Early Metronome Markings and the "A Tempo Project"

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Introduction

The topic of early metronome markings has always been a long-standing puzzle for musicians and scholars. Conductors and performers face the difficult task of interpreting tempi indications of works of the nineteenth century, with metronome markings that occasionally seem incorrect according to our modern standards.

Before the invention of the metronome, composers guided performers on tempo preferences using conventional Italian terms (e.g. Allegro, Adagio, Presto). Performer tastes and capabilities varied widely, which led German inventor, engineer, and showman Johann Nepomuk Maelzel to commercialize the metronome in 1815, which allowed composers to indicate a numerical value as performance guidance. Despite—or perhaps because of—its rapid growth in popularity in the musical community, the metronome became an object of controversy. Metronome markings could conflict with tempo indications, causing confusion for the performers. Some composers who first adopted it stopped using it. Wagner, for instance, related:

> In my early operas, I gave detailed indications as to the tempi, and indicated them (as I thought) accurately, by means of the Metronome. Subsequently, whenever I had occasion to protest against a particular absurd tempo, in *Tannhäuser* for instance, I was assured that the metronome had been consulted and carefully followed. In my later works I omitted the metronome and merely described the main tempi in general terms, paying, however, particular attention to the various modifications of tempo.[1]

What could be the reason for these metronome markings, so familiar today, to become more harmful than helpful for many works of the nineteenth century?

Exploring the history of conducting practices gives an initial response: conductors, conveying to the orchestra the message they believe the composer put in their music, make decisions to respect or to avoid interpretation indications, tempi, and metronome marks written in the score. Many recordings have immortalized these choices and the impacts they had on the music, becoming relevant points of reference.

This leads to another issue: considerable differences can be found in recordings of these performances. John Mauceri's comparison of two versions of *La Bohème* conducted by Arturo Toscanini and Thomas Beecham reveals a difference of fifteen minutes. Although Toscanini's tempi were known to be fast, Mauceri observes:

> Timings of performances are a relatively simplistic way of showing similarities and differences among performances, because in reality what happens within

1. Richard Wagner, *On Conducting (Über das Dirigiren)*, trans. Edward Dannreuther (London: William Reeves, 1887), 21.

> tempo is as important as the tempo itself. Emotional time is a very different matter from anything a clock tells us.[2]

The image of a clock to illustrate the metronome was already adopted by Maelzel himself in an attempt to explain how his device should and should not be used. Although the inventor tried to give guidelines, the way composers marked their scores according to the metronome is still a subject of interpretation today.

The "A Tempo Project,"[3] a video project by Swiss pianist, composer, and organist Bernhard Ruchti, includes useful analyses of scores and musicological sources such as historical performance reviews, correspondence, original manuscript notations, and recordings of the studied works. Ruchti illustrates how different readings of tempi indications have impacted historical performance and attempts to explain the wide range of metronome marking interpretations. Taken as a whole, Ruchti's work helps shed light on the complicated and ever-timely problem of historical metronome markings.

Tempo: Some Background

In the seventeenth and eighteenth centuries, various mechanical devices to measure tempi were devised, such as Etienne Loulié's *Chronomètre* of 1694.[4] A pendulum was mounted on a calibrated frame approximately seventy-two inches high. A peg on the fixed end of the cord could be plugged in at various points on the frame. Since the measures were done in "pouces,"[5] a measurement unique to that area of the continent, it was not widely adopted.

In 1701, French mathematician and physicist Joseph Sauveur improved Loulié's invention with his *échomètre* by relating the length of each beat to units of time. A tierce, for example, was 1/60 of a second. His system of tierce became standard in eighteenth-century France. However, the *échomètre* was ultimately used to calculate the vibrations of particular pitches rather than serve as a time-keeping device.[6]

Books and guides were published to help conductors in the choice of their interpretation of the tempo. Historical definitions of the term "beat" further contributed to tempo distortion. In his video conference "Historical Metronome Marking, a short introduction,"[7] Ruchti quotes an excerpt of a German schoolbook from 1642, in which the following definition is given: "They shall make the time visible by beating up and down with the hand / and say / that this shall be called a beat / if one beats down with the hand while singing / and rises back up again."[8]

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2. John Mauceri, *Maestros and their Music* (New-York: First Vintage Books, 2017), 208–9.

3. "The A Tempo Project," Bernhard Ruchti, https://www.bernhardruchti.com/a-tempo/.

4. Etienne Loulié, *Éléments ou principes de musique* (Paris: Christophe Ballard, 1696). More can be read on Loulié's invention at https://wikivisually.com/wiki/Chronomètre_of_Loulié.

5. The "pouce" is a French "inch" unit. The modern definition from the international standard of units is that 1 inch = 2.54 cm or 1 pouce = 25.4 mm. The word pouce means "thumb" in French. In the past, it was equal to 1/12 pied. The historical pouce was equal to about 1.066 inches or 2.707 centimeters.

6. David Fallows, "Metronome," Oxford Grove Dictionary of Music - Grove Music Online, 2001, https://doi.org/10.1093/gmo/9781561592630.article.18521.

7. Bernhard Ruchti, "Historical Metronome Markings - A Short Introduction," A Tempo Project, Part I of III, video: 10:37, https://youtu.be/he79n5q0dOw?t=637. Accessed 23 May 2020.

8. *Gothaer Schulordnung (Gotha school regulations)* (Gotha, 1642), trans. Bernhard Ruchti, 220.

A relationship between the beat and the movement of a pendulum is suggested, but does not account for subdivision of the beat. Ruchti adds:

> Our down movement is supported by gravity whereas the up movement is not. Therefore, our perception of the two movements is not entirely equal. It is natural not to count the single movement of the arm but only count the down-beat, forming a "whole beat" out of two single movements. This goes back to the old metric system in which the whole bar is equated with a whole beat and is then divided into half beats. This system was part of the common doctrine in the nineteenth century.[9]

The definition of beat took on a whole new sense when the German inventor Johann Nepomuk Maelzel manufactured in 1815 the "metronome or musical time keeper." Although he claimed to be the first to invent such a device, the original mechanical musical chronometer was in fact invented by Dietrich Nikolaus Winkel in Amsterdam in 1814. The idea of a pendulum able to measure tempo and time with precision, with a division of time into minutes, was applied. The patent was obtained on 5 December 1815, in London.

The movement of the metronome pendulum is then linked to that division of time into minutes. Maelzel gives details in his patent text:

> For the particular manner and mode which I have invented of applying a pendulum to such a machine, whereby the pendulum can with the greatest facility be made to vibrate a greater or less number of times in a minute at the pleasure of the performer; and this admits of each vibration being marked by the tick or drop of the escapement.[10]

Maelzel linked the term "vibration" to the audible tick produced by the movement of the pendulum from left to right or right to left. This understanding of "vibration" as "half vibration" is different from the one mentioned in the 1642 school book. Each vibration is indicated by the tick. The numbers engraved on the scale thus represent the numbers of single movements, or single ticks, in a minute.

However, evidence suggests that some musicians used it incorrectly, adopting, for example, the option of double-beat counting. Such misuse forced Maelzel to write a notice in the *Allgemeine musikalische Zeitung* in 1821:

> Since my experience still teaches me daily how little knowledge musicians have about using the division of my metronome in an advisable manner, and what incorrect use has creeped in due to a regard of the metronome as not much more than a Black Forest clock, – I consider necessary to recommend the following words to be heeded.[11]

9. Bernhard Ruchti, "Historical Metronome Markings - A Short Introduction," Part I of III, video: 11:04, https://youtu.be/he79n5q0dOw?t=664. Accessed 23 May 2020.

10. *The Repertory of Arts, Manufactures, and Agriculture* (London: Repertory Office - Hatton Garden, 1818), 8.

