MUSICAL DECISIONS:

A PERCUSSIONIST'S GUIDE TO PERFORMING BARTÓK

BY

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Introduction

When a musician is handed a schedule and first learns of the next concert cycle's program, there are any number of factors that influence the decision-making process involved in the fine art of musical interpretation and performance.

While many interpretations are the result of a performance tradition learned from mentors as the musician studies the standard repertoire, it is equally important for the musician to understand the myriad concepts that exist behind the genesis of an individualized interpretation. With such an understanding, the individual musician can then move beyond replicating what has been taught, and instead take ownership of the performance as a unique contribution and extension of what was originally expressed by the composer. This is the core of musical individuality and personal expression, the unspoken question whose answer leads to a transcendent performance: How can I add value to make the final product represent my goals and experience? In particular, this document hopes to discuss this question and the issues surrounding it as related to percussion performance, focusing on some of Béla Bartók's most influential works.

With Bartók as an example, there are several aspects of analysis that go into preparing music for performance.

- Technical: What specific techniques are required to faithfully and consistently reproduce what is on the page?
- Verification: Are the notes correct, and faithfully reproduced from the score? Taking this thought a step further, is the score itself correct, or more importantly,

do I think the score is correct? Do I have the liberty to make the appropriate alterations?

- Contextual, be it compositionally or orchestrationally: How does the part fit in with the other members of the ensemble? What is its place within the musical phrase?
- Interpretive: What can I do, add, or change that emphasizes the context at that point in time?
- Idiosyncratic: What nuances specific to my instrument are not known to or indicated by the composer, but perhaps should be?
- Evolutionary: How are performance styles and equipment different today, and how can I leverage them to create a unique representation of the composer's music?

With these factors in mind, the purpose of this document is to examine the potential problems faced by a percussionist when specifically preparing some of Bartók's works. Suggestions and multiple alternatives are presented, but the final determination regarding the overall musical decisions are of course left to the performer.

Chapter 1 focuses upon Bartók's *Concerto for Orchestra*, *Sz.116* as a large-scale symphonic work. Chapter 2 looks at the *Sonata for Two Pianos and Percussion*, *Sz. 110*, a chamber work with significantly different requirements, and Chapter 3 addresses the *Music for Strings, Percussion and Celesta*, *Sz. 106*. While score examples are provided for areas of suggested phrasings or deviations from the score, this document functions best as a chronological guide, as a companion to the score or relevant parts.

Chapter 1: Concerto for Orchestra, Sz. 116

"The general mood of the work represents—apart from the jesting second movement—a gradual transition from the sternness of the first movement and the lugubrious death-song of the third movement to the life-assertion of the last one."
-Béla Bartók

Premiered by Sergei Koussevitzky and the Boston Symphony Orchestra on December 1, 1944, Bartók's *Concerto for Orchestra* continues to hold a special place in the heart of the practicing percussionist as a staple of the Twentieth-century orchestral repertoire. Indeed, the timpani excerpt from the fourth movement is usually the first pedaling excerpt learned by the young percussionist as he experiments with the tonal possibilities made possible by a modern set of four timpani. The second movement features a snare drum solo that is found in the majority of orchestral audition lists. Throughout, Bartók's deviation from the traditional symphonic forms as well as the wealth of ever-changing textures and timbral combinations also provide an introduction to the varieties and acoustical capabilities of the symphonic medium, and to the percussionist in particular.

Logistical Considerations

While a multi-movement work for orchestra, Bartók entitled this piece as *Concerto for Orchestra* instead of *Symphony No. 1* due to the virtuosic treatment of virtually every instrument. Indeed, the soloistic highlighting of instrumental families is on full display throughout the work—including the percussion and timpani section.

However, this is can hardly be discerned when examining the instrumentation. Figure 1 shows a suggested part assignment:

	Timpani	**Percussion 1**	**Percussion 2**
I. Introduzione	Timpani		Suspended Cymbal
II. Giuoco delle coppie	Timpani	Snare Drum, (without snares)	
III. Elegia	Timpani	Tam-Tam	
IV. Intermezzo Interrotto	Timpani	Triangle, Tam-Tam	Suspended Cymbal
V. Finale	Timpani	Snare Drum	Bass Drum, Cymbals a2, Suspended Cymbal

Figure 1. Concerto for Orchestra, Suggested Part Assignments

As many often associate an abundance of percussion with virtuosity, one can hardly view this instrumentation as an ideal recipe for developing complicated material. As shown here, Bartók writes for timpani, bass drum, cymbals, tam-tam, snare drum, and triangle—an orchestration that is found in works from previous periods, but only needing a total of 3 players. However, perhaps it is the absence of overabundance and the careful use of selective highlighting that brings virtuosity. If so, it is then the responsibility of the performer to create an experience that transcends the written directives.

MOVEMENT I. INTRODUZIONE

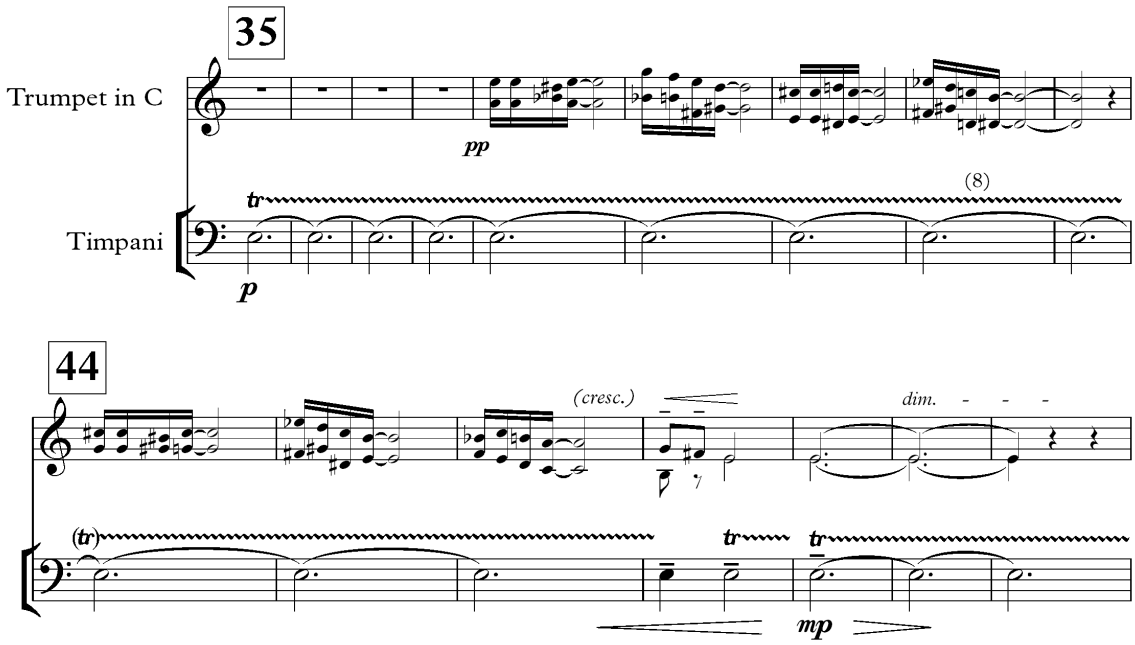
While Bartók rejects the typical symphonic monikers, he still accedes to some of the formal conventions. The first movement is representative of the traditional Sonata-allegro form with a slow introduction, whose serious and stately nature sets the tone for the overall work as a gradual transition to the frenetic dance in the fifth movement. While not embracing the out-pouring of emotional content found in the Late Romantic, or the geometric austerity and purity of rigid form often seen in Classical works, Bartók's clear statement of majestic character and resolute personality is such that it requires special attention by the musician to articulate an effective performance. In fact, it is quite important for the performer to be aware of the compositional style and character to be emoted, as these insights directly affect the decisions made with regard to the arsenal of physical and interpretative tools at hand to aid in the overall emotional conveyance.

Measure 35–51

Towards the end of a lengthy introduction, the timpani continue Bartók's tendencies towards atmospheric *nachtmusik.* In this particular instance, the timpani provide a pedal background underneath a statement of the main theme by the dual trumpets. Thus, the goal of the timpanist is to create a roll with a seamless texture; cartwheel or soft felt mallets are a common choice, but medium to medium-soft might be more appropriate for interpreting measures 47–48.

Throughout this section to measure 51, Bartók gives a clear example of his notational habits. The roll at measure 35 is indicated as a *tremolo* on the downbeat, with extended hashes as well as ties to succeeding notes, which clearly delineate the length of the roll over several measures. This also clearly indicates that the downbeats of both measures 47 and 48 should then be clearly articulated and not tied to the previous notes. To achieve this, the timpanist should create space and break the continuity of the rolls immediately prior, and articulate the notes exactly as written—the downbeat, the next roll, and the new roll beginning on the next measure.

Also supporting these interpretations are the marked phrasings of the accompanied brass section. This is an opportunity for the timpani to support the phrasing by adding virtual *tenuto* or emphasis on these same three entrances. Especially if the brass sections also add an unwritten crescendo into measure 47, a subtle crescendo into the *tenuto* and a diminuendo to measure 51 will bring an insinuated weight to the brass phrasing and a closure to the overall phrase.



Example 1. Concerto for Orchestra, I, mm. 35–50, Suggested Phrasing

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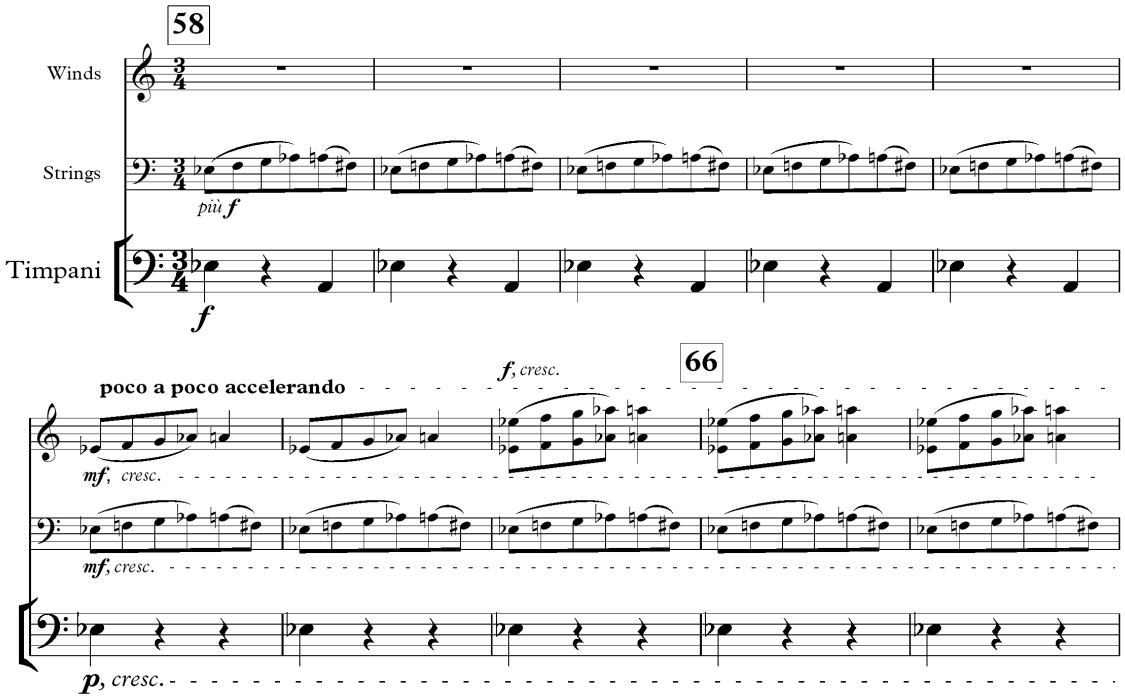
Example 1 shows the brass cues as well as the discussed phrasing. In this case, the timpanist must also be flexible and attentive with the ensemble phrasing and dynamics, as the brass may begin the crescendo early (as shown) or extend the crescendo beyond written lengths. In most performances, the brass will likely place the peak of the crescendo on measure 48 and then decay—which provides the necessary clue for the timpanist to do the same. It would also be prudent for the timpanist to write in or be very familiar with the cues during this roll that spans 12 measures.

Measures 58–76

Previously, we lauded the fact that Bartók notated his *tremoli* and ties clearly. However, at measure 58 his printed quarter-note–rest–quarter-note rhythms can be subject to interpretation. Instead of muting on the intervening rests, it would be best to let the E-flat ring all the way to the successive A, and so on. This will coincide with the lower strings, which are playing slurred or tied eighth-note groupings that also fall on beats 1 and 3 with matching pitches. A clear *forte*, with an almost Brahms-ian fullness of tone, will provide anchoring points for the moving lines.

At measure 63, there is an immediate *p* that perhaps should instead be marked *subito p*. From this point, the timpanist should watch the conductor carefully to help control the coming *accelerando* from behind the orchestra. With impactful downbeats that coincide with the same eighth-note pattern in the lower strings that builds to include the additional instrument groups, the timpani provides an audible pulse that then drives the growing frenzy as the tempo increases.



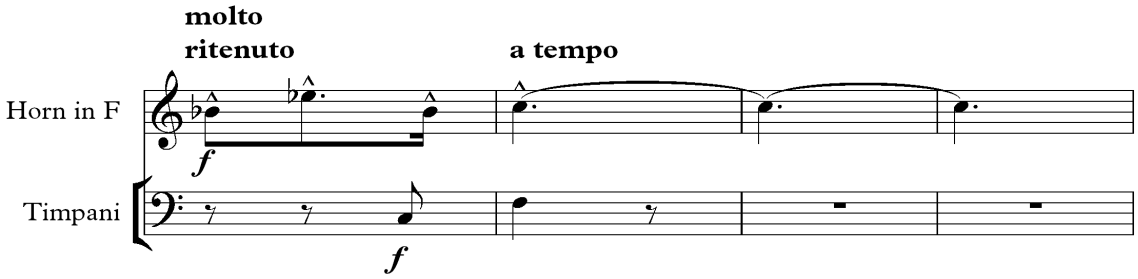
Example 2. Concerto for Orchestra, I, mm. 58–67

At the beginning, the timpanist can allow the repeated E-flat to ring to each successive note. But as the tempo, dynamics, and orchestration builds, gradually add muting to make the notes shorter and shorter. This matches the change of pattern in the lower strings and adds tension, which then leads to the exposition in a new tonality.

However, care should be taken to avoid spoiling the surprise by allowing any sound to bleed past the *tutti luftpause* at measure 75. Thus, aggressive muting is necessary to clear all potential sound, including any sympathetic resonance that may occur on any other drum. This also includes the bass drum, which is often situated near the timpani.

Measure 86–91

At measure 90, the written *molto ritenuto* should not be confused with *ritardando*; the former is a tempo change of an abrupt holding back compared to the gradual slowing of the latter. Thus, watch carefully for this change and listen to the horn section for solidification of the first two beats, as well as the pick-up to the downbeat. In addition, be aware of the potential for further slowing on beat 3, into the *a tempo*; the anacrusis in the horns will cue the new tempo.



Example 3. Concerto for Orchestra, I, mm. 90–93

This is a solo for the timpani. Launch the new tonality to answer and join the brassy fanfare in a clear landing point for all of the previous tonal forays; the brightness of tone and articulation should match the strident horns calls.

Measure 95–215

These measures represent one of most common occurrences that continually challenge a percussionist's professionalism: the unspecified *Tacet*. These markings

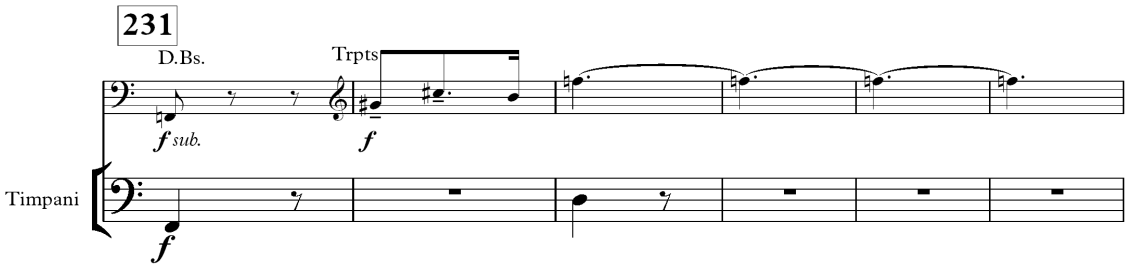
usually occur where instead of a written out or even abbreviated consecutive set of resting measures, the publisher's copyist or engraver simply writes *Tacet* until the next entrance—hopefully providing ample orchestral cues to the performer so that he can recognize and recover in time for playing. Ultimately, this is not the test of concentration usually found when counting multitudes of rests amid operatic acts, but instead a test of preparation and attentiveness as the musician must be aware of the other instrumentalists, and how their part fits in with regards to the overall structure and in relation to the individual musician's next entrance.

Navigating this minefield is necessary before the first rehearsal, or even the first ensemble reading of any piece; the only way to achieve this is through score and recording study such that recognizable cues can be identified to help the musician when in a performance situation. In this case, the timpanist (and percussionist) needs to navigate through approximately 125 measures before the printed trombone cues at measure 215. Some identifiable markers are as follows:

- Measure 125: With a pick-up in the preceding measure, the trombone has a solo stating the main theme.
- Measure 155: With a pick-up of one beat and at a tempo change, the oboe has a solo.
- Measure 192: Upper strings have sixteenth notes *sul punta* and *divisi*, filling in subdivisions of the theme and accompanying the flutes.
- Measure 210: The motif finally moves to the lower strings. This is the signal that the printed trombone cues at measure 215 are imminent.

Measure 231–248

This next section contains some notational ambiguity where the durations are potentially suspect. Since all of the notes fall on the downbeat, the copyist might have simply noted these as a quarter note (with whatever time is left as rests) for expediency. However, these values are at odds with the rest of the orchestration. The F at measure 231 should be interpreted as a short eighth note to match the basses and cellos, while the D at measure 233 can be allowed to sustain for at least four measures, functioning as part of the chord with the brass and doubling the tuba and trombones. This note and the one following punctuates the goal of the trumpet fanfare—yet the written values are exactly the same that found at measure 231, with neither being a true quarter note.

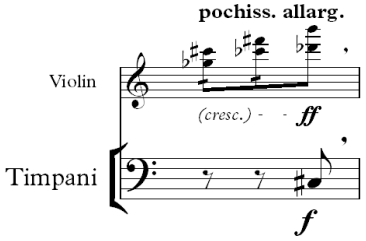


Example 4. Concerto for Orchestra, I, mm. 231–236

This sensibility is then extended to measure 248, which also should be short as it is similar to measure 231.

Measure 271

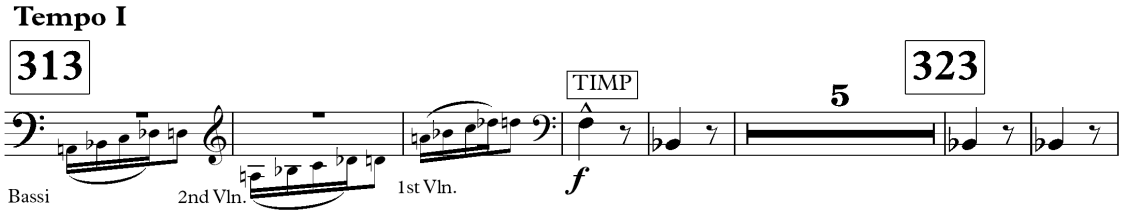
Here, the timpanist must watch the conductor and concertmaster carefully. The written *allargando* is often *molto* rather than *pochissimo*, and the measure is often conducted in three beats. While the conductor often beats these three beats, it is more consistent to instead watch the concertmaster's bow as he leads the strings towards this impact with subdivided sixteenth notes. Synchronizing the note's ictus with the down stroke of the bow is likely to be more reliable and more cohesive within the ensemble than depending solely upon the conductor.



Example 5. Concerto for Orchestra, I, m. 271

Also, the timpanist should heed the *luftpause* immediately following the written C-sharp. Again, care must be taken to avoid any potential aural resonance in this moment of silence.

Measure 313–324



Example 6. Concerto for Orchestra, I, mm. 313–324

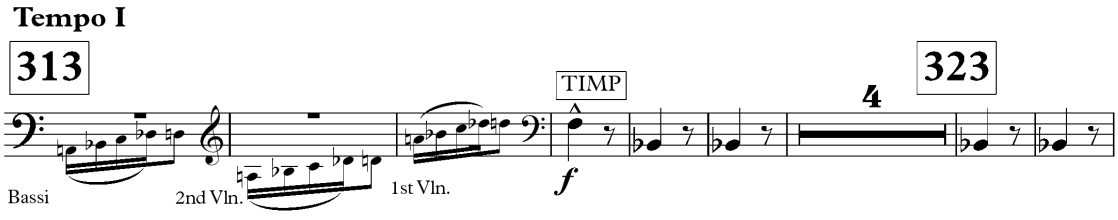
Measures 313–324 contain a potential misprint in the timpani part. As reproduced in Example 6, it is written as | F | B-flat | -5- | B-flat | B-flat |. The initial F is marked with a *marcato* or wedge accent articulation, and is replicated throughout the orchestration. At the same time, the F–B-flat notes serve to double the entrance of a proud theme in the trombones, and are also used as the subject of an upcoming canon. However, after five bars of rest, we have a repetition of what appears to be the phrase as seen by the timpanist. It serves the same lyrical purpose—but this time the timpani perform the second and third measure of the phrase while omitting the first.

Looking at the score, we see that Trombone II begin the phrase with F–B-flat, leaping up a perfect fourth and holding the last note for a full two bars. The timpani also play these two notes. Seven bars later, Trombone I enters in canon (but at a perfect fifth above), but the timpani play on the phrase's second bar with a | B-flat | B-flat |. Seeing this ambiguity, the question arises: What happened to the perfect fourth upward leap?

In contrast, the Basses have | F | B-flat | B-flat | -4- | B-flat | B-flat |. Which part is correct? They all are! In the score, the timpani part actually has a blank third measure

(measure 318) instead of a bar with a rest. So this is almost assuredly a misprint that has been carried to the part.

Based upon the second phrase and the Bass scoring, a plausible solution is to add another B-flat on the third bar so that it reads | F | B-flat | B-flat | -4- | B-flat | B-flat |, as seen in Example 7.



Example 7. Concerto for Orchestra, I, mm. 313–324, Corrections

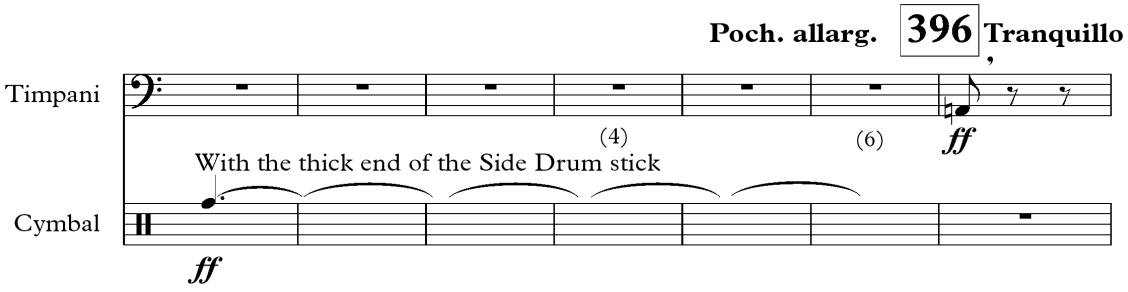
This is one example of the type of score study and analysis that is often necessary to produce an accurate and ultimately satisfying performance.

Measure 390

Measure 390 contains the first notes for the Percussion in the entire piece. Much like the discussion surrounding measures 95–215, the percussionists must also have learned the score well enough to either count 389 measures (through an ambiguous *Tacet*, no less) or identified enough cues to follow along accordingly.

This cymbal note is also specified "With the thick end of the Side Drum stick," which can be interpreted to use the thicker (and presumably heavier) butt end of the drumstick to strike the cymbal. Lacking any further instructions and noting that the

singular form is used, we can infer that Bartók intends this to be a suspended cymbal. In addition, the note is marked with slurs or "l.v." (let vibrate) markings carrying through the duration of six measures.



Example 8. Concerto for Orchestra, I, mm. 390–396

One oddity is that only the impetus is notated, while the slurs indicate the full duration. Contrasted with the timpani *tremolo* where not only the impetus but also succeeding measures were indicated, we have some insight into Bartók's notational idiosyncrasies. Perhaps he uses this format for instruments that sustain, but are only struck once (as also seen in his *Sonata for Two Pianos and Percussion*), compared to the uncountable sustain of a *tremolo*?

In either case, we can see that Bartók is attempting to be as clear and detailed as possible—although one interpretation of such specific instructions would be that he is attempting to limit the input of the performer, or eliminate the possible burden of decision-making within the musical process.

The length of sustain and the written dynamic (*ff*) indicate a desire for a large, projected sound that is capable of balancing against the orchestra. Towards that end, an 18" or larger suspended cymbal is recommended. Due to the unfortunate scarcity of

cymbal notes (compared to Mahler) and the relative thinness of the orchestration, the option of combining multiple cymbals to create an unusual timbre palette may not be appropriate, given the desire to save such a combination for "special" moments. In either case, the cymbal(s) have to be large enough to produce enough sound in both high and low registers, providing sufficient lower frequency resonance to support extremely high metallic sounds that are characteristic of the cymbal's "splash."

Measure 396

Thus far, measure 396 marks the first *tutti* section where the written note values in the timpani part (at a cadential downbeat) also coincide with the rest of the orchestra. Previously, the timpani might have had a quarter note written but the rest of the orchestra had an eighth note followed by rests. Does this mean that in all other *tutti* cadences, the timpani had tacit permission to slightly extend the duration of sound further than the rest of the ensemble? In fact, an argument can be made that such sonic resonance will naturally occur depending on the present acoustics, making such marking unnecessary. Regardless, this is another moment where the *luftpause* must be carefully observed, although the performer *might* take advantage of the implied crescendo via orchestral addition leading up to this note and properly convey the loudest note to date (by markings).

Measure 509

Beginning at measure 509, a seemingly simple crescendo can become significantly more complicated after a thorough examination of details. To begin, the intervallic relationship between the *tremolo* and the resultant peak of the crescendo is a major second; thus, care must be taken to immediately mute the written B-flat upon striking the C to ensure that any tonal dissonances (even for Bartók) do not occur.

In addition, the peak of the crescendo is only to a single *forte*, even though the rest of the orchestration peaks at a *fortissimo*. The explicit difference show that the timpani are intentionally held back compared to the rest of the orchestra. Thus, the timpanist should not take (many) liberties with this dynamic.

The relationship between the dynamics and the duration of the crescendo should also be carefully managed such that the peak of the crescendo (as it is) is reached with the resolution on C. Comparatively speaking, at five measures this is a long crescendo. It is often more dramatic to consider the dynamic rate of change on a logarithmic scale rather than the commonly taught linear scale. By delaying the majority of the crescendo until the last moment, the inherent drama created by such a crescendo is heightened and the timpani also have an opportunity for a singular moment of focus before ceding to the ensemble for the overall finale.

MOVEMENT II: GIUOCO DELLE COPPIE

Where one might find a traditional symphonic Scherzo or Minuet and Trio, Bartók instead channels the lighthearted mood to create his second movement. Entitled "Game of Pairs" or "Presentation of the Couples" in reference to his pairing of instrumental groups, these duos are then used to explore the moods and affections resulting from intervallic relationships. Yet to most aspiring percussionists, the second movement is better known for its snare drum solo. Not only does the snare drum introduce and conclude the movement, but it also answers the central chorale with snarky commentary while closing each phrase. A closer examination reveals Bartók's usage of a traditional ternary structure (ABA, or perhaps more accurately ABCDE-Trio-ABCDE), with the snare drum playing an integral part in outlining the defining characteristics of the form. Thus, it shows us an insight into Bartók's habitual use of percussion as a vehicle of transitional change between thematic sections.

Logistical Considerations

In this movement, the selection of the snare drum as well as its preparatory care and feeding merit significant consideration. What depth of snare drum should be used? How should it be tuned?

Historically, Bartók's indication of "Side Drum" almost certainly refers to an obsolete term that we commonly treat interchangeably as "snare drum." With "side drum" being of Scottish or British origin and regarding the locational histories of pipe

bands and other traditions, could the term then be referring to the deep, rope-tensioned drums outfitted with gut snares? Unfortunately, we have very little knowledge of how much Bartók may have been influenced by the cultural musicology from the British Isles. However, we do know that Bartók was a student of orchestration and compositional technique. From this, it is also well known that he was very familiar with the works of Debussy and Strauss; the equivalent terms of *tambour militaire* and *kleine militärtrommel* (from such works as *Ibéria* and *Ein Heldenleben*, respectively) would not be wholly foreign. Then did Bartók have any special intention in using the term "side drum"? Or were the listed terminology simply a convenience of the American publisher, who utilized a common English term that at the time was understood to specify a double-headed, medium-sized drum with snares and had been used in earlier publications?

The answers to these questions also depend on the narrative that the performer is attempting to convey. With a sober opening, fading closure, and lacking the briskness of tempo and gaiety associated with most jovial dance movements, a deeper and lower-pitched drum like a tenor drum or tom-tom helps bring to life the vision of a monk trudging through the cobblestoned streets. This then contrasts with the introduction of a drunken pair of bassoons as they and other instruments happily interact in the primary theme. The contrast continues during the angelic chorale, as the snare drum switches roles to answer the church-like harmonies and longer tones with a chattering reminiscent of a bored child sitting at the back of the pews. But how might a percussionist then reconcile this concept with the monk's stately gait? Considering the similarity of material between all sections, a third narrative considers the role of the snare drum as separate entity in its interactions with the other instruments—instead of a part of

the conversation, the snare drum is the third-person narrator, the arbiter in this game of twos.

Translating these ideas to the physical instruments has become more complicated when perusing today's landscape of available snare drums. Compared to playing a drum with the snare strainers activated, the tuning and initial drum selection becomes vastly more important as the pitch and overall acoustical resonance are not obscured by the immediate sound of vibrating snare wires or cables. Drums constructed with deeper shells are generally louder with more resonance. Shallower drums combined with taut heads produce a sharp crack when stuck—a characteristic that degrades inversely with head tension. To add to the complexity, differing materials ranging from 7-ply maple shells to resin composite or fiberglass to aluminum are used to construct the drums themselves, all producing differing aural characteristics when used in a finished product.

Under normal conditions, these factors are initially left to the performer's discretion. In fact, it is the performer's responsibility to make the relevant decisions before the first rehearsal, but in all cases, it is also their responsibility to be able to adjust to the final circumstances as requested by music directors or even section principals. Because of this, it is not uncommon to have several options at hand—when reasonable portability allows. In this case, the performer should have a few differing options available and be prepared to change if so requested. As an example, there are personal anecdotes of conductors not preferring aluminum shells, or requesting the drum be specifically tuned to a C-natural[1], which is tighter than most may prefer for general usage

[1] Bartók, Béla, Zhan Shu, and Uri Segal. Concerto No. 2 for Violin and Orchestra (1937-38); Concerto for Orchestra (1943). 2005. http://iucat.iu.edu/catalog/6125665

thus potentially necessitating an additional snare drum for normal usage in the fourth movement.

Although not usually tuned to match specific tonalities, the tension and resultant pitch of the drum itself bears some consideration. One end of the spectrum, a lower-pitched drum gives a hollow and mellow sound that is perhaps more characteristic of a tenor drum or a tom-tom. Especially with a softer mallet, this resonant sound is well suited for passages with sparse orchestration, but is also prone to being obscured amongst thicker textures. Conversely, the tighter tension results in a sharp crack that is articulate at all levels and generally considered idiomatic of the instrument. Historically, it is difficult to say whether a trend exists concerning preferring slack or taut heads; numerous recordings exist that exhibit either tunings.

The condition of the head itself also contributes significantly to the overall goal of consistent timbres at all dynamic levels. At the time of composition, snare drums were likely outfitted with calfskin heads. Today's synthetic heads are significantly cheaper, easily obtained, and require much less maintenance, but come at the price of a "ticky," thin sound that often resembles slapping paper. However, their portability and overall durability significantly enhanced the popularity over the years.

One major difference between calfskin heads and their synthetic counterparts is the temperamental durability with regards to environmental conditions. Whether man-made or not, the organic nature of calfskin and its ability to absorb moisture is both a help and hindrance. Without any mechanical tuning changes or adjustment, the calfskin will become more pliable and stretch in areas of higher humidity; conversely, in dryer locales,

the same calfskin will tighten up considerably. This obviously affects the tension and pitch of the playing surface itself, which then needs to be constantly monitored.

The other side of the elasticity coin is that the calfskin will tend to stretch and tighten with relative uniformity—meaning that it will eventually adjust to maintain a reasonable tensile equilibrium around the circumference of the mounted head, which then results in a clearer fundamental pitch and tone. A plastic head, which is more difficult to match tension around all of the tuning posts, often suffers from unintended overtones that leads to potentially inconsistent timbres, depending upon beating spots. One might also argue that the greater ringing and overtones help to easily differentiate between *au bord* (at the edge) and *au centre* (at the center) beating spots. However, these are simply some of the tradeoffs to synthetic heads. Some performers mitigate these concerns by lightly muting with a small piece of cloth or chamois to eliminate the unwanted harmonics and ringing.

Mallet or stick selection is a necessary component of sound production that always needs to be carefully considered, even for the snare drum. As previously noted, lacking activated snares to overshadow the drum's natural resonance, the performer has an opportunity to explore different levels of articulation in a true solo environment with the assurances that every minute change to the drum will not have to compete with other instruments to be audible. From normal snare drum sticks, to timpani mallets, yarn or corded mallets, or implements-not-yet-conceived, the percussionist has an opportunity to explore differing articulations much as a timpanist does. One such possibility is to use the butt or back end of the snare drum stick; this provides a heaver impact with a larger point of contact, which results in a louder, deeper tone. Another is to experiment with

differently-weighted drum sticks, or smaller tip sizes. A third is to combine them, using a heavier stick (or the butt end) for accents, and the beaded end or a lighter stick for the unaccented notes; all of these options affect the overall articulation and timbre.

The hardness of wood sticks heighten the papery qualities of plastic heads with an articulation that some might consider idiosyncratic for the snare drum, even without snares. In comparison, the calfskin results in a warmer, more resonant sound that also minimizes the high impact sound of a wood stick. For this reason, many timpanists resist using wood mallets if using plastic heads, even if so specified; much of the classical repertoire was composed at a time when the combination of wood and calfskin was common. Instead, a hard felt mallet or a thinly-covered wood mallet simulates this sound, but without the edge of overly undesired articulation. Similarly, a percussionist can also use a hard felt mallet on plastic heads for a rounder tone. Another solution is to wrap a drumstick with moleskin or a similarly padded material, which preserves the weight and core hardness of wood, but lessens and softens the impact without much of a sacrifice in projected articulation. During Eugene Ormandy's tenure, The Philadelphia Orchestra effectively used this to record this second movement successfully, though it must be stated that this is a potentially unorthodox musical decision. The following table contains an informal survey of various recordings of this *guioco delle coppie*, showing the differences in tempo, snare drum pitch, and striking implement.

Year	Orchestra	Conductor	M.M.	Pitch	Implement
1944	Boston Symphony Orchestra	Serge Koussevitzky	89	G	Stick
1955	Chicago Symphony Orchestra	Fritz Reiner	90	B	Stick
1959	New York Philharmonic	Leonard Bernstein	78	B	Stick
1963	Boston Symphony Orchestra	Erich Leinsdorf	86	B	Stick
1963	Philadelphia Orchestra	Eugene Ormandy	78	F♯	Soft Mallet
1965	Cleveland Orchestra	George Szell	86	B	Stick
1974	Berlin Philharmonic Orchestra	Herbert von Karajan	78	C♯	Stick
1976	Minnesota Orchestra	Stanislaw Skrowaczewski	79	C♯	Stick
1989	Seattle Symphony	Gerard Schwarz	96	A	Stick
1990	BRT Philharmonia Orchestra	Alexander Rahberi	81	B	Stick
1990	Melbourne Symphony Orchestra	Hirayuki Iwaki	81	G♯	Stick
1992	Chicago Symphony Orchestra	Pierre Boulez	85	A	Stick
1993	Basel Symphony Orchestra	Walter Weller	77	G♯	Stick
1996	Royal Stockholm Philharmonic Orchestra	Andrew Davis	78	G♯	Stick
2009	Baltimore Symphony Orchestra	Marin Alsop	85	G	Stick

Figure 2. Concerto for Orchestra, II, Comparative Snare Drum Tuning

Not only does the tempo vary drastically, but also the tuning encompasses a wide range. With a small sample size yet spanning over 60 years of recorded performances, it is still difficult to state whether or not trends are changing as technique improves and new products are brought to market. However, it is clear that the overall concept regarding the snare drum ranges from a deep tom-tom to a toy drum. Overall, percussionists still strive to achieve a clarity and beauty of sound even though the instrumental technology has changed significantly.

Measure 1–9

To begin, there is some slight controversy with regards to the overall tempo of this movement. While the original printed copy marked the tempo as *Allegretto scherzando* with a metronome marking of quarter note = 74, much research has been done that has concluded that the tempo should reflect *Allegro scherzando*, quarter note = 94. This has also been included in revised publications of the scores and parts, as of 1993. However, recordings and printed copies of the parts with the old markings still exist; it is the responsibility of the performer to be aware of the potential discrepancies, especially if found in an audition.

With that being said, the difficulty of this excerpt is primarily situational; it assumes that the performer is capable of handling basic rhythms, keeping a constant, internal tempo, and clearly differentiating between accented and non-accented notes. But perhaps most importantly, it assumes that the performer is capable of doing all of these things while under the complete scrutiny of all surrounding; it is an unaccompanied solo.

When examining sound production, one of the first considerations are the beating spot and the resulting tonal differences. There is an obvious difference between *au bord* (at the edge) and *au centre* (at the center). We can leverage this slightly to aid in the dynamic contrast, but generally we would want the overall timbre to be consistent.

Playing at edge of the drum results in crisp, dry, but "thin" sound without much resonance. In fact, it is often done for the ease of control at the quieter dynamics. In comparison, the center of the drum (or near it) provides more resonance and larger sound with the bottom head also reverberating, giving the sound itself more "depth" as a larger

air column is activating the bottom head. Usually, it is for this sound or a tenor drum-like quality (two headed) that composers write for "without snares." So, the performer can leverage these differing beating spots as a form of locational volume control, aiding in creating differences between the accented (at the center) and non-accented notes (a few inches away from the center). However, changing the beating spots result in clearly different timbres between the notes; this may not be a desired result.

With that stated, there is no need to play at the very edge as even though this is a solo, it is still within context of the overall orchestra. The sound still needs to carry to the back of the performance venue and the dynamic range is between *mf* and *p*, not the supremely quiet *ppp* that necessitate playing at the rim. Thus, the performer should also be wary of over-exaggerating the written *p*.

Use with a relaxed hand and arm, with a full legato stroke and feeling to achieve the fullness of sound. In this case, a heavier stick (and again, a relaxed hand) will give the volume without the sharp accents given by a tenser, faster stroke (but at equal volume). Again, this is on the assumption that we are trying to achieve the full resonance of the drum. After all, Bartók did not explicitly state to play at the edge, as he did when composing the *Sonata for Two Pianos and Percussion* several years earlier.

As already been discussed, the phrase consists of clearly delineated accented and non-accented notes. Each must also be absolutely consistent within the respective groups, and there also must be a clear tier differentiating the two groups. In addition to using different stick combinations, a common practice is then to utilize different sticking methodologies to aid and achieve this. Under normal circumstances, alternating or hand-to-hand sticking is generally preferred as it is the most facile. But one difficulty that

arises is the minute timbral and tonal difference that inevitably arise between hands and strokes, not to mention the potential for miniscule timing inaccuracies.

A potential solution to this is to use only one hand for the accents, and the other for the non-accented notes. This generally makes the individual note groupings more consistent, as then the performer separates the hands into differing strokes and dynamics. The individual note groups can also then be further differentiated by using differing sticks, such as a markedly heavier stick (or butt end) for the accented notes. Regardless of stick selection, care must be taken to ensure that the transition between hands (and notes) is rhythmically accurate.

A more common approach is to only use one hand for the entirety of this excerpt. This takes the difficulty of changing hands and the related timing completely out of the equation, allowing the performer to focus completely on musical aspects without the distraction of physio-kinetic coordination. Considering that the technical requirements of this passage are limited, most performers find method this easier to control although it obviously eliminates the possibility of simultaneously utilizing differing sticks.

In all cases, a large part of the unacknowledged difficulty lies in ensuring that the non-accented notes immediately before and after the accented notes are placed accurately. More often than not, the temporal space surrounding the accents is not as consistent within the given tempo, due to alternating hands or changing stick heights (technical issues surrounding the dynamic contrast). While at a large percentage of the time this it will be acceptable and indeterminate to the casual listener, the goal is to reach a consistency with near-metronomic precision.

