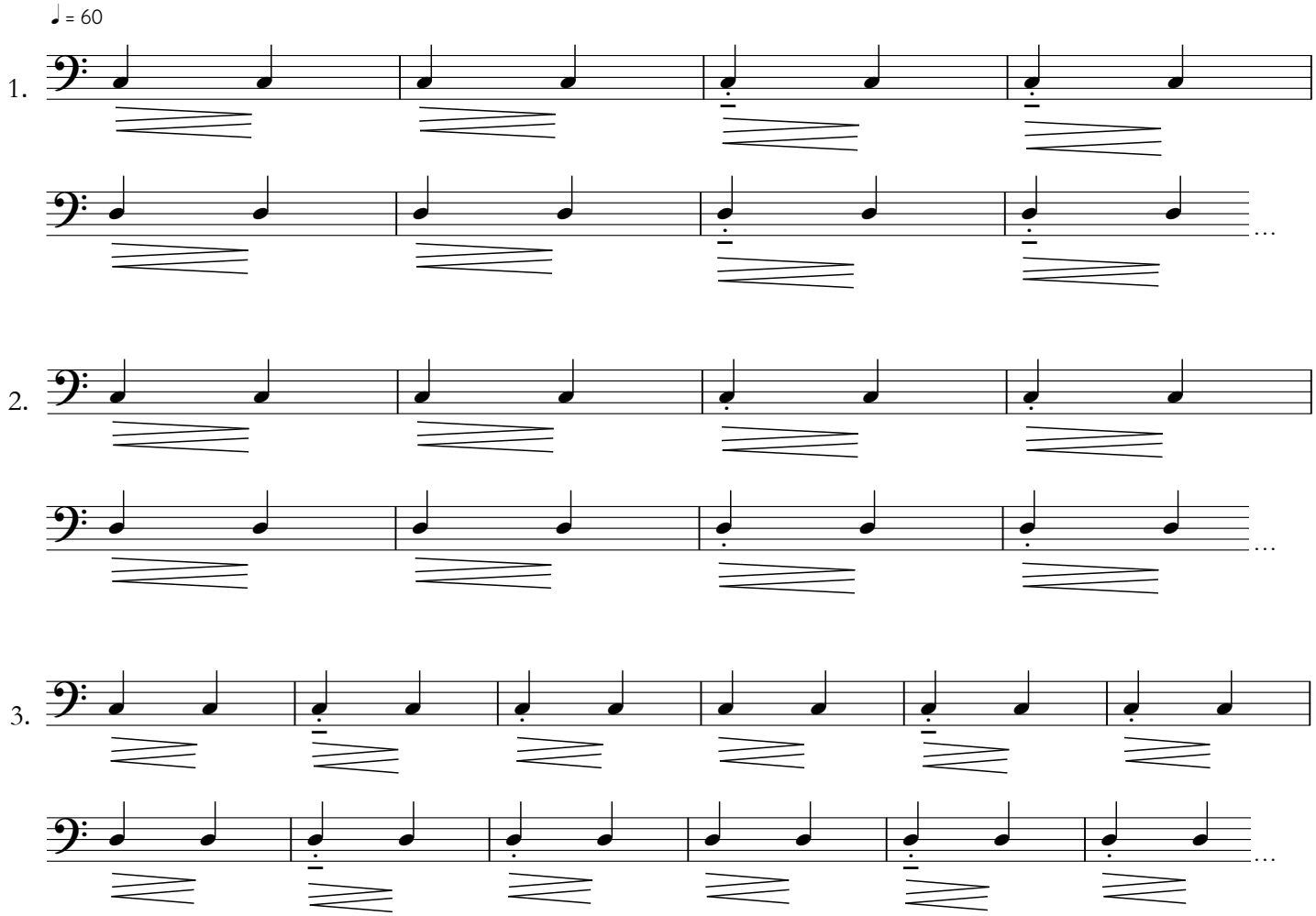
Bowed string players use a wide variety of bow strokes to propel air through the instrument. There is a horizonal component in even the shortest bowed notes. Like the pointillists, we imply direction with follow-through across detached segments.