11. Johann Nepomuk Maelzel, *Intelligenz-Blatt zur Allgemeinen Musikalischen Zeitung* (Leipzig), trans. Bernhard Ruchti (September 1821).

After this introduction, Maelzel explains the division of the metronomic scale, the link between the note value of the metronome marking and the given number in terms of note values per minute. He then complains that Italian movement names were still in use and caused actual confusion about their correlation with the metronome markings. He ends his article by naming composers using his metronome incorrectly: Beethoven, Cherubini, Clementi, Cramer, Méhul, and many others.[12]

Other time-keeping devices were manufactured, but Maelzel's metronome had the widest adoption. However, a misuse was possible and tempo variation could be explained by two possible ways of counting metronome markings: as a single beat (one audible tick) or a double beat (two audible ticks), producing performances twice as fast.

Some composers and conductors feared that metronome markings could hinder expression and lead to mechanized performances. Consider Carl Maria von Weber's letter of 1828 to the music director Ferdinand Praeger in Leipzig:

> The beat must not be like a tyrannical hammer, impeding or urging on, but must be to the music what the pulse-beat is to the life of man. There is no slow tempo in which passages do not occur that demand a quicker motion, so as to obviate the impression of dragging. Conversely there is no presto that does not need a quiet delivery by many places, so as not to throw away the chance of expressiveness by hurrying. [...] Neither the quickening nor the slowing of the tempo should ever give the impression of the spasmodic or the violent. The changes, to have a musical-poetic significance, must come in an orderly way in periods and phrases, conditioned by the varying warmth of the expression.[13]

Richard Wagner and Johannes Brahms made similar complaints.

Early Metronome Markings in Beethoven's Work

Ludwig van Beethoven did not share the point of view of his colleagues regarding the metronome. In 1817, he wrote to the Austrian court official, composer, and music writer Ignaz von Mosel:

> I have long purposed giving up those inconsistent terms *allegro*, *andante*, *adagio*, and *presto*; and Maelzel's metronome furnishes us with the best opportunity of doing so. I here pledge myself no longer to make use of them in any of my new compositions.[14]

That December, Beethoven published metronome markings for the eight symphonies he had composed so far in the *Allgemeine musikalische Zeitung* and provided metronome markings for some of his subsequent compositions. Later, Beethoven shared some of his metronome markings with his former secretary and sometime pupil Ferdinand Ries for publication in London. After his death, Beethoven's pupil Carl Czerny and friend Ignaz Moscheles published his piano sonatas with metronome markings, which we accept as being accurate, as both musicians

12. *Ibid.*

13. Quoted in Felix Weingartner, *On Conducting* (New York: Kalmus), 41.

14. Ludwig van Beethoven, *Beethoven's Letters: From the Collection of Dr. Ludwig Nohl*, trans. Grace Wallace (New York: Ditson & Co., 1866), 154.

spent many hours in Beethoven's company performing and studying his piano pieces. Yet even within his close circle, metronome markings appear to have been interpreted differently by Beethoven's friends. Moscheles, for example, published several versions of the piano sonatas with different indications.

Some of Beethoven's metronome markings, either given by Beethoven himself or supplied by his contemporaries, remain a mystery. Some works, if performed as marked, especially fast movements such as Allegros, seem so fast that they neither make sense musically and nor could be performed on period instruments. Simply put: These metronome markings seem to be wrong.

Beethoven never explained his metronome markings. However, Czerny's four-volume piano method, *Pianoforte-Schule*, published by Diabelli in Vienna in 1839 (translated into English in 1842, Op. 500), sheds light on his interpretation of tempo indications. Czerny introduces the metronome in his piano method, clearly referring to the "audible ticks," thus suggesting a single-beat use:

> When, for example, such an indication occurs as M. M. ♩ = 112, we must slide the nut attached to the perpendicular rod, till it exactly corresponds to the number 112 on the graduated triangular scale; then, leaving the rod free to move, we must play every crotchet exactly with the audible beats of the Metronome.[15]

An analysis of the Italian movement names follows. For instance, Czerny explains how an Allegro movement could be performed:

> As all compositions are not furnished with indications on this point by means of the Metronome, and as the movements prescribed by words cannot sufficiently determine the more delicate differences which exist between them.
>
> The best helps to the more certain discovery of the true time, may be gathered:
>
> 1st from the Character of the Piece.
> 2nd from the number and duration of the quickest notes, which occur in any one bar.
> 3rd, the character of a piece which is marked Allegro may be very various viz:
>
> a. Tranquil, soft, and coaxing.
> b. Thoughtful or Enthusiastic.
> c. Sorrowful, or harmoniously intricate.
> d. Majestic, grand, and even sublime.
> e. Brilliant, yet without aiming at too much movement or rapidity.
> f. Light, cheerful and sportive.
> g. Hasty and resolute.
> h. Impassioned, excited, or fantastic and capricious.
> i. Stormy, hasty; in a serious as well as in a sportive sense. In this case we must generally reckon on brilliant effects.
> k. Extremely wild, excited, and unbridled or furious.[16]

15. Carl Czerny, *Piano Forte School*, trans. J. A. Hamilton (London: Cocks and Co., 1842), 3:66.

16. *Ibid.*, 69. Note that the author omitted j. in his list.

Czerny brings a new perspective to tempo interpretation. For instance, his definition of Allegro is much less restrictive than ours today, as it could range from "Tranquil, soft, and coaxing" to "Extremely wild, excited, and unbridled." Czerny's observations on other Italian designations (e.g. Presto) in the same volume yield a similar range of options.

Czerny's insistence on using a numerical marking to metrically fix movement names with a variety of possible character interpretations might seem contradictory, but he is not alone. In studying the relationship between metronome marking, time signature, and movement name, Rudolf Kolisch observed:

> The tempo indication alone does not always enable one to classify a piece as belonging to a specific tempo category. Sometimes the system of the designations is not strictly maintained, and then frequently the relation of the metric unit to the tempo unit remains an open question. [...] Thus we must decide the essential quality of the music, its "spirit". Then we can assign to the spirit its proper "body". Beethoven undertook this himself for most of his character-types by means of the metronome markings. Thus if we succeed in identifying a piece as having a certain specific character, we shall have determined its tempo.[17]

Keeping in mind both Maelzel's 1821 article, and the character interpretation of Italian terms, it is worth taking a closer look at Beethoven's metronome markings, particularly those in the first edition of his *Hammerklavier* Sonata, Op. 106. Completed in 1818, it is often considered to be Beethoven's most technically challenging piano composition and one of the most demanding solo works in the classical piano repertoire.[18]

The first movement is marked 𝅗𝅥 = 138. If we read the metronome marking the way we read it today, 138 indicates that we have 138 beats per minute, and half note means that we have 138 half notes per minute, which is very fast. This is not the tempo typically taken by most pianists who have recorded the piece; far more typical is between 108 and 112.[19] Was Beethoven's 𝅗𝅥 = 138 incorrect?

While the metronome markings of Czerny's edition of Beethoven's Op. 106 matches the first edition exactly, Moscheles's various editions do not.[20] And despite his deference to Beethoven's most famous pupil, Hans von Bülow questioned the accuracy of Czerny's metronome markings in the introduction to his Instructive Edition of the Sonata published in 1875:

> With the metronomisation, in so far as it principally affects the character of the principal motive, the Editor finds himself considerably at variance with the statement of Carl Czerny ("Art of Delivery", Part IV of the Pianoforte-school, Op. 500), who, in his quality of first and contemporaneous interpreter of the later pianoforte-works of Beethoven deserves to be consulted as an authority;

17. Rudolf Kolisch, "Tempo and Character in Beethoven's Music," *The Musical Quarterly* 77, no. 1 (Spring 1993), 101–2.

18. The first documented public performance of the *Hammerklavier* Sonata was in 1836 by Franz Liszt in the Salle Érard in Paris. Franz Liszt probably studied it with his piano teacher Czerny.