There are a number of spots where minute imperfections in the rhythm and timing are common and often overlooked. The first of these occur at measure 4, where a common mistake is to rush past the first sixteenth rest on the downbeat. Especially with the preceding notes, a common tendency is to compress this sixteenth rest. A similar issue applies to the following measure. Another consideration is the potential to rush into the accented downbeat on measure 7. With the sudden shift to an accent, there is a tendency to overreact in the physical motion to produce the weightier note. Lastly, the combination of a diminuendo and simple quarter notes at the end of the phrase (measures 7–8) can also inadvertently cause a slight slowing in tempo. It is very important for the performer to maintain focus throughout the entire excerpt to maintain the constant tempo to the very end. Considering that the subdivisions are already stated within the previous rhythm, external listeners would be very aware of any deviation from the established tempo.

Particularly with this excerpt, where sixteenth note and rest combinations are clearly delineated, the solidity of this subdivision should also be felt by the audience. Most of these problems with timing can be alleviated or at least addressed through judicious metronome use. The goal of the metronome use is to build the ability to internalize a consistent subdivision that sustains over a period of time. One method for working on this is to practice this excerpt with the pulse on every sixteenth note, which is the exact subdivision that is desired. Once confident, change the pulse to every eighth note. Continue reducing the values and increasing the time in between pulses so that the metronome ticks once every measure, once every two measures, then once every four measures. At this point, the last exercise is virtually without the aid of the metronome,

and successful execution indicates a consistent subdivision and accuracy of overall tempo.

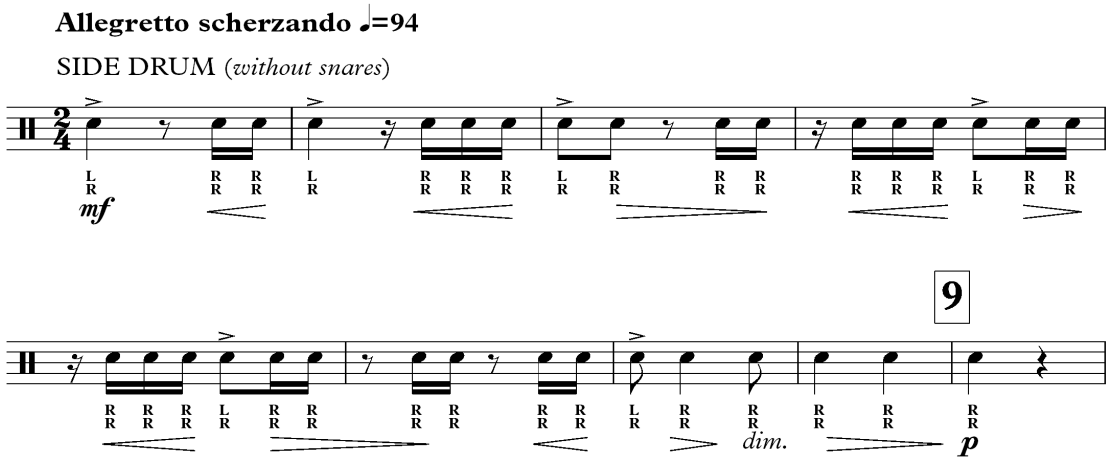
To reiterate the primary performance concerns:

- Aim for a consistent sound within the individual dynamic or articulated levels.
- Clearly differentiate between the accented and non-accented notes without affecting the tempo.
- Keep a steady tempo, especially through the rests and dynamic changes.

Once these technical issues have been identified and addressed, a number of questions regarding musical interpretation can be examined. As inherent to the nature of the term "interpretation," the core question is deciding the level of deviation from Bartók's printed score. In this excerpt, the musical directives are quite simple and almost lacking: 6 accents, and starting dynamic, an ending dynamic, and a diminuendo in between. With this austere interpretation (or lack thereof), the phrasing is limited to the built-in accents providing emphasis, and the diminuendo providing closure. Thus, all of the articulation needs to be strictly tiered between accented and non-accented notes, each in their own equivalency. This then gives us a total three dynamic sets to carefully differentiate: accented *mf*, non-accented *mf*, and the non-accented diminuendo.

However, the musician may wish to deviate slightly from the provided starkness. After all, quick looks at the ensuing bassoon, oboe, clarinet, and flute lines show phrases rife with dynamic contrasts and rippling articulations, including the mysterious and elusive staccato *tenuto*. If percussionists were to approach this similarly to a wind instrument, there indeed lay some room for creativity. Using the provided articulation as anchor points, the percussionist can then phrase towards and away from each accented

note. This translates to a short crescendo leading into the downbeat (in most cases), and generally a longer diminuendo until the lead-up into next statement, as seen in Example 9. This "phrasing" is supported by the existence of the long diminuendo towards measure 9, but will raise a few eyebrows among those who may not realize that such additions are intentional. So, the percussionist must consistent in the interpretation to remove all doubt.



Example 9. Concerto for Orchestra, II, mm.1–9, Suggested Phrasing

While phrasing towards the accents could give a little more fluidity and organic life to the written notes (compared to the starkness of tiered or binary dynamic choices), it is one that is not often approached by the musician. Because of this, there is no universally correct answer: one may take this approach in a rehearsal, but must be prepared to change instantly to a more "standard" (as written) interpretation should a conductor wish otherwise. Likewise, as this opening solo often appears on orchestral audition repertoire lists, one must realize that while the sheet music is in front of qualified musicians, 1) they are more likely looking for the candidate's accuracy to the printed

directives, and 2) may be unaware of intentional subtleties the performer is attempting to convey. In this, the percussionist's stigma of "rhythmic accuracy being the paramount priority to the exclusion of all other aspects" works against a musician intentionally attempting to expand the perception. The performer's choice is then limited not only by the composer's intentions, but also by the preconceptions of his adjudicating colleagues.

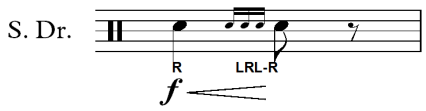
Measure 24

In examining this single note, it is worth noting that the timpani is in a solo role—finishing the cadence that closes the bassoon duet with sequential responses by the lower strings and timpani. However, recall that this piece is entitled *Concerto for Orchestra* partially for its virtuosic treatment of instrument groups. Compared to Haydn, Mozart, Beethoven, Brahms, Tchaikovsky, Bruckner, and Mahler, the scarcity of notes in a chamber music setting allows this single note to stand out as a proverbial bell-tone. Perhaps this is Bartók allowing timpani its share of the soloist role—but this is merely an example of the compositional or orchestrational treatment that permeates the piece.

Measure 32

The snare drum interjection interrupts the oboes' duet, yet at the same time provides a mechanism for allowing their next phrase to develop. With that in mind, notice the difference between the solo dynamics and the interjection at *forte*. With the four-stroke ruff with the written crescendo (rather than implied), feel free to expand the

spacing of the grace notes so that they resemble sextuplet-based triplets. This, with the crescendo, is best achieved through an alternate sticking (LRL-R), avoiding the so-called "French-style" four-stroke ruff sticking of RLL-R (for predominantly right-handed percussionists).



Example 10. Concerto for Orchestra, II, m. 32

In addition, if softer sticks or mallets were utilized in the opening passage, one may wish to reconsider those sticks for this section. The louder dynamics, grace notes, and crescendo as well as the increased orchestration (competing with the oboe melody) necessitate more articulation from the snare drum, which may not be possible with a softer mallet selection.

Measure 60

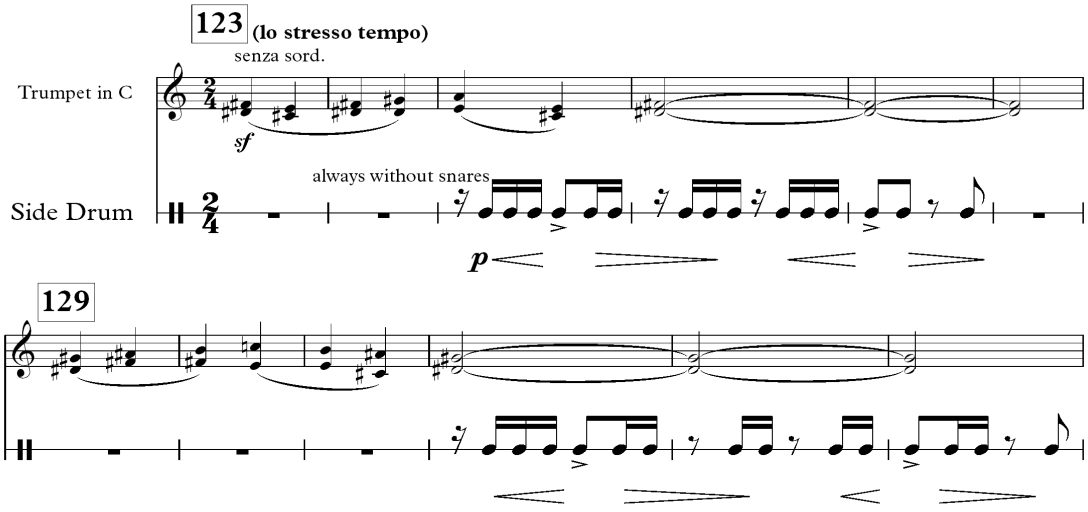
The timpanist must watch the conductor carefully! Fortunately, there are viola cues in the part that explicitly show that the accents heard are not on the beat, but the sixteenth notes immediately succeeding. Also note that the last cued accent is misprinted in the ultimate measure; it should fall on the sixteenth note immediately succeeding like the others.

Measure 120–123

In closing the first section, we have a clearly tiered dynamic markings. It is absolutely essential to observe these differences. Now, while it is possible to perform them with the organically phrased interpretation discussed previously, it is also more difficult. While not impossible, any attempts to do so should also be practiced beforehand so that within the context of the overall phrase, three sub-phrases at distinctly differing dynamic levels are still discernible.

Measure 123–164

While we usually attempt to be consistent in interpretive choices throughout an entire work, here is one place that deserves an exception. Due to the fact that the snare drum plays in counterpoint to a brass chorale in what is clearly a contrasting section, we could also treat this section differently. As a matter of fact, even Bartók acknowledges the stylistic change in his notes to the percussion, deviating from "without snares" (measure 119, score) to "always without snares" (measure 125, score). However, in the part the "(without snares)" designation appears only at measure 1 and again at measure 126, after the *Lo stesso tempo* brass chorale begins. This could be because the composer wishes to re-emphasize the instructions in a new section, or in a more likely scenario, the copyist re-added the instructions at measure 126 that happens to coincide with a new page. In this case, the score provides more clarity to the actual intention.



Example 11. Concerto for Orchestra, II, mm. 123–134, Suggested Phrasing

In addition, there is a very, very small chance that the brass will be performing their phrases without inflection (without "phrasing"), so the percussion can also take the moment liberally to add musical touches. Lastly, it is predominantly written in a single dynamic; we do not have to worry about the tiered dynamics found leading to the chorale. Because of this, here is a perfect opportunity to subtly add "organic phrasing," regardless of the interpretation used previously.

Measure 159

Here, there is an errata in the score that does not appear in the part. There is a staccato marking on the second beat in the snare drum—which is somewhat counterintuitive as single notes from the instrument are inherently staccato. Unless other phrasing and articulations are explicitly and consistently stated, which they are not, it is safe to ignore this marking as an anomaly. In addition, the staccato articulation is placed

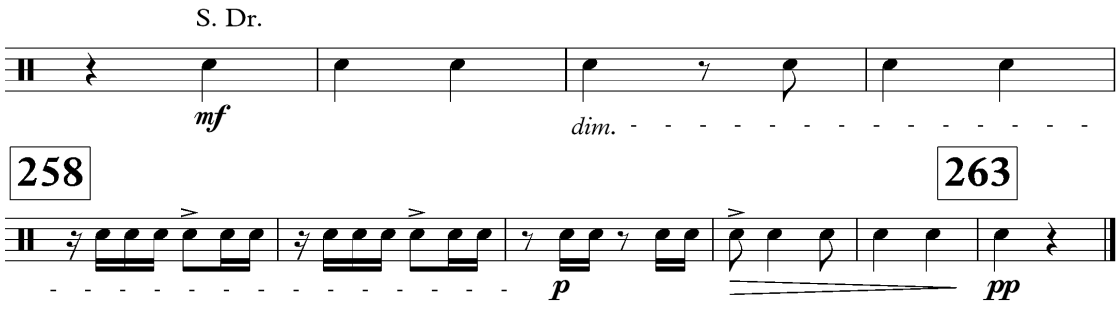
on the stem side of the note—which is counter to modern publication rules regarding music engraving.

Measure 254–263

Bartók writes another snare drum solo to close the coda, giving the percussionist an opportunity to apply all that has previously been discussed. Again, it is of utmost importance to gradually approach the diminuendo with consistency.

The diminuendo does not begin until measure 256 (after 2 measures of *mf*), and reaches a *p* at measure 260. A new diminuendo to *pp* begins at measure 261, so hold the dynamic at measure 260. In this case, it would be better to consider this in a literal fashion; pay attention to the two sustained dynamics instead of viewing the phrase as an extended diminuendo.

At measure 263, the final note is *pp*, but at this point the snare drum is the only instrument producing sound. Thus, it can be considered a "solo" *pp*; quieter than everything else, but still loud enough to be heard at the back of the concert hall.



Example 12. Concerto for Orchestra, II, mm. 254–264, Suggested Phrasing

Measure 261

A case can be made for a missing accent on the downbeat of measure 261, and phrased accordingly. Based upon similar phrases at measure 158 and measure 7, it is unclear why an accent is missing. Thus, extend the artistic license and add a slight emphasis on the beat (perhaps not as much as a clear "accent"), just enough to make it distinct. This will also aid in controlling the following diminuendo as it gives the performer a slightly louder starting point.

MOVEMENT III: ELEGIA

Bartók described the third movement of his final masterpiece as a "lugubrious death-song," and entitled it appropriately. Many of its motifs are derived from the first movement, ultimately forming a triple-themed movement that diverges greatly from the tone and attitude of the previous two. This ABC form is also permeated with the dichotomy of a funereal weightiness and impressionistic influences forming airy, misty textures. As a whole, this movement does not present the same level of technical challenges that are found in the others; instead the virtuosity lies in the ability to achieve differing timbres while meshing with a generally lighter orchestration.

Measure 1–18

The timpani begins the movement with a motif that is derived from the opening notes of the *Introduzione*. Because of this unusual yet special opportunity, the sound

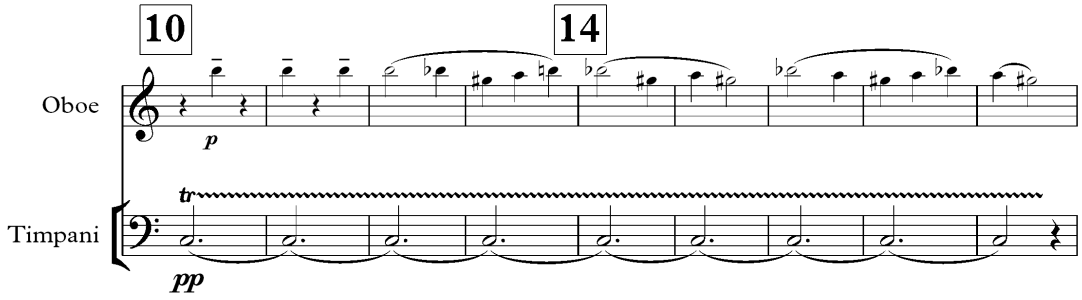
quality of these notes must be approached with absolute care. Quite simply, we have the potential issue of balancing single notes (at *p*), with a duo of sustained, *pianissimo* rolls. The sound of timpani is often associated with the roar of battle as horse-mounted kettledrums direct soldiers to their places, or with the rhythmic pounding of feral dances leading sacrificial maidens to their deaths at the behest of unknown gods. Instead, Bartók provides an opportunity to showcase the delicacy and subtlety of the timpani, as the downbeats of butterfly wings in the dark hours of the night.

These notes can be described using a pearl as a metaphor: round, luminescent, like a glow emanating from the darkness of underwater depths. Consider that the only voices in the orchestra at this time are timpani and double basses; sound projection via articulate mallets are not necessary. The only articulation necessary is that would produce an optimum sound on the particular set of timpani—of course, determined by the performer. Thus, a lighter touch combined with softer mallets aid the projection of the misty textures.

In this excerpt, the double basses do not share rests with the timpani; they have longer values carrying throughout the measure, though changing notes at the same time. Regardless, these notes in the timpani should only be dampened if (and when) they interfere with succeeding notes, as the intervallic relationship within phrases is absolutely essential (which should be obvious at this point). However, should pedaling or note changes be necessary, then dampen on the written rests. In most cases, the tuning of the individual drums can be set up so that changes are unnecessary, but that is not taking into account the condition of the timpani on that particular day.

For the latter rolls, the absolute softest mallet such as cartwheels (or a very soft equivalent, given the increasing trend towards using a cartwheel wrap exclusively) is necessary in order to produce the desired sustained pitch without any inclination of beats or individual strokes. In addition, the performer can tilt the mallet to strike the drum at a 30–45 degree angle instead of the "normal" parallel angles where the face of the mallet (if cartwheel) flatly meets the timpani head. This allows the performer to utilize an area of the mallet where there is often more felt, resulting in a softer, lusher tone without resorting to changing sticks. That being said, there is enough time between measure 3 and the entrance at measure 4 to facilitate such a change, if desired.

For the last roll, it is generally a good idea to be familiar with the oboe cues to avoid getting lost during the long, slow section.

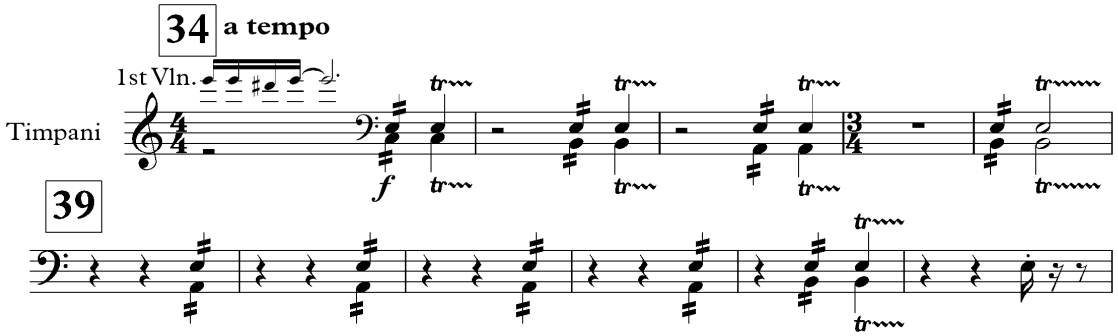


Example 13. Concerto for Orchestra, III, mm. 10–14

Measure 34–45

Here, we have the equivalent of a notational shortcut: abbreviated notes. The number of slashes through the stem indicates the individual value, which is to be repeated throughout the duration of the original note. In this case, the two slashes indicate

sixteenth notes, which are to be repeated for one beat; thus, four sixteenth notes. In addition, Bartók moves away from his tendencies of intervallic relationship in single lines to actual concurrent harmony for the timpani.



Example 14. Concerto for Orchestra, III, mm. 34–44

Due to the change in theme, more articulation necessary as the function and character has changed from the pearls or teardrops. The timpani forms the basis of a heartbeat, emphasizing the return to *a tempo* as well as stabilizing the latter half of each measure in response to anguished calls of the violins and clarinets at the beginning of each measure. The sound concept and mallet selection should reflect this change in emotion; a weighty tone with a hint of articulation (via medium felt mallets) can help provide this.

As noted, these are sixteenth notes that only exist in the timpani—but also in response to the sixteenth note phrase in the violins and clarinets. Listen carefully to the way that they construct their phrases; it is marked with *tenuto* articulation on the first two notes. A possibility exists that the very first note will be elongated—taking the phrase slightly out of strict time. Thus, a similar interpretation exists for the timpani to answer

in kind—elongate the first note (and accentuate it to lend emphasis), but catch up with the rest to begin the *tremolo* on beat four. However, in either elongated or straight rhythms, it is essential to separate the sound of articulated rhythm of the sixteenth notes from the following *tremoli*.

Just as a conductor has to balance the integral parts of a chord in order to properly bring out the intended harmonies, the timpanist must also be aware in his role in the given harmonies, especially when filling more than one voice in the chord. Under normal circumstances, the timpani serves as the base of the chord as it is timbrally unique and often the lowest-pitched sound within the orchestra, doubling the tuba and double bass. However, this is not always the case. As shown in Example 14, the timpani consistently has chords with a moving lower note under a static E, which is a re-articulated pedal tone as the chord progression moves through various inversions. Considering the moving note as indicative of the harmonic change, one interpretative measure might be to consistently emphasize these notes in lieu of the E. However, doing so would also artificially place added emphasis upon a different foundation for these chords, which is actually the E2 found in the lower strings. Additionally, recall that the timpani is a non-transposing instrument; conversely, the double basses sound an octave lower, which would then make the significantly higher C3 and others even more out of place.

If not focusing upon harmonic balance (as the conductor will no doubt indicate his preference), the timpanist should surely care that the notes are balanced between the two drums. As noted elsewhere, the relative tension of the drums also impacts the acoustic projection. At the beginning of this excerpt, the C and E are both in the higher

registers of the instruments. However, as the harmonies progress, the C gradually descends to an A; the interval is only a minor third, but the tension at A is considerably slacker. So, a conscious effort is needed to balance the A with the E.

Measure 44

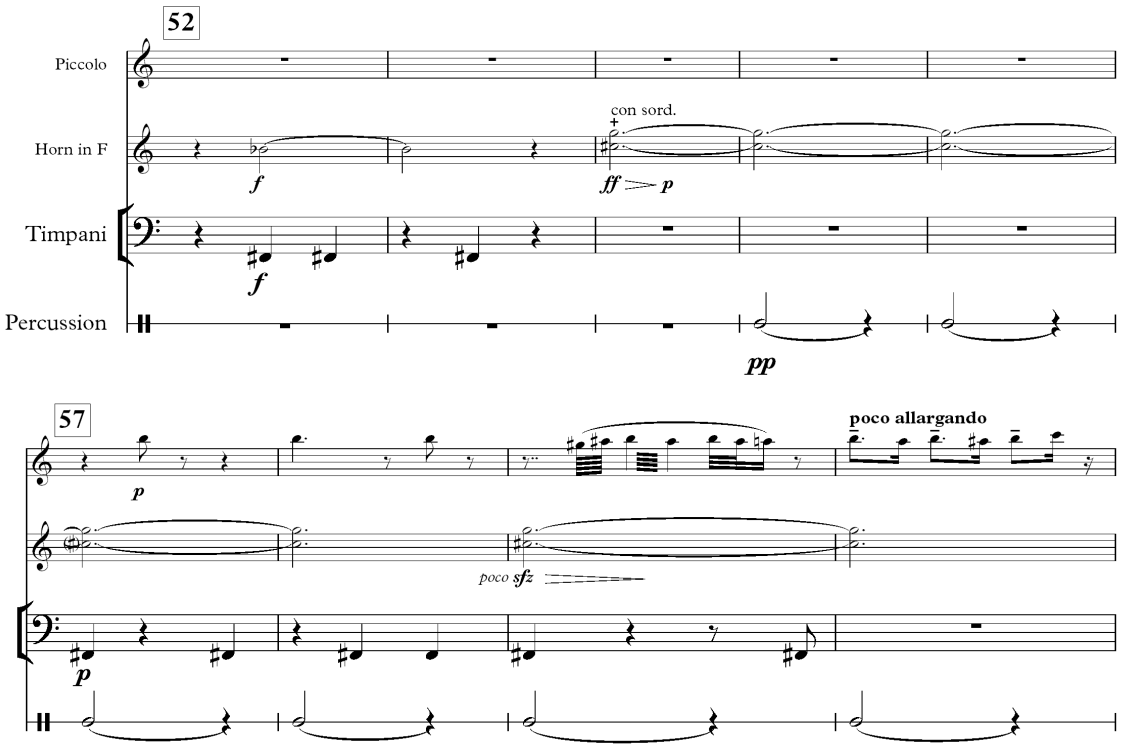
Bartók finally writes an explicit instruction to the performer: a sixteenth note with staccato articulation, followed by rests. Without a doubt, this is meant to be short. But it is worth noting more of Bartók's notational idiosyncrasies: only the tuba and bass trombone share the note value. All other instrument groups have an eighth note, with staccato articulations. The horns have an eighth-note value with *marcato* articulation. Strings and winds have a clear *ff* dynamic, whereas the timpani (and brass) only has the original dynamic of *f*. This could be an intentional balancing of voices, but we do not know for sure.

Measure 52–60

Only a single *forte*, here is a case where the low register of the timpani builds as the foundation for the accompanying heartbeat. Given the opportunity, exaggerate the dynamic but not at the expense of sound quality. Using a downward J-stroke to minimize the impact yet increase the beating surface will add more weight to the sound. In this particular case, we want to maximize the resonance of the bowl to achieve the "depth" often heard from timpanists in older vinyl records (or their digitally re-mastered equivalents).

Instead of using a one-dimensional piston stroke where the mallet stays only on a single vertical plane, consider utilizing a J-stroke. Made popular and taught by Saul Goodman, the J-stroke adds a horizontal element where the timpanist rolls the wrist inwards at the point of impact and continues the follow-through across the body. When used with a heavier mallet and a relaxed stroke, the trajectory of the mallet head resembles the "J" that gives the stroke its moniker. The effect of the turned wrist at the bottom of the "J" increases the surface area of the impact, which in turn gives a deep, warm, bottom-of-the-bowl-resonant sound that is well suited for single, sustained notes.

In the tam-tam, consider using a slightly smaller or harder mallet than is normally selected. At lower dynamic ranges, a more articulate mallet will result in the tam-tam vibrating faster, thus being more "responsive" and immediate. Otherwise, it is very possible to lose the initial impact with the sound reaching its peak in the following moments. In addition, the performer can "clear the air" before each note by muting the tam-tam, even though it is marked to "let vibrate." The slight break in sound used to re-emphasize the next impact is also crucial as it will help "reset" the sound levels instead of the sustaining and additive properties found when continuing to strike an already-vibrating surface.



Example 15. Concerto for Orchestra, III, mm. 52–61

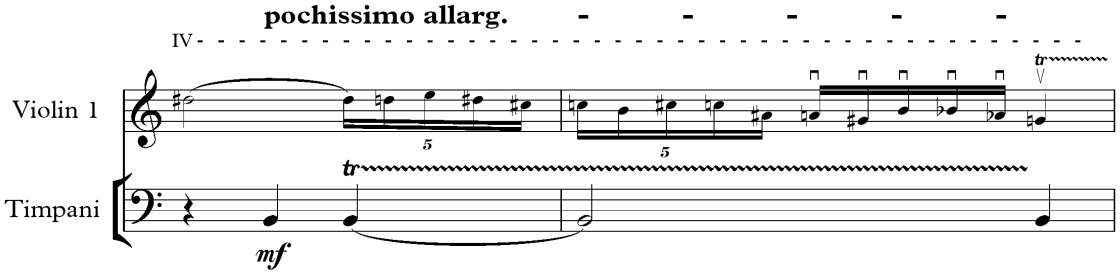
At the downbeat of measure 59, the timpani and horns momentarily intersect. At first glance, it appears that the timpani is missing the *poco sf* found in the horns, so one interpretation is to reinforce their accent with a subtle emphasis as well. A closer look then reveals that the horns are actually re-articulating their long tones in the same manner as the initial entrance at measure 54 (though *sans sordino*), which precedes the tam-tam and timpani pulse. Thus, it might be a better interpretation to consider the timpani in an alternating conversation with the crying piccolo, completely separate in function and motif than the horns. As such, such emphasis on the downbeat would not be necessary, as it would then juxtapose two separate ideas where only one is indicated. Another clue supporting this separation is the lack of a corresponding *poco sf* in the tam-tam, which also shares the downbeat.

Measure 73–85

Though it is not indicated, pay attention to the note durations of the brass and mute accordingly. These *forte* notes are short, even if notated as quarter notes. The strings also have quarter notes, but realize that they are also notated as *pizzicato* at this time.

Measure 93

In this next series of rolls, it is important to articulate the ending of each roll, as indicated. In particular, be very careful at measure 98 as it combines a *pochissimo allargando* with quintuplets in the upper strings; the timpani and *tutti* finish the phrase on the final note. These final quintuplets are often conducted individually, so watch both the conductor and concertmaster carefully for the placement of the final note.



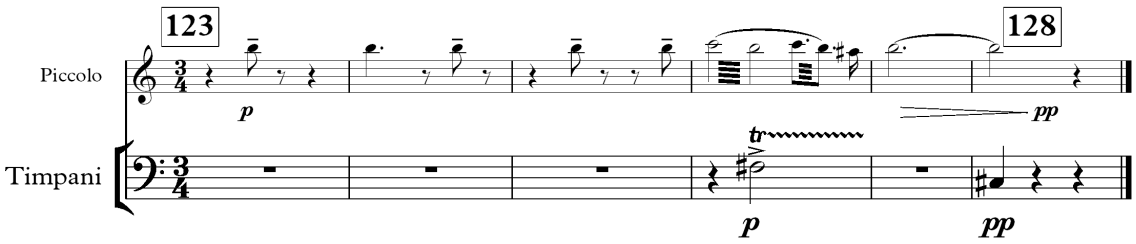
Example 16. Concerto for Orchestra, III, mm. 98–99

Measure 105

A recapitulation of the opening motif appears. The timpani joins for a single note, a pearl of such grace and elegance that exudes relaxation and contentment. The addition only makes the following tri-tone interval all the more jarring—which is of course the intention as the interval is a perfect fifth in its first appearance at measure 4. Thus, this is our opportunity again to create as beautiful of a sound as possible, to emphasize the larger harmonic difference that is to follow.

Measure 123–128

To conclude the movement, Bartók again pairs the piccolo and timpani. This time, the piccolo adds the trill with B-natural's upper neighbor, which certainly differs from the previous leading-tone relationships. Additionally, the timpani interjects an F-sharp roll in the midst of this trill, creating a conflicting tri-tone that is then resolved as the piccolo finds its B. And the timpani finishes the movement with of its own resolution, a clean descending fourth.



Example 17. Concerto for Orchestra, III, mm. 123–128

As this section is as exposed as the rest (if not more), the goal is to eliminate all chances of audible strokes and create as smooth of a roll as possible. Towards this end, avoid placing the C-sharp and the F-sharp on the upper register of drums #2 and #3 (using the convention that the lowest drum is #1). While this might give the clearest pitch, the increased tension on the heads will also result in more impact and likelihood to hear articulated strokes. In addition, the tautness of the heads will decrease the vibration, and not allow the entire drum to resonate fully. Thus, use drums #3 and #4 for these notes to resolve these issues.

For this roll, an additional technical option is to deviate from the standard practice of single strokes and instead play as a multiple-bounce roll, similar to a snare drum roll but with felt mallets. The increased influx of strokes due to the buzz stroke can conceivably eliminate the sound of individual strokes. Under normal circumstances, a buzz roll on timpani creates a seamless *tremolo*, but also slightly mutes the head due to the increased contact; this may be desirable due to the extremely quiet dynamic requirement.

MOVEMENT IV: INTERMEZZO INTERROTTO

By far, Bartók's fourth movement is the most well-known and anticipated among budding percussionists. The timpani part can be counted upon to appear on orchestral audition lists, and has become one of the gold standards to measure melodic tuning. But focusing upon this in fact only touches one part of what makes this movement special.

The *Intermezzo* is constructed of flowing melodies in a startling chromaticism with diatonic resolutions that give Bartók his signature stamp upon atonality. The ability to hide uneven meters and a multitude of accidentals within lyrical lines in a manner that is accessible to the general public is on full display here—and the timpani plays no small role in supporting this.

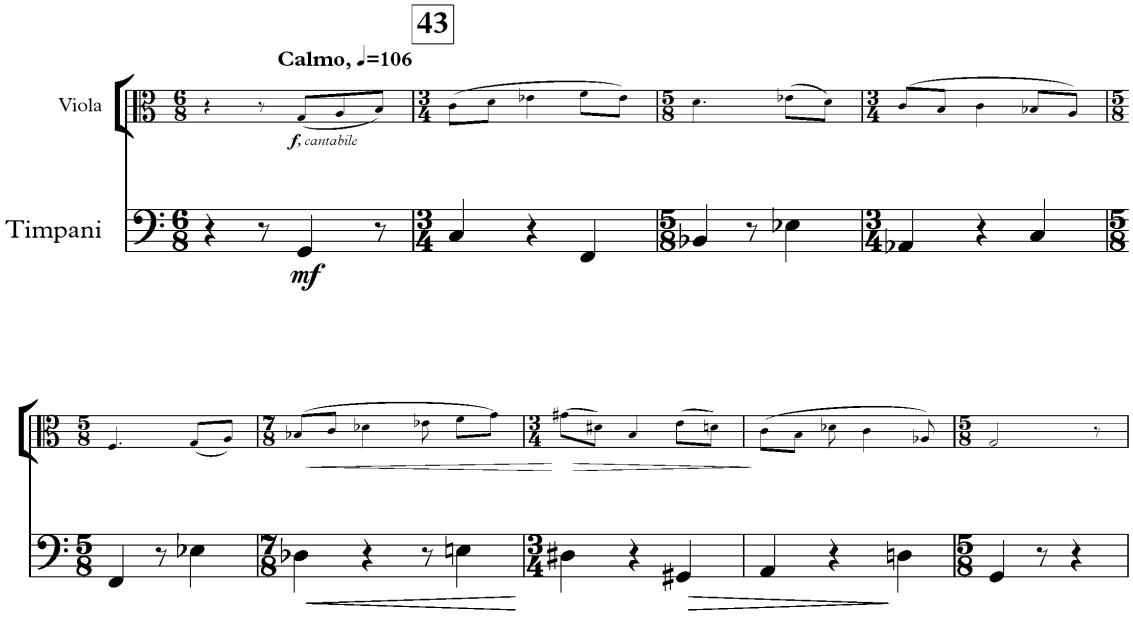
In comparison to the song-like *Intermezzo*, the *Interrotto* is almost brash, with a crudely satirized melody that is immediately at odds with the previous expressiveness. The obviously borrowed melody is either derived from Shostakovich's Symphony No. 7, or perhaps Shostakovich's point of origin, Franz Lehár's *The Merry Widow*. In either case, the mocking answers to the caricatured melody are sometimes interpreted as a protest against either Stalinist policies or poor melodic construction.

In practicing this, many will solely focus upon the written notes and technical recommendations from their colleagues and teachers, seemingly accepting a possible solution without first considering the original problems or how each solution must be tailored to the situation. The following dissection strives to address the number of issues that many gloss over, as well as examine new problems that some solutions pose.

Measure 42–51

In this movement, the timpani is paired with the harps (sustaining instruments), but only needs to balance against the viola melody. Because of this, articulation via mallet selection is not as imperative. Instead, focus upon the legato stroke with the purity

of sustained notes by allowing the weight of the mallets to fall effortlessly, with a medium to soft felt-covered stick to minimize the sound of the impact.



Example 18. Concerto for Orchestra, IV, mm. 42–50

The first thing to remember is that the dynamics are a firm *mezzo forte*, underneath *forte* in both harp and the viola melody. This distinction is notable, so that the timpani should stay in solidly supportive role. A significant amount of attention should also be paid to both the crescendo and the diminuendo. In short, begin the crescendo with the D-flat, but peaking at the D-sharp. Then immediately begin a diminuendo to the end of the excerpt, but be aware that the G-sharp actually falls in the middle of the diminishing viola phrase. Thus, it should be noticeably quieter than the D-sharp. The final G should be at the same volume as the beginning of the excerpt.

In particular, there are several ways to tune for this excerpt. However, the potential difficulty with controlling dynamics often involves adjusting for different tuning strategies. For example, a common strategy is to tune the smallest drum (#4) to an E-flat or D-sharp, which is the peak of the crescendo. This also means that the second highest drum (#3) will be tuned to an E-natural. However, this provides a few logistical problems in controlling the dynamics. The enharmonic E-flat on the smallest drum is generally in a lower range of the instrument, where the head has a relatively low tension. Because of this, the drum generally does not resonate or speak as quickly or with as much projection. Compared to the E-natural—which is in a higher tension and higher range—the E-natural will naturally respond much faster and with greater volume. In addition, with the timpani set up in a standard half-circle around the performer, the E-flat will be the further away from the audience as it is usually on the outside of the curve while the E-natural will be at the peak of the curve, directly facing the audience. Distance combined with the head's tensile responsiveness provide two factors that work against the performer in correctly preparing and executing this crescendo. The timpanist must adjust for these factors accordingly to ensure that the E-flat lies at the peak of the crescendo, not the E-natural.

A logistical solution is to replace the smallest drum with one that is larger than usual. While most American sets of drums have a 23" as the smallest of the quartet, it is not unusual to have a 24" or 25" in its place. With these larger drums, the E-flat then lies in the middle register, and thus will likely speak with more immediacy and better tone quality.

Muting provides a significant challenge in this excerpt. Unless otherwise marked, the timpani can generally be considered as single-note instruments; while the capability of having four concurrent pitches existing at one time exists, the reality is that the sustain and ring of one note often interferes with the clarity of newer notes. Also given the generic role of anchoring harmonic movement, there is a high likelihood that the sustain of a previous note conflicts with the present tonality—providing an aural clash that is undesirable for even Bartók's particular brand of atonality.

With the longer parallel notes in the doubled harps combined with the legato and slow-moving viola melody, it would seem that the timpani notes are meant to ring throughout the full duration between one note and the next. Bartók instead inserts short rests before each note, thus truncating the duration of each note. Perhaps he is doing this with the understanding that the timpanist requires time and silence to change from one pitch to the next? This does give some insight into the instruments that Bartók was familiar with; perhaps he wrote for only three timpani, including rests for pedaling and tuning. Percussionists and timpanists generally appreciate the composer thoughtfully altering the music to fit the technicalities of the instrument. However, in this case such markings could interfere with the overall interpretation of the part as it is slightly contrary to the rest of the orchestration. Thus, the timpanist is required to study further and make a judgment call regarding overall note durations—which in this case are to allow each note to ring consecutively. The only exception is that both the harps and timpani have eighth rests on the fifth beat of measure 47; this should be muted.

While the amount of muting required generally depends upon the acoustical nature of the performance venue, it is usually a recommended to gently mute each note as

the next is sounded. This will also prepare the previous drum for any potential tuning changes. The exception is when tuning changes are required on consecutive notes, on the same drum. Especially when the interval between the notes is greater than a half-step, there is a high likelihood of a slight *glissando* emanating from the drum as it is being pedaled. This is due to the head still vibrating as the tension and pitch was changed. To avoid this, the timpanist must either aggressively mute the head when possible, or change the tuning scheme to avoid the situation.

One such example is the change between the D-flat–E on drum #3, in a very common tuning strategy. Without muffling and with a very fast pedal technique, a *glissando* is still audible as the note is changed over the three half-step interval. With this tuning strategy, the only recourse is to very aggressively mute the D-flat, and then quickly change to an E when the drum has hopefully stopped resonating. Fortunately, there is ample time and a written rest in between the notes, which can help facilitate this. In addition, the viola melody has a sustained note, with a pickup leading to the beat coinciding with the E. This makes it somewhat conducive to mute during that pickup note, which is the fourth eighth note of the 7/8 measure. The harps also have a notated eighth-note rest on this pickup note.

If one were to mute, there are at least two things to keep in mind: 1) the point of muffling is to completely stop the sound. If the pitch is not completely stopped, then there is potential for additional *glissando* effects or other unwanted and unintentional pitch creation. 2) The timpanist must move quickly and decisively to completely stop the sound, often with both hands. An often-heard pitfall in this section is merely muting with one hand. While this has most of the desired effect of dampening the immediate

resonance, it unfortunately does not completely still the vibration of the head. As a result, an audible *glissando* is heard, even of when only spanning a minor third. While this audibility may not be as much of an issue in a performance situation (when also accompanying an entire viola section at that moment), it is extremely noticeable and could be considered detrimental in an audition.

The act of muffling notes should not also create additional sound. As an example, while the D-flat pitch may be completely stopped, the extraneous sound of hands slapping and pressing the heads would absolutely nullify the purpose of muting. Thus, muffling itself must be approached carefully and practiced diligently. One possible solution is to avoid pedaling between the D-flat–E entirely. This would also allow the timpanist to retain the concept of sustained notes without additional muffling. It would allow the D-flat to ring for the duration until the eighth note before the E, while also eliminating the potential for extraneous sound caused by overenthusiastic muffling. Instead, the D-flat can be gently muted in the same fashion as the rest of the notes.

The technical side of tuning involves a number of factors. The first involves silent tuning, as previously discussed. Again, the timpanist must strive to change notes without any extraneous sound emanating from a vibrating head.

The second involves note accuracy when pedaling. In particular, the timpanist has to be very aware of the differences between pedaling up to a note (from a lower pitch), and pedaling down to a note (from a higher pitch, thus higher tension). When pedaling up, the tuning gauges are generally accurate in reporting the increase in head tension. However, this cannot be said for the opposite. Because of the friction between the head and the bearing edge of the timpani bowl, and also the natural resilience of the

head itself, the head takes longer to stabilize when manually releasing tension. To avoid this issue, the timpanist must either account for this inaccuracy by intentionally "overshooting" the gauges (a temporary solution), or preferably release the head tension completely and then pedal up to the desired pitch. The latter is generally accepted and taught as standard technique, but is often overlooked by inexperienced performers who may depend solely upon the convenience of tuning gauges.