Retakes:

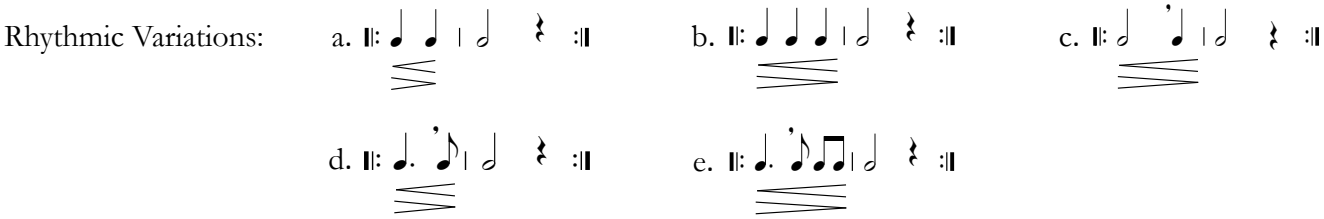
Physical gestures that facilitate a technical issue cannot interrupt the musical shape. Retakes inherently create a detached segment. The follow-through of the note creates the retake, continuing to illustrate the dynamic shape.

Fig. 9:

4. Detached Material

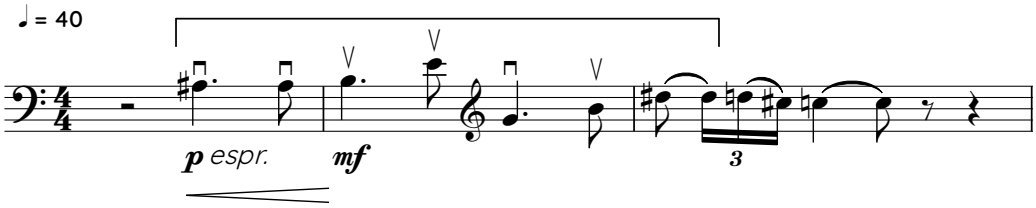


Rhythmic Variations:

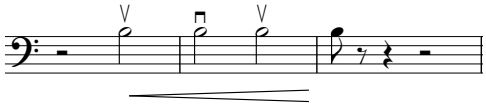


5. Repertoire Applications

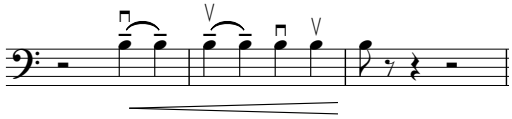
Ex. 1 Prokofiev Romeo and Juliet Suite no. 2
V. Romeo with Juliet before Parting