19. A notable exception is Glenn Gould, who played the first movement at 𝅗𝅥 = c. 88.

20. Beethoven's *Hammerklavier* Sonata as edited by Czerny was published in the latter's *Pianoforte-Schule*, Op. 500 by Diabelli in 1839. Versions edited by Moscheles were published by Cramer, Addison & Beale in 1841, by Holle in 1858, and by Hallberger in 1868.

Table 1: Metronome markings found in early editions of Beethoven's *Hammerklavier* Sonata, Op. 106.

Movement	Tempo, metre	Beethoven, Artaria, Vienna, 1819 (Vienna First edition)	Beethoven / Ries, Clementi, London, 1819 (London First edition)	Czerny, *Pianoforte-Schule*, op. 500, Vienna, 1838	Edition Dunst, Frankfurt, between 1829 and 1835	Edition Moscheles, Holle, Wolfenbüttel, not before 1858	Edition Moscheles, Hallberger, Stuttgart, not later than 1868
1st mvt.	Allegro,2/2	𝅗𝅥 = 138	𝅗𝅥 = 138	𝅗𝅥 = 138	𝅗𝅥 = 138	♩ = 138	♩ = 138
2nd mvt.	Scherzo. Assai vivace, 3/4	𝅗𝅥. = 80	𝅗𝅥 (!) = 80	𝅗𝅥. = 80	𝅗𝅥. = 80	♩ = 132	𝅗𝅥. = 80
b. 81	Presto, 2/4	-	-	𝅗𝅥 = 152	-	♩ = 160	-
3rd mvt.	Adagio sostenuto, 6/8	♪. = 92	♪. = 92	♪. = 92	𝅘𝅥𝅯. = 92	♪. = 84	♪. = 92
4th mvt.	Largo, 4/4	𝅘𝅥𝅯 = 76	𝅘𝅥𝅯 = 76	𝅘𝅥𝅯 = 76	𝅘𝅥𝅯 = 76	♪ = 76	𝅘𝅥𝅯 = 76
b. 3	Allegro, 4/4	-	-	-	-	-	♩ = 92
b. 11	Fuge. Allegro risoluto,3/4	♩ = 144	♩ = 144	♩ = 144	♩ = 144	♩ = 126	♩ = 144

> of course, not altogether an infallible one. Czerny's tempo, 𝅗𝅥 = 138, that so little agrees with the ponderous energy of the theme, and seems to be taken too quickly even for the sections of this movement which admit of a greater acceleration, perhaps finds in the lack of sonority of the Viennese pianofortes of the time a kind of justification. On a modern concert-grand of the first quality [...], Czerny's tempo would have a bewildering and blurring effect.[21]

Indeed, as Johann Sonnleitner's useful overview of the metronome markings found in early editions of the *Hammerklavier* Sonata make clear (see Table 1), contradictions between character and diverging metronome markings proliferated as the century went on.[22]

In explaining single-beat and double-beat metronome counting, Sonnleitner indicates a relationship between the note value of the time signature and the note value of the metronome markings. According to the author, composers in Beethoven's era used a variable approach to metronome markings, meaning that within the same piece, they could be used with a single-beat counting for one movement, and with a double-beat counting for another movement.

Ruchti, who had discussed this topic with Sonnleitner,[23] decided to test this hypothesis as a performer. Fully aware of the controversial debate on double-beat theory, ongoing since it was

21. Hans von Bülow, *Grand Sonata for the Hammer-pianoforte by L. van Beethoven Op. 106*, trans. John Henry Cornell (Stuttgart: J.G. Cotta, 1875), introduction to the first movement.

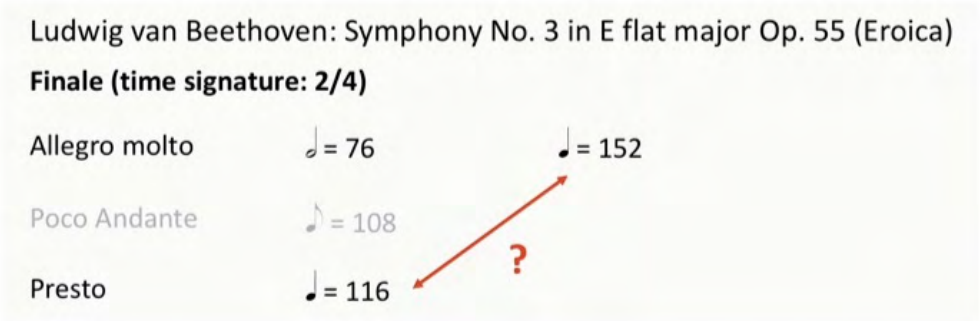
22. Johann Sonnleitner, "On Beethoven's tempi and metronome markings," in *Ludwig van Beethoven, Hammerklavier Sonata Op. 106* (Vienna: Weiner Urtext / Universal Edition, 2018), xiv.

23. Johann Sonnleitner, "Johann Sonnleitner im Gespräch," interview by Bernhard Ruchti, series of three videos in German with English subtitles, 2019, https://youtu.be/NhnQlhOEvAs.

first unveiled in 1980,[24] Ruchti first presented the aspects supporting fast tempi. He recognized the double-beat option in early metronome markings; therefore, he took the resulting slower approach as a source of musical discovery, thus adding value to interpretation.

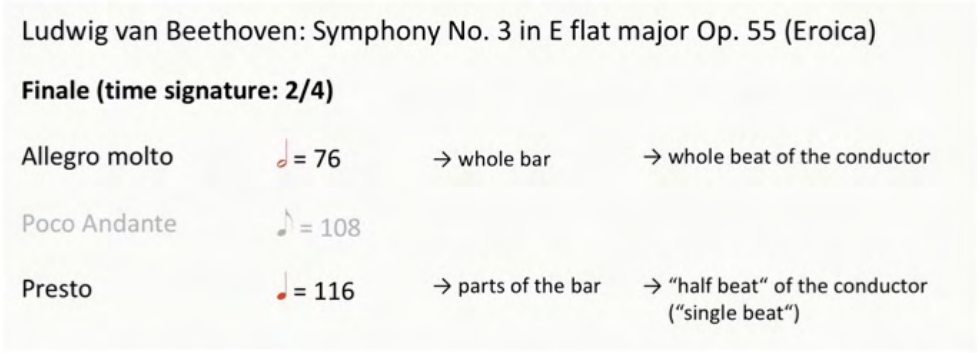
He shared the result of his analysis of double beat theory with a variable approach to Beethoven's metronome markings in his "A Tempo Project" videos. Examining the metronome markings of the eight symphonies that Beethoven had authorized and published in the *Allgemeine musikalische Zeitung*, Ruchti comments:

> Two cases can be found that show peculiar characteristics. The first one is the Finale of the "Eroica", Opus 55. The time signature is 2/4. This movement includes three sections and Beethoven indicates: Minim 𝅗𝅥 = 76 for the Allegro molto, Quaver ♪ = 108 for the Poco Andante and Crotchet ♩ = 116 for the Presto. Now let's look at the Allegro and the Presto. Both parts consist of the same musical material. By definition of the proportion, a Presto is meant to be distinguishably faster than an Allegro. Following Beethoven's metronome markings, however, the Presto appears to be significantly slower than the Allegro. The Allegro, with minim = 76, which is crotchet = 152, forms the Presto with 116.