A third factor involves the difficulties of accurately pedaling consecutive notes on the same drum. To achieve this, the tuning mechanism (most often, the pedal) must be moved to coincide with the next note. On pedal-based timpani, a simple way to describe this is the near-synchronization of movement between the pedal and the timpani mallet: as the mallet falls, the pedal also moves so that the target pitch is reached as the head is sounded with timing similar to the synchronization between a trombone slide and its player's breath control.

Like a trombone, this timing is more difficult to manage when the pitch interval is wider as the interval also directly correlates to the amount of necessary pedal movement. However, unlike a trombone that can have an instantaneous elimination of sound with breath and tonguing techniques, it is more difficult to completely eradicate sustained notes for the timpani. As a result, the sustained pitch of the original note is slightly transformed into a *glissando* as the head tension is altered, though this *glissando* is often hidden by the impact of the new note at the desired pitch.

It is then the goal of the timpanist to reduce the audibility of this *glissando*—either by reducing its duration via very fast tuning technique, or by reducing its range. As an example, a *glissando* of a major third is more likely to be noticed than a pitch-bend

of a half-step interval. Thus, pedaling consecutive notes on a single drum is best utilized on smaller intervals and tuning strategies focused upon consistency and pitch accuracy to generally avoid such pedaling whenever possible.

With regards to tuning strategies, the most important thing is to have a plan that is well-known and practiced before the first rehearsal. Once in a performance situation, it is also vital that the timpanist triple-check the tuning gauges before every rehearsal and performance, as there is not enough time to verify the intonation of every note before playing in the midst of this excerpt. Figure 3 shows five different strategies, each with individual strengths and weaknesses. The specific drums are numerically ordered, from low to high according to their diameter (i.e. #1=32", #2=29", #3=36", and #4=23").

	G	**C**	**F**	**B♭**	**E♭**	**A♭**	**C**	**F**	**E♭**	**D♭**	**E♮**	**D♯**	**G♯**	**A**	**D♮**	**G**
	mf									<	<		>	>	>	
(1)	2	3	1	2	3	2	3	1	3	3	3	3	2	2	3	2
(2)	2	3	1	2	3	2	3	1	3	3	4	3	2	2	3	2
(3)	2	3	1	2	3	2	3	1	3	2	4	3	2	2	3	2
(4)	2	3	1	2	4	2	3	1	4	3	3	4	2	2	3	2
(5)	2	3	1	2	4	2	3	1	4	2	3	4	2	2	3	2

Figure 3. Concerto for Orchestra, IV, mm. 42–50, Tuning Strategies

(1) shows a plan with aggressive pedaling while still keeping pitches in the recommended ranges of their drums. The consecutive fourths from F–B-flat–E-flat show us that at least three drums are necessary—which is unsurprising considering that Bartók originally intended the *Sonata for Two Pianos and Percussion* to utilize three timpani. This schema also shows that the pedaling can be executed with just the upper two drums (middle two, assuming a modern set of four timpani) while leaving the lowest

drum tuned to F. However, there are numerous cases of consecutive pedaling—including an instance of four notes in a row. This instance also includes an upward leap of a minor third and two descending actions, recalling the previous discussion of potential intonation problems with descending movement.

(2) solves some of the problems by incorporating a fourth drum, which is now commonly available in a modern set of timpani. In this case, we are able to tune it to E, the highest pitch in the phrase. Like the F in the lowest drum, this E can be static and the rest of the notes are pedaled between the middle two drums. Using the four drums in static and dynamic pairs in this fashion is particularly advantageous to those with mixed timpani sets, using a combination of hand-cranked cable or chain-driven timpani as the outer pair and then pedal timpani as the inner pair. This particular combination was made popular by Saul Goodman, a longtime timpanist for the New York Philharmonic, and by extension, his students from The Juilliard School.

An additional problem is the pedaled interval between a consecutive D-flat and E-natural, as previously discussed. Because of the comparatively wide interval, it is necessary for the timpanist to mute the D-flat completely before changing it to E in order to avoid an audible *glissando*. It can then be argued that the resulting silence is out of character considering the sustained nature of the phrasing. (2) addresses this by utilizing the fourth drum, rendering this interval change unnecessary. However, a similar concern with consecutive pedaling still exists with the E-flat–D-flat immediately preceding.

To avoid this interval, it is often possible to play the D-flat on drum #2, as seen in (3). This is not always feasible as the D-flat can be considered out of the drum #2's working range. When possible, the head is still under high tension so the timpanist

should assume that the note will "speak" easier than under normal tension, and with greater articulation. Considering that this note should begin a crescendo, it must be carefully balanced within the dynamics of the following notes kept in proportion.

One particular weakness of (2) and (3) is the constant pedaling between C and E-flat. By statically setting drum #4 to E-flat instead of E-natural, the overall pedaling scheme is considerably simplified in that only drum #2 needs pitch adjustment until the second half of the excerpt, as seen in (4). Because of this simplicity and portability among differing styles of timpani, this has become arguably the favored tuning strategy. While favored, this is still not without its share of problems. The E-flat on the highest drum is a compromise as it is generally at the lower end of the "acceptable" range for the size of the drum, as previously mentioned. This strategy also re-introduces the D-flat–E-natural pedaling and muting concerns, but is generally accepted in favor of the obvious advantages.

(5) builds upon the ease of (4), but eliminates the D-flat–E-natural pedaling by placing the D-flat back on drum #2. While this is still dependent upon a drum acceptably reaching a D-flat, the following goals are met:

- Minimal tuning, limited to the inner two drums.
- Minimal occurrences of consecutive pedaling on the same drum.
- Allowing all notes to ring completely without unnecessary muting or silences.

In all of these cases, it is difficult to avoid the pitch change between the G-sharp and A. However, the half-step interval severely limits potential *glissandi* and the upward movement to increase head tension adds an element of reliability on the tuning gauges.

In addition, any attempts to work around this would involve tuning another drum, likely drum #1. Doing so would interrupt the stability of the performer as it would then involve repositioning feet, which then adds an element of chance that interferes with our goal of maximum consistency. While possible, it is up to the performer to determine whether the reward is worth the risk and effort; for most, the consecutive pedaling of G-sharp to A is deemed to be an acceptable solution with minimal detriment.

Generally speaking, the timpanist should be very familiar with the viola melody. Using the melody as an outline, the timpanist should also constantly subdivide to accurately count the rests and place the notes. In a live performance, the tempo will likely be fluid, with a nearly imperceptible *ritardando* to close the phrase. In comparison, there should not be any slowing with the diminuendo in a solo audition situation. It will take practice in order to mute, pedal, and count simultaneously, so do not let the technical mechanics and movements affect the overall rhythm and meter.

Measure 104–106

Bartók finally writes for the triangle at this measure, answering the "Hah-hah!" in the brass. Due to the lack of instructions, assume that he intends for a metal beater to be used—weight and triangle selection is left to the performer. However, a triangle lacking an overly large harmonic response (contrasted with those often used in Mahler's symphonies) and with a more defined pitch might be desirable, as it is accompanying high-register trills from the upper winds and strings. Also, the last note is not tied to the previous roll—although it clearly should be. There is also no indication of articulation or

instructions regarding sustain for the last note, but score analysis at this point shows an absence of strings combined with descending and fading staccato notes in the upper woodwinds. This strongly suggests that the triangle should be muted immediately, as its high frequency sustain would be clash with the nervous titter of the woodwinds.

Measure 112–114

Bartók again asks for "the thick end of a Side Drum stick" on a cymbal, as a second accompaniment to the chortling brass. This time, the effect of the cymbal and the following tam-tam notes evokes a clumsy attempt to descend stairs to the hooting laughter of the winds—no doubt a tongue-in-cheek (or sticking his tongue out) aftereffect of the tuba's attempt to glorify Shostakovich's theme. Although not marked, the percussionist can experiment with various cymbals to produce several timbres and pitches in these repeated notes, further emphasizing the resultant crash of the tam-tam as a culmination. It is also interesting to note that the tam-tam is marked to *laissez vibrer* (let vibrate) in the score, but the cymbal does not have any such markings. While the cymbal(s) and tam-tam both should be allowed to sustain and vibrate, they should also be muted by measure 119 at the final iteration of the fourth movement's main theme.

MOVEMENT V: FINALE

Following in the footsteps of Mahler and other compositional luminaries, Bartók leaves little doubt in the virtuosic nature of the work by writing the last movement as an

orchestral showpiece. Appearing in a modified sonata form, this *presto* movement epitomizes the term "frenzy" as it drastically contrasts with the heavier and somber inner movements. Fleeting from interludes to developmental fugues and constantly surrounded by swirling scalar passages, Bartók creates an environment of joyous gaiety and levity that never ceases, from the opening horn declarations to the final cymbal notes.

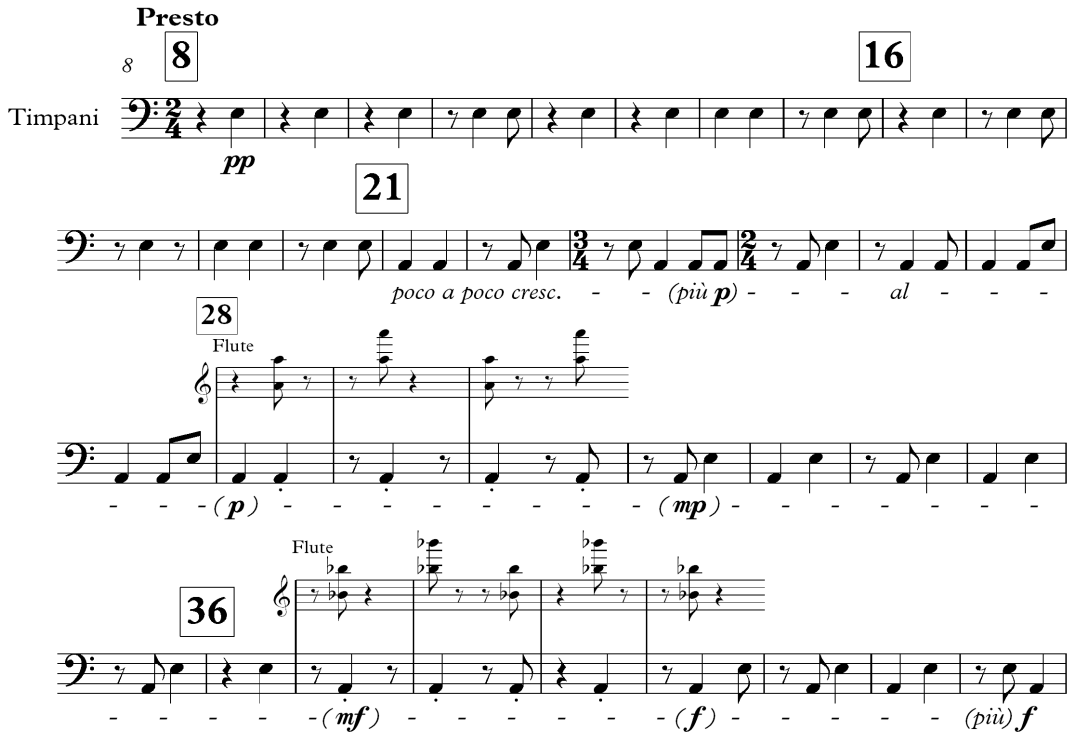
Yet within the celebration that is the fifth movement lies the core of Bartók's compositional tendencies that should not be discounted: uneven rhythmic syncopation underlying devilishly complex chromatics. Adding the new fondness for chromatic timpani, the result is a deceptively complicated part that challenges the performer's musical and technical skills as the ensemble itself strains to set new speed records.

Measure 8–44

This passage is doubled by the basses, and initiates a characteristically Bartók-ian rhythm underneath a flurry of building string orchestration. Contrasted with the *moto perpetuo* in upper strings, long tones in the horns, and *ostinato* eighth-note *pizzicato* in the violas and strings, this rhythmic syncopation drives an ever-increasing crescendo to the first of many climaxes.

As a result, the general sound concept should be light, moving, and articulate as it underscores fast-moving string passages. Because the basses are *pizzicato*, it can be safely assumed that all of their notes will be short, regardless of actual marked duration. Accordingly, all of the timpani notes should also be muted slightly, for two reasons: 1) The dynamic is *pp* at measure 8, so even though the sound will not resonate

for long, it is best to clear the sound whenever possible to give emphasis for the new notes, and 2) the *pizzicato* sound of the basses will have a shorter decay than the timpani, so the timpani must be adjusted accordingly. Because of the fast tempo, it will be nearly impossible to muffle every note. Therefore, we can safely attempt to muffle when a space of two eighth notes or more exist between notes. It is then the responsibility of the timpanist to practice his muffling scheme carefully, taking care not to interfere with the overall rhythm and choosing muffling hands accordingly.



Example 19. Concerto for Orchestra, V, mm. 8–41, Suggested Phrasing

As previously noted, this section is doubled with the basses. However, there is a rhythmic discrepancy on measure 21: the timpani has two quarter notes written, but the

basses have a quarter note and two eighth notes. Other than this oddity, the pitch classes and rhythms remain exactly the same. The timpanist can choose to resolve this difference by adding the eighth notes, but it is unfortunately safe to say that most do not notice the discrepancy or do not believe that the additional note will be noticeable. However, should this excerpt be requested in an audition, it should be assumed that the adjudicating panel will not be aware of the discrepancy.

Aside from the constant difficulty of maintaining tempo while playing a syncopated rhythm at a fast speed, the most arduous portion of this excerpt lies in the accuracy of the dynamics. To review, measure 8 is marked *pp*. From measure 21 to measure 23, it is marked as an elongated *poco a poco cresc. al f*, with the *forte* landing on the E-natural (2nd eighth note of the measure) at measure 23. Measure 43 is marked *f*. When looking at only the printed part, the performer would assume that the dynamics are tiered; thirteen measures of *pp*, with the sole dynamic change between measures 21–23, then followed by twenty measures at *f*. Unfortunately, the first *tutti* play-through of this movement or an initial evaluation of a recording will reveal a sustained crescendo that encompasses almost the entirety of this section. A closer look at the score shows a *tutti* "*poco a poco cresc. sin al f*" (worded slightly differently from the part) that only encompasses measures 21–22. In addition, all other parts similarly written with the crescendo also have their dynamics marked as *f* at measure 44. Lastly, it is unreasonable to project a *poco a poco* crescendo to last only two and a half measures, especially at a fast tempo where "little by little" contradicts what might be a three second time frame.

Thus, a better interpretation would be that the ultimate *f* at measure 43 is the endpoint of the crescendo. This changes the phrase completely–from the tiered dynamics

to an ever-growing buildup–but all evidence points towards this interpretation. The dynamic phrase is then transformed into thirteen measures at *pp*, followed by twenty three measures of a long crescendo with the peak culminating at the last measure.

Towards this end, it is essential for the timpanist to remember to balance the length of the crescendo with the overall amplitude; in short, do not reach the peak too soon. While the loudest point is only a single *forte*, a bit of personal liberty may be taken to exaggerate the dynamic considering the enthusiasm of the orchestra at this point. Thus, a *piú forte* is closer to appropriate, but the performer might consider reserving the explosiveness of a true *fortissimo* for future sections.

In terms of gradually approaching the crescendo, it might be best to make note of memorable "signposts" at key points. For example, *piú p* at measure 23, *p* at measure 28, *mp* at measure 31, *mf* at measure 36, *f* at measure 40, and finally ending with *piú f* at measure 43.

On the second beat of measures 28–30 (for four notes) and also measures 37–39 (also four notes), the timpani and basses are joined with the upper winds playing alternating octaves. With this sudden congruency, the timpanist can then subtly emphasize these four notes within the constraints of the current dynamic (which is *p* and then *mf*). The timpanist can also mute more aggressively on these four notes, matching the sharp and short articulations of the flutes and bassoons. In short, these notes can be interpreted as a slightly accented staccato, which aid the overall cohesiveness of the section and tie together two disparate sections of the orchestra.

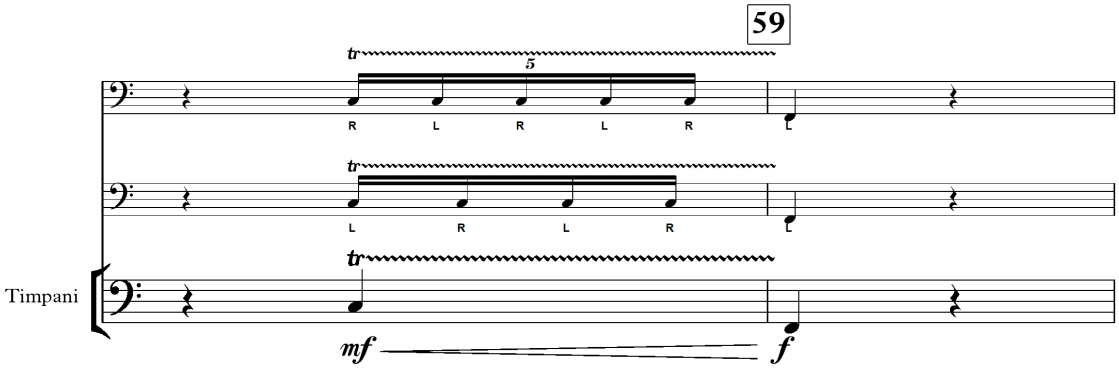
Measures 58–59

This is a bombastic entrance that requires a smooth roll that ends on a lower note on the largest drum. In addition, this downbeat signifies the entrance of a new tonality, a new section. Combined with the *tutti* orchestra vigorously marked both at *f* and *piú f*, we can also take some liberty and exaggerate the dynamics. Especially with the short crescendo, this is an opportunity to heighten the drama by temporarily stealing the focus from the orchestra. So, increase the written dynamic to *ff* and widen the crescendo appropriately.

With regards to technical considerations, this short but effective crescendo roll is among one of the more difficult techniques to master, but only because it is often ignored due to the conceptual simplicity. In a fast tempo that in practice ranges from quarter note = 148–170 (marked *ca.*134–146), the timpanist should take care to end at exactly the correct moment, which is a *tutti* chord amidst swirling winds and strings. Contrary to the normal practice of creating a roll via unmetered strokes, the short length of this *tremolo* and mandated ending point (a left-handed stroke for timpani set-ups with the low F on the left, avoiding cross-sticking on the release) necessitate that the roll itself be a measured number of strokes. By consistently approaching this roll as metered sixteenth notes or quintuplets (depending on the tempo), the timpanist can ensure that the timing is impeccable. In addition, with a known set of strokes (LRLR-L or RLRLR-L) the crescendo itself can then be broken down into its component parts. As a practical exercise, the strokes can be practiced at a slow tempo to ensure that the crescendo is properly and consistently executed. Then as this exercise is gradually increased to the

performance tempo, execution of the crescendo should be significantly easier for the timpanist.

Lastly, consider using a larger, softer mallet like a medium or medium-soft mallet covered with felt, which should definitely be different from the selection at the beginning of the movement. The lower F can either be played short as written, which clears the existing aural atmosphere and allows the string motion to be more prominent, or allowed to ring as the basses and celli are both also sustaining their notes.



Example 20. Concerto for Orchestra, V, mm. 58–59, Sticking Alternatives

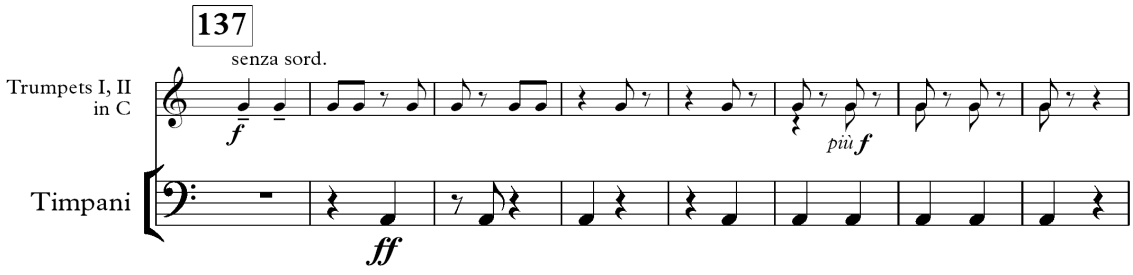
Measure 96–110

Even though the triangle is marked at *pp*, this should be considered as an ensemble-balanced dynamic. It can instead considered as a solid *p* or *mp*, as the written *pp* appears to be meant to emphasize the solo accompanimental nature of the passage.

Measure 137–144

For a short time, the timpani and the brass section have the opportunity to act in concert; first, with complementary rhythms as the timpani fills in the spaces provided by syncopated brass, and then in unison in a drive towards a cadence. An analogue for the desired sound concept might be Tchaikovsky-like in depth and volume, but with more articulation and edge. With that in mind, an initial choice might again be the medium mallets covered in felt.

Also, every other instrument in unison has eighth notes followed by eighth-note rests. As a result, the timpani should be muffled in between each note for a unified articulation instead of allowing the quarter note to resonate fully. As they are in unison with the brass (after exchanging blows), the last six notes (measures 141–144) can also be accentuated, especially in comparison to the *ff* at measure 138. A slight crescendo starting in the middle measure 142 coincides with the addition of Trumpet II (crescendo via orchestration), and leads to a more impactful wedge accent at measure 144.



Example 21. Concerto for Orchestra, V, mm. 137–144

Measure 249–256

The first seven notes of this section are exactly like the notes found at measure 137. In both cases, the timpani anchors sharp stabs underneath flurries of whirling dervishes disguised as upper voices. Also, the timpani's note durations are similarly inaccurate; in essence, they should be eighth notes, or aggressively muted quarter notes.

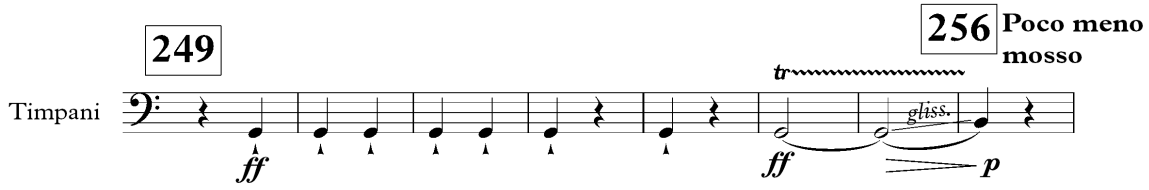
However, measure 254 has a solo roll on G, complete with a transitory *glissando* to a new tonal center in B and a characteristic change from bombast to quiet reflection. There are a number of considerations that affect the overall timbral selection: The roll is completely exposed, without any orchestral accompaniment. Thus, the goal is to smoothen the texture as much as possible and have the roll simply exist as sustained sound, without audible beats.

The roll also has a diminuendo combined with a *glissando*. These added elements extend the concept of sustained sound, and emphasize the importance of a smooth sound that will not detract from the aforementioned elements.

The release note on B ushers in a new section, complete with differing orchestration, rhythm, tempo, and character. Measure 256 only contains tranquil chords in the harp, and a barely audible sustained note in half of the second violins. This is joined by an additional harp and high-pitched *tremoli* and harmonics in the violins, as Bartók effortlessly creates a moment of recollection and nocturnal silence as the dervishes came to a sudden halt. With this abrupt change in countenance, the character of the roll's release should be delicate, floating, sustained, and a carefully tuned B-natural. Oddly, the *tremolo* is tied throughout the *glissando* in the part, but missing from

the score (the lack of which would be consistent with Bartók's use of ties over *tremoli*). Articulating the released B-natural defies both the written diminuendo and the *glissando*, so it is in essence tied to the *tremolo*. However, it should not sustain for more than a space of two beats to allow the harps establish the new section.

With these factors in mind and considering the preceding eight notes, the timpanist must dig deep into his briefcase to find an appropriate tool. In this case, it is a matter of either prioritizing the roll or the preceding eight notes. Harder and heavier mallets will produce the desired result in the eight notes, but will likely cause unwanted timbres that would be out of character for the roll. Even if a player were to change his technique to account for the hardness of the mallets, there is no way to hide its defining characteristic. The other option is to use a softer selection, like a general mallet or traditional cartwheel (or thereabouts), to account for the smoothness of the roll and then to achieve more articulation and attack on the eight notes with a snappier arm movement, whipping the mallet down and lifting immediately upon impact.



Example 22. Concerto for Orchestra, V, mm. 249–256, Suggested Phrasing

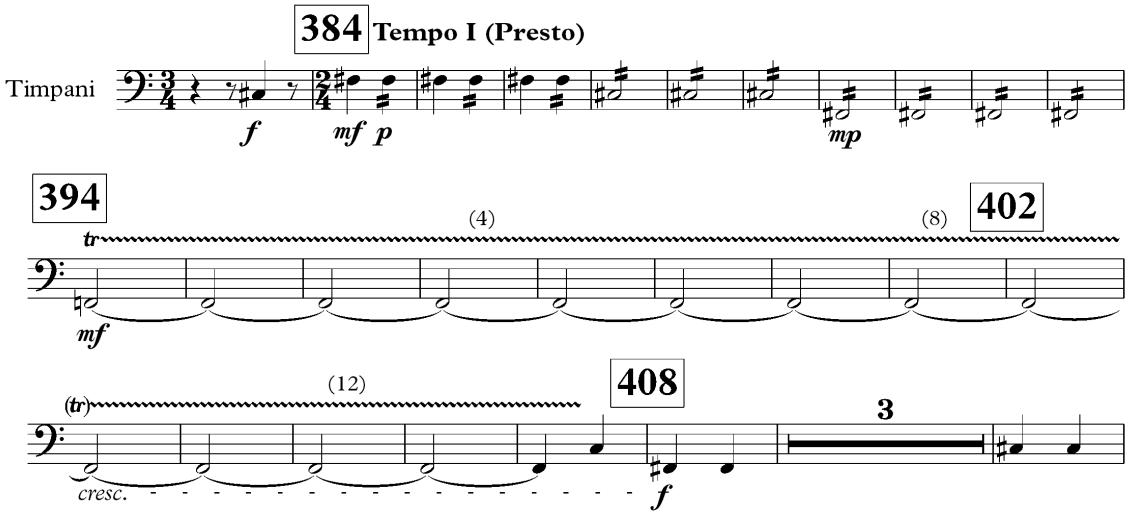
There also exists a few possibilities for drum selection. While the G's will most likely sound the best on the lowest drum (#1), there is a likelihood that the drum in question will not be able to feasibly reach an acceptable B. By the same token, drum #2

will definitely produce an ideal B, but striking accented G's repeatedly while in the lower register (and thus, slacker head tension) can scarcely be considered ideal. Thus, a reasonable solution is to tune both drums #1 and #2 to the same pitch, using #1 for the eight quarter notes and #2 for the roll, *glissando*, and release into the next section.

Measure 383–412

In what can be described as a re-transition towards the recapitulation, the timpani connects the end of a developmental section both tonally and rhythmically. The single C-sharp, which is a solo, serves to continue the previous phrase as well as bring rhythmic drive and a sense of tonal center in its V–I resolution at measure 383, which is similar to the first movement.

Bartók (or his editor) again uses abbreviated notes in this section. From measures 384–394, notice that these are articulated sixteenth notes. However, from measure 394–407, this is clearly a *tremolo* or roll. The C-natural at measure 407 is not tied into the roll, and should be articulated separately. Measure 408 and measure 412 are apparently lacking *tenuto* articulations, as they appear in all other *tutti* instrumentations at that point.



Example 23. Concerto for Orchestra, V, mm. 383–412

The difficulty lies in differentiating the articulation between the sixteenth notes and the roll at measure 394. With the F-sharp on drum #1 or #2, the tension of the head will be either low to very low, which results in a general lack of articulation. By changing to a legato stroke with a relaxed grip as well as altering the speed of the roll (slower), the timpanist can then make the transition audible. The timpanist can also utilize the "toe" of the mallet, which usually has a thicker layer of felt, as this will slightly change the texture to a softer, less articulated sound. Use the same "relaxed stroke" to achieve the *tenuto* articulations at measure 408 and beyond.

Additionally, and assuming that the sixteenth notes and following roll are not performed on the same drums, the timpanist can lay a small cloth or felt on the head tuned to F-sharp. Doing so will prevent the head from ringing excessively (emulating a roll), but still allow the impact of the articulated strokes to be heard. Naturally, experimentation with the thickness of the cloth and its exact placement to provide the desired articulation will be required. Generally, placing the mute at the 3 o'clock or 9

o'clock position (assuming the beating spot is at 6 o'clock) will lightly mute without drastically changing the overall timbre.

Fortunately, the differentiations between articulated rhythms and *tremolo* strokes are also aided by the tiered dynamics. In this case, moving from *mp* to *mf* will further emphasize the differences between the two notated patterns, as well as actually making it technically easier. With that in mind, it is then absolutely essential to maintain the "tiered" dynamic structure, as shown and specified. The only exception would be to add emphasis on the added *tenuto* notes (by way of the interpreted articulation), as well as to emphasize the C-natural immediately preceding.

Using four drums, a likely tuning strategy is to tune as F-natural, F-sharp, C-sharp, and F-sharp (from lowest to highest). While placing an F-sharp on the second to lowest drum is slightly out of the recommended range, the *mp* dynamic increases the acceptability by having the flaws be less prominent. In addition, this then will make the half-step pitch difference between the F-sharp and F-natural immediately discernible and immediately effected; the risk of a *glissando* or "missing" the F-natural on a pedaled pitch change is too great as we want the difference in pitch class to be noticeable. This also allows us to place a mute on the F-sharp for the entirety of this section.

While rolling between measures 394–407, the timpanist should then change the third drum from C-sharp to C-natural. Upon lowering the pitch, the head tension should either be completely released and then tuned to the new pitch (C-natural), or the timpanist should "overshoot" the gauge's markings and intentionally set it at a slightly lower marking. The latter requires extreme familiarity with the drums and the head's current state. At measure 408, the timpanist again has a choice: either use the second drum that

is potentially out of range, or quickly tune the lowest drum up to the requisite F-sharp. With practice, pedaling the lowest drum will produce the best tone quality and the clearest pitch.

Measure 426–429

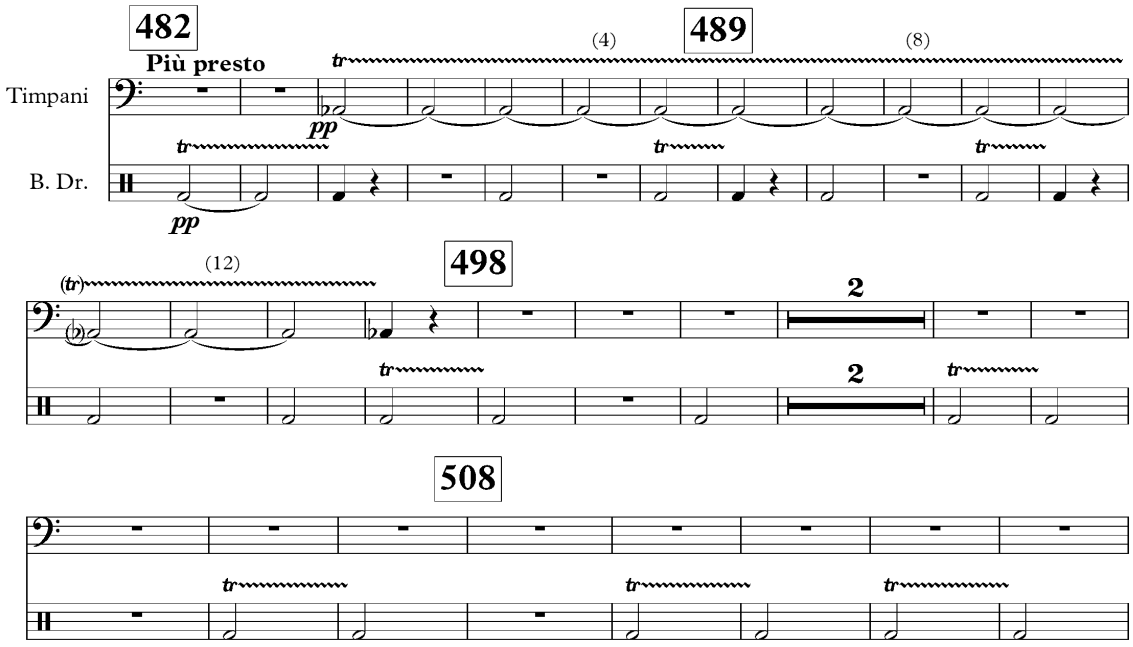
This roll is only significant because it gives an indication of Bartók's notational idiosyncrasies, which we can then identify and then apply to the entire piece. At measure 429, we have a clear indication of a tied roll, including a tied release. In addition, this slur or tie extends to the release across a bar line; this is the first time that we have seen this marking of a tied release. In comparison, look back at Movement I, at measure 47. At measure 47, there is a release note that is across a bar line, but not tied; this is also clearly meant to be rearticulated, with a further inference that all of Bartók's marked slurs and ties are valid.

Further consultation of the score does show that the release at measure 429 is tied to the roll. Thus, all of the markings are again in question, and the timpanist must use his own judgment whenever it is found.

Measure 482–512

This section is marked as a *Più Presto*, and usually conducted in one. Because of this, the tempo will be significantly faster; watch and count carefully.

For the timpanist, it is important to note that there are thirteen measures of roll—this should be marked clearly in the part. An additional tip would be to write in the bassoon and following clarinet cues to help the timpanist keep track of the passing bar lines. While the general goal of rolls is to maintain smooth and sustained sound, this particular roll doubles both sustained notes and *tremoli* in the double basses. As such, use of harder mallets than the standard rollers or cartwheels can also be justified—to provide a hit of beats or strokes that emulate a string *tremolo*. The tension and frenetic attitude of this transitory section can also be portrayed with faster, more densely concentrated stroke speed. The beating spot can also be skewed closer to the rim, which will produce a thinner, more articulated sound.



Example 24. Concerto for Orchestra, V, mm. 482–512

The bass drum sounds in counterpoint with a transforming motif among the winds in approximately four-bar phrases. While the upper strings are executing chromatically scalar passages on top of the busily sustained lower strings and timpani, the wind melody and contrasting bass drum entrances should be more prominent.

In addition, one must recall that the low frequencies of the instrument combined with the low dynamic level means that the sound will take longer to actually reach a point of audibility for the audience. To alleviate this, the true dynamics should be closer to *p* or even *mp*; otherwise, the roll might be virtually inaudible and the percussionist's efforts will be for naught. Also, entrances and all releases of the roll should be articulated cleanly. While the releases are mostly written as quarter notes, there is no functional or orchestrational difference from the written half notes. As such, they should all be allowed to vibrate, and even can be slightly accented.

One way to cleanly differentiate the releases and single notes is to use different mallets simultaneously: a roller-style mallet in one hand (used only during rolls), and a heavier, but also harder mallet that can be used during the rolls and also can give an extra emphasis for single notes. This same mallet can then be angled so that the collected or unworn felt on the top is used for the roll, while the thinner face can be used for the articulated notes. Two-toned specialty mallets such as those designed for Mahler's Symphony No. 3 also work especially well for this purpose. However, timpani mallets may not be suitable as they usually do not have enough weight to activate the bottom (resonant) head, or to bring this characteristically heavy sound to the single notes.

Without discussing specific beating spots (as they are often specific to the individual drum), the general roll concept is to create a rumble of a roll lacking any

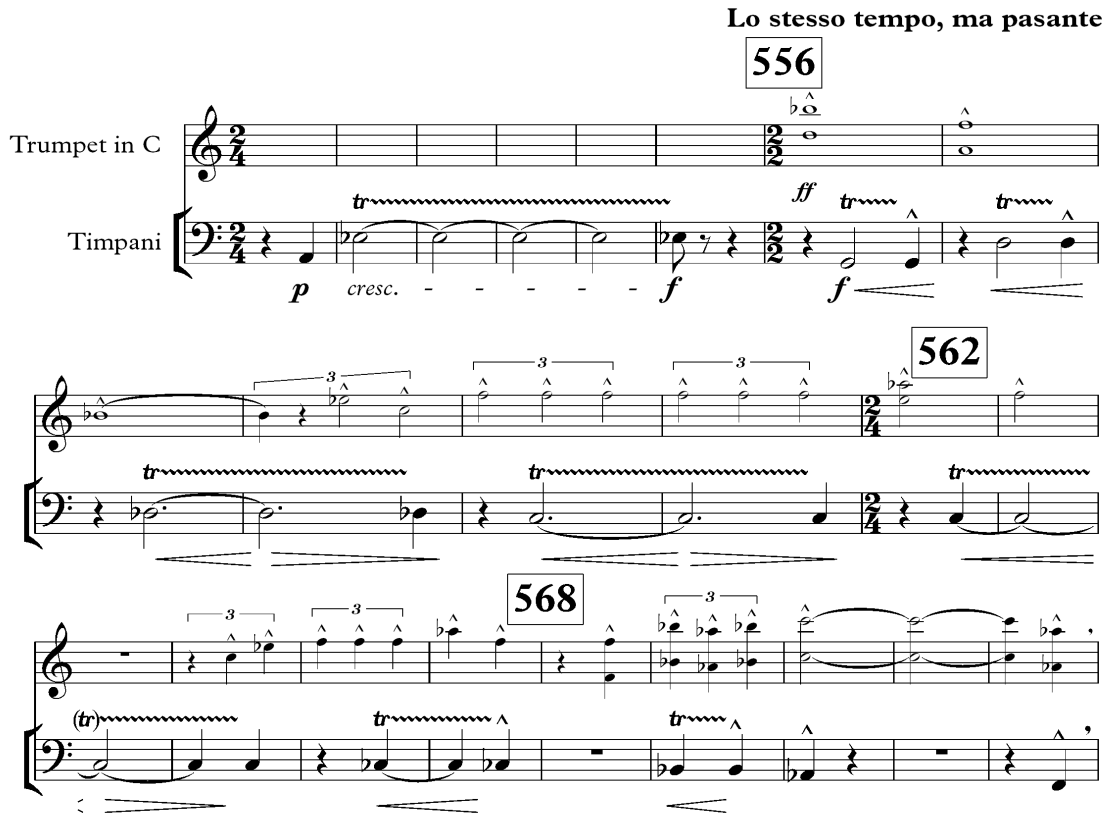
articulated notes. However, as with the timpani, energy and intensity can be injected into this but utilizing a faster stroke speed. But while the additional strokes give the illusion of articulation to the roll, the *tremolo* itself should still be even; articulated strokes can be heard, but should be evenly audible without any single stroke standing out.

Measure 554

This is another opportunity to again use differing mallets on the bass drum. The final note at measure 555 should almost be accented, and both sides of the drum should be immediately muted.

Measure 550–573

For the timpani, this section is arguably the most dramatic. Hairpin rolls combined with pitch changes are punctuated by *marcato* accents—and it is the role of the individual musician to bring all of these to life.



Example 25. Concerto for Orchestra, V, mm. 550–572

With all multi-pitch passages, having a clear tuning strategy is essential. In this particular case, we have a multitude of stepwise downward-moving pitches which are sustained. Additionally, the vast majority of this tuning must take place within a single (well-muted!) rest, or in the split-second before starting the next pitch. In particular, the latter is absolutely necessary to change from B-flat to A-flat at measure 570. With a reminder to the previous discussion regarding tuning downward to a looser head tension, it is mostly unavoidable in this case. Thus, this section must be well-practiced so that the necessary adjustments and "overshoots" with regards to the tuning gauges are known ahead of time.

One strategy is to tune F, A, and E-flat (disregarding the smallest fourth drum). The majority of the tuning will take place on the middle two drums, so the timpanist can avoid moving foot positions from the pedals. This strategy requires re-tuning the A to a G for measure 556, and then to a C for measure 560 and beyond. The higher of the middle drums starts at E-flat, and then is tuned downward to a D and then D-flat. It is also possible to use drum #2 (lower of the middle pair) tuned to the D-flat and then moving to the C, but be aware that the D-flat is often out of the working range or simply not reachable for that drum.

Alternatively, drum #1 can be tuned to a G from the beginning. Drums #2 and #3 can be tuned to A and E-flat and executed as discussed. However, either during the longer rolls before or after measure 562 or during the rests at measure 570, drum #1 will need to be re-tuned to the F for the final note at measure 572. While this option likely gives the best sound quality for the F and G, it is also more risky in that the timpanist now has three drums to tune, instead of two. Tuning while simultaneously playing is not impossible, but doing so would take some of the timpanist's attention away from the articulation and other facets. So if the decision is made to tune this way, be sure to have the tuning choreography well-practiced ahead of time.

	A	**E♭**	**G**	**D**	**D♭**	**C**	**C♭**	**B♭**	**A♭**	**F**
(1)	2	3	2	3	3	2	2	2	2	1
(2)	2	3	2	3	2	2	2	2	2	1
(3)*	2	3	1	3	2	2	2	2	2	1
*requires re-tuning #1 from G–F while playing other drums.										

Figure 4. Concerto for Orchestra, V, mm. 550–572, Tuning Strategies

All beginning and endings of rolls here should be articulated. This is aided by the *marcato* signs on some notes, but the others should also be clearly audible, if less accented.

From measure 556, remember that the base dynamic is *f*. This is the dynamic that all hairpin crescendi begin at, and are returned to by the corresponding diminuendi. In comparison to the solitary crescendi, the hairpin crescendi should in fact be *molto* crescendi. By over-exaggerating the peak of these swells, the timpanist can add a large amount of drama to the overall buildup.