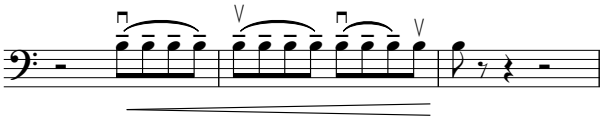
Gesture reduction, RH only



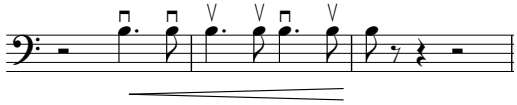
Gesture reduction, subdivided



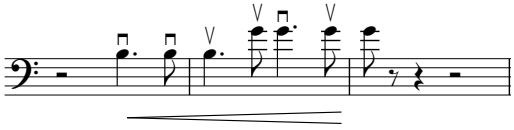
Further subdivided, reflecting bowing



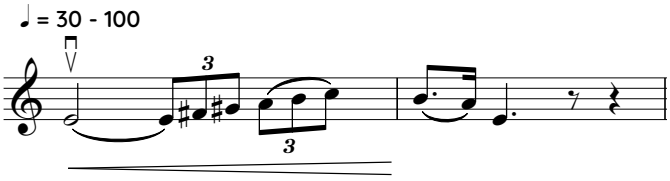
RH only, not subdivided



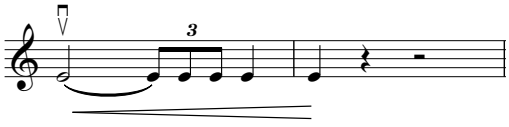
String change and range



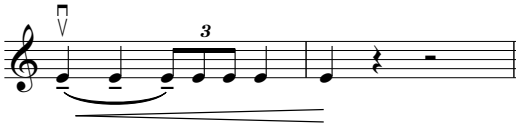
Ex. 2 Bottesini, Concerto No. 2 mvt. I opening

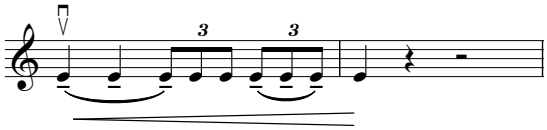


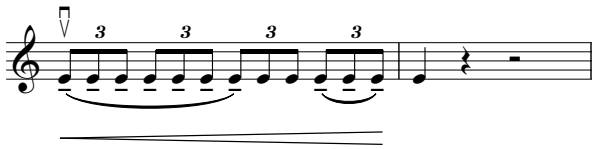
Reduction, RH only



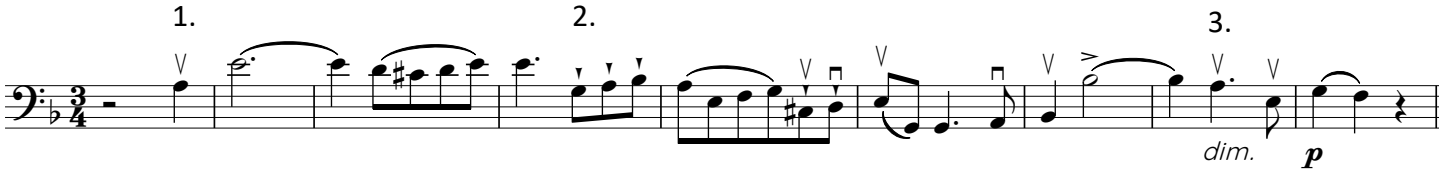
Reduction Subdivisions







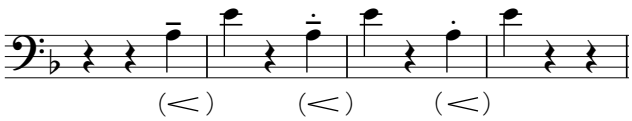
Ex. 3 Beethoven Symphony 9 mvt. IV m. 8 - 16



= total sustain

= ½ value of total sustain

1.



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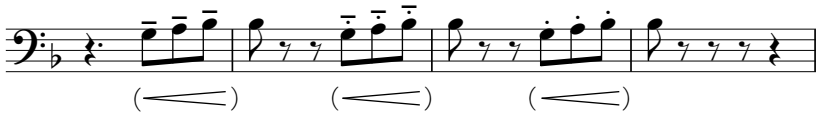
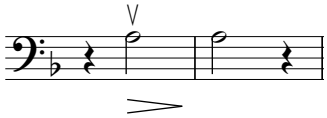
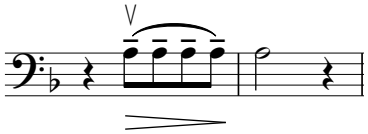


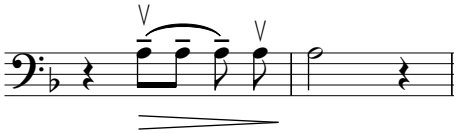
3. Gesture Reduction, RH only:



Gesture Reduction, Subdivided



Reduction to reflect rhythm



Reduction to reflect rhythm and string changes