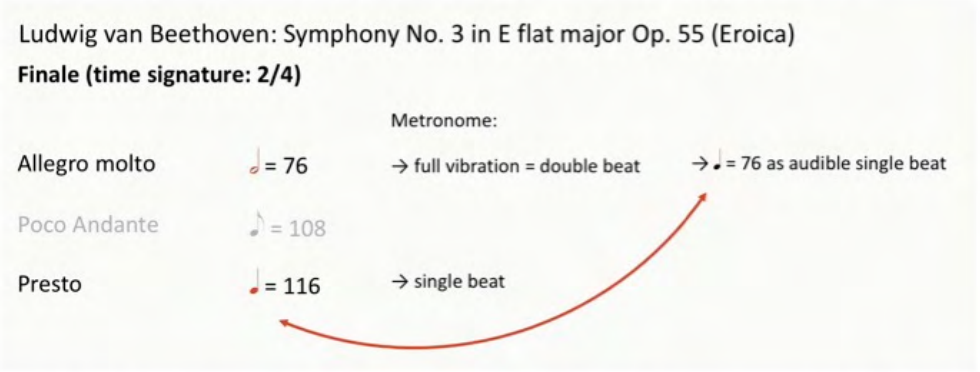


> It is revealing to see that Beethoven uses two different note values for the metronome markings of the Allegro molto and for the Presto: it's the minim for the Allegro and the crotchet for the Presto. Now the movement is written in a 2/4 bar. General conducting practice for a 2/4 bar is to perform a downbeat on the first crotchet and an upbeat on the second crotchet, so forming a whole beat for the full bar. The marking for the Allegro therefore refers to the whole bar, which is a minim. Whereas the marking for the Presto refers to the parts of the bar, or the crotchets. Translated to the conducting practice, the minim of the Allegro corresponds to a whole beat of the conductor, whereas the crotchet for the Presto only corresponds to a "half beat" or single beat.

24. Willem Retze Talsma, *Wiedergeburt der Klassiker* (Innsbruck: Wort und Welt, 1980). Talsma was the first to mention the double-beat theory. Sonnleitner mentions this book in Bernhard Ruchti's interview.



Translating this to the metronome pendulum and its application, the Allegro would represent a full vibration or double beat of the pendulum, whereas the Presto would represent a single beat of the pendulum. The surprising result of this would be crotchet = 76 for the Allegro and crotchet = 116 for the Presto, now both in single-beat notation. Obviously, this result matches the proportions expressed by the movement names, Allegro molto and Presto.[25]



Ruchti similarly analyzes the Allegro and Presto in the last movement of the Fifth Symphony, and concludes that both examples suggest "an alignment of the metronome markings, not to a counting of isolated beats but to an existing conducting practice."[26] For Ruchti, these analyses show that a double-beat understanding, although never explicitly mentioned by Beethoven, is still a realistic option for Beethoven's metronome markings.

Applying the same theory to other sonatas by Beethoven, Ruchti recorded the piano sonatas No. 1 in F minor, Op. 2, and No. 31 in A♭ major, Op. 110, based on the metronome markings provided by Czerny. Both recordings, done in 2017 and published in 2018, became the starting point of his "A Tempo Project."[27]

Piano sonata No. 31 illustrates accurate double-beat interpretation of historical metronome markings: Italian terms give the character of the movements and match the metronome

25. Bernhard Ruchti, "Historical Metronome Markings - A Short Introduction," A Tempo Project, Part III of III, video: 2:35, https://youtu.be/WMheWdDdE4g?t=155. Accessed 7 June 2020.

26. *Ibid.*, video: 8:58, https://youtu.be/WMheWdDdE4g?t=538.

27. Ruchti published the first part of a series of videos in which he explains his calculation of metronome markings, alignment of his previous discoveries, and other performance sources of the period. The recordings of the sonatas and the details of their study, including the full analysis of the metronome markings for each movement, are available in his "Beethoven A Tempo" series. Bernhard Ruchti, "Beethoven A Tempo - English Presentation," A Tempo Project, August 2018, https://www.youtube.com/playlist?list=PLmyAMFyZ8tYlMqYbo-Q8vctDgiW6FFAOZ

markings read in double beats, especially when they are compared to Czerny's definitions of movement characterization. Some movements can be performed when the markings are read in single beat. A slower version, more aligned with the Italian tempi indications and the time signatures, is also possible.

The piano sonata No. 1 is less satisfactory when metronome markings are read as double beats, particularity Allegro and Prestissimo marked 𝅗𝅥 = 108. The time signature, 2/2, seems inconsistent. Movement indications may suggest a slower tempo, allowing more freedom in the performance, especially with quarter or eighth notes. Ruchti selects excerpts, illustrating the effect of different interpretations.[28]

Early Metronome Markings in Liszt's Work

Liszt did not use metronome markings. He used the Italian terms and gave interpretation indications in his scores. Thus, the autograph versions contain complementary information on parts that were sometimes annotated, or even suppressed by the composer. Metronome markings of Liszt's works were, however, provided by his pupils, fellow musicians, and composers, friends, and colleagues. Pianists selected for Liszt's famous masterclasses in Weimar learned much about the tempi and characters Liszt originally intended.

Take the Piano Sonata in B minor. Liszt's pupil August Stradal was the first to suggest metronome markings, and Lina Ramann's *Liszt-Pädagogium*, a compilation of Liszt's teaching remarks on his own works, includes further references to the piece.[29] The *Pädagogium* is not beyond reproach, however. In 1996, for instance, Kenneth Hamilton published a study of the Sonata in which he provided alternate metronome markings since he believed that there were misprints in two movements. In the *Allegro energico*, starting in m. 8, the suggested metronome marking was ♩ = 72, which Hamilton considers a misprint of 𝅗𝅥 = 72; in the *Andante sostenuto*, starting at m. 331, the suggested metronome marking is ♩ = 96, which Hamilton considers should in fact read 𝅗𝅥 = 69.[30] Hamilton's observations came from studying the *Pädagogium*, where the tempo is described rather than marked metronomically, as well as similar works recorded on piano rolls by his pupils.

Other Liszt students, August Göllerich and Carl Lachmund, kept diaries during the last years of masterclass held in Weimar, Rome, and Budapest. Their notes indicate that while character and interpretation were widely discussed, the notion of tempo is ambiguous. An example is Chopin's Etude, Op. 10, No. 3, in E Major. Lachmund reports that pupils played it either too fast or too slowly: "He was sarcastic with a young lady who started the beautiful E major Etude of Chopin too rapidly (it is the same [one] I had started too slowly)."[31]

Lachmund also relates a particularly moving interpretation by Liszt of two etudes from the Chopin's Op. 25 collection:

> Both etudes he played with the same quiet ease and lucidness of phrasing that always impressed one in his playing, and there was an entire absence of any show of virtuosity or of dynamic extremes, so often heard in the playing of the

28. Bernhard Ruchti, "Ludwig van Beethoven: Piano Sonata in F minor Op. 2 No. 1," A Tempo Project, https://youtu.be/XNDlOQXuY1A, accessed 28 August 2018; and Bernhard Ruchti, "Ludwig van Beethoven: Piano Sonata in A flat major Opus 110," A Tempo Project, https://youtu.be/jTNAc3U9Rqo, accessed 28 August 2018.

29. Lina Ramann, *Liszt-Pädagogium* (Leipzig: Breitkopf & Härtel, 1902).

30. Kenneth Hamilton, *Liszt: Sonata in B Minor* (Cambridge: Cambridge University Press, 1996), 76.

31. Carl Lachmund, *Living with Liszt, From the Diary of Carl Lachmund, an American Pupil of Liszt, 1882–1884*, edited, annotated, and introduced by Alan Walker, 2d ed. (Stuyvesant, NY: Pendragon Press, 1998), 159.