The rests are almost as important as the dynamic markings. The silence immediately following accents needs to be palpable and clear; the drums need to be muted. This will also aid in the tuning that will assuredly occur within these spaces. The rest before measure 556 must be absolutely silent, while the rest can be "lightly" muted to merely clear the immediate sound, as the rest of the orchestra has sustained notes and flowing lines that will help to cover the ambient sound of tuning.

At measure 562, know that the following four measures are exactly the same as the preceding two measures; the only difference is the change in meter. This use of metric modulation is similar to those studied in Elliot Carter's *8 Pieces for Four Timpani*—where the actual pitches and durations of notes stay constant but the written meter changes. Because of this, it may be helpful to continue thinking of the meter in 2/2 or 1/2 rather than a fast 2/4.

In measure 570, the A-flat is curiously marked as a quarter note while the brass instead holds consecutively tied half notes. It is up to the timpanist whether to mute the

corresponding rests as written, or to allow the A-flat to ring all the way to the F. However, the F is undoubtedly short, with a *tutti luftpause* following.

With the meter changes from 2/4 to 2/2 (*Lo stesso tempo, ma pesante*) and back to 2/4, it is best to internally emphasize the half note pulse. Especially when combined with the strident hemiola in the brass, recalling a consistent half note will aid the performer in accurately placing the rolls. In addition, being familiar with the brass parts will help ensure the performer does not become lost within the music in what is certainly one of the most chaotic sections in this movement.

Measure 600

For the first time, Bartók indicates "with snares" for the Side Drum. Assuming the "Alternative ending" (as to perform otherwise is certainly uncommon), the percussionist should consider the crescendo in a logarithmic fashion rather than linear. With this consideration, the majority of the volume increase occurs in the latter part of the crescendo—for example, in this final roll. By delaying the crescendo, it becomes more noticeable to the audience. In addition, the release on the next measure should also be strongly articulated and not tied into the previous roll.

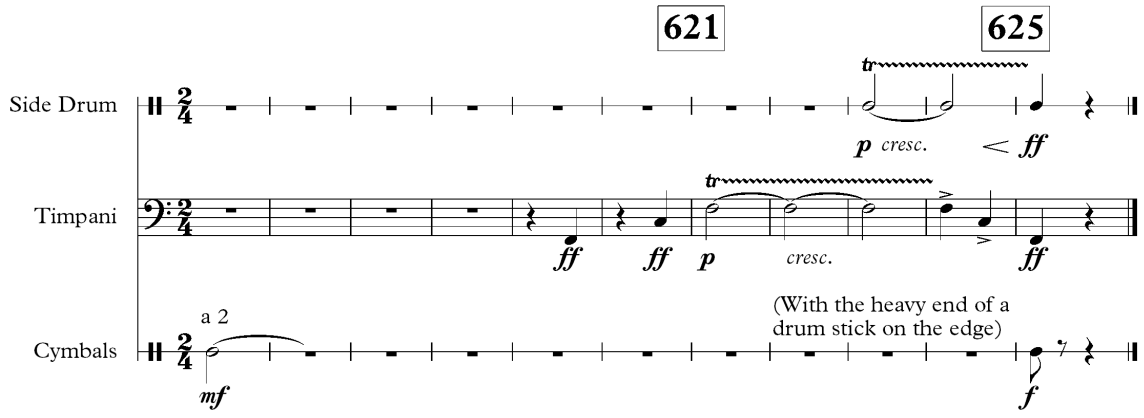
Measure 615

Although the *a due* cymbals are only marked at *mf*, the crash is in a very noticeable location with very little accompaniment. The marking of *mf* is then more of an

encouragement not to play too loudly rather than an actual desired dynamic. While the percussionist should not consider this a solo crash to the level of Tchaikovsky's Fourth Symphony, it can be approached as a dynamic loud enough to produce a full-bodied crash. An increase to at least *f* is thus justified.

Measure 619–625

In anticipation of thunderous applause, an additional emphasis to conclude the movement is almost always in the spirit of the work. To that end, the dynamic changes can be exaggerated throughout. In particular, the solo timpani notes at measures 619 and 620 can be emphasized to answer the *fortissimo* (and then some) being produced by the brass. The same can be applied to the final cadence, where the last three timpani notes can also be accented. Similarly, the crescendo within the side drum roll (with snares) can also be exaggerated, with another delayed dynamic progression to further lead into the final articulated downbeat. Lastly, the cymbal should also be muted quickly to match the length of the rest of the orchestra.



Example 26. Concerto for Orchestra, V, mm. 615–625

Conclusions

Bartók's *Concerto for Orchestra* lives up to its billing as a composition that highlights the individual virtuosity of its constituents. While the notes on the page are written with the intention to shine, a level of virtuosity lies in the performer's decisions and practice that are made well before the first downbeat. As has been shown, the instruments themselves are rife with endless possibilities for simply producing the written notes, but require the input of a knowledgeable performer to narrow down the scope for a suitable interpretation. In addition, several additions can be made that then extend Bartók's original ideas. This can be seen as the true mark of virtuosity—a performer making additions to create a unique musical experience.

Chapter 2: Sonata for Two Pianos and Percussion, Sz. 110

"Gradually the conviction grew stronger in me that one piano would not be unsatisfactory balance in relation to the often rather penetrating timbre of the percussion instruments. The plan was therefore altered to the extent that two pianos instead of one would oppose the percussion instruments."
-Béla Bartók

Composed in 1937 and premiered on January 16, 1938, Bartók's *Sonata for Two Pianos and Percussion* presents a set of different challenges to the evolved percussionist. Compared to his other works, this piece is an opportunity to analyze and prepare similar music but in a vastly different setting. Bartók takes the counterpoint between the piano and percussion and extends their tonal similarities to create a work of chamber music, which requires constant communication and an inner knowledge of all the constituent parts for an accurate performance. In doing so, he also spawned a sub-genre of works featuring two percussion and two pianos.

Written at a time where dedicated works featuring percussion were extraordinarily rare, this raises the question towards the genesis of its popularity. While it certainly raised the standards of performance for percussionists, one can argue that it suffered the same problem that befalls much of the percussion-based literature: popularity by default due to a lack of existing repertoire. Even if that were once the case, there is little doubt that Bartók's own performances (as a staple part of his touring-based income) as well as the creation of performance venues via academic settings contributed mightily to the *Sonata's* status today as one of the more popular chamber works in percussion history.

Logistical Considerations

As is the case with any piece, the first question that the percussionist (and timpanist) needs answered is with regards to the overall instrumental needs. In many cases, this is the first major decision that allows a musician to imprint his personality upon the performance of a new work. While there are of course a number of questions that go into this process, the one relating to historical performance practice is always a significant concern. In this particular case, what did Bartók expect, what did he specify, and how can these expectations be met? Or, to what degree should they be met, given viable alternatives or a more technical articulation of his specified directives?

Bartók specifies the following Percussion instruments: 3 Timpani, Xylophone, Side Drum with snares, Side Drum without snares, Cymbal suspended, Pair of Cymbals, Bass Drum, Triangle, and Tam-tam. He then includes a helpful and descriptive plan regarding the possible layouts and disposition of these instruments; ironically, this diagram is included in the piano score, but not the percussion score. He also writes a number of performance notes, most of which are discussed via implication in further sections. Thus, it is in the interpretation of these directions that we can begin to approach the core of performance practice: How strictly do we adhere to Bartók's wishes?

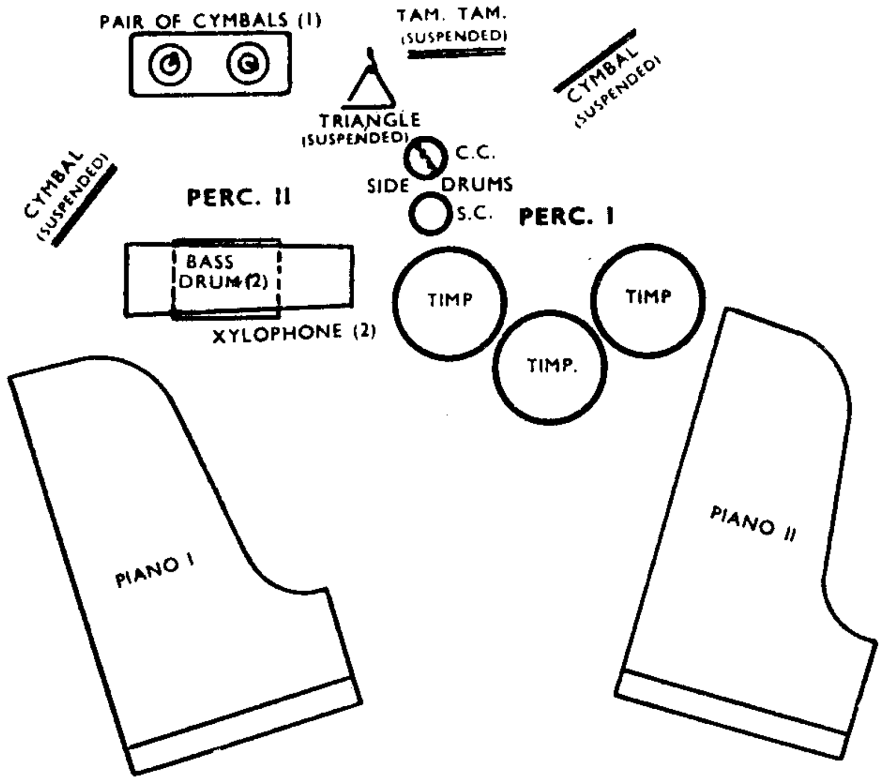


Figure 5. Sonata for Two Pianos and Percussion, Suggested Instrumental Diagram[2]

One note in particular raises a significant issue that exemplifies the uncertainty regarding the current relevancy of Bartók's directives:

> "Experience has proved that two skilled players are sufficient for the whole percussion part. Should this in some cases prove difficult, a third player may be employed for Xylophone, which in this case should be placed either behind or in front of the other percussion instruments."[3]

The notes referring the possibility of a third percussionist, the included diagram, and the instrumental list indicate that Bartók wrote for the inherent characteristics of the

[2] Béla Bartók. *Sonata for Two Pianos and Percussion* (New York: Boosey & Hawkes, 1942), 4.
[3] Ibid.

percussion instruments, but not necessarily for specified numbers of performers. Even though two percussionists are indicated via staff line labels, the numbers of people are potentially variable as indicated by the composer's notes in the piano score. If this were an orchestral work for a full ensemble, the part assignments might look like the following:

Timpani	Timpani
Percussion 1	Xylophone
Percussion 2	2 Snare Drums (*con corde*, *senza corde*)
Percussion 3	Bass Drum, Tam-tam, Suspended Cymbal
Percussion 4	Triangle, Crash Cymbals

Figure 6. Sonata for Two Pianos and Percussion, Suggested Orchestral Part Assignments

This avoids potential instrumental doubling situations (a unionized institution where increased financial compensation is given for performance on multiple instrumental groups by the same performer, such as keyboard percussion and un-pitched percussion), as well as eases transitions between instruments by adhering to "single instrument assignments."

In contrast, this piece is commonly performed with two percussionists. That he chose to isolate the Xylophone part indicates a lack of faith in the technical prowess of the percussionists, but the situation Bartók describes rarely arises in today's performance landscape. Because of the reduction of performers, the instrumental parts are necessarily divided among the performers, i.e. both players play both snare drums *con cordes* and *senza cordes.* However, the instruments need not be necessarily shared—and in fact would be more advantageous and sound-conscientious if they were not.

This shows that in general, historical accuracy is often strived for, but just as often is no longer practical or useful. As a performer, it is better to best represent yourself rather than compromise, unless in a situation where adherence to such historical accuracy is paramount, such as period festivals or Baroque ensembles; to date, re-creations of early 1940s performance atmospheres is somewhat uncommon.

Timpani

Following some of his previous practice and also indicated via the provided diagram, Bartók seemingly writes for only three timpani to be used. However, this will doubtless sound better with a wider range of timpani sizes and numbers; four drums are considered standard by modern practices. Having more drums of graduated sizes (32", 29", 26", 23", etc.) also potentially complicates pedaling choices at the tradeoff of better tone quality for certain drums. For example, F-sharp on a 28" or 29" drum will definitely not produce as desirable a tone as on a 31" or 32".

Measures 415–417 in the first movement require a high F-sharp (an almost unreachably high range of an "inner" drum). Measures 80–95 also ask for G-sharp→D ascending *glissandi*, with which the D would be considered in the "high" range on the other "inner" drum. If the D were not available on the "lower-inner" drum, this means that the "higher-inner" drum must have a working or acceptable range of at least G-sharp-2 to F-sharp-3—a dubious supposition at best. Instead, use a smaller fourth drum for the F-sharp, and have a larger "higher-inner" drum that allows for a more desirable sound quality in its lower ranges.

The mallet selections for this piece are not specified, but are still varied and contain their own difficulties. Compared to performing with a large ensemble, the range of textures and accompanimental colors is significantly lessened. In this particular case, the timpani needs to only match the hard articulation and immediacy of pianos and percussion. Because of this, softer mallets are generally not as necessary or utilized. There are also a number of extremely fast changes from the timpani to other instruments, such as snare drum. With little time to change mallets, a compromise must be made with regards to the most suitable striking implement. Using wood-handled sticks gives the timpanist an option for using the butt ends of the mallets on the snare drums. The lack of beads and appropriately shaped tips are not ideal for the snare drum, but are considered better options than many of today's mallets.

Contemporary manufacturers are experimenting with composite, fiberglass, or graphite shafts. Another current trend is towards using bamboo wrapped with rubber or foam grips towards the back end. In many of these constructions, the butt end is either sharply edged or covered with some muting material, neither of which are suitable for use on any instrument. Additionally, most of these are hollow and thus lacking the desired weight or ability to produce a rebound that is necessary for performing on the snare drum. While timpani mallets ending in snare drum beads exist, they are usually extraordinarily limited in tonal palettes and are a poor compromise with regards to timpani sound production.

Due to the nature of the small ensemble as well as the significantly increased role of the timpani as an essential rhythmic and melodic contributor, harder and more articulate mallets will be required for the majority of the *Sonata*. Thankfully, different

colors and timbres can still be achieved within the overall scope of a "hard" mallet. As recently as the late 1990s, a line of timpani mallets might include one "staccato" and one "ultra-staccato" mallet; now, with the availability of differing cores and mallet heads (leather, wood, hard felt, cork, flannel) as well as the increased usage of the harder American felt in addition to the softer German felt, there are easily 4–6 different combinations within a single "signature line" that encompass staccato or ultra-staccato. Thus, while the overall tonal palette is reduced, the timpanist can still differentiate between staccato and legato tones while maintaining a high degree of articulation via mallet selection.

Snare Drums

As seen with the *Concerto for Orchestra*, the usage of the term "side drum" has evolved to become interchangeable with "snare drum," and this overall discussion reflects that. Additionally, the designations *con cordes* and *senza cordes* are directives regarding the activation state of the strainers that give the snare drum its name: with and without snares, respectively.

While a multitude of drums are nevertheless possible (given enough space), practical setups suggest that only the recommendations of two be followed. Specific drum sizes are usually decisions left to the performer, but he should also be aware of the acoustics of the performance venue and also the nature of the ensemble. In this case, the two drums will be contested against primarily two pianos and timpani—hardly an ensemble of magnitude. In addition, the *Sonata* contains two sections that require

delicate dynamic handling: the beginning of the second movement and the end of the third movement. The minuscule dynamics required potentially rule out the suitability of larger drums (6 inches or greater), yet the *fortissimo* markings also generally exclude smaller piccolo drums. Thus, a drum of 4 to 5.5 inches in depth is generally recommended as they can cover the required dynamic ranges with relative ease, although modern innovations and trends in drum design and construction are producing smaller drums capable of more than moderate volumes. The second drum should be similarly sized and tuned for reasons of flexible interchangeability and timbral similarity.

Should the timpanist utilize a separate set of snare drums, they should also be tuned and timbrally similar to the drums used by the percussionist. As seen in the first movement, the snare drum parts are written for their compositional purpose first, and then divided among available players second. There are instances where one player literally completes phrases started by the other, so maintaining the illusion of uniformity is desirable.

The tuning of the snare drums should be on the tight side, even for the snare drum *senza corde* (without snares). For the snare drum with snares, the reason is obvious: a snare drum tuned tautly (generally pitched between G-sharp-4 and C4) usually results in the most desired top-head response and playability. Most owners will keep their drums in this state of performance readiness, so no special modifications are necessary.

For the drum without snares, the percussionists have more flexibility in tuning choices. However, there are several reasons that point to a similar tautness as the snare drum with snares. First, the specified instrument is a snare drum without snares, not a field drum or military drum without snares, or a tenor drum or tom-tom. The

comparatively increased tension of the upper head is a defining characteristic for the instrument.

The higher pitched sound with a shorter decay and lower resonance matches better against the short and metallic sounds of the snare drum with snares, especially in the first movement where the figures move interchangeably between the two drums. In addition, the higher pitch also has more immediacy and impact as well as projection through the percussive textures of the dual pianos. As an extreme example of a lower-toned non-pitched membranophone, the articulation of the bass drum is easily lost amidst the moving rhythms of all the other members of the ensemble.

In the second movement, Bartók specifies that the snare drum without snares be played "on the extreme edge of the head," or at the rim. The sound produced by this directive is considered to be thin and "with ping," as the mechanics of the circular head dictate that striking near the edge result in more circular oscillation around the head and significantly less downward air movement through the drum. As a result, the bottom head is minimally vibrated and the already minimal resonance becomes nearly nonexistent. While this technique is useful to the performer to control dynamics, it also results in a different timbre than when struck "in the centre"—as Bartók also directs within the same section (and is assumed for the first and last movements). Thus, it is an effect that must be used carefully as the difference in timbre, while existing, is also minimally discernible at an audience-resident distance.

While the sound difference may be more pronounced on a lower-pitched head, the difference also comes with a penalty of reduced dynamics; to maintain the consistent dynamic between beating spots, the performer must actually strike the drum with more

force when “at the extreme edge of the head” to produce an equivalent dynamic “in the centre.” And with more force, the result actually sounds more like an instrumental malfunction rather than a timbre shift. In contrast, with higher tension the snare drum still sounds like a functional drum but with a differing timbre when struck at the edge. The dynamic differences are also lessened, thus giving the performer a timbral possibility that is essentially a new instrument that equals the other two snare drums.

A major reason to tune the snare drum without snares at a higher tension is to increase potential interchangeability with the snare drum *con cordes*. One of the more difficult spots is in the second movement, which begins with a solo snare drum roll (*con cordes*) at *pianississimo*. For this *tremolo*, the snare drum itself must be extraordinarily sensitive in order to produce such a quiet, yet clean (lacking extraneous noises) snare strainer (*cordes*) response. To achieve this, the performer essentially has two avenues for adjustment: 1) selections among materials for the strainers, and 2) the tension of the strainers against the bottom head.

In the first case, the options for strainers have increased significantly since the 1930s: from a series of semi-coiled or spiraled wires producing a wet, slushy sound, to nylon or gut strings producing a gritty rattle associated with military cadences, and every combination of braided or coated metal wires in between. As inferred, the spiraled wires (or thin guitar strings) are among the most responsive to delicate dynamics, but do not necessarily produce a proportionally acceptable sound at louder dynamics. In contrast, thick gut strings rarely activate at lower dynamic levels, thus making them completely unsuitable for the excerpt in question. Modern snare drums use a combination of wire,

cable, and coated cables to cover all dynamic ranges as well as present an option for customizing the sound, as each material can often be adjusted separately.

Further customization can be achieved by adjusting the tension of each individual snare. Generally, as the tension increases, the *cordes* require more force to activate. Thus, to increase the sensitivity at lower dynamic levels, the performer may choose to loosen the coiled wire portion. By individually adjusting the multi-strainers, the performer can then completely yet subtly customize the sound and responsiveness that gives the snare drum its unique characteristic.

In this case, the performer can loosen the coiled wire portion to increase the response at lower dynamic ranges. While this may be a solution for the second movement, it also may not be desirable for the rest of the *Sonata*. Thus, using two fully functional snare drums emerges as a viable option. Due to the magic of actionable throws and switches on the drums, the performer can adjust and tune one drum specifically for the sensitivity of the second movement while utilizing the other drum for the remaining movements. As long as the drums are tuned similarly to maintain a consistency of pitch and tone, the seamless interchange remains virtually unnoticed by all.

As no two percussionists are armed with the identical arsenals, stick selection is only addressed in the most general of terms. Towards that end, Bartók requests that the ending of the third movement be played "with 2 very light and thin sticks," as he correctly surmises that thinner and lighter sticks would produce a more delicate sound than a standard pair of concert snare drum sticks, which are generally more heavy and produce a commiserate sound. In this, Bartók is also correct by diplomatically requesting

a change based upon relativity, rather than blindly requesting branded implements of a specific models or types. Thus, it is prudent to have at least two differing weights and sizes of sticks available. Compared to the *Concerto for Orchestra*, there is no obvious opportunity to use a non-stick option. While this does not completely eliminate it as an alternative should the performer so desire, it is simply more difficult to justify.

Without fail, the most difficult logistical issue is related to dealing with the sympathetic vibration of the strainers, which usually results in unwanted noise from the snare drums. The characteristic metallic "snare" sound is the result of the bottom head vibrating against the taut strainers, but unfortunately these vibrations are not always the result of the drum being struck on the playing surface. The bottom head will also oscillate (though not with as much enthusiasm) with any ambient or environmental sound that contains the relevant set of wavelengths that match the head's tension—hence the term, "acoustical resonance." Unfortunately, these frequencies are far from being known or consciously discernible, and the ambient sound is often the direct result of another musician's sound reverberating off of the performance or rehearsal venue. As such, it seems to be an unpredictable event that often strikes at the most inopportune time—usually during a quiet section. How does the percussionist deal with this unwanted sound? There are a few options, but none are guaranteed:

- When not in use, deactivate the snares on the drum. If the snare strainers are not in contact with the bottom head, they will not react to its movement. This is the easiest, safest, and most reliable method for dealing with inadvertent snare reaction. However, this is not always a panacea as the performer often cannot switch the strainers on and off with every note. A clear example of this is in the

second movement, where the snares must remain on for the entirety of the first 25 measures even though the side drum *con cordes* is only used once per measure.

- Permanently muting the bottom head with pads or tape to stop or significantly reduce sympathetic resonance. Ranging from tape, to a felt pad, to an extraordinarily thin piece of paper in between the strainer and the bottom head, any means of muting the bottom head will also reduce the vibrating snares. However, this would be a significant compromise as it affects the overall sound quality (and responsiveness) of the drum for the entire piece.
- Tightening the snares to the point where they affect the tension of the bottom head also diminishing its sensitivity. This is viable for thickly coated cables and similar strainers, but counterproductive for the more sensitive strainers such as wire or guitar string. Similarly, it is more effective if the snare drum is needed only for louder passages where the force of stroke overrides the cable's tension. *Pianissimo* responsiveness requires sensitivity to react to the slightest hint of motion.
- Creating an isolation booth via the usage of plexiglass acoustic shields, sound-absorbent foam, or a similar blocking device. This is adjustable, portable, and can be used in combination with the physical adjustments on the drum in the earlier points. However, it will also reflect the sound of the snare drum back upon itself, potentially creating the very situation we are trying to avoid.
- Creating a set of "curtains" or a "floor-length skirt" from a thick cloth that is then attached to the bottom rim of the snare drum. In a relatively low-effort and low-cost solution, surrounding the bottom half of the snare drum essentially isolates

the strainers in a manner than is more permeable than a plexiglass shield. This then eliminates the problems relating to self-reflective resonance while simultaneously greatly reducing the incoming ambient vibration.

None of these options can guarantee success in eliminating excess snare response; however, the point of this discussion is to provide flexible solutions that minimize the possibilities of failure. This consideration then falls under the Scout Motto, "Be Prepared."

Xylophone

In the full score, Bartók writes for a D-flat (D-flat-7) in measure 45 of the second movement. He (or an editor) also writes an *ossia* of playing that note as D-flat-6, but this is only indicated in the percussion part, not the score. In either case, the problem is that the D-flat-7 extends beyond the pitch range of the standard 3.5 octave xylophone, which usually extend from F3 to C7. While 4 octave instruments exist, their ranges usually extend downward to C3 (below middle C) and still do not include this note.

One solution has already been provided to the performer; play the D-flat-7 an octave lower. Another option is to play the entire phrase (measure 45–46) an octave lower. A more creative option is to upwardly extend the range of the xylophone to include the D-flat-7. This usually takes the work of a mallet repair technician to shave down and re-tune an existing C7 bar, but the cost of purchasing an extra bar (already tuned to D-flat-7) and mounting it is relatively inexpensive. Alternatively, some pre-

altered xylophones with the extended range exist and are available in the marketplace, though not with the prevalence of a contrabass low C extension.

There are obviously a wide variety of mallets to choose from, mostly differentiating in head size, composition, and weight. While the ultimate selection will depend upon the combination of xylophone, acoustics, and circumstantial dynamics, it is recommended that nothing softer or smaller than a 1 1/8" polymer mallet be used for the majority of the piece (such as an Encore 102B Blue Poly Ball or a Malletech BB34 Bob Becker). Using a hard rubber or equivalently "soft" mallet potentially detracts from the articulated brilliance that is characteristic of the xylophone—and this brilliance and clarity of pitch must be discernible at all dynamic ranges.

Bass Drum

In the supplied diagram, Bartók indicates that the bass drum be placed upright, yet beneath the xylophone. This either means that Bartók is used to a small bass drum, or a very large xylophone as standard instruments have their keyboard bars approximately 32" off of the ground. This does not include the space for crossbars between the legs, additional supports, or even space for the resonators.

For a bass drum to fit underneath the xylophone (including frame and resonators), the bass drum is likely at most 26" to 28" in diameter. These bass drums are readily available even today, but not necessarily suitable for most concert settings where standard drums have a diameter of 32" to 40". While the smaller size is a possibility and

certainly compacts the overall setup, it can be argued that the compromise in sound quality is not worth the inconvenience of a larger drum.

Cymbals

In this work, *a due* cymbals are used sparingly, and even then only at moderately to extremely quiet levels. Adding in the sparse orchestration, it is suggested that a pair (or two, depending upon the accessibility by both players) of 16" or smaller cymbals be used. The smaller size also generally reduces the dynamics, while still remaining audible. Thinner French-style cymbals are likely to work better with the specified "pocketknife or fingernail on edge" and provide a shimmer of higher overtones that are often desirable in Impressionist-influenced works.

Conversely, another interpretation is to achieve a "Turkish March" sound, which is found in many bass drum and attached cymbal situations such as Stravinsky's *Petrushka*, Mahler's *Symphony No. 1*, or even Beethoven's *Symphony No. 9*. Germanic-style cymbals (again, smaller for more responsiveness and potentially higher overtones) will often provide this character, but such logistical choices are always at the mercy of present availability.

One thing to note is that in the fourth movement, measures 36–42 in the Percussion I part is similarly replicated at measures 301–309 in the Percussion II part. For this reason, the concept of "sharing" cymbals is advantageous as the players will have access to the same timbres for similar sections. However, as the denouement comes, the march fades off into the distance and the cymbals also fade to nothingness.

This effect can be achieved with either French or Germanic cymbals, but is significantly easier to control and effect with the thinner cymbals, or even two suspended cymbals held with straps.

Triangle

Bartók and Stravinsky are unique in that they are in the select group of composers that specify using alternate striking implements on the triangle. Compared to a metal beater, a wood stick provides more of an initial impact with none of the metal-on-metal projection and also significantly less ringing afterwards. In short, more "clack" and less "ding." Even though the *col legno* (with wood) sound itself is less varied, there still remain any number of factors that determine the sound: the thickness of the stick, weight, composition—be it bamboo, cane, or hickory—and the particular application of these with respects to the chosen triangle. Generally, a thin wooden dowel (or a thin Latin timbale stick) is likely what Bartók intended. It has more rigidity and weight than the rattan shafts of xylophone mallets, and has the potential to create both the dull impact and a modicum of triangle ring. If thin enough, the "very light and thin" sticks that Bartók requests for the snare drum may also suffice.

MOVEMENT I: ASSAI LENTO

The first movement follows the classic sonata-allegro form with a slow introduction. The primary characteristics of the main theme highlights re-interpretations

of the 9/8 meter and overlapping clusters and motifs that are passed interchangeably in counterpoint among the pianos. Throughout, the percussion and timpani reinforce and underscore the core rhythms, and gradually assume the primary motivic material amidst the group counterpoint of tightly packed harmonies and overlapping melodies.

Measure 1–6

From the first note, the timpani establish the mood and character of the introduction. While *Assai lento*, a likely interpretation would be *molto misterioso* as nebulous chromatics hover around barely audible timpani rolls. Following this, metallic interjections from the cymbals with echoing notes in the side drum give way to a stately 9/8 march-like countenance that establishes a tonal center—ironically, a tri-tone in the timpani. However, this arrival is merely transitory, and is a vehicle for introducing both the hemiolic syncopation and also the fine-control over tempo changes that are seen throughout the *Sonata*.

This is also one of the few times that a soft mallet (resembling a general or cartwheel) can be utilized, as the opening timpani roll and following notes are sparsely accompanied. The *misterioso* can be further emphasized by widening the beating spots for the roll, moving the hands further apart so that the stick heads are no longer striking near the same zone. Doing so will activate the head differently than using a single beating spot, producing a sound that is slightly less focused but also giving an impression of distance.

While tempting to overly dramatize the *pp* dynamic, recall that this also leads directly to a piano entrance that cannot match the inaudibility of a low-tuned timpani. The following rolls are treated similarly, and thus should attempt to balance dynamics with the pianos. Also, the release of each note should be separately articulated. As such, the rolls do not have to be tied (and are not marked); one can even consider creating a clear separation or *luftpause* before the release of each roll.

Measure 6–17

Regarding mallet selection for the initial cymbal entrance, Bartók writes "with the heavy end of a drumstick, on the dome." In addition, the score indicates "c.l.", or *col legno*: again, indicating use of a wood stick. As the term "dome" is ambiguous with regards to the specific beating spot upon the cymbal (does the "dome" encompass the entire top-face, or the central protrusion?), one possible interpretation for these instructions is to strike the bell of the suspended cymbal, near the mounting hole. This is similar to timbres and colors often utilized in drum set performance, although it is not known if Bartók was aware of this particular usage. However, a major difference is the instruction to use the butt end of the drumstick, which carries more weight than the beaded end. The resulting sound is significantly louder as well as more focused in pitch. In addition, the striking spot on the bell (or dome) instead of the outer edge results in a focused or pitched "ping," producing more of a fundamental overtone than the "splash" that is idiomatic of a cymbal crash. It is likely for this effect that Bartók indicates the specification.

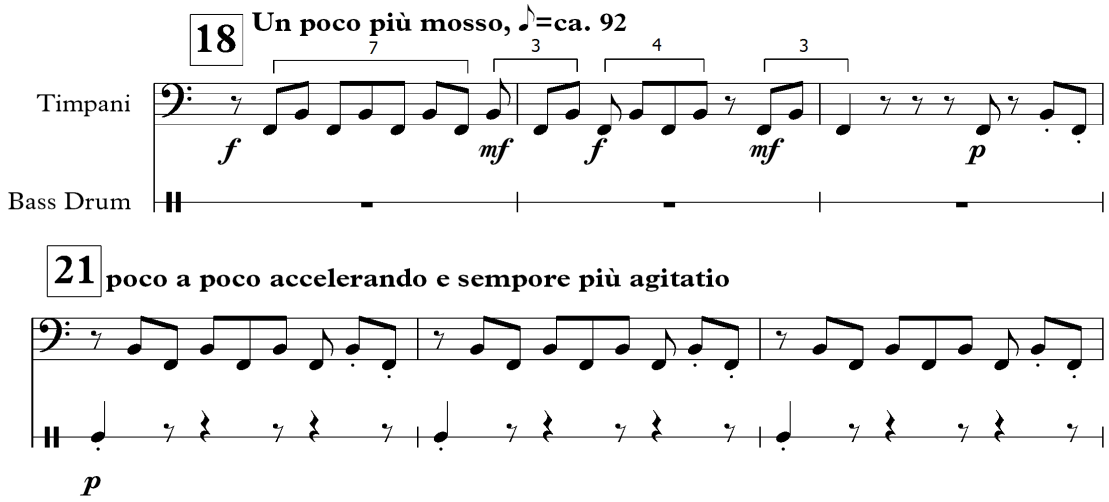
At measure 10, Bartók explicitly indicates that the beating spot of the cymbal be "on the edge." Without the contradictory instructions at measure 6, this would be a simple indication of "with wood stick." Under normal circumstances, omitting any reference to the beating spot is generally interpreted with the standard technique of striking on the edge. So, this particular instruction set can be considered as a return to normal technique.

Measure 17 contains the first occasion where it is absolutely crucial to carefully manage the most inadvertent of noise-makers. As mentioned in a previous section regarding instrumental logistics, take care to turn off the snares when not in use. Thus, make a note to turn on the snares before this roll and to turn them off immediately after. In addition, the roll is marked as a *p* with a crescendo to *f*. Given that the duration of this roll is not very long, the overall effect is a crescendo to a *forte* dynamic, which introduces the continuation of the introduction but at a new dynamic level. With this introductory function, it is then less important to pay strict attention to the beginning and ending dynamics; it is simply a crescendo effect from *niente.*

As we will see, Bartók rarely ties the *tremolo* to the release note. However, compared to standard percussive pedagogy, an untied roll usually results in the performer inserting an audible space or breath before the succeeding note (or release). Lifting to create a space between the *tremolo* and the *forte* note interrupts the continuity of the crescendo, of which Bartók is clearly aiming for. Thus, the composer most likely wants a clearly articulated release to end the roll, even if it is not tied. Also, as it is at the relative peak of the crescendo, the performer may also consider a subtle emphasis or even an accent to clearly differentiate it from the roll.

Measure 18–32

In the timpani, a series of terraced dynamics is initiated in a new character that is clearly heavier and more prominent than before. Strict attention should be paid to the consistency of the individual dynamics, and also that the phrased note grouping of 7+3+4+3 (spanning two measures) is adhered to and separated by dynamics. At this slow tempo (eighth note = ca. 92), all of these louder notes can be allowed to ring for their full value with minimal muting. However, a more attentive interpretation might be to shorten the note value of all these notes, especially at the louder (greater than *mp*) dynamic ranges. As such, from measures 18–20, all of the eighth notes can be played as staccato sixteenth notes, with muting in between changes. This muting is no longer necessary nor practical from measure 21 as the pianos then change to longer notes and the *ostinato* timpani also initiates an *accelerando* and crescendo, both of which would be difficult to execute while muting.



Example 27. Sonata for Two Pianos and Percussion, I, mm. 18–23, Suggested Phrasing

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As we can see at measure 26, Bartók follows the practice of ambiguous bass drum scoring in that while the point of impact is clearly indicated, the length of the sustain is not. However, some interpretive clues are given in that this section (until measure 26) is marked as *poco a poco accelerando e sempre piú agitato*. Given that *agitato* often contradicts the concept of "sustain," we can infer that these bass drum notes should be short. In addition, measure 22 has a staccato note marked in the score; considering that this note (out of 5) is the only one with such markings and is the second of the series, the staccato may be a misprint. However, it still gives us a potential idea for interpretation, as does the growing tendency towards missing directives for sustain.

A stronger reason for interpretation lies in the placement of the bass drum notes within the current orchestration. As the beginning of the *accelerando* into the primary theme, the bass drum is consistently used as a solo downbeat following a developing motif of two accented eighth notes on beats 8 and 9 as seen in the pianos. Given the general lack of sustain in the pianos and timpani (with ever-increasing urgency as the *accelerando* intensifies), the only way that a longer bass drum note makes sense is if it were highlighted amongst the chamber group via louder dynamics or obvious accents. The potentially subterranean pitch at a low dynamic (with conceivably a softer mallet to take advantage of the lush sound) would be out of place as well as quickly covered by the moving accompaniment. Thus, the notes are meant to be short and articulate; this also anticipates the initial theme of the exposition at measure 32. A staccato beater (medium-hard to hard felt, but not as hard as wood or chamois-covered) is recommended in addition to active muffling to eliminate sustain and provide a cutting articulation at the softer dynamic.

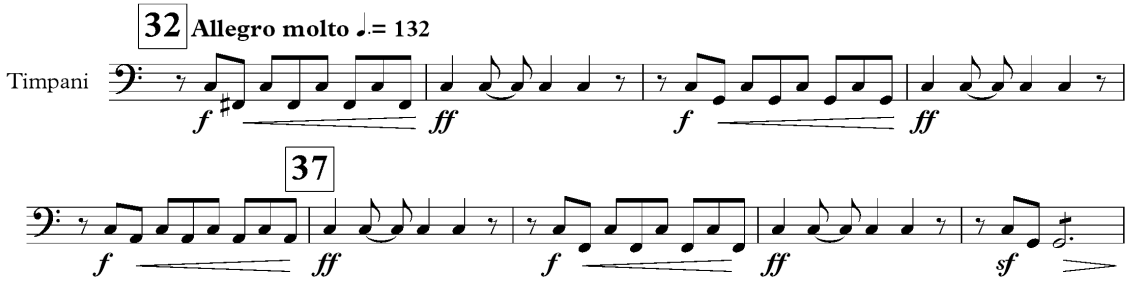
While perhaps not at the level of a full *marcato* accent, adding implied accents on the eighth and ninth beat leading to the bass drum downbeat will add flavor and a sense of movement towards the larger agogic beats.

Measure 32–63

The first 9 bars are indicative of the technical issues involved with muting and re-tuning. Using the two largest drums (tuned to F-sharp and C), it is important for the rhythm and new attacks of different notes to be brought out while diminishing any conflicts with existing notes. As an example, the eighth notes alternating between C and F-sharp must be allowed to ring while playing; it is impossible to do otherwise. However, in the following measure the F-sharp should be muted immediately while the C carries on in its hemiolic pattern. This allows the "quarter note" rhythm (alternating with the pianos) to be more prominent without any distraction from the previously struck F-sharp. At the same time, this also prepares the F-sharp for a re-tune to G, and the cycle repeats itself. In this manner, the timpanist allows each note to ring for its full value, and nothing more than that. The only possible exception is when the note is followed by rests—and rests only. Then it becomes a matter of discretion (rather than acoustics) whether to extend the note value through the rest.

These are two-bar phrases, in which the second measure of each phrase should only contain the sound of the C as previously discussed. Also, the rest at the beginning of each phrase should be absolutely silent; be sure to eliminate the sound of the preceding C. Due to the obvious hemiola, it is also important that the 9/8 meter is not perceived as

triplet groupings. However, the timpanist should cue the beats to the rest of the ensemble at measure 32, as it is the establishment of the new tempo. In this case, the written meter should rather be seen and not heard. The alternating eighth notes should be even and without any metric pulse or added emphasis, especially in regards to maintaining balance between the two drums. It is also possible to exaggerate the dynamic changes by beginning each crescendo softer than is marked; all of the *f* can be adjusted to *mf*, or even *mp*.



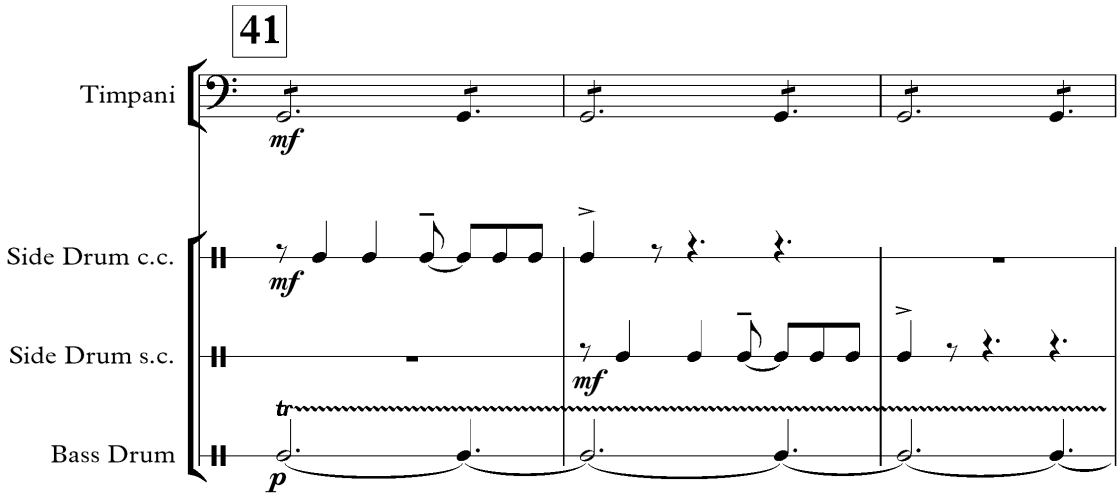
Example 28. Sonata for Two Pianos and Percussion, I, mm. 32–40

When measure 41 arrives, the timpanist should fade into the background while maintaining an audible *mf*. While not prominent, the *ostinato* eighth notes must be consistent and unaltered as the ensemble relies upon them for cohesiveness. As such, maintain the staccato articulation throughout. Even though the bass drum is also added (and at an unmetered *tremolo*), the timpani articulation should still distinguish distinct eighth notes that do not easily blur together. At measure 57, the timpani then continue the roll from the bass drum. This should also be treated as a new entrance, and slightly accented to differentiate from the previous *ostinato*.

For the percussionist, the first and most obvious difficulty at the beginning of this section is simply one of coordination. The obvious requirement is to maintain an unmetered *tremolo* on the bass drum—often at an uncomfortable position depending upon the placement and tilt of the bass drum—while simultaneously performing a hemiola-based offbeat syncopation that moves between two drums with the other. As this *tremolo* needs to be performed with one hand, a double-headed beater is required to produce the requisite strokes that translate into a roll.

On the bass drum, ensure that both sides of the stick are striking equally, which is a departure from the normal technique. Under normal playing techniques, the axis of rotation for a downward strike is usually from the elbow, and then aided by the flexing of the wrist. This is obviously made possible because of the usage of a single-headed beater, so the shaft and the rest of the arm becomes part of the lever. In contrast, a roll with a double-headed beater moves the primary fulcrum from the elbow and shifts it to the center of the stick itself. This requires the "bottom" end of the mallet to strike the bass drum on what is a normal up-stroke, so the percussionist must be cognizant of the stick movement in both directions. Fortunately, the *p* dynamic lessens the physical requirements and makes this somewhat easier, especially considering that the range of levering motion is now restricted to half the length of a mallet.

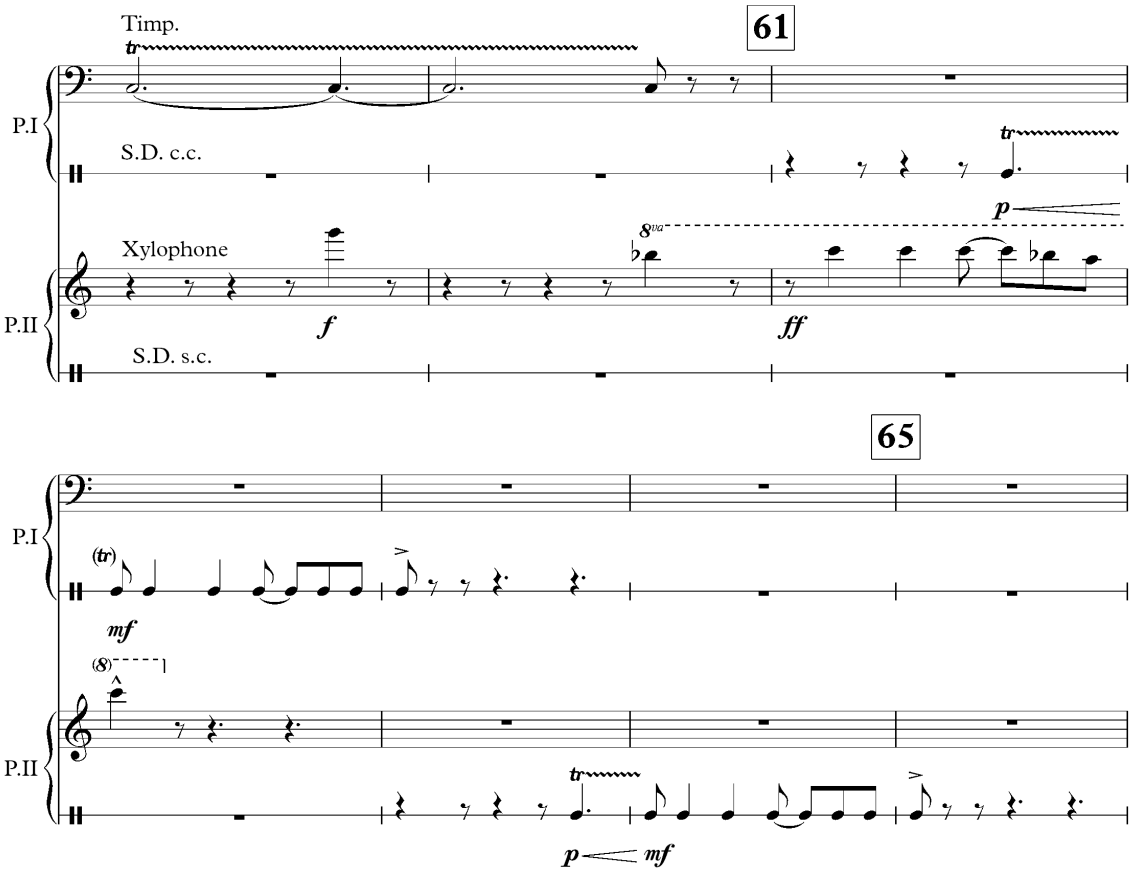
In the alternate hand, carefully balance the volumes between the drums *con cordes* and *senza cordes*. By default, the vibrating snares will amplify the sound of the drum *con cordes*; therefore, the volume of the other drum must be enhanced to match. In addition, be careful that the entrance of each drum is in time, as the physical action of moving between drums can create some rhythmic inaccuracies.



Example 29. Sonata for Two Pianos and Percussion, I, mm. 41–43, Suggested Phrasing

Thematically, the rhythm in the side drums is a continuation from the unison pianos at measure 32. Since the tempo and melody has already been well established at this point, the percussionist should listen carefully to the timpani for clues and help maintain the internal subdivision. Due to the beginning of the phrase on an offbeat, a common problem is to push past and rush the subdivided eighth notes, especially in sequence into the accented downbeat of the next measure. This problem is exacerbated by the desire to add a crescendo into the accent—certainly a valid interpretation—but the rhythmic nature of the section, the constant eighth notes in the timpani, and the natural projection of the snare drums call to attention any unfortunate deviation from the existing subdivisions. It may help the percussionist to instead of subdividing the 9/8 meter into groupings of 3+3+3, consider groupings of 3+2+2+2. This aids establishing the internal consistency of the quarter notes, though it obviously is not a meter that can be consistently used throughout the piece.

One addition that maybe considered is to phrase the rhythm towards the third quarter note, adding a slight emphasis. Doing so adds drive to the pace, and also helps emphasize the resolution of the following three eighth notes. This is supported by the fact that the pianos actually have a *marcato-tenuto* indicated on the first instance of this melody at measure 33, and marked *simile* thereafter. This articulation may be lost amidst all of the notes for all further iterations, but reinforcement by the snare drums certainly brings it back to the forefront.



Example 30. Sonata for Two Pianos and Percussion, I, mm. 59–65

After the release of the bass drum at measure 57, immediately turn off the snares to both drums and move to the xylophone. The mallets should already be in an accessible position for an easy transition. In measure 61, consider adding the stress accent on the third C, as discussed previously. Afterwards, move immediately to the snare drum (*senza cordes*). This answering phrase echoes the snare drum *con cordes* played by Percussion I (timpanist), much in the two-drum echo seen at measure 41. The fact that the phrase is divided between the percussionist and timpanist show that Bartók considered the percussion and timpani parts to be combined as a single entity, not necessarily as two or more individual parts. This division also stresses the importance of either using the same drums between players (as implied via diagram), or at ensuring that each player's drums are tuned similarly.

As noted, at measure 61 the timpanist has two beats to switch to the snare drum (with snares). If using the butt-ends of the timpani mallets for the snare drum, there is enough time to activate the snares in the interim two beats. However, a safer option might be to turn on the snares somewhere between measure 51 and 57 with one hand while playing the repeated eighth notes with the other. Otherwise, the snares need to be activated throughout the *Allegro molto*, which would be undesirable due to the expectation of excess rattling via close proximity to the *fortissimo* timpani (lacking any intermediary to block the sound).

Upon finishing the snare drum sub-phrase (which is then completed by the percussionist), remember to turn off the snares. The timpanist will not need the snare drum (with snares) until measure 386.

Measure 65–72

This is the first major tuning section for the timpani. While it can be performed with three drums (supporting Bartók's proposed plan), this is certainly easier with four drums and presents a small sample size of the sort of planning and practice that is required in order to execute a predetermined plan.

	F♯	C♯	F♯	C♯	F♯	C♯	F♯	C♯	F♯	C♯	E	B	D	G	C
4 Drums	1	3	1	3	1	3	1	3	1	3	4	2	3	2	3
3 Drums	1	2	1	2	1	2	1	2	1	2	3	2	3	2	3

Figure 7. Sonata for Two Pianos and Percussion, I, mm. 65–72, Tuning Strategies

With both the three-drum and four-drum schemas, the majority of the pedaling is executed on the two middle timpani (or higher, for the former). The only potential discrepancy is whether or not the timpanist decides to tune the final G-C cadence on the lower two drums—certainly a credible possibility, but not necessarily the safest path considering the lack of preparation time (only five beats of a true rest). For example, even with the four-drum scenario, the timpanist will likely be re-tuning the C to a B during the first four measures of F-sharp–C-sharp. Quickly tuning the F-sharp to G immediately after measure 69 will require a foot adjustment to drum #1, and back again in the space of a few beats. The choreography is not impossible, but neither is it completely necessary.

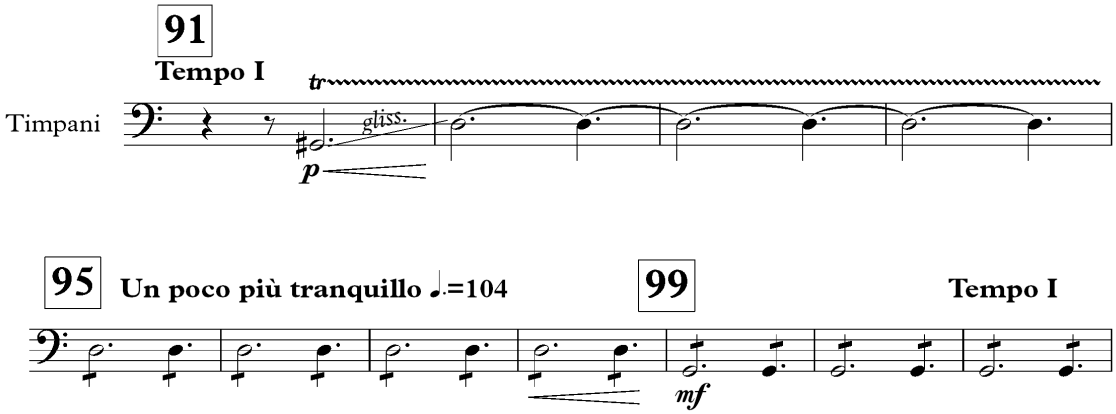
Measure 80–84

With these *glissandi*, there are two options. The first requires a (middle) drum, which has a working range of G-sharp to D, as the note is struck at the lower pitch and immediately moved to the D and allowed to briefly ring on the settled D-natural. But if the D were inaccessible, then the timpanist can consider the G-sharp as a phrased accent, and gently strike the D on a more appropriate drum when the *glissando* approaches that pitch. Re-articulating the end of the *glissando* will give the D more clarity, but the actual ictus should be implied as a continuation of the previous note, rather than heard as an independent release. With the space of 7 bars to prepare for these *glissandi*, the timpanist can also consider a slightly softer mallet to add warmth to the sustained note.

Measure 91–104

Similar to the previous section, the *glissando* needs to be performed on drum #2 as it approaches the requisite range. However, the following roll and eighth notes will not be ideal as it lies in the upper range of the instrument. A solution is to transition the roll to drum #3, as suggested previously. Be aware of a potential *luftpause* before the tempo change at measure 95; adding a slight pause will also aid in differentiating between the roll and the eighth notes. The same pause can be expected while leading into measure 99, and potentially measure 100. The crescendo at measure 98 should be exaggerated to a *forte*, and a *ritardando* into the tonality change will also add to the

drama, though this tempo addition should obviously be discussed with the ensemble. If added, it then makes the following *Tempo I* at measure 101 even more striking.



Example 31. Sonata for Two Pianos and Percussion, I, mm. 91–101

Measure 105–123

Emerging from a *rallentando*, Percussion II and Piano I are responsible for communicating both a clear preparatory beat and the downbeat in the new tempo. After the *poco a poco stringendo al* (to the *Piú mosso*) at measure 115, the next bass drum note at *pp* should also be short. This note coincides with the shortened and accented interjection by Piano I. As both hands are likely occupied with bass drum and tam-tam beaters, mute the bass drum with a weighted cloth or another body part such as a leg or knee. Alternatively, use the tam-tam beater on the bass drum if it can produce an acceptable sound. The following series of bass drum notes are long, as indicated via the "let vibrate" slur. For all of these, the dynamic markings in the bass drum are more of a suggestion—an implication that they should generally be "quiet." However, these notes

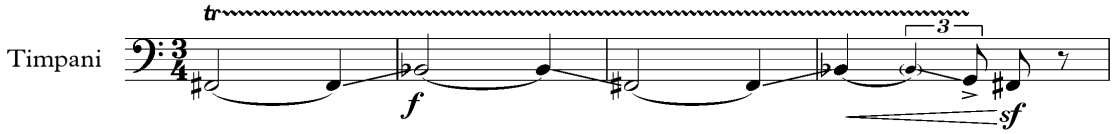
are more effective if adjusted to at least *p* and *mp*, respectively. In addition, the added articulation that a tam-tam beater gives would be beneficial in this context.

With the complementary xylophone notes peeking out amidst the chirping piano lines, Bartók seemingly writes terraced dynamics from measure 128 to measure 132. While implied but not explicitly stated, these five measures should gradually crescendo from the written *f* to the written *ff* in measure 132. In particular, the destination at the B-flat in measure 132 should be accented, and be the loudest point of this progression.

Measure 133–161

The series of rolls with continual *glissandi* reveal a notational weakness inherent to bending pitches. While peaks and troughs are defined—the downbeats of each measure—the *glissandi* lack directives dictating the actual rate of change. Based upon the connecting lines, it would appear that Bartók wishes for a gradual shift in pitch that is always moving, but barely reaching the top and bottom points before reversing action. If this were the case, not only is it strenuous for the performer to painstakingly measure the *glissando* for maximum consistency, but also the audible effect is shifted away from the destination pitches and towards the changes in direction. Instead, the timpanist can emphasize the written pitches and condense the time spent on the *glissando*, i.e. roll on F-sharp for beats 1 and 2, *glissando* on the third beat, arrive and roll on A for beats 1 and 2, *glissando* on beat 3. This interpretation not only calls attention to the widening endpoints at measures 145–151, but is also effective in executing the *glissando* through the *pochissimo allargando* leading into measure 161.

The exception to this interpretation is at measure 160, where a *sforzando* release is written on beat 3. The downward *glissando* must be shortened, as there are less than two full beats to traverse the final *glissando*. Also, note the presence of the *acciaccatura* on G immediately preceding the final F-sharp; this note should be struck independently and is the actual endpoint of the *glissando*. As such, the *sf* F-sharp should be statically tuned on the lowest drum (#1) while all of the *glissandi* are continually performed on drum #2, which allows for the clean articulation of G–F-sharp between the two drums. In addition, the final placement of the G can be metered to match syncopated rhythms in the pianos, falling on the final eighth note before the F-sharp. An overview of the *glissandi* and *acciaccatura* can be found in the example below.



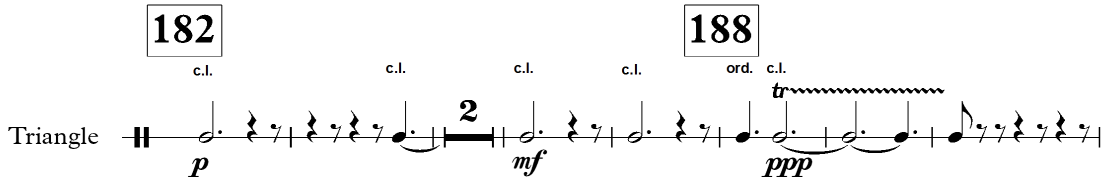
Example 32. Sonata for Two Pianos and Percussion, I, mm. 157–160, Suggested Phrasing

Also notice how Bartók notes an additional crescendo into the *sforzando*; differentiated from his extended crescendo starting at measure 145, he gives a good example of the "delayed" or "logarithmic" crescendo that has been previously discussed. Needless to say, the majority of the volume increase should take place in measure 160, making the articulated F-sharp even more strident.

Measure 175–190

Similar to measure 105, the percussionist should prepare and cue the downbeat for Piano I. Piano I will depend upon the upbeat and a clear signal for the establishment of the new tempo. Additionally, the percussionist should also be prepared with a snare drum stick (for the snare drum *con cordes*), a wooden stick for the triangle, and a standard metal triangle beater. Especially if the triangle is not suspended and instead held aloft while playing, the metal beater and a thin snare drum stick (as requested at the end of the third movement) can be held in one hand. In this fashion, the snare drum stick can be used for the six snare drum notes, and then the thinnest portion of the stick (usually very close to the bead) can be used on the triangle as *col legno*.

There may be some confusion in that measure 183 is marked to let ring (on the third beat), but none of the other triangle notes are so marked. This is likely due to Bartók's propensity to ignore the length of sustain on instruments where the ring is a natural effect, especially if the note falls on the first beat of a measure. However, this indication could exist as it is immediately followed by two bars of rest, and Bartók wanted to ensure that the sound is sustained throughout.



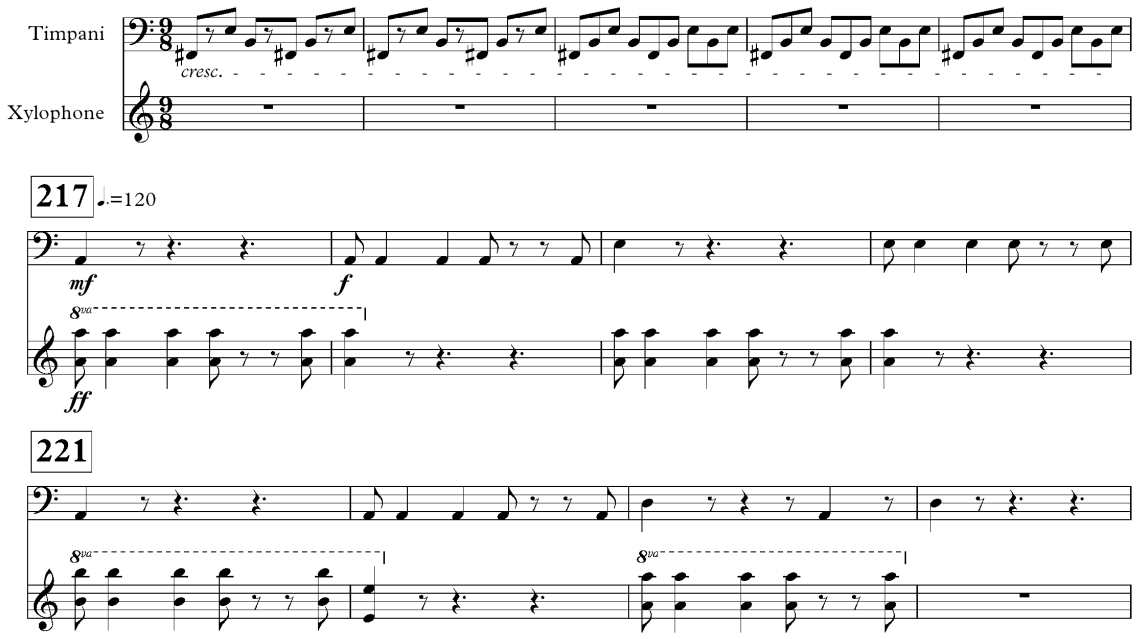
Example 33. Sonata for Two Pianos and Percussion, I, mm. 182–190

Measure 188 has the benefit of using the contrasting metal beater to produce a drastically different sound at a different dynamic level. While the metallic impact of the downbeat will be immediately heard, it is then at the performer's discretion whether to immediately mute the triangle before the following *tremolo* (*col legno*), or to let the initial strike carry through and add the repeated wood-on-metal sounds to the overall resonance.

Measure 198–242

Contrasting to the rolling *glissando* section, this upcoming passage requires more articulation and the timpanist should consider a harder mallet. While the notes have a quarter-note value, they are more indicative of the metric placement rather than the length of the duration. That being said, these notes will decay naturally due to the *p* dynamic, but still should not be allowed to ring for more than one beat (as implied). When the increased activity approaches measure 217, notice that the crescendo is similarly extended but not to overwhelming levels. As the lowest timbre in the ensemble, the timpani should not dominate these moments of relatively heavy orchestration. So, carefully observe the dynamic, which stays beneath the xylophone's *ff*. However, this does not mean that the timpanist cannot take advantage of the crescendo before the xylophone entrance: reserve the majority of this long crescendo until the last two measures (measures 215–216), peak to momentarily dominate the texture, then fade underneath the xylophone at measure 217.

The note values in the timpani and xylophone are mirrored, but the tempo is generally too fast to worry about the individualized muting of eighth-note rests. Instead, it appears that the placement of most rests resemble an engraving or editorial idiosyncrasy designed to maintain the triple-grouping of the 9/8 meter, even if the phrases do not align in that manner. As such, it is more important to observe the rhythm with regards to the two and three-note groupings rather than strict adherence to the written durations. Otherwise, the timpani should mute aggressively to match the duration of the echoed xylophone rhythm—which is not feasible.



Example 34. Sonata for Two Pianos and Percussion, I, mm. 212–224

Throughout this section, Percussion I primarily adds punctuation and added emphasis to the piano melodies. Between measures 217–223, the xylophone melody in octaves can be voiced slightly by placing an emphasis on the upper note. This will

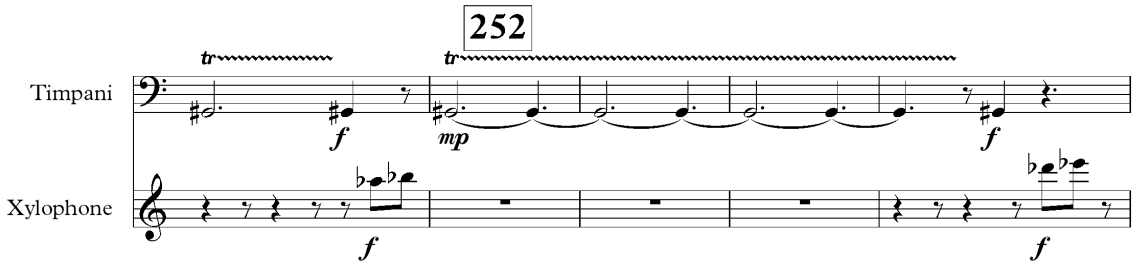
balance the sound of the octave, by allowing the lower note to serve as a coloristic support of the carrying pitch. Also important is the rhythmic differentiation between two and three eighth-note spacings or quarter-note and dotted-quarter-note rhythms. While obviously not the first time that this syncopation appears, it is still the first time for the xylophone to see this particular iteration. The subdivisions must be especially clear, especially in regards to the added eighth note in the realized dotted-quarter-note rhythms. In addition to voicing the octaves, be careful of the downward leap in fifths from octave B's to octave E's. This should be executed with a lateral flick of both wrists, avoiding any excessive arm motions.

After the initial set of xylophone notes, there are four bars in order to prepare for near-simultaneous xylophone and bass drum notes at measure 239. While not difficult, the percussionist should still make a note to hold a bass drum beater in one hand, and a xylophone mallet in the other. And as noted previously, both of these bass drum notes are treated the same, regardless of slurred sustain indications. Both should be allowed to ring throughout.

Measure 248–255

Interestingly, Bartók writes an unexpected *f* on a single note ending a *p* timpani roll, instead of an accented release. This clarity is appreciated; an accent would be within the context of the previous *p*. So, bring out the *subito f* by not tying the roll into the release. The slight space will also aid the preparation and the placement of the *f*. Bartók explicitly accounts for this similar space at the next iteration, but they should be treated in

the same manner. Even though there is an eighth-note rest written in measure 255, this is likely more for the rhythmic placement of the following G-sharp rather than an exact duration of the *tremolo*.

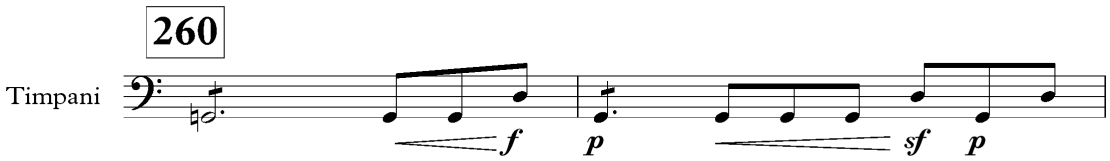


Example 35. Sonata for Two Pianos and Percussion, I, mm. 251–255

At measure 251 and 255, the xylophone and Piano II both react to a *f* timpani note. However, at measure 255 the xylophone only punctuates the last two of a three-note group in the piano, while they are in unison at measure 251. A valid musical decision might then be adding a C before the final D-flat–E-flat in measure 255, though this exceeds the major second two-note symmetry found in the score. However, be aware that the decision weighs melodic consistency over compositional symmetry—which can be argued is at the core of the term "interpretation."

Measure 260–273

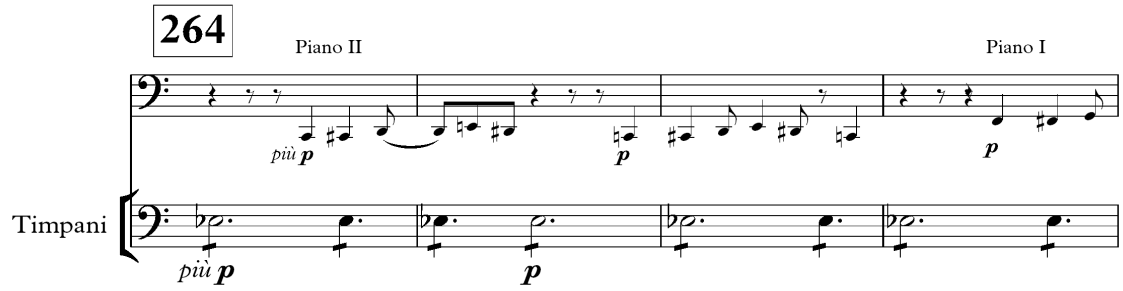
There is a slight misprint in the timpani part in measure 261. Measure 260 shows a short crescendo taking place through the third beat, and measure 261 shows a new crescendo extending through beats 1 and 2. Instead, this second crescendo should take place entirely within beat 2 of measure 261, much to the same effect as measure 260.



Example 36. Sonata for Two Pianos and Percussion, I, mm. 260–261, Corrections

On measure 263, carefully mute on the final eighth-note rest. This is a *tutti* rest, and serves to clear the sound for the transition into the next major section.

Familiarity with the piano entrances and phrases are highly suggested even though this section only consists of repeated eighth notes. As Bartók is fond of starting phrases on non-agogic beats, it is exceedingly easy to lose track of the beat, and unlike larger ensemble situations, there is no single point of reference that dictates beats and tempo for all of the musicians.



Example 37. Sonata for Two Pianos and Percussion, I, mm. 264–267

Bartók then writes specific dynamics in a terraced crescendo, which should be strictly placed as to coincide with the repetition of phrasing as he overlays 12/8 phrases in a 9/8 meter. The final crescendo then builds as gradually as the others, with most of the increase coming during the *poco allargando* at measure 273.

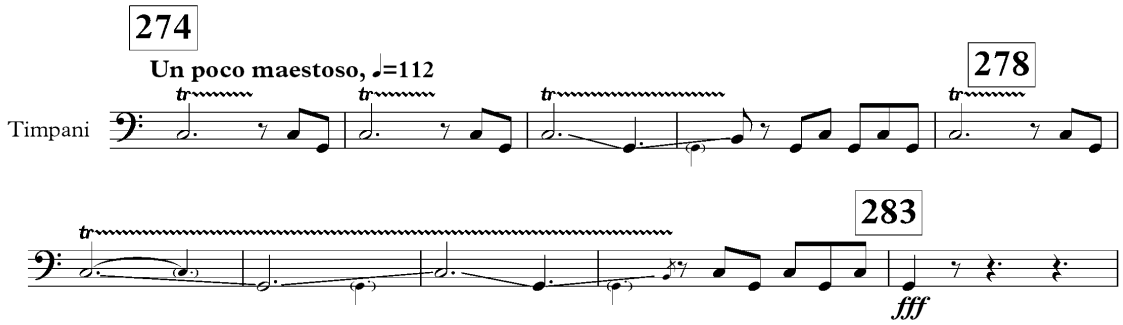
Measure 274–286

The *ff* at measure 274 is the first true opportunity for the timpanist to take advantage of the loud dynamic for a relatively extended period. However, that still does not grant license to completely obliterate the balance within the ensemble. So, each of these rolls can be attacked as a true *fortissimo*, but immediately subsided with a slight diminuendo so that the enthusiastic *tremolo* does not bury the orchestration. The original dynamic can then be recovered by accentuating the eighth notes leading into the downbeat, and also adding crescendi into measures 278 and 283. Throughout these 13 measures, muting the eighth-note rests before each entrance not only stops the existing sound, but also makes the new entrance more prominent. Also, it provides space for the necessary re-tuning from B to C in measures 277 and 282.

There is also a slight discrepancy between the placements of the B in both of these measures. While one is marked as an actual eighth note and the other an unlinked *appoggiatura*, they both should be treated in the same manner: as a near-articulated end of the *tremolo* that ends on the third eighth note of the respective measures.

Bartók's inclusion of parenthesized or braced notes in the midst of these *glissandi* also aid in the potential confusion. These are merely the compromise made with regards to the binary notational system, which is simply not constructed to handle a single-note-representation of a duration spanning nine eighth notes, or at measure 277, five eighth notes. Although the timpani parts are missing ties between all of the G's and the parenthesized extensions—they exist in the score—the important thing to realize is that the overall note durations are equivalent to the tied concatenations, but notational

conventions require the *glissando* to begin or end at the initial ictus. Hence, ambiguity arises when connecting *glissandi* lines cross the miniaturized slurs and accompanying notes. Fortunately, the endpoints of these *glissandi* are clearly either on the downbeat or on beat 3 (measures 276 and 281)



Example 38. Sonata for Two Pianos and Percussion, I, mm. 274–283

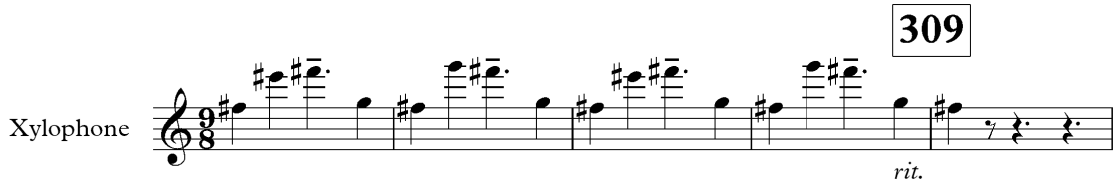
Regarding the *glissandi* themselves, these can be treated differently than the previous *glissandi* at measure 133. The interval is expanded from a minor third to a perfect fourth, so fully utilizing the allotted duration to traverse the *glissandi* is naturally more audible due to the increased rate of pitch-change in a wider interval. In addition, the actual durations of these *glissandi* are more varied, and so then are more difficult to interpret identically beyond striving for static rates of change within the designated note values.

From measure 283, Bartók indicates *fff*, which is clearly the loudest moment (marked) in the entire piece. As such, these notes should be accented and quickly muted to remain short, but also not so loud or heavy to compromise the overall tone quality.

Measure 292–317

This *Tranquillo* section is in a stark contrast with the aggressive mood of the rest of the movement. Even though the *ostinato* is in the xylophone, every attempt should be made to convey this change of character without detracting from the salient characteristics of the instrument itself. Towards this end, a legato stroke, using smaller but still hard mallets will give the illusion of distance, which is then reinforced by the repetition of pitches and the *p* dynamic.

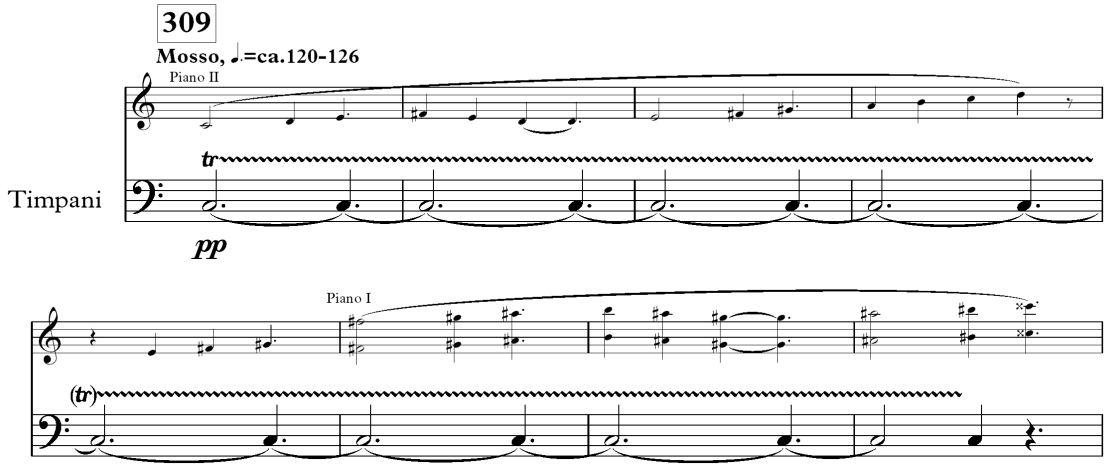
The rhythm at measure 301 is also an example of where notational conventions impede musical interpretation and rhythmic accuracy. While the rhythms are correctly noted to keep the 9/8 subdivisions of 3+3+3, this is significantly easier to read, play, and interpret when viewed as 2+2+3+2. By eliminating tied eighth notes (crossing agogic beats) and writing as quarter and dotted-quarter notes, the rhythm itself is easily clarified. This is actually the way the rhythm is portrayed in the score; the confusion is only reserved for the percussionists. As previously mentioned, it is essential to portray the contrast between the two and three-note subdivisions. The rhythm of measure 307 should also reflect the consistent 2+2+3+2 grouping; it is printed incorrectly in the percussion score as 2+2+4+1.



Example 39. Sonata for Two Pianos and Percussion, I, mm. 305–309, Suggested Phrasing and Corrections

There is another misprint in the assignment of the initial triangle note at measure 292. The percussion score has this marked for the percussionist (Percussion II), but it should be the timpanist (Percussion I). The entirety of this section calls for a wooden stick on the triangle, a fact that Bartók feels the need to re-emphasize at measure 301. An additional oddity is the *ppp* marking at measure 297—which comes as the Piano II reaches the peak of a crescendo. Instead, a slightly louder dynamic such as *mp* can be played, and then dropped back to *p* at measure 301.

A common interpretation is to add a *poco ritardando* leading into measure 309. In addition, it is recommended that the timpanist be very familiar with the piano melody during this lengthy roll.



Example 40. Sonata for Two Pianos and Percussion, I, mm. 309–316

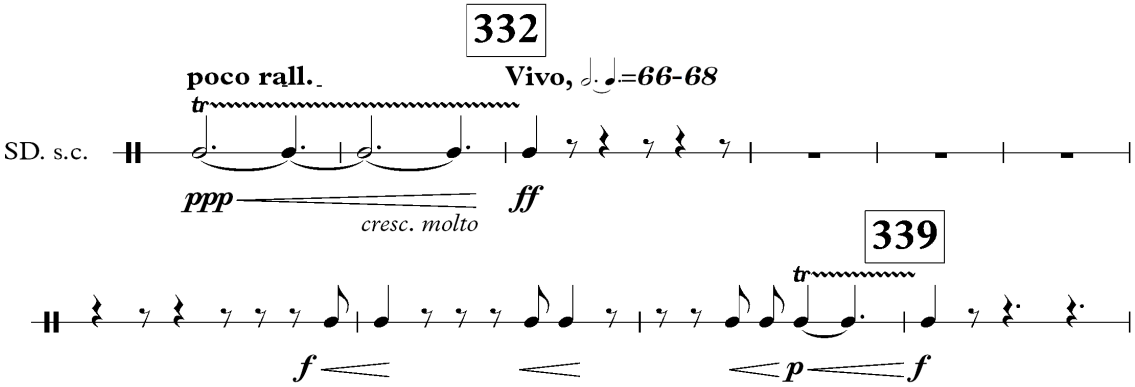
Measure 330–368

Following a quick change from a tam-tam roll to side drum (*senza corde*), the percussionist has little time to prepare for the upcoming roll. Because of this, the applicable sticks must already be chosen and readily available. One solution for this is to deviate from the normal technique of using two beaters on the tam-tam roll and only use one while already holding the snare drum sticks in the opposing hand. While normally two beaters are used to quickly agitate the tam-tam to vibrate at high oscillations (equating higher volumes), achieving the *ppp* dynamic can be easily done with the gentle movements of a single beater. Alternatively, the timpanist can play these tam-tam notes.

Selecting the appropriate pair of sticks for the upcoming roll also requires some deliberation. The initial entrance contains a *ppp* roll, which then includes a crescendo *molto* to what is a clearly articulated *ff*. Based upon previous discussions regarding logarithmic rates of change, Bartók actually delineates this even though it is an unadulterated solo and lacks external textures to enhance. Thus, the "normal" or comparatively heavy pair of snare drum sticks would be appropriate; one that allows for a clean, (relatively) inaudible *ppp* roll and also the *molto* crescendo with a heavy *ff* upon release.

While performing this roll, it is also important to maintain contact with the rest of the ensemble. Because no further time-keeping device exists at this moment, it is important to signal the beginning of measure 331 (as a warning marker), and then a clear preparation into the *ff* release. This last preparatory cue need not be exactly in the new tempo; the ensemble only needs to be aware of the downbeat as Piano II will establish the

new *Vivo* tempo from this downbeat. This roll is not difficult when taken on its own merits, but the added dimension of clearly directing the ensemble makes this much more complicated than it appears. One method of dealing with this is to predetermine the number of strokes that will occur between the preparation and the release, i.e. six alternating buzz strokes between the upbeat and the downbeat. As most percussionists have a reasonably static and comfortable roll speed at a given dynamic, this ties the unfamiliar cueing motions with a commonly practiced and performed technique.



Example 41. Sonata for Two Pianos and Percussion, I, mm. 330–339

The following and repeated crescendi from measure 336 are notable for the attention to dynamics that Bartók writes. In most cases, the starting dynamic for these crescendi are the marked *f* with the following notes interpreted as de facto accents as the crescendo must take place over two short notes. However, when they occur, the *p* can be interpreted more accurately as *subito p*, with the following roll and crescendo returning to *f*.

Measure 383–410

For the majority of this coda, the timpanist takes over the dual snare drum duties from the percussionist. Having not played the snare drum since measure 63, the timpanist needs to remember to activate the snares around measure 380, and to deactivate them after measure 411. After this, the snare drum passage only needs to be played with accurate rhythm—which is being provided by a similar rhythm in the pianos while the percussionist establishes and steadies the tempo on the bass drum. In a similar figure, Piano II generally has legato-like stress accents on the longer notes of the triplet-based "swing" rhythm. However, it is unnecessary for the timpanist to emulate this as the longer note in a swing pattern will naturally be perceived with an additional stress.

In the accompanying bass drum, Bartók only writes *p* but it can again be made more prominent with increased dynamics. With a staccato beater (of heavy German felt, not piano felt), place an emphasis on these repeated downbeats. Muting the heads slightly before each entrance will help with the pulse and improve the consistency of sound between each note. After the roll starting at measure 401 (and still using the staccato beater), be sure to cleanly articulate the release of the roll on measure 405. This note should be accented; it also would help to have a slight separation between the roll and the release, as this will make the accent more prominent and ensure an accurate placement.

Measure 415–417

Even though a *marcato* accent at *forte* is indicated, the orchestration is thin enough that this can still be considered a "gentle" forte. The same articulation and dynamic levels need to be immediately repeated, but additionally with a crescendo. With that in mind, the initial dynamic should be a "discrete" *forte* so that the arrival at measure 417 and intervening crescendo is not overwhelming bombastic. This exemplifies the term, "with room to grow."

In addition, measure 416 is a solo, with an *allargando* into the last few phrases. While performing the tempo change, the preparation and execution of the downbeat at measure 417 must then be visually clear to the ensemble to ensure clarity, continuity, and rhythmic coherence in a new tempo.

Measure 433–end

As discussed previously, Bartók rarely writes for notes to sustain far past their notated lengths—especially when the accompanying instruments in the ensemble suffer much of the same aural and technical characteristics as the timpani. The hard ictus that is present throughout the ensemble helps dictate that all unless explicitly stated, the timpani notes should not be allowed to ring far past what is noted. So, all of these quarter notes—functionally the same as dotted-quarter notes—should be muted quickly while carefully observing the tiered dynamic changes. This is especially important in the penultimate

measure, where the *piú f* downbeat must be immediately and aggressively muffled to facilitate an immediate tuning change into the final cadence.

MOVEMENT II: LENTO, MA NON TROPPO

Bartók's second movement follows the standard ternary forms that are found in inner movements. Filled with wispy textures, it is indicative of his *nachtmusik* commonalities—no mean feat considering the available instrumentation is primarily percussive. Compared to the first movement (comprising over half of the *Sonata's* overall length), the second movement's trials and tribulations for the percussionists are mostly logistical as they need to consider the best way to portray these sparsely unique sounds. While the apparent technical requirements are slightly less than modest, this is balanced by the extreme exposure and constantly minuscule dynamics—both of which requiring fine motor control and experience to avoid being "caught in the moment." It is also helpful to recall that virtuosity is measured by more than the amount of ink on a page or the size of the instrument list.