> great piano virtuosos. His apparent disregard of metric time, without disturbing the symmetry of rhythmic balance, which lent the Lisztian charm to his phrasing, was to me most characteristic and wonderful.[32]

Hamilton closely studied masterclass comments and observations in an attempt to assign metronome markings to some of Liszt's compositions. However, Liszt frequently wrote several versions of the same piece, sometimes as variations for four hands or for different instruments, sometimes even reworking music composed years before. Moreover, Liszt rarely performed his own music following the score. During masterclasses, he would play different versions of his own composition, telling his students that he would change the way he had written it in the first place.[33] These new versions were not reported or republished, but were left to the pupils to perpetuate.

During a conference about Liszt's legacy given in 2012 in the Cardiff University School of Music,[34] Hamilton examined the *Soirées de Vienne* (LW A131; S. 427), a set of piano pieces based on waltzes by Schubert. While the version released in the early 1850s is by far the most often performed today, Liszt created other renditions, especially of the sixth piece. In 1869, for instance, he sent his pupil Sophie Menter a version of the piece that integrated a chord suggested by Hans von Bülow as well as other new ideas. In 1883, he published a revised version that not only included the Bülow chord, but also a new cadenza based on the same harmony. Other variations were probably given during the Weimar masterclasses to his pupils, some of whom recorded their unique versions for posterity.[35]

If the recordings and writings of students help us understand tempi and the character Liszt intended, reliable sources can be found in his correspondence and press reviews. This was Bernhard Ruchti's approach to Liszt's Fantasy and Fugue for organ on "Ad nos, ad salutarem undam" (often called simply the "Ad nos" Fantasy). Ruchti's "A Tempo Project" uses historical documents at the time of the composition to gain insight.

Liszt published three piano arrangements of portions of Giacomo Meyerbeer's *Le Prophète* with Breitkopf & Härtel in 1850 as "Illustrations du Prophète." Later the same year he added a series of variations on Meyerbeer's composed hymn from the opera, "Ad nos, ad salutarem undam," which he released two years later.

His first composition for organ, the "Ad nos" Fantasy and Fugue remains one of the best-known works of the organ repertoire. It was first performed in 1855 by German organist and composer Alexander Winterberger, one of Liszt's students, at a dedication concert of the new organ installed at Merseburg Cathedral near Halle in Saxony, Germany. Built by Friedrich Ladegast, this organ was considered to be the most modern instrument of that time, allowing a high level of orchestration. Liszt embraced the compositional opportunity: before the performance, he worked for a few days with Winterberger in Merseburg to take full advantage of the instrument's capabilities.

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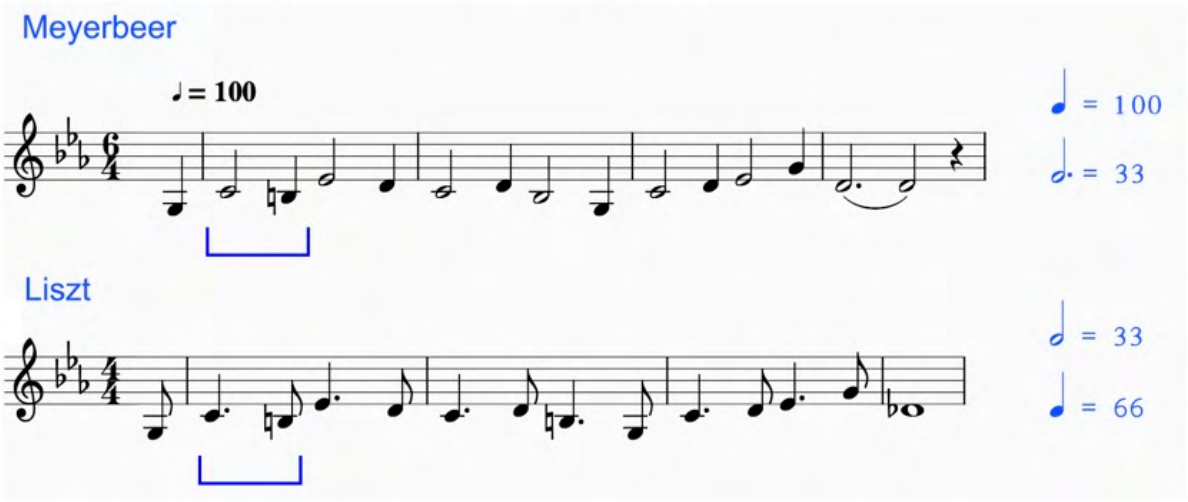
32. *Ibid.*, 244.

33. *Ibid.*, 328: "In the first piece, one of his own, there was a high chord with a very low bass. Of this he disapproved and had another chord put in an octave lower and before the high one. 'Such high chords so far from the bass do not sound well,' he said. 'Now I would not write them so.'"

34. Kenneth Hamilton, "Professor Kenneth Hamilton discusses Liszt's Legacy to his Students," 15 October 2012, video: 7:05, https://youtu.be/vaU-T8ZAHkc?t=425.

35. Consider the piano rolls of Bernhard Stavenhagen, devised "According to personal recollections of Liszt," and Arthur Friedheim, who added notes to his recording about revisions documented in letters but which never saw the light of day in a new edition.

Example 1: The "Ad nos" theme in renditions by Meyerbeer and Liszt.



Reviewers of the 26 September 1855 concert took particular notice of its length. The dedication concert lasted 45 minutes. Interestingly, the average duration of the same piece performed today is 30 minutes,[36] illustrating a discrepancy between today's performance approach and those at the time of Liszt. By analyzing Liszt's descriptions during his work with Winterberger and reviews of the performance by the press and by members of the audience, Ruchti was able to deduce the tempo and variations of the piece.

In order to recreate the result of the 1855 production, Ruchti shared his experience recording a 45-minute-long rendition of the "Ad nos" Fantasy and Fugue on the 85-register Ladegast organ at Merseburg in his "Liszt A Tempo" videos.[37] Since Liszt did not provide any metronome markings, Ruchti's source was the first act of Meyerbeer's opera, specifically "Le Prêche Anabaptiste," which culminates in a presentation of the "Ad nos" theme. There it bears a meter of common time, a tempo of "Moderato," and Meyerbeer's metronome marking of ♩ = 100. Comparing Liszt's main theme with the original Anabaptist theme in Meyerbeer's opera, we notice that Liszt transformed the rhythmical structure to expand the notes for his variations: the original theme was in 6/4, which Liszt changed to 4/4.

The tempo can be deduced by applying Meyerbeer's metronome marking to Liszt's composition, as shown in Example 1. Meyerbeer's metronome indication of ♩ = 100 in 6/4 corresponds to 𝅗𝅥. = 33 if we count the value of the isolated 𝅗𝅥. + ♩ structure; with Liszt, this structure becomes ♩. + ♪. Thus in order to calculate the tempo, we would not use the dotted half note anymore but the regular half note: conversion to 4/4 yields 𝅗𝅥 = 33, or ♩ = 66.[38]