Measure 1–25

One of the more terrifying things that any musician deals with is the moment when the spotlight is focused, with the expectation and the need to perform a passage that requires delicacy and fine motor control. In the meantime, larger muscles are protesting against the mental commands as the performer struggles against the mental pressure.

Hands are shaking and so is that one muscle in the lower leg, which is surprising since all it has to do is support the weight of the standing musician. Such is the life of a performer.

Bartók chooses to subject the percussionist to this in the opening bars of the second movement. The *Lento, ma non troppo* begins with a *ppp* roll that appears from inaudibility as a distant sizzle, which then builds ever so slightly to a *p* release and follows with a series of notes that explores the timbres of a snare drum (*con cordes*) by varying the beating spots. The difficulty inherent in such a minuscule dynamic—no doubt enhanced by the performer's own high expectation of a seamless *tremolo* that resembles the smooth hissing of white noise—is not only mental but also technical. While the mental aspect can only be addressed individually, there are still a number of recommendations available to aid with the technical aspect of producing this roll.

As discussed during the logistical analysis of this work, the selection and adjustment of the snare drum itself can play a huge role in producing the desired sound. To quickly reiterate, the strainers of the selected side drum *con cordes*—not necessarily the same drum as used in other movements—should be adjusted to provide the maximum response. By doing so, this helps to alleviate some of the general concerns with performing a roll—namely, providing enough snare response to obscure the sound of individual strokes. In addition, sticks should be selected based upon their suitability for this roll. Bartók requests "2 very light and thin sticks" for the third movement, and such sticks with a smaller, more rounded bead can also produce a denser, more extended series of rebounds than are normally produced with standard orchestral sticks. The weight, or lack thereof, will also aid in the overall dynamic scheme.

Performing the roll itself is complicated by two additional factors: 1) interpretation of the dynamics, and 2) the percussionist must also give clear cues before and during the roll to indicate the overall meter and tempo. Regarding the former, the percussionist has the both the luxury and peril of a sparsely populated orchestration. As such, the *ppp* should arise from *niente*, but the destination *p* can be subtly interpreted to a level of comfort for the percussionist. Pre-establishment of the ending dynamic also aids in the latter complication. With the knowledge of the ending dynamic and tempo, the percussionist can repeatedly practice only the last beat of the roll, emphasizing the crescendo. Similar to the first movement before measure 332, this last beat can be completely measured with the number of strokes counted so that it is pre-determined and consistently performed. This then reduces coordination issues that arise while cueing in the midst of an unmetered roll as the percussionist only needs to execute the initial preparatory downbeat, and then an upbeat that coincides with the practiced metered roll into the release. All of the releases from the snare drum should also be tied to the roll, even if Bartók omits the necessarily markings. Otherwise, the crescendo into the release becomes disjointed and abbreviates the overall effect.

After the roll, a few notes on overall balance must be mentioned. First of all, the notes on the snare drum *senza cordes* need to balance the established *p* from the snare drum *con cordes*. Especially since the drum with snares will also be louder given the same physical stroke, the notes on the drum without snares should be played slightly louder to match. This concept also needs to be applied with the different beating spots on the drum *senza cordes*—playing "on the extreme edge of the head" will also be significantly softer than "in the centre."

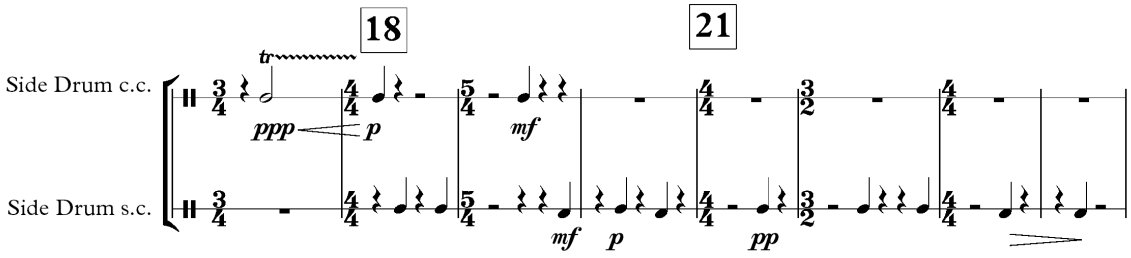
Once these logistical and execution-based decisions are worked out, the rest of the section falls into place. Carefully subdivide to maintain the tempo throughout—while the general countenance of the opening resembles an airy nocturnal setting, it does not include trudging through a muddy swamp at night.

The notes on the suspended cymbal need to be similarly quiet. Generally, a 14" to 16" cymbal is recommended; smaller cymbals are usually higher in pitch and will also project better at lower dynamic ranges, and the loud dynamics produced by larger cymbals are not necessary for this orchestration. As Bartók again indicates differing beating spots, it is recommended that a cymbal with a pronounced bell be selected to provide a significant timbre differentiation between the two. However, it should be noted that both of his instructions ("on the dome" and "on the edge" or "on the extreme edge") refer to vertically striking the cymbal on the top, instead of at an angle and against the edge as is normal practice. A small-beaded stick or even a knitting needle is also a viable suggestion for Bartók's "thin wooden stick." Bartók's concept of a "soft headed stick" should also be taken with a grain of sodium-laced perspective; today's concept of a soft yarn marimba mallet is not necessarily the best choice for the individual notes. Instead, a small-headed and cord-wrapped hard mallet (or a mallet marketed for temple blocks) might be more suitable. The consistency of the mallet needs to be hard enough to quickly activate the cymbal, but soft enough to lessen the initial impact. However, a pair of softer mallets can be used for the suspended cymbal roll at measures 11–12. In this case, the cymbal should still be vibrating slightly from the previous note and it is then only necessary to re-agitate the cymbal enough to produce a sustained sound. Even though the

roll is marked *ppp*, the dynamic should be interpreted as *pp* or *p* as the true *ppp* will simply not be audible.

Following a crescendo in the pianos, the cymbal note at measure 19 (with a soft headed stick) should be performed at *mp* or even *mf*, but certainly not the *ppp* from the previous section at measure 113.

There is also a misprint in measure 21; instead of falling on beat 2, the *pp* note on the snare drum *senza cordes* (in the center) should be moved to beat 3.



Example 42. Sonata for Two Pianos and Percussion, II, mm. 17–24, Corrections

Measure 37–42

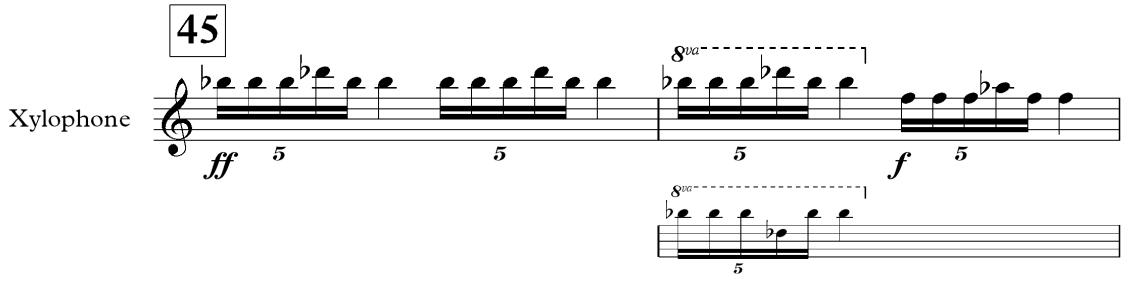
In a few bars, the tam-tam encapsulates many of the issues surrounding this movement. While it is appropriately marked for the character and ensemble, the reality of achieving the written *ppp* while still being audible is practically nil. So, the dynamics can be adjusted to a *p*, with a harder mallet to aid the projection and faster activation of the tam-tam. Also, the tam-tam should be quickly muted before each note. This will help with the projection of each attack.

Measure 45–56

After a build, the quintuplet pattern moves to the xylophone at what is the clear climax of the ABA form. Deviating from some of his previous instructions, Bartók asks for a heavy wooden stick (or butt end) to strike on the edge of the cymbal. With the *f* dynamic, we can safely assume that this be struck with normal technique, i.e. at an angle, striking the horizontal edge instead of the top face of the cymbal.

The xylophone should be similarly heavy. Hard and weighty mallets will give a brilliant, strident character to the two measures. This can then give way to significantly smaller mallets (as might be suitable for glockenspiel) for the piano section. These small mallets result in a brittle, distant timbre that contrasts nicely with the previous outburst.

At measure 46, Bartók extends the quintuplet pattern to the upper octave. However, this is somewhat problematic as the written D-flat is higher than xylophone's standard range and thus does not exist on most instruments. To work around this, many play the D-flat in a lower octave, as indicated by the *ossia* in the percussion score. Another alternative is to acquire and additional D-flat bar and mount it separately or locate a xylophone that has been modified to include this D-flat, but these instruments are uncommon.



Example 43. Sonata for Two Pianos and Percussion, II, mm. 45–46

At measure 55, a common addition is to add a *ritardando* at the last beat, into the *Poco rubato*. This adds a sense of finality and closure to the phrase, which already contains leading-tone resolution to the (relative) tonic in the xylophone.

Measure 67–81

Recalling the ternary form, this is similar to the opening section. However, the ensemble dynamics are greater due to increased activity, and more internal communication is necessary for the same reason. The *luftpause* before measure 70 should be strictly observed among all players; equally important is to re-enter at 70 in unison.

Lastly, the dynamics in the timpani should be exaggerated. While the *poco* crescendo and diminuendo do not have indications in specific dynamics or placement, the crescendo should peak at a *mf–f* at the downbeat of measure 80 before receding until the *Tempo I* at measure 81.

Measure 85–end

While the quintuplets in the timpani are an extension of the previous phrase, the quintuplets in the snare drums can crescendo into the xylophone entrance. Here, the xylophone should be heavy and funereal. Even though the characteristics of the instrument are short and articulated notes, consider the written quarter and half notes as

part of the phrasing to convey a sense of sorrow. Likewise, the timpani should not be allowed to ring past their notated durations.

MOVEMENT III: ALLEGRO NON TROPPO

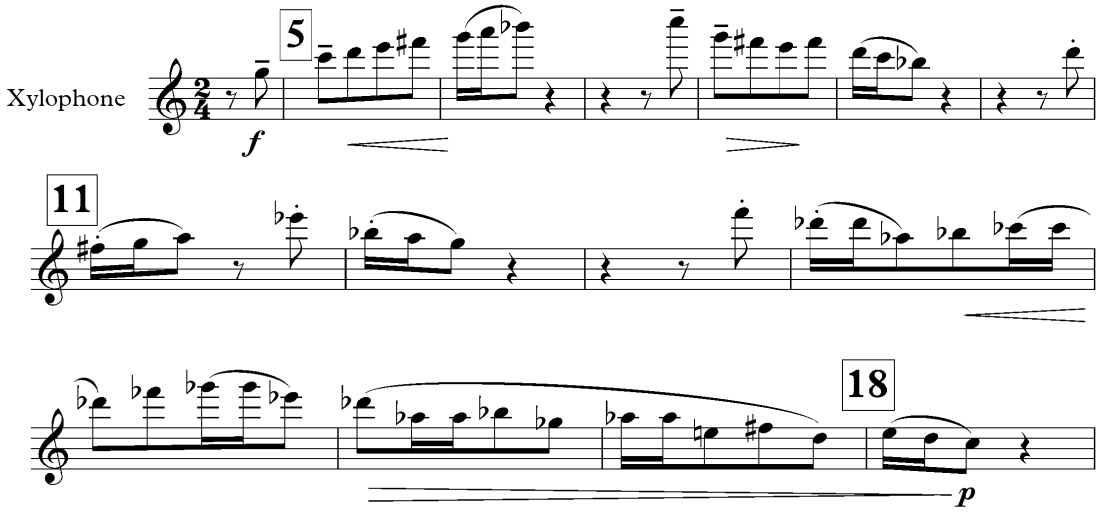
From the first notes of this delightful rondo, Bartók immediately reminds the listeners and performers of the importance he places on intervallic relationships while also reinforcing the diatonic accessibility that made his works popular. The movement opens with the pianos traversing perfect fifths in opposite directions, but both landing on a clear C Major chord that is sustained for the majority of the first theme. This theme is introduced by the xylophone in what is arguably the most melodic content that Bartók has given to the percussion. With the ever-present insistence of pure intervals used in mirrored and echoed motifs, Bartók then constructs the third movement in a fashion where the interaction between the pianos and percussion (including the timpani and xylophone) are completely balanced.

Measures 4–18

Beginning with the extended melody in the xylophone, the percussionist immediately faces a few choices. With regards to sound production, the brilliance of the xylophone needs to balance the equally articulate pianos, especially at this fast tempo. This is not as readily apparent from the first few measures, but becomes so as the pianos cease being harmonic support and instead diverge to create three separate lines that when combined, form a timbrally cohesive unit. It is clear that this pianistic and

percussive parity is what Bartók was striving for when developing his earlier works. In order to maintain this parity, a hard and weighted mallet is recommended on the xylophone. The general concept is to produce a sound that is clearly audible through a moving piano texture, maintains the stark articulation idiosyncratic of the instrument, and yet is not so strident that the other instruments are overwhelmed.

While this entire passage can certainly be played as written, doing so ignores an enormous opportunity to add melodic phrasing and inflection. As can be seen via the timpani part and further melodies, Bartók places an inordinate amount of importance on intervallic leaps in two-note groupings, especially when they begin a phrase. In addition, subtle crescendi can be added to ascending lines, and a longer diminuendo before measure 18 helps prepare for the *p* dynamics. The timpani can also add a slight crescendo into the shortened downbeat at measure 14, which ends the piano *tremolo*.



Example 44. Sonata for Two Pianos and Percussion, III, mm. 5–18, Suggested Phrasing and Corrections

The first of many potential misprints also occur before measure 8. The scores published by Boosey and Hawkes indicate an A to begin the phrase. However, changing this note to a higher C (normally the highest possible note in the xylophone) provides downward symmetry to the previous phrase, which begins with an ascending fourth. While the A is diatonically acceptable, the usage of the C is supported by the repetition of this theme in Piano II at measure 19, which contains the C.

Throughout this movement, the timpani should also consider the general mood in determining the sound concept. Generally, a lighter touch is called for (with a few exceptions), and for the most part, all note values can be interpreted as written. As the opening section does not require the highest degree of articulation, the hardest mallets are not necessary until perhaps measure 44. Instead, one or two levels softer can be used to draw out more tone from these longer, individual notes.

Measure 28–57

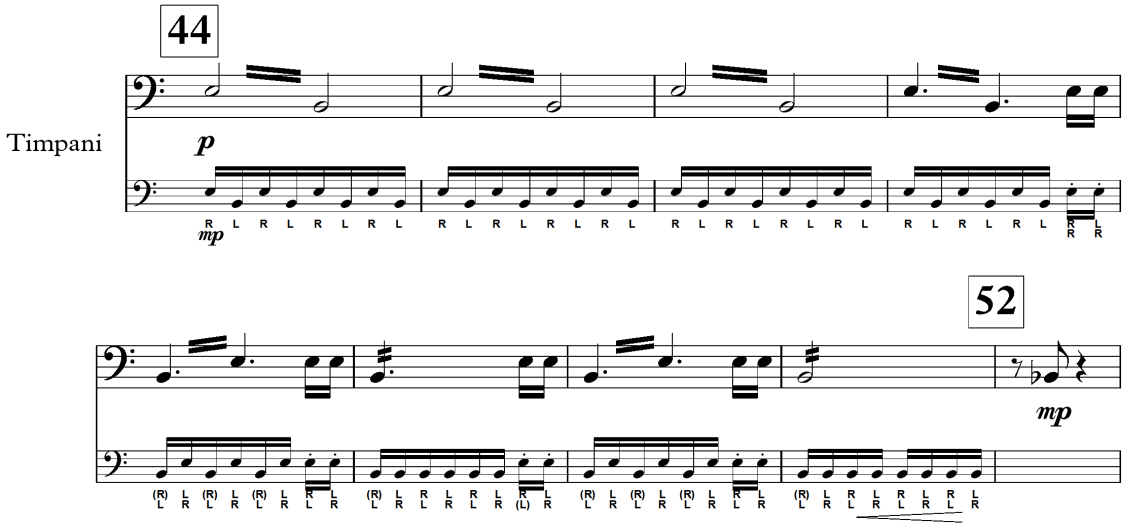
When playing these *pp* cymbal crashes, there are a few technical approaches that may be applicable. For most quiet notes, many percussionists prefer to hold the cymbals vertically such that the circumferences match each other as closely as possible. Held between 1–2 centimeters apart, they are then brought together in a fashion that all edges meet at the same time. This can be observed and monitored from the top, as the playing position resembles the prototypical circus-monkey-with-cymbals windup toy. This technique is capable of producing a very, very quiet cymbal sound with relative regularity, but has the downside of A) needing time to properly prepare, B) monopolizes

the performer's complete attention for the duration of the passage, which detracts from the internal communication necessary for chamber music, and C) has the potential to create a vacuum suction between the two cymbals as enclosed pockets of air are trapped when the edges are sealed together. An alternative technique is to create an offset between the cymbals that resemble a partial eclipse, where one cymbal is held slightly out of phase with the other. In this fashion, the general striking concept is in two places (as two close grace notes), compared to the single strike of circumference-on-circumference. Generally, playing with such an offset will produce a slightly louder sound (but still more than acceptably *pp* in an ensemble setting), but will also avoid any potential suction as enclosed space is never created.

Even though Bartók's diagram suggests a table in between the performers to hold the cymbals, a cradle that holds the cymbals vertically is recommended instead. With such a cradle, the timing before and after playing is greatly reduced due to the overall convenience with regards to the standard playing position. This is especially important in this section, where the timpanist has seven beats to prepare for playing the cymbals, and then three beats to transition back to timpani. While it would be desirable to allow the cymbals to ring longer—and they are also marked to let ring at measure 36—this is an unfortunate impossibility with the immediate necessity to drop the cymbals in the cradle and move to the timpani.

This extraordinarily short transition requires preparation and a few potential compromises to execute successfully. The first obvious problem lies in simply ensuring that the correct mallets are in hand in time for the entrance. Rather than relying on a trap table for mallets, a more risky but faster approach is to leave the mallets directly on the

timpani, which then greatly reduces the time between grasping the mallets and resuming the playing position on the timpani. Further solutions can involve changing the technique of playing *a due* crash cymbals by mounting a single cymbal on a stand in an inverted position. This can then be played with the other cymbal in a downward fashion, similar to the technique used when the cymbal is attached to a bass drum. The advantage here is that it obviously needs only one hand to operate, though the preparation and recovery times are similar. It unfortunately also has reduced control over the overall sound production. Taking the automation a step further, the timpanist can also utilize a pedal-activated hi-hat stand to play these notes. In both of these cases, controlling the dynamics is the primary difficulty, and focus should be placed upon the upstroke of each action, ensuring that the cymbals properly separate after each note and avoiding the buzz of extended contact.



Example 45. Sonata for Two Pianos and Percussion, III, mm. 44–51, Suggested Phrasing and Sticking.

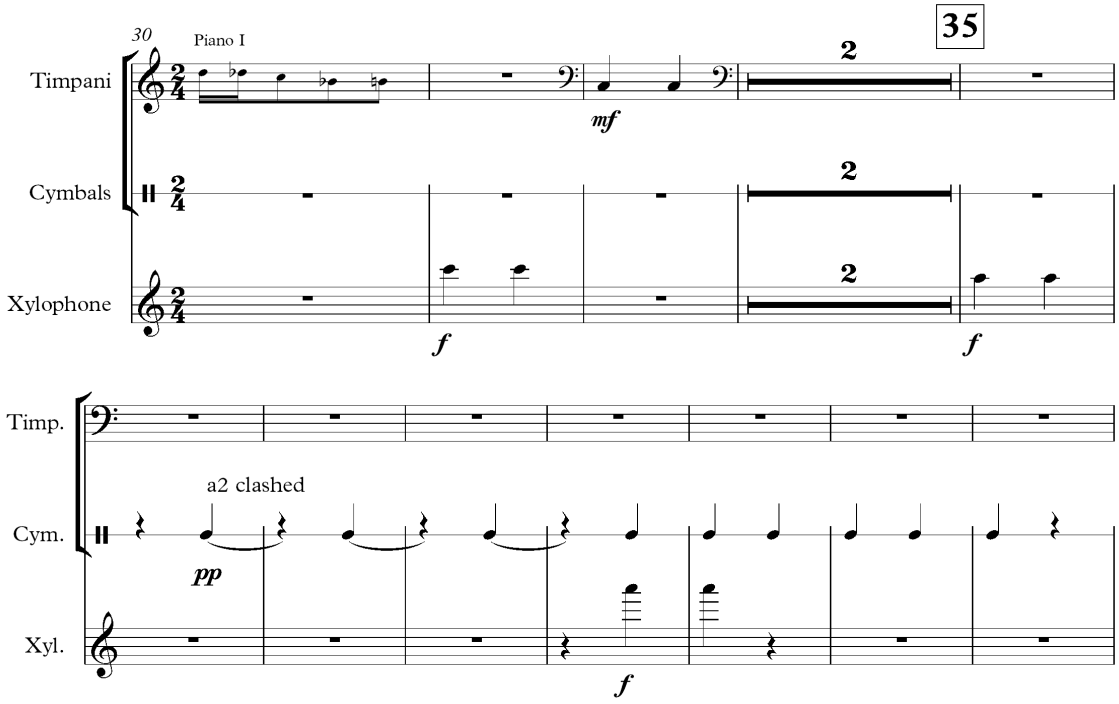
If possible, a change to slightly harder mallets than previously used will help bring out the articulation of these abbreviated sixteenth notes at measure 44. The dynamic itself can also be marked to at least *mp*, although the general touch should be on the lighter side. Additionally, the two eighth-note E's ending measures 47 through measure 50 can be brought out to differentiate them from the previously alternating *ostinato*. The *mp* can then crescendo at measure 51, but be sure to quickly mute at the rest (to re-tune from B-natural to B-flat) and play the following note short and staccato. Dependent upon the working range of the lowest drum, the B-flat can optionally be played on drum #1.

As displayed in Example 45, there are also decisions that need to be made with regards to sticking this example. While a consistently alternating sticking is possible, it leads to persistently playing in a crossing position at measures 47 and measure 49. A judiciously placed double-sticking immediately preceding this resolves the issue, but also introduces another crossing in measure 48. This second cross-sticking can then be replaced by a shift (quickly moving the upper torso to pivot the entire body so that the sticks never cross) if so desired, but the overall decision needs to be made with regards to maintaining the overall consistency of tone throughout the passage. In particular, persistent cross-sticking is prone to accentuating the crossing stroke, which obviously should be avoided.

The triangle note at measure 52 is only marked at *p*, but be aware that with such a thin orchestration, any metallic sounds will immediately project. That stated, Bartók asks for a "short and rather thick" metal beater at measure 56, so a smaller and thinner beater should be used to differentiate this initial note. In practice, most of this can be achieved

with a single teardrop-shaped beater, which provides multiple beating surfaces. The only requirement is the ability to produce at least two sounds that differ in more than the written dynamics.

To backtrack slightly, there is also another misprint at measure 39–40. The percussion score calls for two F quarter notes, but these should instead be the A above as Bartók is exploring the echoes of repeated pitches, but in different registers.



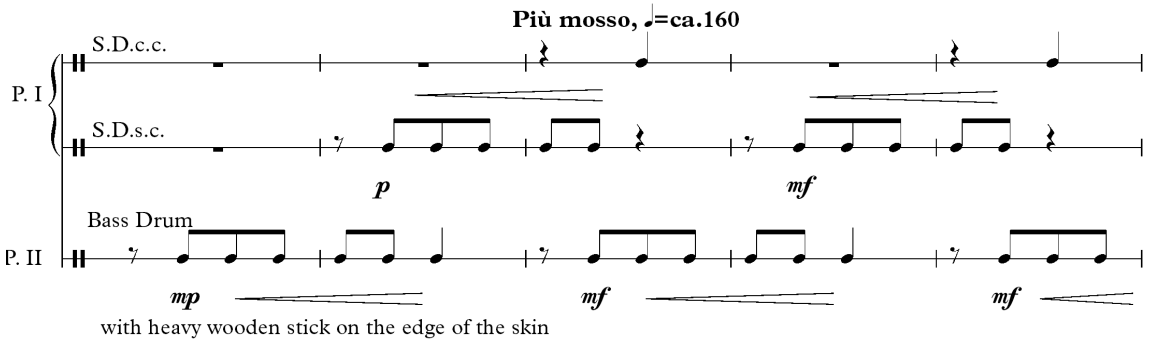
Example 46. Sonata for Two Pianos and Percussion, III, mm. 30–42, Corrections

Measures 115–140

Bartók writes for the bass drum to be played "with heavy wooden stick on the edge of the skin." With these instructions, it is safe to assume that he is asking for a

change in tone and articulation, similar to the changes to the beating spot in the snare drums in the second movement. However, while playing at the edge of the bass drum head, it is difficult for the head itself to vibrate, much less create column of air sufficient to cause the resonant head to sound as well. So while playing at the edge produces a significantly thinner sound (that is also almost inaudible), it eliminates much of the low pitch and depth that is characteristic of the bass drum. Instead, a suggestion is to heavily mute the drum with a cloth or similar device. When the playing surface is dulled, the requisite articulation can be achieved without sacrificing the low sound. This also allows the articulation to be more pronounced by eliminating the ringing of the batter head. The heavy wooden stick also plays a role in enhancing articulation, but is less suitable for plastic heads. Chamois or leather-wrapped "Rite of Spring" mallets, which also have heads that are smaller than normally used, would then produce the required sound (which is thinner and more articulate than produced by a normal-sized chamois beater) and are also more suited for the short roll at measure 133.

Accompanying this short passage in a quasi-canon are notes on the snare drums. Since the snare drum *senza cordes* plays most of these notes (with the snare drum *con cordes* punctuating the motif), it is important to realize that the resultant timbre must also be balanced with the ensemble. The sound from the drum without snares will likely be buried underneath the overlapping canon, so it will need to be played louder than marked to be audible. This applies to the bass drum as well. Measure 127 can be upgraded to *mf*, and end the crescendo and the roll at measure 133 with a strongly accented *f* on the release.



Example 47. Sonata for Two Pianos and Percussion, III, mm. 119–122

In both percussion and timpani (snare drum) parts, it is easy to overlook the *stringendo al Piú Mosso* that occurs during this canon. In fact, it might be better for both parts to continually push the tempo and extend the *stringendo* until the measure 134. This would enhance the frenetic attitude that then exhausts itself with a return to the *Tempo I.* The final transition to the *a tempo* is then made by the xylophone. The *rallentando* leading to measure 140 can and should be exaggerated, but realize that the downbeat and associated notes at measure 140 are immediately in the new tempo.

Measures 140-237

Throughout this elongated section, the timpani (and to a lesser degree, the xylophone) first appear to simply be punctuating harmonic changes at the beginning of each new phrase. However, a closer look proves that this is not truly the case; the timpani and xylophone are instead participating in what are alternating and overlapping five-part canons that quickly explore differing key relationships. With an explosive bang at measure 173, this then gives way to an extended section where the pianos support the

primary melodic and thematic material that develops between the timpani and xylophone. In measure 173 through measure 228, Bartók provides the ultimate example stating his goals of percussive balance with the two pianos. With strategically placed motivic echoes and also exposed short-term *glissandi*, he shows that the timpani and percussion can drive not only rhythmic development, but also be primary movers in traversing chromatic explorations as well. Measure 229 through measure 237 then show a return to the canonized motifs, but again exploring different tonalities.

Although the written rhythms and initial note placement are not difficult, the combination of constantly changing pitches and included *glissandi* show the necessity for a clear tuning strategy. With only two feet to enact changes among multiple drums in limited timeframes, it is obvious that the choreography needs to be planned well ahead of time. It is also noteworthy that this passage never contains groupings of more than three pitches at a time, lending credence to Bartók's original intention of using three timpani. However, the presence of the fourth drum certainly gives options for improving sound quality (with regards to particular notes) and also potentially simplifies the pedaling structure. A detailed choreography for four timpani is included in the table below.

Measure	**Action**	**1 | 2 | 3 | 4**
143–144	Play B♭, E♭	G | B♭ | E♭ | F♯
145	Re-tune 1:G→F	**F** | B♭ | E♭ | F♯
147–148	Play B♭, E♭. The feet should be positioned on Drums 2, 3	
148–151	Re-tune 2:B♭→A♭, 3:E♭→D♭	F | **A♭** | **D♭** | F♯
152	Play A♭	
152–154	Re-tune 2:A♭→B♭	F | **B♭** | D♭ | F♯
155–156	Play F, B♭	
156–160	Re-tune 2:B♭→A♭	F | **A♭** | D♭ | F♯
161–162	Play A♭, D♭	

162–166	Re-tune 2:A♭→A♮, 3:D♭→D♮	F | **A♮** | **D♮** | F♯
167–168	Play A♮, D♮	
169–173	Re-tune 1:F→F♯	**F♯** | A♮ | D♮ | **F♯**
173	Play 1:F♯	
181–182	Play D, A	
183–187	Re-tune 3:D→C♯, 2:A→B♮. When done, position feet on Drums 3, 4	F♯ | **B♮** | **C♯** | F♯
187–189	Play 3:C♯, 4:F♯, 1:F♯, 2:B♮	
189–192	Re-tune 3:C♯→D, 4:F♯→F♮. At least one of these tunings will have to take place while playing. These drums will also likely be unmuted while tuning.	F♯ | B♮ | **D** | **F♮**
192–193	Play F♮, D. Reposition the feet on Drums 2, 3.	
193–198	Re-tune 2:B♮→A	F♯ | **A** | D | F♮
198–200	Play D, A	
200–202	Re-tune 2:A→C	F♯ | **C** | D | F♮
202–203	Play C, F♮	
203–205	Re-tune 2:C→A	F♯ | **A** | D | F♮
205–206	Play A→D *glissandi* on Drum 2. After each *glissando*, immediately re-tune to A in the intervening rests	
207–209	Play A, 3:D	
210	On beat 1, mute and re-tune 3:D→D♭. On beat 2, play D♭→F *glissando*	
211	On beat 1, mute and re-tune 3:F→D. On beat 2, play D, A	F♯ | A | **D** | F♮
211–214	Play D, A	
215	On beat 1, mute and re-tune 2:A→B♭. On beat 2, play B♭→C♯ *glissando*	
216	Mute and re-tune 2:C♯→A, 3:D→E	F♯ | **A** | **E** | F♮
217	Play A, E	
218–219	Continue to play E, but reposition one foot to Drum 4 and re-tune 4:F→F♯	F♯ | A | E | **F♯**
220–221	Re-tune 3:E→C♯	F♯ | A | **C♯** | F♯
222	Play C♯, 4:F♯	
223–226	While continuing to play C♯, 4:F♯, C♯, 1:F♯, re-tune 2:A→B♭	F♯ | **B♭** | C♯ | F♯
227–229	Re-tune 4:F♯→F♮	F♯ | B♭ | C♯ | **F♮**
230	Play F♮, B♭	
231–233	Reposition the feet on Drums 2, 3 and re-tune 3: C♯→E♭	F♯ | B♭ | **E♭** | F♮
234	Play B♭, E♭	

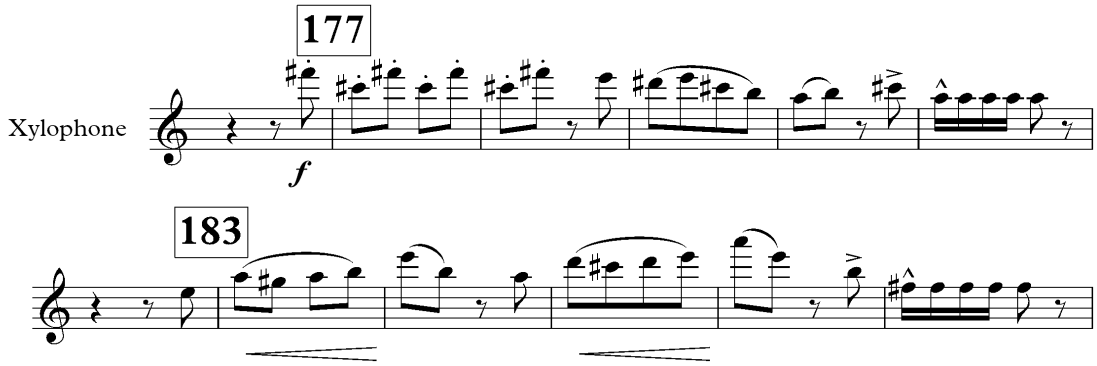
Figure 8. Sonata for Two Pianos and Percussion, III, mm. 140–234, Required Tuning

As previously noted but exaggerated in this excerpt, an additional difficulty includes the crucial detail surrounding complete and accurate muting whilst tuning. In this example, muting and tuning must often take place in the space of a single quarter note or less. Fortunately, this is aided by two factors: 1) This is an ensemble setting, so less-than-complete muting can sometimes be hidden by the contributions from other instrumentalists, and 2) Bartók writes delicate dynamics throughout much of this section. While there is certainly a moderate amount of required activity, it is then doubly important to maintain a light, articulate, and controlled sound; not only is it what Bartók intended with a mostly sparse texture, but lighter dynamics with smaller movements will also make muting at each rest easier and more complete without resorting to the "aggressive muting" referenced in earlier sections.

The moments where the heavier but still articulate sound can be projected lie between measures 173 and 193. The timpani kick off of the *forte* section with a loud F-sharp that can be indulged, but should also remain short. The following *marcato* accents and phrases at measures 181–182 and measures 187–189 can also be a strong *forte*, but the alternating eighth notes at measure 188–190 should be less emphasized with a reduced dynamic. This is also reinforced by Bartók's notation, as he separates the lower F-sharp at measure 188 to differentiate it from the previous phrase.

With the xylophone entrance at measure 176, it is essential to count carefully before making this entrance. A natural tendency is to consider the pianos to have a four-measure phrase as an introduction to the xylophone melody, but this phrase is only three measures. Similar to the opening theme in measure 4, these melodies also warrant

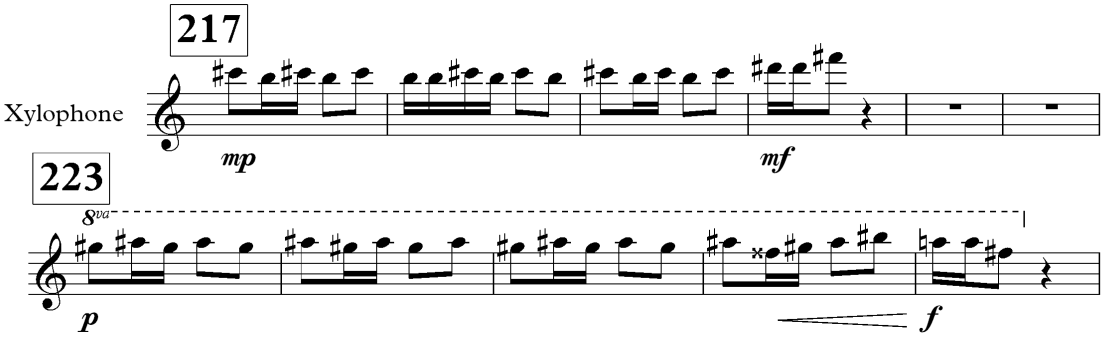
judicious phrasing. Also similar, emphasizing the leaps of perfect fourths is appropriate, as Bartók indicates with his *marcato* accents.



Example 48. Sonata for Two Pianos and Percussion, III, mm. 176–187, Suggested Phrasing

In measure 205 and beyond, Bartók's slurred *glissandi* indicate both the beginning and ending pitches, but not whether both pitches should be articulated. As this is not a *tremolo* (and following a further discussion on *glissandi* in the next chapter), the likely interpretation is to only strike the first written note, but let the destination pitch ring for the indicated duration. At this tempo, not is it only extraordinarily difficult to do otherwise (strike both the beginning and end), but placing re-articulated values at either end of a short *glissando* effectively covers the sound of the pitch bend. Thus, only the first note of these *glissandi* is articulated.

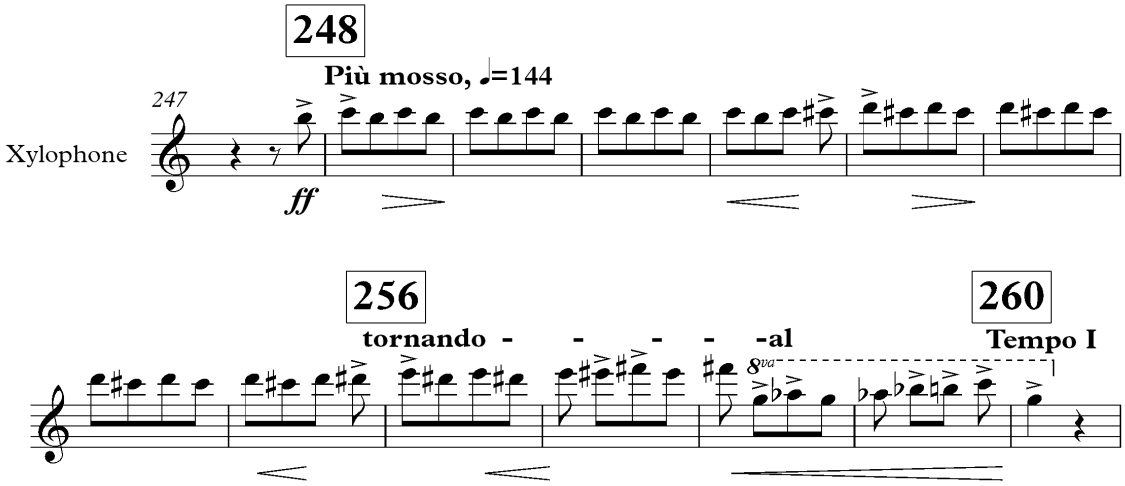
In the xylophone part, measure 220 contains another misprint. The percussion part shows B–B–D-sharp, but the score indicates D-sharp–D-sharp–F-sharp in the higher register. Additionally, measure 226 is missing a crescendo with a clear destination *f* at measure 227.



Example 49. Sonata for Two Pianos and Percussion, III, mm. 217–227, Suggested Phrasing and Corrections

Measure 247–260

In the xylophone part, Bartók writes in additional aids for phrasing, if the percussionist is receptive to the interpretation. Throughout this section, he breaks apart the beaming of consecutive eighth notes with the changes in pitches and harmonies. While not marked as obvious accents, it is possible to add an additional emphasis on these "change" notes, which then can evolve into a chromatic crescendo to the diatonic resolution at measure 260.



Example 50. Sonata for Two Pianos and Percussion, III, mm. 247–260, Suggested Phrasing

Measure 260–268

Compared to previous passages, the F→B-flat *glissandi* in the timpani are marked with both a *tremolo* and a crescendo to the destination. To properly execute this, the destination notes must then be strongly articulated as the peak of the crescendo. The most expedient way to perform this is on drum #2, which then requires the timpanist to quickly mute and re-tune back to F for the next *glissandi*. While certainly possible, an alternative approach is to perform the majority of the *glissando* on drum #1 (assuming that the pitch can reach a B-flat), with the B-flat at the end of the roll then falling on drum #2. In this case, the B-flat can be allowed to ring, which then covers the re-tune to F. This is also effective as it emphasizes the peak of the crescendo with a sustained and static pitch.

Measure 315–351

A reiteration of measures 117–127, these overlapping six-note phrases should also be elevated in dynamics. There is a slight confusion in the bass drum part, as there are three eighth notes and a blank space where the final eighth rest should be. However, consultation with the score reveals the copyist's error as it should be interpreted as two eighths and a quarter note.

Immediately following this passage, the timpanist has a very fast change from the snare drums to the timpani. Given that in the space of four eighth notes, the timpanist has to turn off the snare strainers, switch sticks, and position the feet for pedaling, another case can be made for using the butt ends of wooden mallets on the snare drums to eliminate one unnecessary action during the transition. The following chromatic progression of C-sharp–D–E-flat–E-natural should all be performed on drum #3. While all of these notes are marked as quarter notes (likely simply because they lie on the downbeat), it is perhaps more accurate to consider them as eighth notes and mute accordingly. Contrasting with the previous pedaling, the following F at measure 335 should be played on drum #4. This allows for a clear pitch difference and also indicates the downbeat while pedaling between the rolls could result in an unwanted *glissando*. Finally, the B-flat at the end of the *glissando* at measure 350 should also be articulated. This serves as a V-I anacrusis into the coda.

Measure 351–379

Though not indicated until measure 396, the percussion entrance at measure 351 may be the only opportunity to switch to the "2 very light and thin sticks." Considering that the dynamic only reaches minuscule levels after the switch is indicated, it is safe to assume that the point of using these sticks are to give the impression of fading and evaporation. Conversely, a louder dynamic such as the *piano* or *pianissimo* as indicated at measure 351 are surely achievable with these sticks. Also, with the terraced dynamics in the snare drum, different beating spots can be utilized to produce a consistent tone for each dynamic level.

While the beater for the triangle is not specified at measure 373, the presence of a "*col legno*" designation for the following notes indicate that the first note should be with the standard metal beater. The rest should be played with the wood stick, which the percussionist should already have in hand if the "very light and thin sticks" can be suitably used on the triangle.

Measure 379–end

With the anacrusis to the *a tempo*, both the percussionist and timpani should look to Piano II for the establishment of the new tempo. The timpanist should complete the *glissando* (similarly to the rest), but quickly mute to achieve the *subito piano* at the second note. Usage of slight but constant muffling throughout the next eight bars will

also help with the dynamics and consistency as well as allow the articulation of the individual eighth notes to project without sacrificing towards a much harder mallet.

Given that the snare drum *senza cordes* is providing the tempo, the following *glissandi* also need to have their beginning and destination pitches fall in time. Like the previous sections, only the initial lower note should be struck, and the drum should be muted in the rest immediately following. And while the snare drum is marked as *piú p*, one must realize that this dynamic is in relation to the previous *p* in a snare drum *con cordes*. The difference is that *senza cordes* will naturally sound softer, even if marked at the same level. So, the dynamic can be justifiably raised to a *p*; doing otherwise would likely render it inaudible.

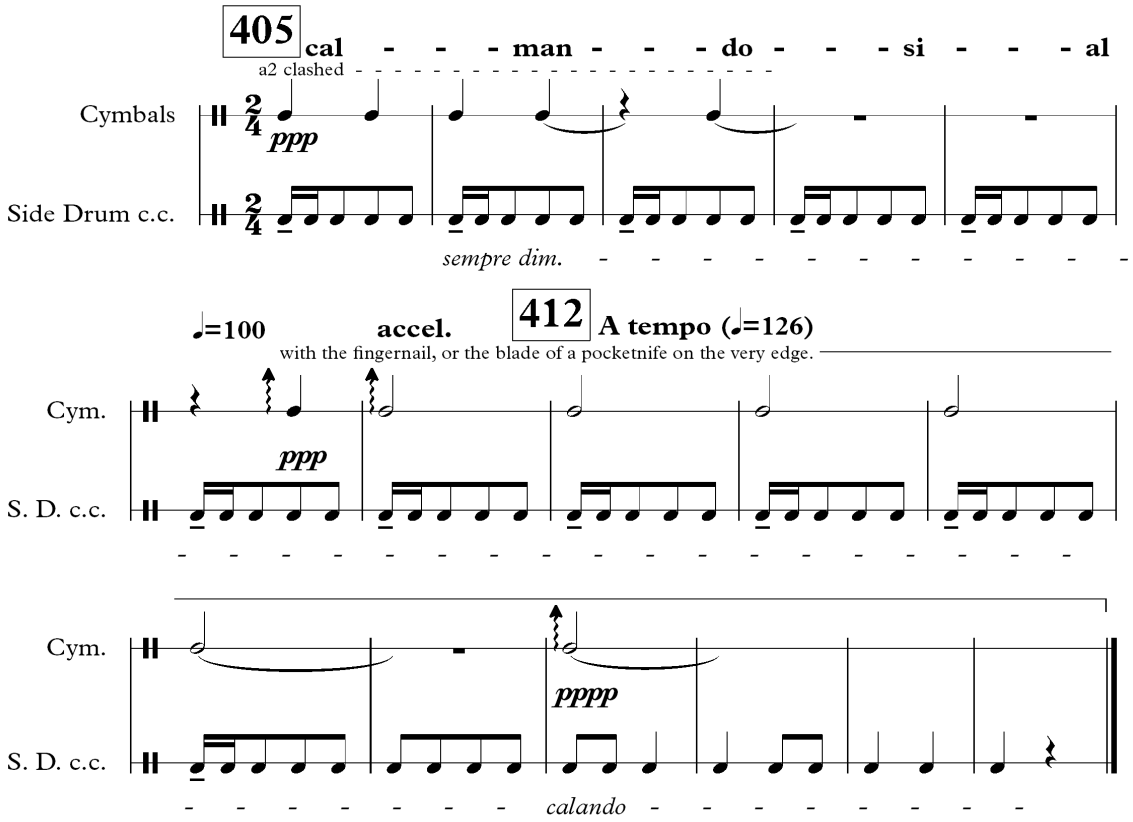
An easily overlooked designation occurs at both measures 387 and 396, in the snare drums *senza cordes* and *con cordes*, respectively. At these measures and until the end, Bartók changes the placement of his note heads from on the line to the space immediately below it. While this is not unusual, the lack of any other instruction plus its usage on a single line staff make this very easy to disregard. However, it is likely an indication to change the beating spots of both drums from the center to the very edge, as initially seen in the second movement. In this particular case, it is likely that the percussionist will already be doing so without any further urging, due to the extreme nature of the dynamics. However, it is comforting to see that Bartók accounted for this technical and timbral difference.

At measure 396, the percussionist is likely already holding the "2 very light and thin sticks." However, the instruction and dynamics can be further emphasized if a specialized drum is used for the soft playing. With our earlier examples of

interchangeable snare drums (switching *con cordes* and *senza cordes* drums for louder and more articulate sections, respectively), there is barely enough space at measure 395 to switch on the strainers and continue playing the same drum (originally *senza cordes*). If this is not quite the case, then while one hand is playing the *senza cordes* notes between measures 387 and 395, the other can slightly adjust the tension of the strainers on the snare drum *con cordes* for more responsiveness, which prepares for the final diminuendo.

From the establishment of this march-like rhythm at measure 351 and beyond, the goal of the percussionist is threefold: 1) maintain strict control over the dynamics. 2) strive for evenness and consistency of sound within this dynamic, and 3) establish and maintain the tempo. Within that, the percussionist can ever so slightly add a hint of phrase to the martial rhythm, which will in turn propel the overall tempo for the ensemble. From here, it then becomes a matter of understanding the tempo changes and being the primary mover within them. Towards that end, there is a relaxing of the tempo (quarter note = 126) over approximately eight bars until measure 409 (quarter note = 100), where it then returns to the *a tempo* two measures later (quarter note = 126). From here, with the extended *sempre diminuendo*, be careful not to overlook the *calando*. Prepare to factor in a gradual slowing such that both the final tempo and dynamics fade away.

Unfortunately, the *calando* is also marred by rhythmic misprint in the final phrase. Measure 418 should read as a quarter note and two eighth notes, instead of the printed inversion. These last few bars actually mirror the earlier rhythm at measure 365. Also note that measure 412 in the percussion score is mismarked as measure 411.



Example 51. Sonata for Two Pianos and Percussion, III, mm. 405–420, Suggested Phrasing and Corrections

Adding a final bit of mystery to the texture, Bartók asks the timpanist to move to cymbals for *ppp* crashes as part of the fading marches. However, he requests that the timpanist drop one cymbal and play the final few notes "with the fingernail, or the blade of a pocketknife on the very edge." With this, we have another case of interpreting Bartók's ideal sound, rather than the technical output. Similar to the interpretation with the snare drum sticks, the assumption is that he wants a continuation of the previously *ppp* crash but even more reduced in dynamics. Producing a small, thin, metallic sound with a clear ictus (achievable with the pocketknife, but not necessarily audible with a fingernail), an implement such as a coin or a thin triangle beater striking the cymbal on the top (near the edge, not the bell) might be more suitable than Bartók's

recommendations. This also allows for minute embellishment, such as a slight scrape on measures 410 and 411 (coinciding with the arpeggios in the pianos), and on the final note as the snare drum fades to black.

Conclusions

Bartók's *Sonata* masterfully explores the similar timbres between the pianos and percussion in a way that expands the symphonic technique but applies to the intimacy of chamber music. In a smaller, yet more percussive setting, the available timbres are more limited as acoustical relevancy becomes even more important. Internal communication and knowledge of the score is even more necessary, as the work of the conductor is spread among the ensemble. And in preparing this work, we are also able to challenge the changing limits of modern performance practice so that the performer can reconcile his concept from that presented by the composer.

Chapter 3: Music for String Instruments, Percussion and Celesta, Sz. 106

Composed in 1936 and premiered on January 21, 1937 by Paul Sacher and the Basel Chamber Orchestra, the *Music for String Instruments, Percussion and Celesta* predates both the *Concerto* and the *Sonata*, but one can hardly consider it as evolutionarily inferior. Consisting of two separate string orchestras—with the harp categorized as a "string" instrument and the piano considered either "string" or "percussion"—Bartók experiments with antiphonal placements as well as unusual instrumental combinations while also exploring serialism in a manner that preserves his trademark "auditory appropriateness." An especial side effect of this work is the further development of the relationship between the piano and percussion, which has already been mentioned in this document.

Compared to the other works, *Music for Strings* appears to be of a hybrid instrumentation—larger than a chamber work but smaller than a full ensemble. The numerical size and numbers of individual parts can rival that of a standard symphony orchestra, but the unique orchestration thrust the timpani and percussion into a more salient role. Lacking the winds and brass as complementary timbres, the timpani and percussion are similarly "limited" as contrasting voices to the string groups. As such, there are fewer needs to consider blending textures in supporting roles, and more opportunities exist to seize the moment as separate but equal members of this large-scale chamber work.

While *Music for Strings* is not performed with the frequency of the other two, it still holds significance for the timpani and percussion due to the exploration of technical possibilities, especially within a large-scale medium.

Logistical Considerations

Compared to the other pieces examined by this document, the *Music for Strings* is primarily published in Europe and the languages and instructions in the score reflect this. This highlights the needs for multilingual familiarity with common percussion terminology.

Foreign Terms	**English (US)**
Tamburo piccolo senza corda	Snare drum without snares
Tamburo piccolo con corda	Snare drum with snares
Piatti*	Cymbals
Tam-tam	Tam-tam
Gran cassa	Bass Drum
Timpani (Maschinenpauke / timbales mecaniques)	Timpani (mechanical, with pedals)
Xilofono	Xylophone
(*) 2 normale, 2 kleinere (mit höherem Klang) (*) 2 normaux, 2 plus petits (avec son plus clair)	(*) 2 normal, 2 smaller with clearer sound

Figure 9. Music for Strings, Translations of Foreign Instruments

German	French	English (US)
am Rand des Felles	au bord de la peau	at the edge of the head
von hier an in der Mille des Felles	d'ici au milieu de la peau	from here in the middle of the head
kleineres instrument mit höherem klang (Ton.)	instrument plus petit avec son plus clair	smaller, with a higher tone

Figure 10. Music for Strings, Translations of Additional Instructions

The *tamburo piccolo*, compared to *caisse claire*, *kleinetrommel*, and other terms essentially mean the same thing: a small drum. This (and the previous usage of "side drum") has colloquially come to mean a snare drum between the sizes of 4.5" and 6.5" depths, usually with strainers (indicated via *senza corda* and *con corda*). The use of "*piccolo*" is merely in reference to the "*gran cassa*", which indicates Bass Drum; it is not necessarily an indication to use a modern piccolo snare drum, with depths between 2.5" and 4". Like the *Sonata* (or perhaps more accurately, vice versa), Bartók also explores the differences in beating spots on the snare drum.

While some might consider tuning the snare drum without snares differently, it is obviously most expedient to utilize only a single snare drum for this piece. This would then require the drum to be tuned higher, moving the concept more towards a snare drum than tom-tom. This is reinforced by the similar treatment of with-and-without-snares sounds in the second movement, and also by the further usage as a rhythmic reinforcement of the piano and xylophone. The latter usage would be more appropriate with a higher-pitched instrument, and would also project more effectively than a tenor drum or similarly tuned drum.

The specifications for *piatti* (and the usage of the singular *piatto*) are also slightly unusual; it is rare for composers of this era to specify cymbal sizes. Nonetheless, it is

clear that Bartók asks for at least two different sizes of hand-held (*piatti a2*) crash cymbals.

Lastly, it is notable here that Bartók denotes the usage of mechanical (pedal) timpani capable of performing *glissandi*. The lack of such instructions on the *Sonata* might indicate a general acceptance of such instruments by the time of American publication in 1942.

A suggested part assignment has been included below; in another editor's omission, the score contains an indication of *Ein Spieler* or *un exécutant* that corresponds to the Percussion 2 part division, indicating that one player can play all of these parts. However, such designations are of course omitted from the actual part.

	Timpani	**Percussion 1**	**Percussion 2**	**Percussion 3**
I. Andante Tranquillo	Timpani		Piatti	Bass Drum
II. Allegro	Timpani	Xylophone	Snare Drum(s)	Bass Drum
III. Adagio	Timpani	Xylophone	Tam-tam, Piatto, Snare Drum	Bass Drum
IV. Allegro Molto	Timpani	Xylophone	Snare Drum, Piatti a2	

Figure 11. Music for Strings, Suggested Part Assignments

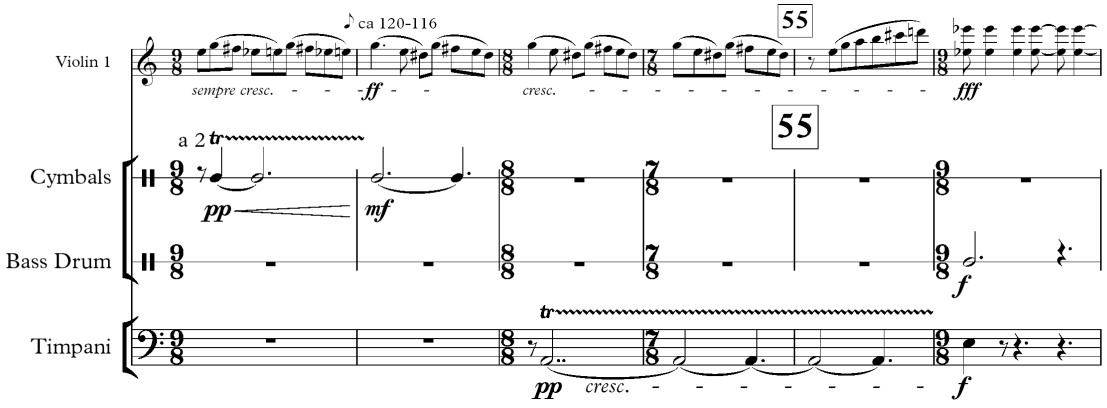
MOVEMENT I. ANDANTE TRANQUILLO

This first movement contains Bartók's longest, most intense fugue in his orchestral portfolio. While compositionally fascinating, with the unyielding relational progressions through his characteristic arch form, the usage of percussion appears to be

minimal. However, it is the lack of percussion that then highlights the unusual orchestration within this piece, where longer and flowing lines emanating from the separate string orchestras immediately emote feelings of grief and solemn isolation. The fugue itself grows slowly, but invariably with increasing power as the addition of the percussion powers the climb to the peak of the arch, where the fugue subject is then inverted upon descent.

Measure 51–57

As seen with in the below example, Bartók writes for the odd and somewhat unique combination of paired cymbals and a *tremolo* in a fashion that is perhaps more suitable for a suspended cymbal roll. In this, we have to question the exact nature of Bartók's request, and more importantly, what was his intent?



Example 52. Music for Strings, I, mm. 51–57

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The oddly-named crash cymbal roll is usually marked with the term "*frotté*", meaning "rubbed." In this case, the edges would be rubbed together in either a circular motion, with the cymbals constantly maintaining contact on at least one edge. The other technique for *a due* rolls would be performed similarly to a single-stroke roll on a drum, where quickly repeated strokes hope to emulate a sustained splash. However, the problem with these techniques is that they both present a clear ictus upon initiation of the roll. While this is perhaps desirable in *The Miraculous Mandarin* and Kodaly's *Hary Janos Suite*, it is clear that this is the opposite of Bartók's intention. Bartók instead writes for a *pianissimo* entrance that then proceeds through a crescendo to *mezzo forte*.

Given that the desired sound consists of a repeated metal-on-metal vibrations wrapped within a crescendo, the best option then is to alter the expectation of the sound. While the other techniques involving a due cymbal rolls either produce uneven oscillations or highly audible individual strokes, the desired sound can instead be a continual buzz that is similar to white noise. This then resembles the sound produced by a sizzle cymbal, which has metal rivets drilled and attached within so that any vibration causes the rivets to also rattle against the cymbal. While a suspended sizzle cymbal could indeed be used and can cleanly produce the requisite *pianissimo* entrance, it is then lacking of the clean release and sustain (*sans* sizzle) of the written *tremolo* at measure 52. Fortunately, this effect can still be created with the one percussionist lightly holding a pair of cymbals together, and another then executing the roll with a pair of soft mallets. The holding percussionist can then control the amount of sizzle achieved by varying the pressure with which they are held together, and then also play a clean cymbal crash at measure 52, having eliminated the sizzle of cymbals touching.

A common interpretation at this moment (leading into measure 52) is to extend the anacrusis into the downbeat. Because of this and also due to the need for a moment of preparation for a cymbal crash, it is a good idea to stop the *tremolo* before the actual downbeat. While the cymbals themselves will still be ringing throughout (and thus sustaining the sound), not tying the roll directly into the crashed release also allows the holding percussionist to accurately place the release at the peak of the crescendo, coinciding with the strings. The strings also peak at *ff*; however, with the *mf* cymbal crash Bartók is ensuring that the percussion do not overpower the rest of the orchestra. Instead, a comfortably *mf–f* crash on a pair of 18" cymbals will produce enough sound yet will not conflict too strongly with the strings.

In a similar fashion, the timpani immediately echoes the crash cymbal roll and release. The major difference is the *tremolo* itself is three measures, instead of the cymbals' one. With the longer roll, the timpani then has more time to traverse the dynamic shift from *pianissimo* to *forte* (which is also underneath the *fff* in the *tutti* strings). Like the previous iterations of extended crescendi, it would be effective to adopt the logarithmic crescendo here and save the majority of the increase for the last measure. In another echo to a previous few bars, the tempo is also likely to be elongated into the resolution at measure 56. Thus, it would be beneficial for the timpanist to also put a hint of a space in between the peaking crescendo on A, and the variably-placed release on E. The slight separation also emphasizes the E as a strong downbeat (and the A should not be allowed to ring through the resolution). The space also makes it easier for the other percussionist to time his bass drum impact with the timpanist's release.

MOVEMENT II. ALLEGRO

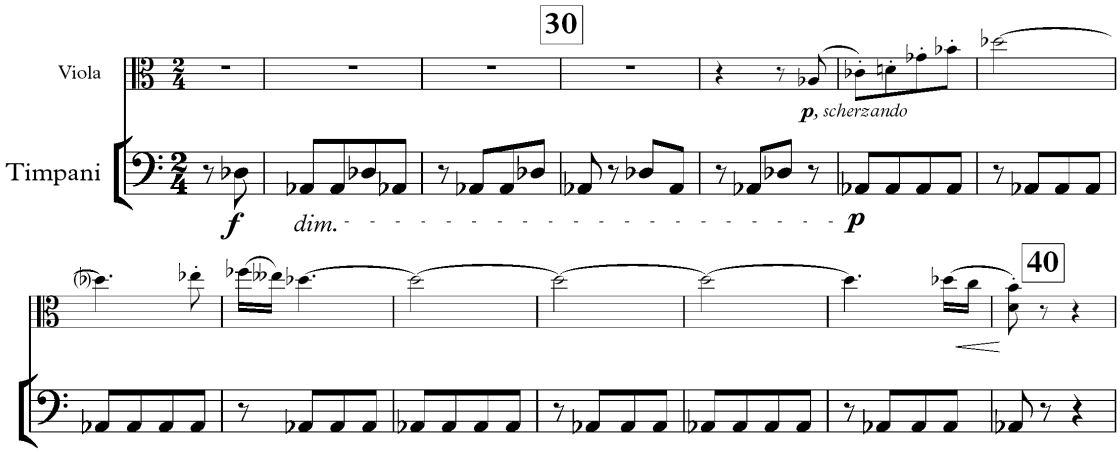
In a diversion from conventional structures, the second movement consists of the traditional sonata-allegro form but in an expanded format where the recapitulation continues the development of exposition. Contrasting to the somber and grief-filled emotion of the first movement, this *Allegro* is immediately full of life with a brilliant forward motion.

Measure 7–20

From the very first string notes, Bartók sets the tone and mood that can accurately describe this *Allegro*. With his namesake *pizzicato* punctuated by piano strikes and followed by *arco* staccato and sharp articulations in the other orchestra, Bartók makes it clear that the driving rhythms and syncopations are essential to the character of the movement. With the durations of all the notes shortened via articulation, the tonal contrasts of the timpani against the strings are also heightened. It is then very important to mute aggressively and minimize acoustical resonance of the drums, especially in comparison to the rhythms in the other instruments. Also aiding the articulation, hard mallets are recommended throughout the movement. These mallets will generally accentuate the dynamics, but Bartók generally accounts for this by reducing the dynamics amongst the timpani and percussion.

Measure 27–40

Following the characteristics outlined above, the articulation of this section is absolutely necessary. In line with this concept, even harder mallets can be utilized for the cleanliness of pitch and rhythm. While muting all of the rests, it would be beneficial for the timpanist to over-exaggerate the diminuendo into measure 32, but also respecting the initial *f*. From measure 32 to measure 40, the timpani should be clearly in the background and underneath the incoming viola lines.



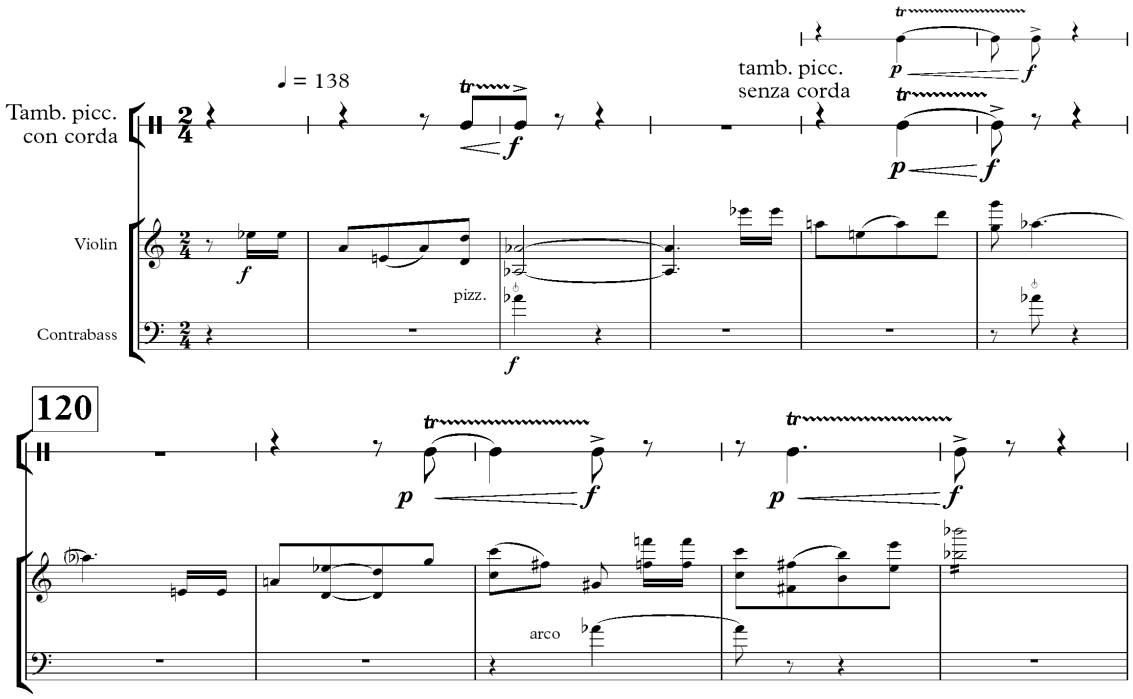
Example 53. Music for Strings, II, mm. 27–41

Measure 115–124

In the following crescendi snare drum rolls (one with snares on, the others with snares off), Bartók does not clearly indicate the articulation of the release of these rolls. Should they be a part of the *tremolo*, or are they separated? Given that they are at the

peak of these crescendi, it is safe to assume that the releases should be articulated, and articulated strongly. With this also being a strong timbral shift by introducing unpitched percussion, the releases can even be accented to give a hint of more life to the crescendo.

In the first roll without snares at measure 118, Bartók ends the roll on the downbeat of measure 119. However, looking at the surrounding rolls and orchestration show that the other releases are coinciding with the namesake "Bartók *pizzicato*" (where the string slaps against the fingerboard) in the basses, and also the culmination of the string phrases on longer notes. In comparison, the phrases ending in measure 119 is elongated by one eighth note, and so the release of the roll is immediately followed by the Bartók *pizzicato* and sustained notes. And so, might it be appropriate to elongate the roll at measure 119 to end half of a beat later?

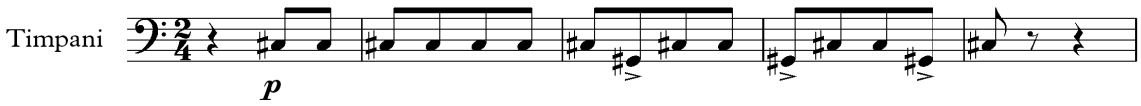


Example 54. Music for Strings, II, mm. 114–124, Optional Correction

Even though the possibility exists, it is neither standard practice nor recommended to do so in the first rehearsal without directorial consultation. However, it is a consideration that can certainly be raised as an academic discussion point.

Measure 163–165

Even though this is marked *p*, differentiate the G-sharp from the repeated C-sharp with a slight accent or staccato. This coincides with notes in the piano as well as grace notes in the lower strings.



Example 55. Music for Strings, II, mm. 163–167, Suggested Phrasing

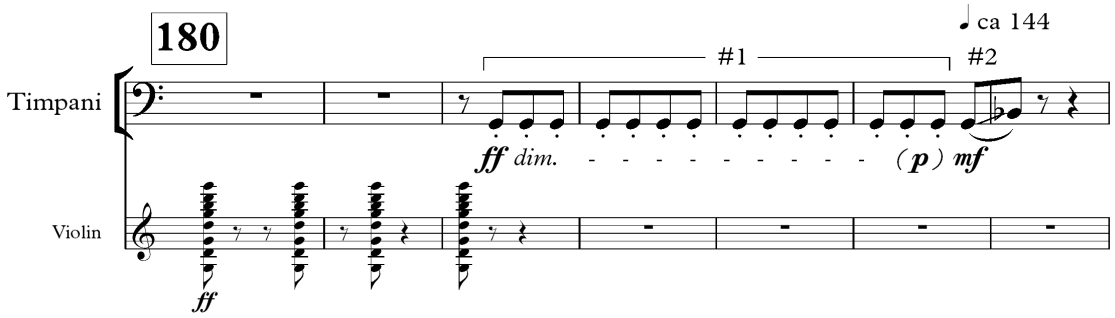
Measure 180–186

Following two measures of *tutti* syncopation in both string orchestras—a cue that the timpanist should be familiar with—the timpani entrance and solo over the next few bars can be interpreted in a few different ways. First of all, it is important to note the commonalities: the ending *glissando* is at a *mezzo forte*, the B-flat endpoint of this *glissando* is not articulated, and the *glissando* itself should be at a new tempo (but the tempo is similar enough that the change is almost imperceptible or the conductor effects the change immediately after). Given the G to B-flat range of the *glissando*, it is likely

that this will be performed on drum #2. However, the initial *ff* entrance at measure 182 combined with a drum tuned near the bottom of its acceptable range will generally result in a tone that is comprised of conflicting pitch (lesser) and impact (greater) sounds. This can be alleviated by instead playing the repeated G on drum #1, where the pitch and sound quality will be improved, and then the *glissando* can be performed on drum #2.

The diminuendo is seemingly extended from the initial *ff* entrance to the *mf glissando*. While this is obviously common practice, an additional change might be to instead exaggerate the diminuendo to *p* or less, and treat the *glissando* as a *subito mezzo forte*. This helps bring the *glissando* itself to the foreground, and also aids in emphasizing a restatement of the main theme in the strings.

Also, these notes should be well articulated with a strong staccato stroke until the *glissando*. As the diminuendo progresses, the stroke also progressively relaxes and lightens.



Example 56. Music for Strings, II, mm. 180–186, Suggested Phrasing

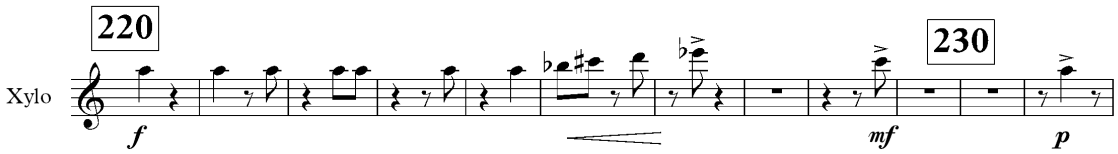
Measure 199–231

The initial theme makes a brief appearance and canonizes in what becomes a *tutti pizzicato* section. This then transforms into a descending five-note *ostinato* throughout

much of the strings. Counter to this runs the harp, which initiates its own ascending five-note pattern but out of sync with the earlier string *pizzicati*. On top of this, the remaining strings and piano create a melody of syncopation and Bartók-ian *pizzicati*. At measure 199, the snare drum without snares and bass drum then join this melody, both punctuating the beginning of each phrase.

For the first two phrases (from measure 199 to measure 209), Bartók asks for the snare drum (*senza corda*) to be played at the edge of the head, or "*au bord de la peau*." Combined with the diminished dynamic of *p* while the rest of the accompanied orchestra is at *mf* or *f*, he is strictly controlling the balance of each component. In the percussionist's case, it would be judicious to play the snare drum louder than normal, as playing at the edge will not only change the timbre but also naturally induce a lesser dynamic. Thus, it should actually be played more than one would normally play a *p* dynamic.

This is changed at measure 210, where the designation is now "*d'ici au milieu de la peau*," or "from here, in the middle of the skin." Again, Bartók raises the entire orchestra's dynamics, with the percussion held judiciously beneath the others. The dynamics then receive another incremental bump at measure 220. The snare drum is changed once again to *con corda*, and the xylophone is added. In the xylophone part, the phrase is moving towards the highest note, which is also accented in the piano and strings. Accordingly, a crescendo and accent can then be added to the xylophone, peaking at measure 226. From there, it should diminuendo with decreasing dynamics in each note, though this is not marked in either the part or score.



Example 57. Music for Strings, II, mm. 220–231, Suggested Phrasing

Measure 301–338

In this piece, this excerpt is probably the most famous among timpanists and commonly asked in orchestral auditions. Because of its status as such, the timpanist should prepare a few different ways to perform this excerpt: one way strictly for auditions that focuses upon a literal reading of the score, with metronomic accuracy and pristine execution; one way that builds upon the clean execution in a way that then adds to the contextual musicality.

To reiterate earlier points, the reasoning behind the literal interpretation for audition practice is that adjudicating members of the panel are not often familiar with timpani parts or their context within the overall score. As such, they are likely familiar with their particular instrument's role in the score at the moment in question, but beyond that are simply reading off of the part as well. Because of this, additional nuances can often be misconstrued as inaccuracies and inconsistency instead of a value-adding contribution. Unfortunately, this then forces audition candidates to disregard moments of musical decision-making, and instead focus on execution and generally accepted or "safe" choices.

Towards that end, the first decision is similar to that found in measure 182 to measure 185. While the articulated rhythms are in octave F's, there is a question of

physical dexterity involved if the notes were placed in their "optimum" position of drums #1 and #3. This placement will work for the entire excerpt, but then provides moments of potential discomfort that interferes with the rhythms between measures 332 and 336, where fast sixteenth notes between the F's would then require traversing the unused drum #2. The movements back and forth over the unused drum can interfere with the rhythm and time-keeping, which is unlikely to be noticed in a performance but is just as likely to be grounds for dismissal in an audition. To alleviate this, one answer is to utilize the unused drum #2 and tune it the same low F as drum #1. Then during the sixteenth notes between measure 332 and measure 336, use drum #2 in conjunction with drum #3. Doing so reduces the distance traveled by an order of magnitude and creates the "safe" option for maintaining the rhythmic accuracy, even if it does so at the cost of reduced sound quality by tuning drum #2 to a note at the bottom of its working register. Given that the dynamic of the excerpt stays within *p*, it may be advantageous to eliminate the usage of drum #1 entirely and only utilize drum #2 for the low F. If drum #2 has a diameter of 29", this is certainly a "safe" option. If drum #2 has a diameter of 28", it is up to the performer's judgment as to the suitability of the F at that register, as the extremely loose tension of the head at that register will be unlikely to provide an optimum sound.

With the F representing a low note on either drums #1 and #2, clean articulation of rhythms is certainly a problem. Especially with repeated notes, there is a common tendency for the sound of one F to blend in with the next; the end result is that the overall effect approaches the sound of a roll rather than articulated sixteenth notes. Addressing this, the first step is to use extraordinarily hard mallets to enhance the articulation of

individual notes. Second, using a cloth or felt to lightly mute the low F will also increase its articulation and reduce the excessive sustain. This will unfortunately slightly change the timbre as well, and will then be noticeable when played in conjunction with the higher F on drum #3. So, it would be beneficial to lightly mute drum #3 as well to strive for a consistency of tone amongst all of the drums. In both cases, the muting should not completely kill the sound; it should only diminish the overall resonance and focus the sound upon the fundamental overtone.

The F on drum #3 can also cause subtle inconsistencies, especially in combination with the lower F. As it is in the higher (or highest) register for drum #3, the upper F will likely project with more clarity and volume than the lower F, which is at the lower register if its drum. Because of this, the lowest F should be played louder than anticipated to balance the audible volumes with drum #3.

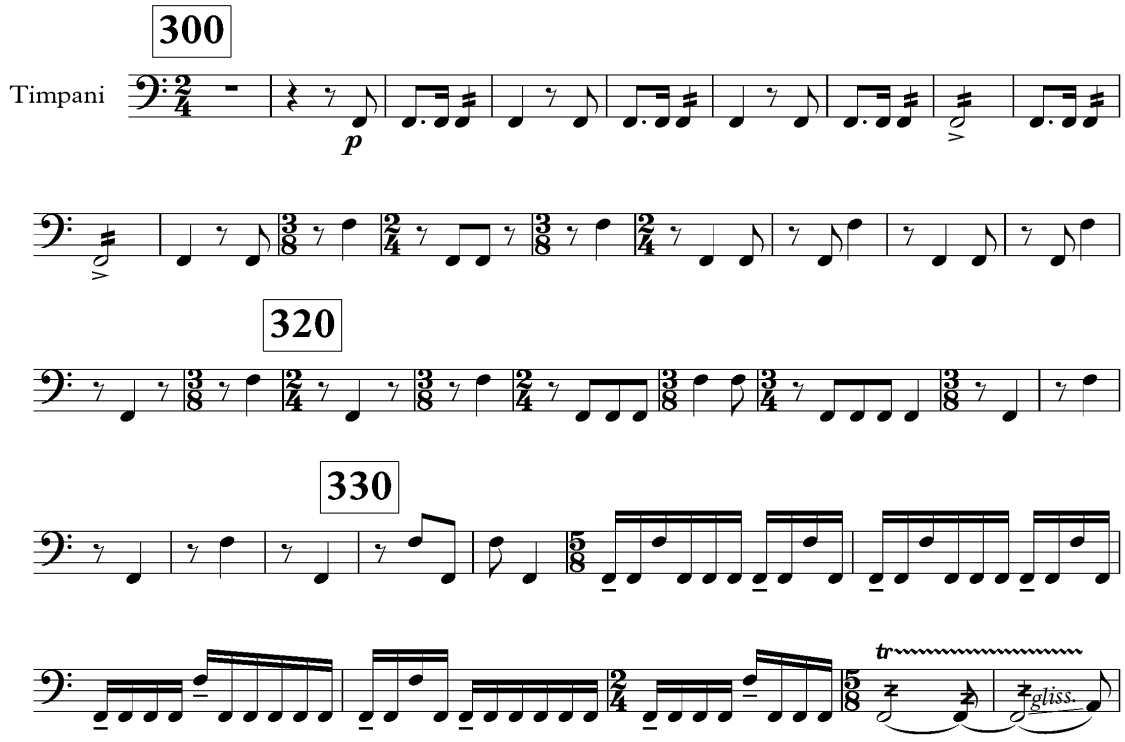
The final *tremolo* at measure 337 also presents an issue that needs resolution; the timpanist must somehow differentiate the roll from the articulated sixteenth notes that he has worked hard to achieve. At this point, the usage of a physical mute becomes problematic as the ringing sustain is now desirable for these last two measures. Without the mute, the timpanist can alter his stroke speed and touch to de-emphasize the articulation of individual strokes and attempt to simply continue the vibration of the head. With the mute, this technique would sound like sloppy strokes that are out of any known rhythm. But given the low dynamic, the timpanist can shift from a traditional single-stroke roll and instead shift to a multiple-bounce roll similar to those used on a snare drum. The concept is similar; with a tighter playing surface (made so by existence of the mute adding downward pressure on the head) and notes with short sound

envelopes, sustain is not created by the resonance of the drum but rather by the increased density of notes within the same period of time. This is not sustainable at high volumes (where the density is provided by single strokes), but at low volumes, multiple bounce strokes will create the necessary effect.

As always, defining the rate of processing the *glissando* is an unanswered question. Given the choices of making the change gradually (linearly) or to delaying until the last few moments, a linear interpretation is more appropriate in that the interval traversed is relatively small. As such, an "elongated" or gradual change makes this *glissando* more noticeable and apparent. In addition, the placement of the destination A directly on the last eighth note (beat 5 in a 5/8 measure) is important; this is used with the celli and basses as an anacrusis into the next phrase. This A is also tied into the previous *tremoli*, so while it should be audible, it should not be strongly articulated.

Given that this is a change of character from the original countenance of driving and heavy, the timpanist can also consider altering the sound concept to be lighter and fast-moving while still maintaining the front edge of the driving tempo. While changing the mallets and utilizing more of an upward motion within the stroke will help achieve this, the sound can also be altered by moving the beating spot closer to the rim. This will produce a sound with less depth and resonance, but with a thinner quality that focuses the pitch and articulation. Moving slightly towards the edge will also help with density of the multiple-bounce roll (if implemented) in that the head will be slightly tighter, thus making it easier to produce more bounces per stroke.

Lastly but critically important to audition panels, the rhythm of the entire excerpt needs to be impeccable. Due to the constant meter changes, extensive work with a metronome and maintaining the eighth-note subdivisions throughout is necessary.



Example 58. Music for Strings, II, mm. 300–339, Suggested Phrasing

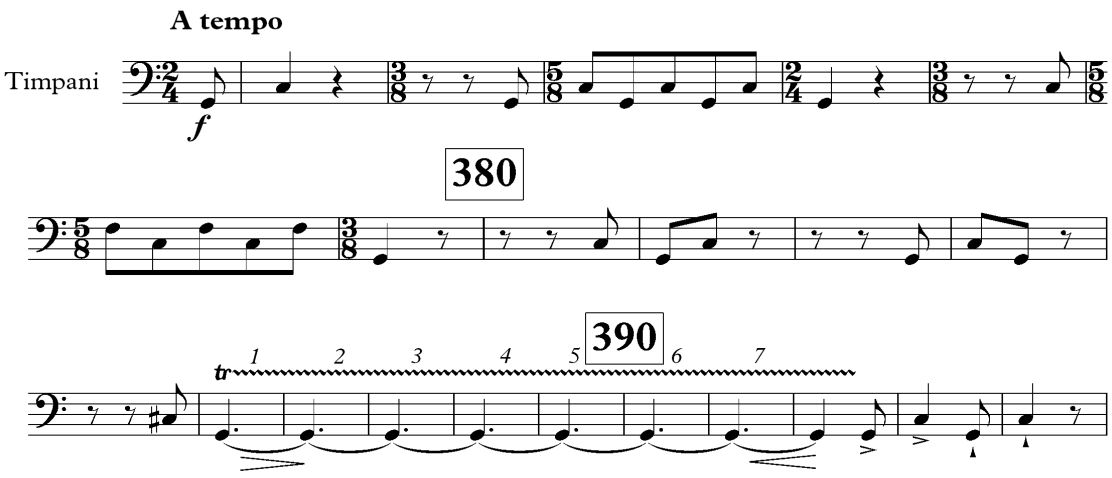
With regards to adding to the overall musicality of a live performance, there are several moments where the timpanists can add some personal color to a performance. Between measure 301 and measure 309, Bartók clearly writes two-bar phrases. This can be further emphasized by phrasing towards and adding accents on beat 1 of measure 307 and measure 309, which will then differentiate the downbeats and add shape to repeated sixteenth notes. Unfortunately, the disjointed nature of the syncopation within the mixed meters between measure 310 and measure 331 make it difficult to phrase strong and weak beats; in fact, additional phrasing would distract from the metric changes. However,

Bartók indicates note-groupings in the following 5/8 bars between measure 332 and measure 336. These groupings can also be phrased with slight accents delineating the 2+3 or 3+2 meters. Finally, a crescendo can be added to emphasize the ending *glissando* and the upcoming anacrusis; this crescendo also exists in the upper strings, though with a melodic passage.

Measure 372–394

Following a heavy 3:2 syncopation, the orchestra returns to a recapitulation of the initial theme. As such, the tenor of the timpani interpretation is similar: firm, projecting, but with short and heavy notes. For the most part, this character continues for the rest of the movement.