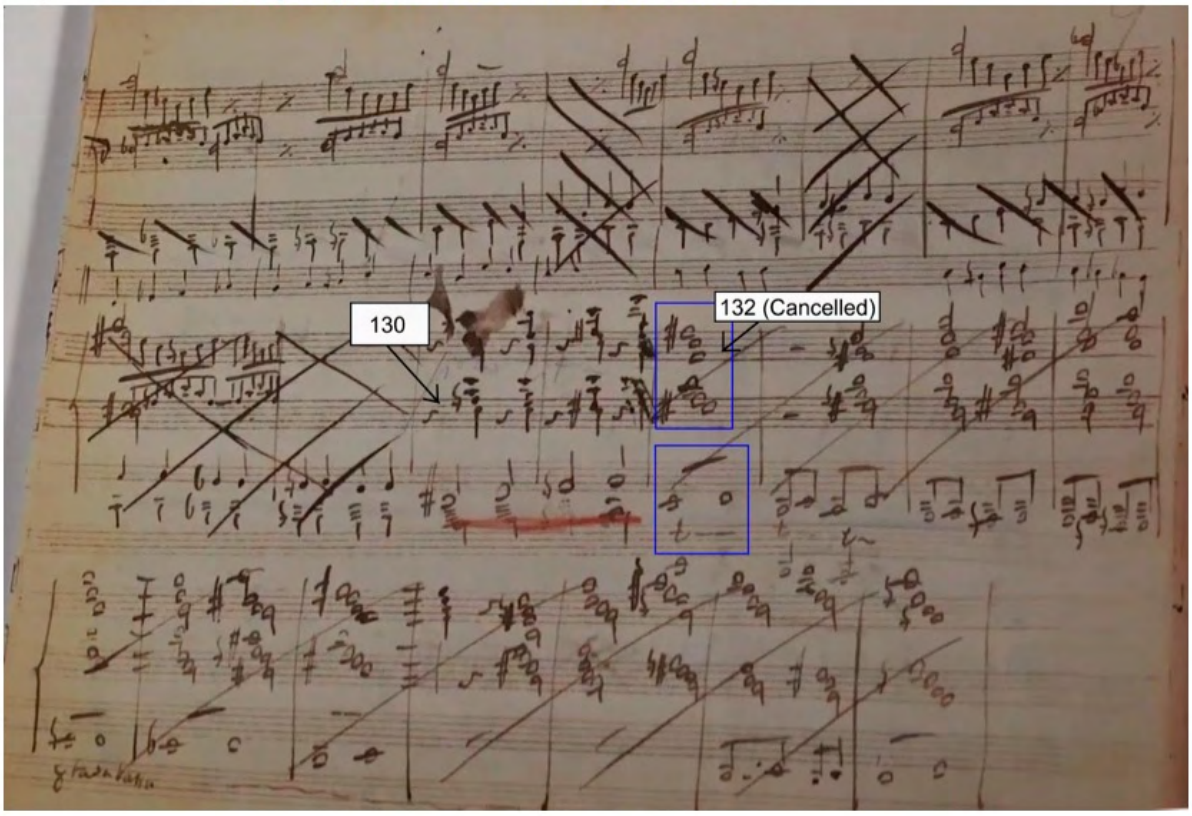
Liszt's score does not direct the performer to change tempo until m. 74. We can deduce that the tempo remains at ♩ = 66 until that point. At m. 74, Liszt's slow and progressive ac-

36. To give a few examples, Jean Guillou (French organist, 1930–2019) performs it in 29 minutes (recorded in 1996), Gillian Weir (New Zealand-British organist born in 1941) in 28 minutes (recorded in 2012), Daniel Roth (French organist born in 1942) in 27 minutes (recorded in 2013), Jeremy Filsell (English organist born in 1964) in 32 minutes (recorded in 2016), Sebastian Kuechler-Blessing (German organist born in 1987) in 30 minutes (recorded in 2014), Thomas Ospital (French organist born in 1990) in 33 minutes (recorded in 2017).

37. Bernhard Ruchti, "Franz Liszt – The A Tempo Project," A Tempo Project, November 2019, https://www.youtube.com/playlist?list=PLmyAMFyZ8tYkngWG2cBwGiL4wwZLtaQCD

38. To listen to the two excerpts and the full explanation, see Bernhard Ruchti, "The story behind Franz Liszt's "Ad nos, ad salutarem undam" (Segment III)," A Tempo Project, 24 November 2019, video: 3:36, https://youtu.be/C9dMfk1o-JA?t=216.

Figure 1: Franz Liszt, "Ad nos" Fantasy and Fugue, autograph score, cancelled passage. Reproduced from https://youtu.be/C9dMfk1o-JA?t=506 at 8:26.



celeration marking of "Animando poco a poco" dovetails into the "Allegro" marking at m. 96. The performer has to recall that the quarter note is the point of reference even in the "Allegro" passage. A moment of confusion comes at m. 132. "Tempo Giusto" is indicated in the printed edition, and is usually neglected today, as it is given in the middle of an acceleration section. This indication was uncommon in a score of the middle of the nineteenth century. Ruchti went back to the autograph score (see Figures 1 and 2) to solve the mystery: the note values in m. 132 are doubled compared to the note values of the print version. In the autograph version (see Figure 1), a section has been crossed out with full notes and eighth notes in the pedal. The printed version, shown in Figure 3, features half notes and sixteenth notes in the pedal. There is no difference in pitch between manuscript and printed edition; only the rhythmic values have changed, presumably to enhance readability. Liszt used the term "Tempo Giusto" in the printed version to indicate that at m. 132 the performer should play half the tempo. Thus its presence at m. 132 marks the point where ♩ = 132 equates to ♪ = 132.

Tempo is the foundation of Ruchti's attempt to get as close as possible to the 1855 premiere. The quarter note remains the reference unit of time throughout the whole piece. When the Adagio starts at m. 243, the tempo is slower than the beginning of the piece. Ruchti reminds us that "if Liszt doesn't write anything about changing the tempo, then he had no change in tempo in mind."[39] Therefore, the tempo of the Adagio is the tempo of the end of the first movement, unchanged until m. 357 where "un poco più di moto" is mentioned.

39. Ruchti, "The story behind Franz Liszt's "Ad nos, ad salutarem undam" (Segment III)," video: 12:34, https://youtu.be/C9dMfk1o-JA?t=754.

Figure 2: Liszt, "Ad nos" Fantasy and Fugue, autograph score, "Tempo Giusto" written in pencil. Reproduced from https://youtu.be/C9dMfk1o-JA?t=549 at 9:09.

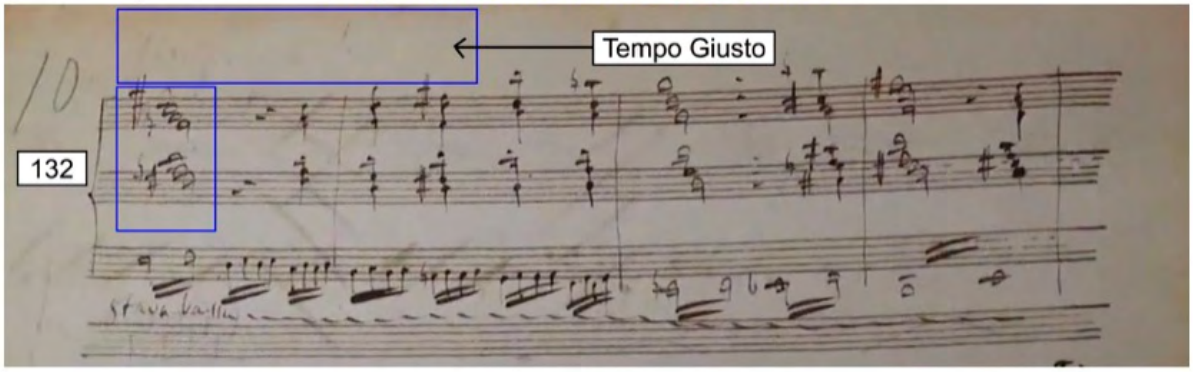
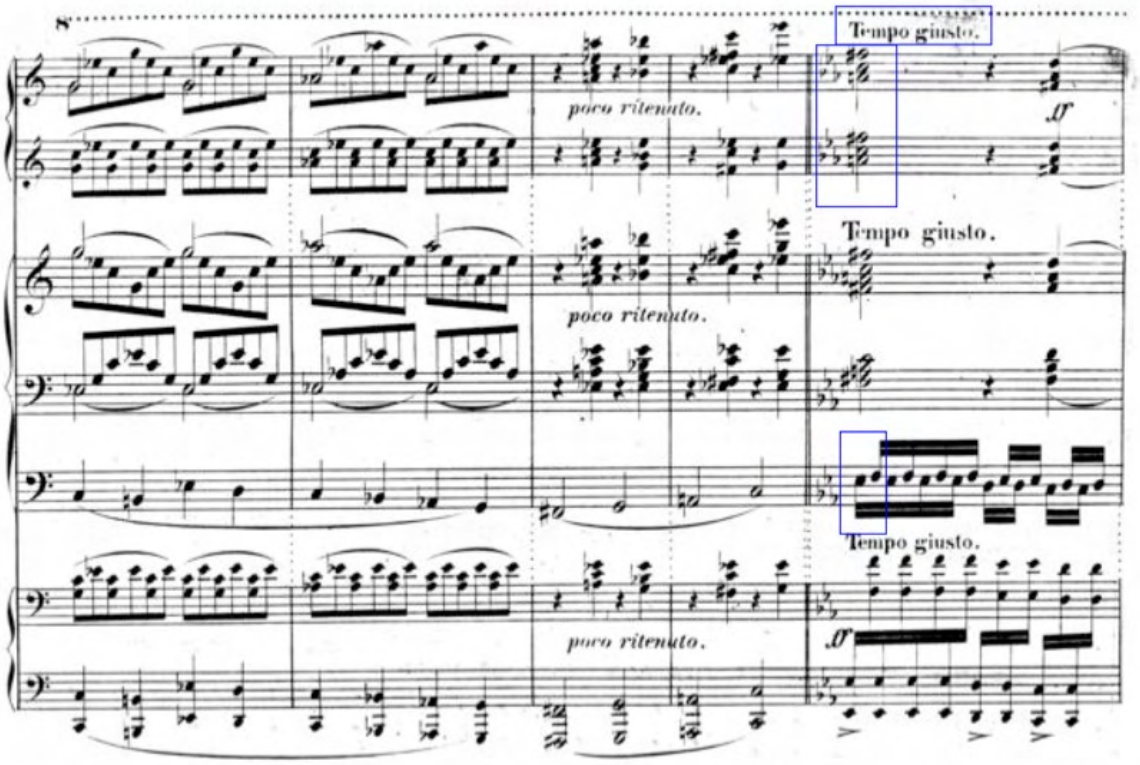


Figure 3: Liszt, "Ad nos" Fantasy and Fugue, first edition (1852), 12.



This section allows the organist to hold notes for a long time, knowing Liszt's preference for characterization. Ruchti describes it as "the place to perform magic." The Fugue, which follows the Adagio, requires precision in articulation and rhythm, involving accents, staccato, thirty-second notes, and grace notes. In the Vivace Molto, the performer must maintain the dynamism of the sixteenth notes underlying the main theme, with its Moderato character, until the end of the piece.

By the preserving piece's character and original performance length of forty-five minutes, Ruchti's performance delivers authenticity and depth rarely found in recordings of the "Ad nos" Fantasy and Fugue. The performance on the Ladegast organ can be heard as part of his "Liszt A Tempo" video series.[40]

40. Bernhard Ruchti, "Franz Liszt: Fantasy and Fugue on "Ad nos, ad salutarem undam" (Original duration)," A Tempo Project, 21 December 2019, https://youtu.be/zt3OqDn7U1w.

Early Metronome Markings in Schumann's Work

Unlike Liszt, Schumann gave metronome markings for some of his compositions. Yet several factors have caused musicians to question them. First, the structures of Schumann's compositions are often difficult to define with a single tempo, as we find many variations in tempo indications. Second, musicians who considered his metronome markings to be too fast supplied explanations such as defective metronomes or incorrect reporting of Schumann's intentions. For instance, in the preface to his 1868 edition of Cramer's Studies, Hans von Bülow notes:

> With reference to the metronomic signs, which, as has been said already, are copied exactly from the original, we cannot conceal that to us they appear excessively fast in the majority of the cases – not merely in respect to the time to be taken in practising them, but also that appropriate to their delivery simply as pieces of music. It is possible that, as happened with Beethoven, and more recently with Schumann (who is said to have metronomized after a defective Maelzel during an entire creative period), the relation of the compass of J. B. Cramer to our normal pyramid may have resembled that of a Fahrenheit to a Réaumur. [41]

After her husband's death, Clara Schumann published his complete works[42] between 1879 and 1893, supplemented in 1887 by her Instructive Edition[43] in which she provided new metronome markings and tempo indications for some of Robert Schumann's works.

This debate plays out in Schumann's Fantasy in C Major, Op. 17, written as a musical love letter to Clara Wieck and as homage to Beethoven and dedicated to Liszt. Manuscript evidence bears witness to a long compositional process: The autograph version, dated 1836, bears the genre title of "*Grande Sonate*" and the enigmatic "Obolen auf Beethovens Denkmal" (Mites towards Beethoven's Monument), with sections named "Ruinen," "Trophäen," and "Palmen" ("Ruins," "Trophies," "Palms"). Schumann offered the composition to his editor, Kistner, who refused it. Schumann made some edits in 1838,[44] which were then reflected in the first published edition of 1839. In her study of all known versions of the Fantasy, Sara Haltiwanger Bencini compiled changes between the autograph version and other versions, especially the first printed score:

> The ethos that pervades the entire work is suggested by Friedrich Schlegel, whose poem was placed on the back of the title page of the Fantasie:
>
> Durch alle Töne tönet / Im bunten Erdentraum / Ein leiser Ton gezogen / Für den, der heimlich lauschet. (Through all the tones / In Earth's many-colored dream /There sounds one soft long-drawn note / For the secret listener) (Translation by Schauffler, 1945)

41. Johann Baptist Cramer, "Hans von Bülow, 50 Selected Piano-Studies," trans. Albert Parsons (New York: G. Schirmer, 1904), Preface.

42. Clara Schumann, *Robert Schumann Werke* - Series I-XIV (Leipzig: Breitkopf und Härtel, 1879–93).

43. Clara Schumann, *Klavier-Werke von Robert Schumann. Erste mit Fingersatz und Vortragsbezeichnung versehene Instructive Ausgabe*, (Leipzig: Breitkopf und Härtel, 1887).

44. The original version of the final draft of 1838 was sold at auction by Sotheby's in London in 1977, and made publicly available.

> An inscription to Liszt was added to the title page: "Dichtungen für das Pianoforte H[er]rn, Franz Liszt, zugeeignet von Robert Schumann Op. 16." The second title "Dichtungen" had been crossed out, making way for the new title "Fantasie." Op. 16 now had been replaced by Op. 17. All titles of the movements had been struck out: "I. Ruinen"; "II. Siegesbogen"; "III. Sternbild". At the foot of the first page of music, Schumann instructed the printer to place three stars at the head of each of the three individual movements and to add Schlegel's motto to the reverse side of the title page. Revisions throughout the manuscript have been written in the margins and pasted in, as well as further instructions to the printer. The last movement originally closed with a quotation from the sixth song (VI. "Nimm sie hin denn, diese Lieder") in Beethoven's "An die ferne Geliebte" with changed harmonies by Schumann; Schumann later struck out this section and replaced it with the coda with which the Fantasie now closes.[45]

Note that the names of the movements briefly became "Ruinen," "Siegesbogen," "Sternbild" ("Ruins," "Victory Arch," "Constellation"), before being eliminated. With the addition of Schlegel's poem, such extra-musical material gives insights into the composer's state of mind.