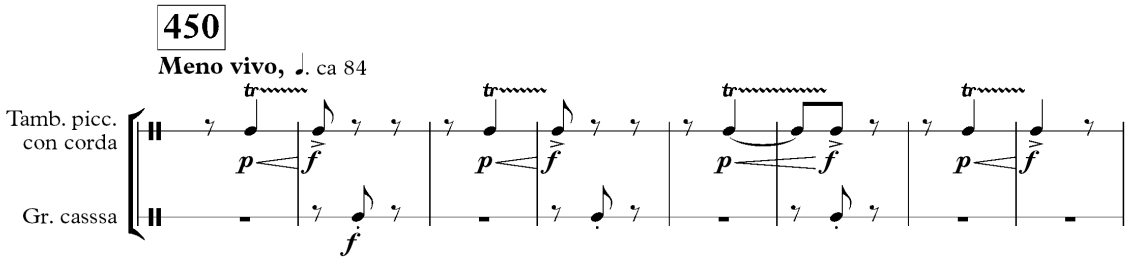
The only deviation lies in the treatment of the *tremolo* at measure 385. In this case, the roll should begin as a firm *forte*, but then should recede into the background. It can then come back to the forefront around measure 391, but note that the release in measure 392 is not tied to the previous roll. It should instead be separately articulated as the initiator of the phrase that encapsulates the entire movement.



Example 59. Music for Strings, II, mm. 372–394, Suggested Phrasing

Measure 450–457

Similar to the first movement, these rolls in the snare drum should peak with a cleanly articulated release. While the timpanist often inserts a tiny space to re-articulate the end of a roll, this is rarely done on the snare drum (and then, mostly in technical etudes). As such, the release is unbroken from the initial entrance but instead accented in a way that clearly differentiates it. The following bass drum notes are also short and should be quickly muted; they lack the "let ring" indications seen in previous passages. Given the desired articulation, a staccato or hard felt beater would be appropriate on the bass drum.



Example 60. Music for Strings, II, mm. 450–457, Suggested Phrasing

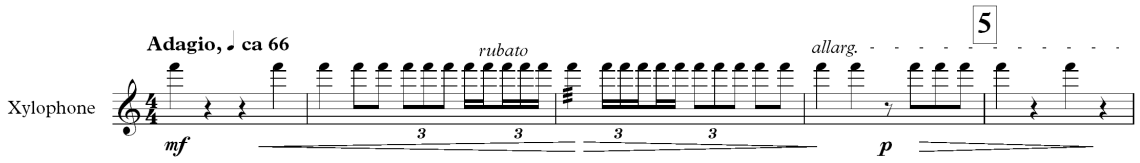
Recalling that altering the rhythm was discussed at measure 119, measure 455 looks like another likely candidate for correction. Shifting the release of the roll in the snare drum to the downbeat would then maintain the rhythmic relationship with the bass drum seen in the previous two iterations. However, there is no evidence found in the other instruments' phrasing that would support this change beyond the aforementioned rhythmic consistency. As such, it is difficult to recommend as performance practice.

MOVEMENT III. ADAGIO

Bartók's third movement of *Music for Strings* again shows his penchant for nocturnal sounds as the formal structure resolves into a variation of the arch form where the central part is framed by pairs. In a curious combination, he immediately sets the austerity of the xylophone against the fluidity of timpani *glissandi*, which also establishes and frames the palindrome-like structure of this movement.

Measure 1–5

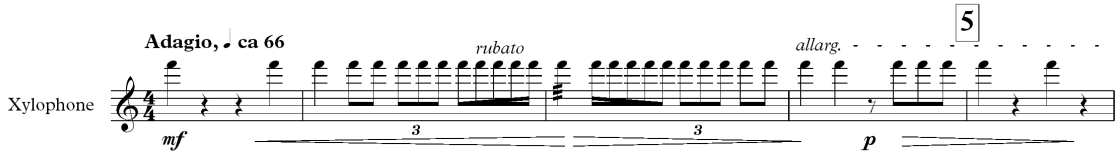
To begin the movement, the xylophone's solitary chirp emerges from silence and proceeds with a metric *accelerando* and *ritardando,* rhythmically following the first six digits of the Fibonacci series (1, 1, 2, 3, 5, 8). Moving between the rapidly shifting subdivisions while maintaining both composure and the overall tempo can hardly be considered simple, and is a large part of the reason why these five measures are also commonly requested on orchestral auditions. In this excerpt, the audition panel is mostly listening for the consistency of tempo and accuracy of the indicated subdivisions—both of which are also complicated by indications for *rubato* and *allargando*. Nevertheless, there are still places where the written directives can be questioned and spun to produce a result that is surprising to the listener.



Example 61. Music for Strings, III, mm. 1–5

In performing this excerpt, the establishment of the tempo occurs between beat 4 of measure 1 and beat 1 of measure 2. Once this is set, the tempo has been established for the entire excerpt and must be followed to the end. In order to maintain this consistency, the eighth notes must then be internally subdivided, even amidst conflicting polyrhythms. With this in mind, practice this excerpt with a consistent eighth note on the metronome until this becomes internalized.

Absent a conductor, the request for *rubato* and *allargando*—both of which indicate changes in tempo and in the case of *rubato*, extemporaneous changes—seem contrary to the concept of consistent timekeeping. The *rubato* is seemingly only applicable to the contents of one beat's notes—the final metric modulation of the *accelerando*. For reasons only known to Bartók, the *rubato* is missing from the corresponding measures of the *ritardando*. With this obvious inconsistency added to the insistence in metronomic performance, how does one perform such a *rubato* over a space of a mere five notes? The unfortunate answer is: unless specifically asked for, one does not. It is better (and "safer") to ignore the *rubato* in an audition situation as there does not exist a viable way to effect a *rubato* while maintaining and portraying consistent internal subdivisions. However, this answer can change in a performance situation. If requested by the conductor, the *rubato* can then be interpreted to elide the beats into a true unmetered *accelerando* over the five notes.

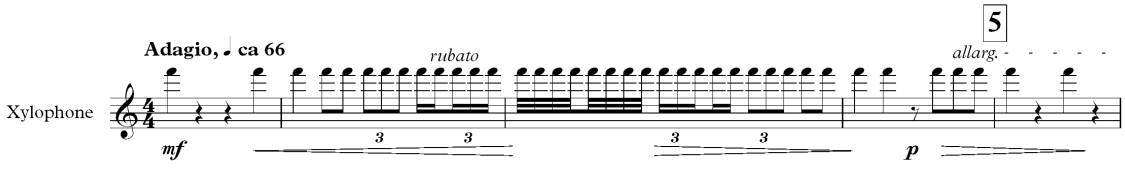


Example 62. Music for Strings, III, mm. 1–5, Notated *rubato*

The placement of the *allargando* also causes confusion in auditions. If it were to begin at the beginning of measure 4 as indicated, the initial tempo change would occur during quarter notes are being played. Considering that the panel is likely listening closely for accuracy and consistency of tempo, having a written change at that obvious moment of clarity would be problematic for the audition candidate as it then raises ambiguity regarding the original consistency versus reacting to the written direction.

And for the panel, any ambiguity is usually accompanied by negative reactions. For auditions (and bereft a conductor dictating the tempo changes), one suggestion is to move the *allargando* to the third note. This then allows enough time and notes to demonstrate a consistent subdivision of eighth notes. From the second half of measure 4, the *allargando* can then be applied to end the phrase.

The first note in measure 3 also presents ambiguity to the performer. Under standard percussive notation, the presence of three hashes on a quarter note indicates an unmetered *tremolo* with an indeterminate number of notes, which equates to a single-stroke roll on the xylophone. While this is an effective interpretation as it presents a clear and sustained peak to the *accelerando*, there are also a few factors that work against it. First, Bartók consistently uses a visual *tremolo* line in the timpani and snare drums to indicate the *tremolo*. Second, similar indications in the strings are marked by the presence of four hashes upon the stem, instead of three. And third, the three hashes can also indicate thirty-second notes in abbreviated notations. Given the slow tempo where thirty-second notes can be cleanly metered and subdivided (quarter-note = ca. 66), this seems to be the likely choice.

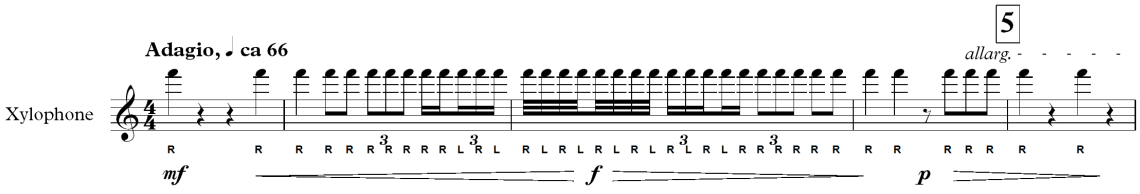


Example 63. Music for Strings, III, mm. 1–5, Thirty-second Notes

The usage of graphic crescendo and diminuendo notations instead of textual also presents ambiguity. With the initial perusing, it appears that the peak of the crescendo is

at the downbeat of measure 3, with the diminuendo commencing on beat 2. This interpretation works well with both *tremolo* and abbreviated thirty-second note interpretations. However, an additional alternative is to extend the dynamic changes within the thirty-second notes, and shrink the peak accordingly. This implementation then places the peak directly on the fifth thirty-second note, which also lands on the second eighth note in the measure. This interpretation obviously requires more control and an introspective mapping of the thirty-second notes, but can be considered as a more detailed interpretation of both the triple-hashed quarter note and the dynamic changes.

The dynamic markings are also lacking specificity, especially with regards to the upper boundaries on the peak and the lower boundaries at the trough. Considering that this is an exposed solo, the upper limits at measure 3 need to be no greater than a single *forte*. Accordingly, the lower limits obviously have to be lesser than the single *piano* at measure 4. However, as long as the notes are gradually less than at measure 4, this is more than acceptable. Overall, it is best to not let the dynamics (*a niente*) become a large factor in the performance of this excerpt as long as the intentions of a gradual crescendo and diminuendo are met.



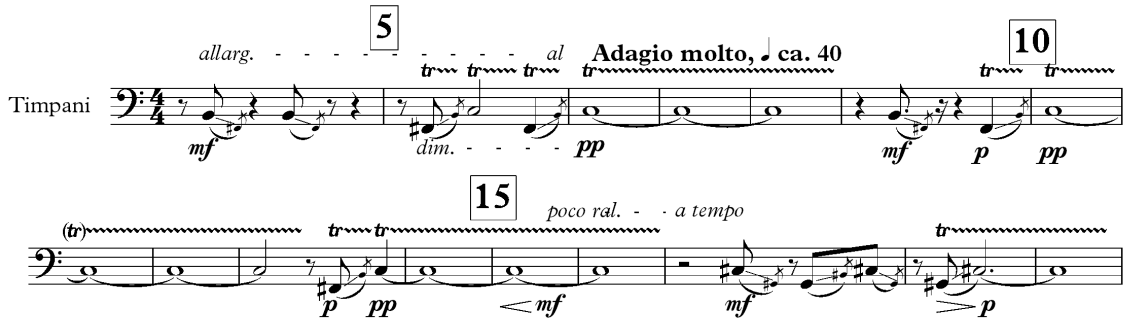
Example 64. Music for Strings, III, mm. 1–5, Suggested Phrasing.

While the metric modulation is the primary concern, overall consistency of sound is also obviously desired. Using no softer than a polymer mallet (such as a Malletech

BB34 Bob Becker), care should be taken to eliminate any unwanted accents from the progressing line. Towards that end, it is recommended that alternating sticking be avoided as much as possible. With the slower tempo, use only the dominant hand until the *rubato* figure and from its mirrored equivalent. This then restricts the alternating sticking (and inherent possibility for uneven strokes) to the area surrounding the peak of the crescendo and *accelerando*. For a change of pace, consider using a much smaller mallet than normally recommended. This will decrease the volume, but also increase the articulation and produce a brittle sound that aids in creating the illusion of distance.

Measure 4–20

Overlapping the xylophone excerpt, the timpani comes in with a series of *glissandi* that mandate the usage of mechanical or pedal-tuned drums and are similarly found on audition lists. Though there are different interpretations of the *glissandi*, the first absolute is that the character of this movement contrasts greatly from the second movement. While not quite the *nachtmusik* character found in the first movement, the implementation is similar. With a series of individual *glissandi* and elided rolls, the sound should be delicate and sustained, striving to eliminate individual articulations and strokes. Towards that end, consider using a softer mallet (cartwheel type). The majority of these rolls are also at *pianissimo*, so the mallets can be tilted "on the toe" to maximize the amount of felt that contacts the head. In addition, the beating spot of the *pp* rolls can also drift closer to the rim to differentiate from the louder but gently-articulated notes initiating the *glissando* (recalling that the end of each *glissando* is not articulated).



Example 65. Music for Strings, III, mm. 4–29

With regards to *glissandi* indications, Bartók clearly indicates the beginning and destination pitches as well as the overall duration of the *glissando* and/or *tremolo*. In most of these cases, the duration is indicated by the note value of the initiating note; for example, the first *glissandi* in measure 5 takes place throughout the duration of a single eighth note and the F-sharp is reached immediately before beat 2, with a linearly-measured rate of change across the perfect fourth interval.

In many cases, these *glissandi* are immediately followed by another *tremolo*, or at measure 27, immediately followed by a descending *glissando*. There are a few important things to note with regards to his notational tendencies. Compared to measure 31, these successive *glissandi* and *tremoli* are not tied together via slurs or underneath connected *tremolo* lines. Second, the destination pitch is usually specified, which does not correspond with the immediately following note. Through these two indications, we can then extrapolate that Bartók expects the following notes to be cleanly re-articulated, and in fact significantly different from the preceding *glissando*.

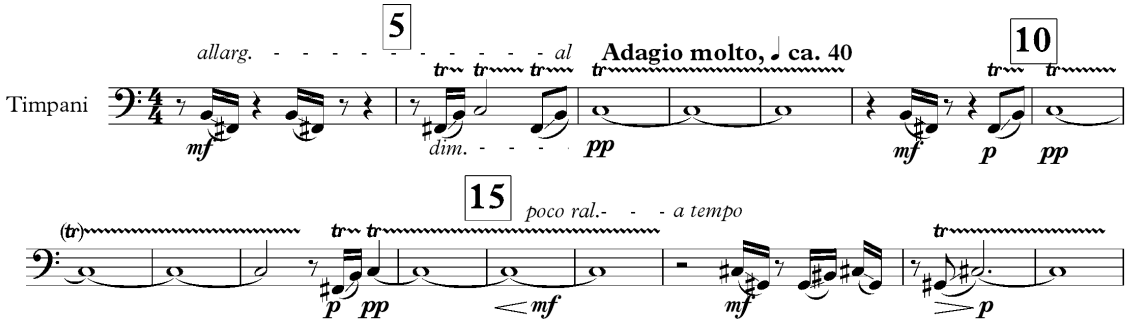
The simplest way to achieve this is to then utilize different drums for the successive notes. For example, in measure 5, the first *glissando* between F-sharp and B-

natural would be played on drum #2, with the following *tremolo* then played on drum #3. This allows for a clean articulation of the second roll differentiating between the B-natural and the C, and also allows time for the timpanist to prepare for the following *glissando* on drum #2. The same practice can also be applied to measure 27. The first *glissando* between C-sharp and G-sharp is played on drum #2. Following a quick mute, the next two *glissandi* are played on drums #2 and #3, respectively (and assuming that drum #3 can reach the requisite G-sharp). Muting quickly again in the written eighth-note rest at measure 28, the final *glissando* and *tremolo* can then played on drum #3.

One of the recurring questions regarding Bartók's usage of *glissandi* is the actual length and rate of change. Though the pitch and overall duration is indicated, it is unclear exactly when the timpanist is supposed to arrive at the destination pitch. A good example of this is in measure 5, where the *glissandi* rolls are followed by single-pitch rolls at a half-step higher than the indicated destination. Does this mean that the *glissando* is supposed to extend all the way from F-sharp to the B-natural (arriving in the split second before the downbeat of the following roll), and then immediately eliding into the C-natural roll? If this were the case, the aural effect is very, very similar to the *glissando* at measure 28, where the destination point of the *glissando* is also within the tied *tremolo*.

To approach this problem, a potential solution is to completely re-interpret the durations of these *glissandi*. The duration of the initial note can be reduced by half (changing from an eighth note to a sixteenth note), and the destination *acciaccatura* converted to the corresponding duration that fills the original value. In the case of the very first instance in measure 4, this reduces the B-natural to a sixteenth note and inserts

the destination F-sharp as the following sixteenth note with the *glissando* occurring within the intervening time span. With this interpretation, 1) the length of the *glissando* is established, 2) the placement of the destination note is also established, and 3) this also emphasizes the pitch content of the destination note by reserving metric space for it to sound. In measure 5, there is a clear space between the B-natural and the C, so the minor second interval is clear. By treating the destination point as a distinctly metric event within the bar, this erases the ambiguity surrounding the markings.



Example 66. Music for Strings, III, mm. 4–19, Metered *glissandi*

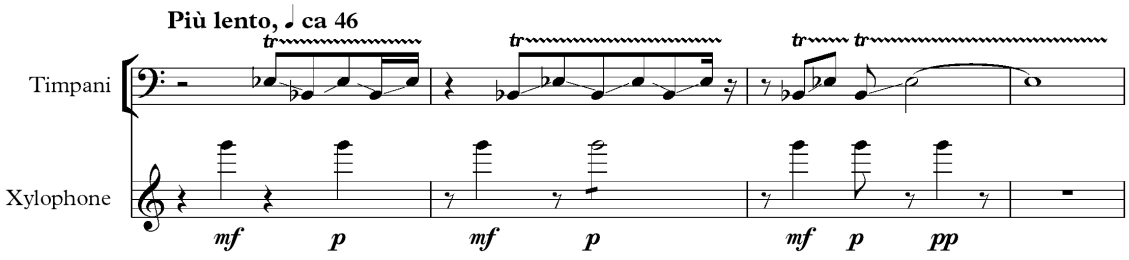
This approach also solves a potential issue between measure 17 and measure 19. As discussed previously, drums can be alternated for successive *glissandi*. However, doing so is predicated upon the drum #3 reaching an acceptable G-sharp—which is unlikely for the majority of 25" or 26" timpani. Lacking that range, the timpanist must then perform the passage all on drum #2—and the destination pitches will be lost within the successive *glissandi*. Metering the *glissandi* on beat 4 then gives the destination B-sharp and G-sharp clear moments for projection, though immediately changing the B-sharp to the C will require simultaneous tuning and playing as the pedal motion must

occur at the same time as the following mallet stroke. This was previously discussed in the mechanics of tuning during the analysis of *Concerto for Orchestra*.

Measure 31–34

During these measures, Bartók is careful to specify terraced dynamics instead of a diminuendo for the xylophone. Using the same mallets and touch as before, the percussionist should then clearly delineate these tiers.

In the timpani, this *glissandi* excerpt differs from the previous in that for the most part, Bartók designates the endpoints for each *glissando*. The only exception is at the end of measure 31, where we can apply the same concept as before to add the destination *acciaccatura* as the endpoint of the *tremolo*.



Example 67. Music for Strings, III, mm. 31–34, Suggested Phrasing

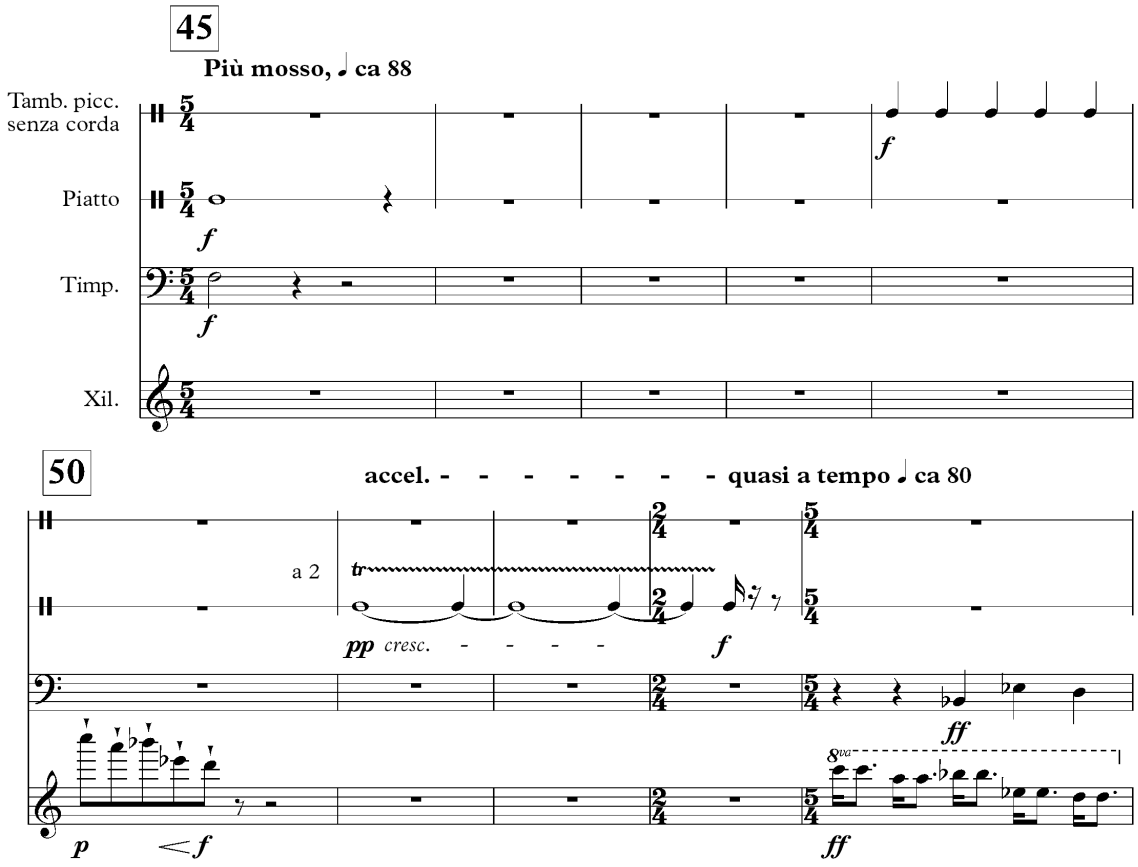
In particular, notice that the endpoints of the *tremolo* in measure 32 are correctly designated by Bartók, as well as the next *glissandi* ending on beat 2 in measure 33. For both of these, the *tremolo* lines are ambiguous, but the E-flat in both cases should be

treated as the release of the roll. In measure 33, this E-flat must then be immediately muted and re-tuned to B-flat for the imminent *glissando*.

Measure 45–55

In the cymbals, Bartók specifically requests both a smaller suspended cymbal (*piatto*) and crash cymbals (*piatti a2*). With the indication of "*instrument plus petit avec son plus clair*" (see the above discussion for the German equivalent), the intention is for a smaller and higher pitched cymbals. Thinner cymbals of 16" or 17" in diameter are recommended for both the suspended and crash cymbals. If possible, matching suspended cymbals (with straps) can certainly do the job admirably.

Bartók indicates a suspended cymbal note, but he neglects to specify the striking implement. While either a wooden stick or a soft mallet is acceptable, the common practice is to use a soft mallet in this case. This idea is supported by the fact that the only instruments entering at this moment are the piano and harp—neither of which having exceedingly hard ictuses. In addition, the majority of the strings are building towards and carrying through this moment via *tremolo*, so while the *tutti* downbeat is accented, it also lacks the hard articulation. Like the timpani, it is also important to remember that Bartók takes care to keep the dynamics beneath the strings; using a softer mallet highlights the expanding sustain of the suspended cymbal rather than the hard wood-on-metal sound of a stick.



Example 68. Music for Strings, III, mm. 45–54

A few bars later, Bartók writes for a crash cymbal roll similar to the one found in the first movement. Using the smaller cymbals, this roll should be performed in the same fashion, among two players. Other than the cymbal selection, a major difference from the first movement is that the release at the end of the crash cymbal roll should be immediately muted. Noticing the lack of any sustaining indicators, the first instinct is to let the release ring throughout as it emulates the previous suspended cymbal note. However, a clear indicator is the release itself, which is simply written as a sixteenth note instead of a quarter note. Because of this unusually specific duration, the common practice is to immediately mute the following rests.

The release note can be and is often performed in differing manners. In the first movement, where an *a due* cymbal crash ending the *tremolo* is possible and appropriate due to the sustain, the need to immediately mute the cymbals presents slightly more difficulties for this section. While the *a due* crash is still possible, it might be simpler to instead strike the release as an accent on a single cymbal; this will require the holding percussionist to separate the cymbals far enough to vibrate upon striking without causing unnecessary buzzing against the other cymbal. However, this also facilitates the overall muting of both cymbals.

Contrasting to the previous entrances, the xylophone now needs to have more presence and volume. If using smaller or softer mallets, this would be a good opportunity to switch to significantly harder and heavier mallets—especially for the statement of the five-note pattern at the clear climax of the section.

With the presence of only three timpani notes at measure 55 (B-flat, E-flat, and D), all of them fall in the ideal registers of the middle two drums. However, regardless of the highest drum's tuning (either E-flat or D on drum #4), it will be at an extraordinarily low tension. Especially in comparison to the other two drums, this note needs to be balanced in terms of dynamics. One suggestion is to tune the D on drum #4 and intentionally phrase with the natural emphasis on the E-flat. This treats the E-flat like a harmonic suspension that resolves to the D.

Measure 76–end

From here to the end, Bartók ends the movement in a symmetrical fashion that mirrors the opening. With exposed timpani *glissandi*—whose performance practice has already been addressed—the texture then gives way to the distantly fading xylophone that accelerates *a niente*.

MOVEMENT IV. ALLEGRO MOLTO

From first notes in the timpani, the character is set for a series of rousing folk dances in an aggressively ebullient manner followed by re-interpretations of the first movement's fugue subject. This is an extended rondo, loosely following the form of A+B+A, C+D+E+D+F, G, A, where many of the previous themes are gathered together for a summation that builds to the final close. Especially notable is the statement of Bartók's personal triumph as he melds the previous chromaticism into the diatonic aestheticism that we associate with his compositional voice today.

Measure 26–44

At first glance, these measures look like a technical etude for the timpani. Following a rousing introduction, the timpani establishes both the tempo and also the current tonality centering on D-flat. As is standard practice for rhythmic *ostinato* and percussion, Bartók accentuates the entrance and first few bars, then willing the timpani to

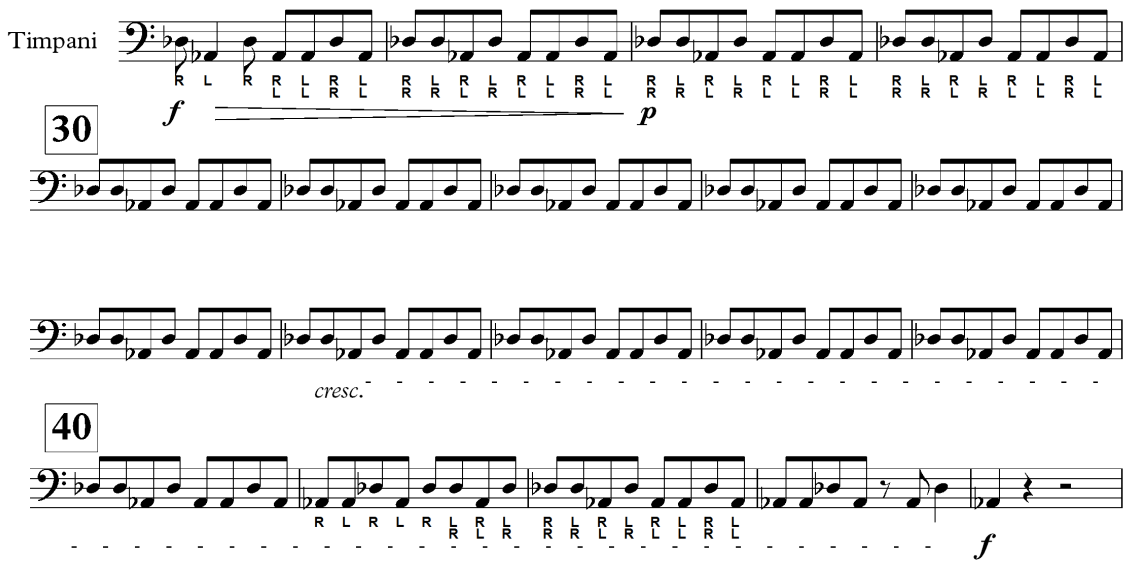
fade into the background until it is time to emerge once again. However, the background role does not mean that any responsibility or concern for rhythmic and tonal consistency can be slackened; to the contrary, it needs to be heightened to ensure that all details are properly attended to.

The primary goals of this excerpt are to maintain the tempo and consistency of sound throughout the changing patterns between D-flat and A-flat. After the initial entrance and diminuendo over two bars, the rhythmic pattern settles into an inverted paradiddle-like structure (AABA-BBAB) at a diminished dynamic for eight bars. This then builds with a crescendo for another seven bars, and culminates within the eighth. Of this entire section, the most interesting thing to note is that the rhythmic pattern is inverted in the sixth bar of the crescendo, and Bartók and his scores give no hints for the reasoning towards this. Nevertheless, it is an anomaly that needs to be addressed both mentally and technically; the timpanist needs to be aware of the changing pattern and adjust accordingly.

There are a few different ways to approach performing this, most of which are surrounding the technical sticking required to perform this excerpt. The traditional technique with repetitive notes between two drums involves a technique called cross-sticking, where the individual alternating strokes are maintained but the hands cross over one another in a weaving motion as necessary. The advantages of this choice lie in its simplicity; because consistently alternating strokes are maintained, the timpanist does not have to be concerned with any sticking changes. Fortunately, with a little practice this excerpt can be performed with constant cross-sticking. However, the limitations of cross-sticking lie in its consistency. While it may seem simplistic, the physical act of cross-

sticking requires many different strokes between both hands, as the timpanist needs to prepare, enter, perform, and then exit the cross-stick with both hands while also attempting to maintain the same beating spot amid a weaving motion. As a result, it is more difficult (though not impossible) to maintain a high level of consistency for a long period of time, especially when adding other variables such as changing dynamics.

As an alternative to cross-sticking, the timpanist can then approach the sticking similarly to the aforementioned inverted paradiddle. By replacing alternating sticking with judicious use of doubles, this eliminates the crossing and simplifies the motion and strokes considerably. As the arm positions and strokes are now consistent and static, so are the potential beating spots; there is much less of a chance for the mallet heads to "wander" from the desired playing location. For all of its advantages, the timpanist must be sure that the doubled stroke itself remains consistent. The natural tendency is that the second stroke of a double to be of lesser strength; the timpanist must be aware of this tendency and strive for two similar strokes to maintain an even texture throughout the passage. Fortunately, these strokes are easier to make with the lower dynamics.



Example 69. Music for Strings, IV, mm. 26–44, Sticking Alternatives

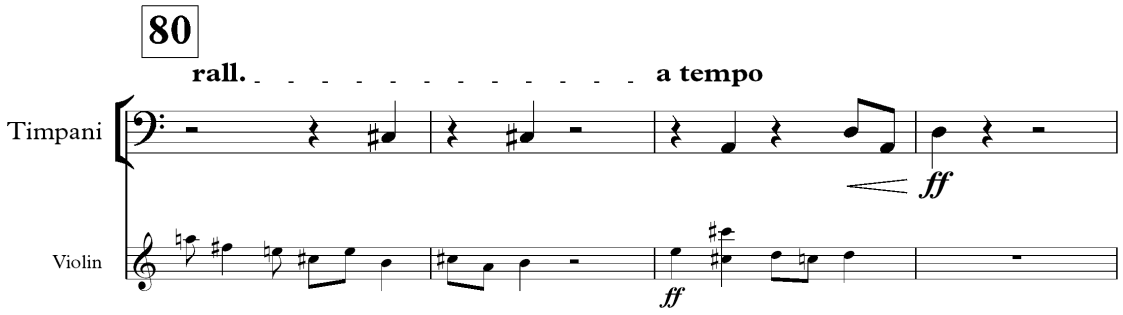
To achieve greater clarity and articulation throughout, two suggestions are to utilize light mutes and hard mallets on both of the drums tuned to D-flat and A-flat. This will hopefully eliminate some of the resonance from previous notes and allow the clear rhythm to project fully. Another suggestion is to re-tune the excerpt to use drums #2 and #1. Standard tuning practice places the D-flat and A-flat on drums #3 and #2 respectively, where they fall towards the lower end of the working range. While the overall quality and depth of sound achieved is likely to be most desirable, the resonance might be counterproductive in this case. Moving these tunings to the lowest drums places their heads near the highest tension, which then results in a thinner sound with a greater emphasis on clarity of pitch rather than projection via resonance. In addition, the timpanist can move the beating spot closer to the rim, also subtly changing the overall timbre.

Measure 60

There is a misprint in the timpani part in that it is missing the *f* dynamic marking on measure 60.

Measure 80–83

At the conclusion of this phrase, the timpanist should be aware of the *tutti* string rhythms at the a tempo. These run counter to the written rhythms for the timpani, which again acts as a tonality-defining anacrusis into the next subject of the rondo.



Example 70. Music for Strings, IV, mm. 80–83

Measure 173–183

In a recapitulation and development of the theme heard underneath the rumbling timpani at measure 26, the upper strings and piano eventually join in this highly chromatic melody. At the finishing end of a *stringendo* lies another audition excerpt for the xylophone, where the focus then becomes technical facility among a whirlwind of

stratospheric chromatics that culminate in a vigorous *Vivacissimo*. In looking closer at the excerpt, it is clear that the audition panel will be primarily focusing upon two things: the ability to control the tempo through the written *stringendo*, and the accuracy of notes throughout.

Note accuracy on a mallet instrument is not something that can be easily improved through analysis, but there are a number of options for determining the control of tempo. The origination point of the *poco a poco stringendo* lies at measure 150, where the tempo is half note = 130. However, the *stringendo* has approximately 25 measures of progression before the xylophone entrance. Keeping that in mind, what is then the correct tempo for the applicable xylophone excerpt?

Year	**Orchestra**	**Conductor**	**Beginning Tempo**	**Ending Tempo**
1958	Chicago Symphony Orchestra	Fritz Reiner	146	154
1961	New York Philharmonic	Leonard Bernstein	164	178
1976	Boston Symphony Orchestra	Seiji Ozawa	140	145
1976	Minnesota Orchestra	Stanislaw Skrowaczewski	151	157
1983	Detroit Symphony Orchestra	Antal Dorati	142	163
1990	BRT Philharmonia Orchestra	Alexander Rahberi	141	158
1996	Chicago Symphony Orchestra	Pierre Boulez	162	168
2009	Baltimore Symphony Orchestra	Marin Alsop	141	152

Figure 12. Music for Strings, IV, mm. 173–183, Comparison of *stringendo* Progressions

The above table shows a small subset of recordings and the approximate metronome markings beginning the xylophone excerpt. Between them, the tempi unfortunately vary widely. However, the common denominator amongst them is that the change during *stringendo* is at most 14 beats per minute. Given the above information, a

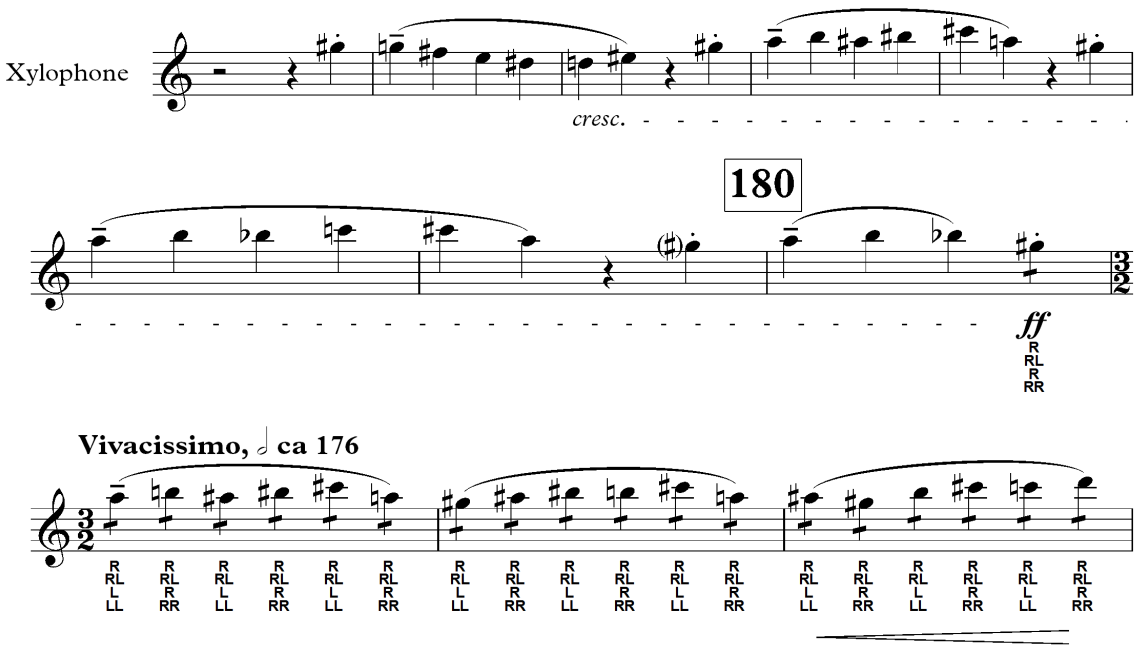
"safe" tempo might then be to start the excerpt around 144–146 MM, and ending the *stringendo* at the *Vivacissimo* with an altered destination of around 155 MM. While not as fast as some performances, the slower tempo also shows a desired measure of control over the *accelerando*—especially when the tempo becomes locked and static at the *Vivacissimo* between measure 181 and measure 183.

The dynamics also show a gradual increase throughout this excerpt, culminating at *ff* on the final G-sharp before the *Vivacissimo*. The placement of this is significant, as the anacrusis to the downbeat is consistent throughout the xylophone phrasing. This should be phrased accordingly—which carries over even in the *Vivacissimo*. The phrasing itself can be subtle, but simply adding a slight emphasis upon the anacrusis and the resolution (downbeat) of each measure shows the individual phrase and direction. It should also be noted that the strings and piano carry the same phrase, but the strings are in canon. Additionally, a subtle crescendo can also be made in the final bar of the excerpt. This will heighten the contrast in orchestration (minus the xylophone and piano) in the next section.

Perhaps the most controversial aspect of this excerpt is the decision regarding adding notes. While the xylophone only has quarter notes throughout, the doubled piano has eighth notes in alternating octaves. This then becomes more obvious at the *Vivacissimo* where the xylophone and piano are the only instruments that continue this melodic line. With this in mind, there is a possibility for the xylophone to also play eighth notes at the *Vivacissimo*, beginning with the *ff* anacrusis. Of course, this is highly dependent upon the final tempo; it is difficult to imagine performing this at 178 MM! However, it is possible at 145 MM, and potentially 165 MM.

With such an addition, working out the technical aspect becomes crucial. As seen with the minor discussion on timpani sticking at the beginning of this movement, the choices are simple: alternating strokes, or doubled strokes. The advantage of the doubled strokes is in its simplicity—assuming that the percussionist is alternating strokes when interpreting as quarter notes, conversion to eighth notes only require the second stroke in each hand. However, usage of the double strokes makes adding a final crescendo and other phrasing more difficult, not to mention ensuring that the second stroke is even with the first. Alternating strokes can control the dynamics with more agility, but the speed and accuracy becomes more significantly more difficult.

In either case, the keys to developing this are obvious: 1) slow-to-fast repetition with a great deal of metronome work, and 2) preparing for the eighth-note *Vivacissimo* in the same manner as the quarter-note *Vivacissimo*. This depends upon first making a decision between doubled or alternating strokes, and then altering the original sticking to match. For example, with a preference towards right-handed alternating sticking, one should then practice the quarter-note *Vivacissimo* with only the right hand. The transition to eighth notes then only requires adding the left hand, while the maintenance work and time-keeping in the right hand has already been practiced. Alternatively, doubled strokes ironically requires using alternating sticking on the quarter-note *Vivacissimo*. The sticking and additional phrasing are shown in the example below.



Example 71. Music for Strings, IV, mm. 173–183, Suggested Phrasing

In addition, the example corrects a crucial misprint in the xylophone part. The note immediately preceding measure 180 is missing the accidental; it should be a G-sharp.

Measure 199–208

In this section, the timpanist must be aware of the various tonal possibilities that can be produced by his instrument. The first entrances at measure 199 are consistent with the rest of the movement: loud, articulate, and driving. However, the following *Molto moderato* at measure 203 encapsulates a different character entirely. A shift to softer mallets and using a J-stroke to produce a warm, weighty tone helps to reflect the lush string chords that briefly appear to contrast with the rest of the movement.

Conclusions

Though *Music for String Instruments, Percussion and Celesta* is the chronological forerunner to both the *Sonata* and *Concerto*, it also contains some of the most singularly extensive passages for both timpani and percussion. Much of this can be attributed to Bartók's overall exploration in musical forms and formats—lacking the formal constraints of "symphony" or "concerto" (or "sonata") and leading with a non-standard antiphonal orchestration, how does this affect the percussionist's interpretation of the music? The smaller orchestration leads to an overall prominence of the timpani and percussion parts—which in turn also necessitates more familiarity of the other parts. But comparing to most chamber music, this does not explicitly require the constant communication with the rest of the ensemble—although this approach is certainly recommended. Bartók experiments more with technical boundaries in both the timpani and percussion, but also introduces notational and directorial ambiguity as a result. The performers then have more of a creative role in recreating the extrapolations of what the composer desired—by any means necessary—making music not only for Bartók's ears, but also our own.

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