Bencini also compared other publications of the composition, including all metronome, tempo, phrase, pedal, dynamic, and fingering markings, with a warning to performers that all versions should be considered in order to have a complete conception of Schumann's intentions:

> Each edition is of value only insofar as there is a strong understanding of Schumann's distinctive writing for the piano and an awareness of his imagination and poeticism. A knowledge of the original source and other editions is a prerequisite for a performance of the *Fantasie* and a discovery of what subsequent editions have done to alter or add to the original intent of Schumann. It is hoped that, reconciling the various editions with the autographed fair copy, the performer may draw conclusions and evaluations that will lead to a convincing interpretation and execution of the Fantasie.[46]

In a long letter to Schumann thanking him for the compositions he had sent him, and for the dedication, Liszt praises the Fantasy as "a work of the highest kind – and I am really proud of the honor you have done me in dedicating to me so grand a composition."[47] He then quotes Schlegel's poem and the emotion it brings: "I mean, therefore, to work at it and penetrate it through and through, so as to make the utmost possible effect with it."[48]

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45. Sara Haltiwanger Bencini, "Robert Schumann's Fantasie in C major for piano, opus 17 (1839): A comparative study of selected sources and their effect on the performer" (PhD diss., University of North Carolina at Greensboro, 1989), 21–22. The author quotes excerpts of Alan Walker, "Liszt and the C Major Fantasie, Op. 17: A Declining Relationship," *Music & Letters* 60, no. 2 (April 1979), 156–65.

46. *Ibid.*, 67.

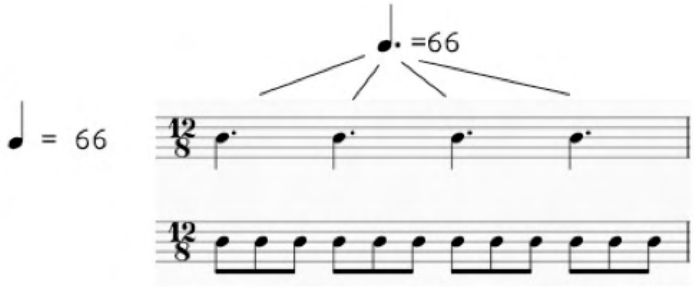
47. Franz Liszt, letter to Robert Schumann, 5 June 1839, in *Letters of Franz Liszt, Volume I. From Paris to Rome*, ed. La Mara, trans. Constance Bache (New York: Charles Scribner's Sons, 1894), 33–36.

48. *Ibid.* Although Liszt's correspondence suggests that he had performed the piece privately, it was not presented during the Bonn Beethoven Festival of 1845, where he conducted a series of concerts for the inauguration of the Beethoven monument. Clara Schumann did not perform it in public until 1866, ten years after her husband's death, and thirty years after the Fantasy had been composed.

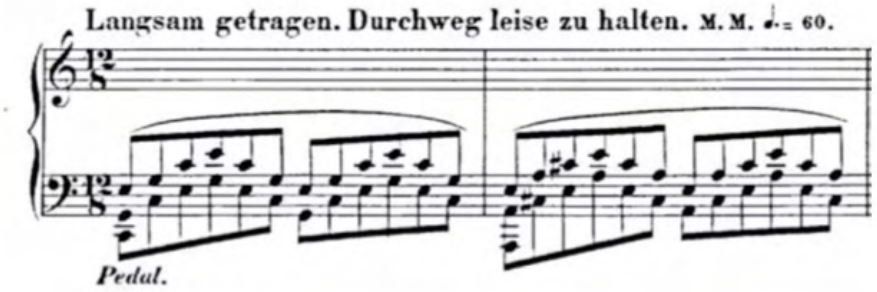
With regards to tempo, although all known versions—Bencini listed eleven—are of significance, three versions are of special importance: the autograph version of 1836, the first published edition of 1839, and Clara Schumann's 1887 Instructive Edition. Because of the poetic character of the piece and also because of its multiple changes of tempo, it is difficult to think of this music as being attached to a specific metronome marking. However, Schumann gave this indication so that performers could play his music the way he intended.

Longstanding concern about Schumann's mentronomic practice raises the option of double-beat counting as a possible explanation. As part of his "A Tempo" project, in a series of videos dedicated to Schumann, Ruchti examined the Fantasy, applying discoveries made in Beethoven and Liszt historical performances to Schumann's work.

After presenting the different versions and parts, Ruchti analyzes the third movement, which is the most striking. The time signature itself is 12/8. In his first edition, Schumann indicates ♩ = 66. There are two ways of reading this indication. As Ruchti explains,[49] since the 12/8 bar consists of four parts, it is possible that ♩ = 66 refers to the quarter parts of this bar structure—that is, ♩. = 66.



This seems to be the way Clara Schumann understood it, since in her Instructive edition she replaced the metronome marking with a dotted quarter note.[50] She even changed the tempo to ♩. = 60 and added that the movement be "Langsam getragen."

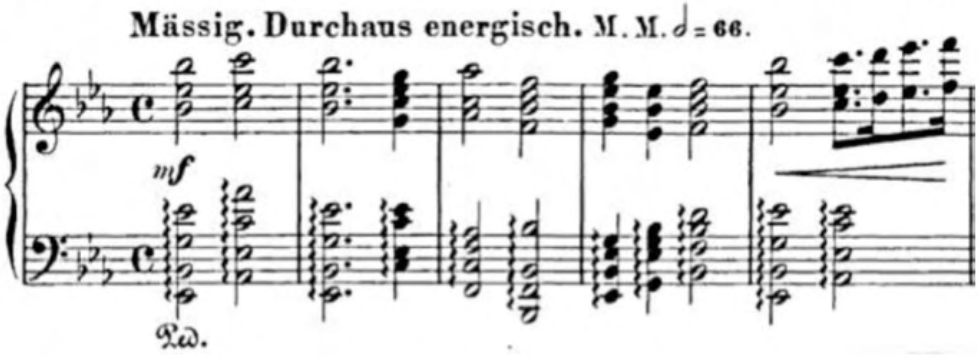


In other words, the interpreter should slowly carry something valuable and precious. Therefore, it seems that the option of slowing down the movement is a valid possibility. On several occasions, Ruchti plays some excerpts of this movement, both in single-beat and double-beat versions. In his opinion, the double-beat version rendition reflects the name of the movement better than the single-beat interpretation.

49. Bernhard Ruchti, "Schumann A Tempo: English Introduction (II)," A Tempo Project, 15 March 2020, video: 9:29, https://youtu.be/JE1Btcpzn1w?t=569. Note that all audio examples are also available in the videos.

50. Robert Schumann, *Phantasie*, ed. Clara Schumann, in *Klavier-Werke von Robert Schumann* (Leipzig: Breitkopf & Härtel, 1887).

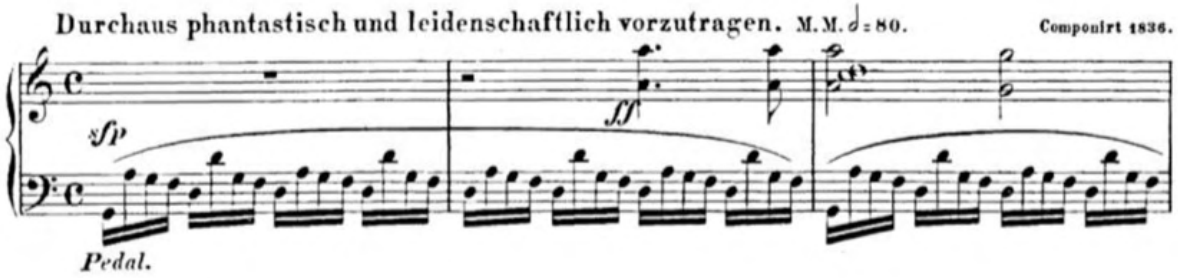
If the option is plausible for the third movement, what of the first two movements? Consider the second movement, with a time signature of 4/4 and a metronome marking of 𝅗𝅥 = 66.



While the metronome marking refers to the half note, common time is based on the quarter note. There is also the paradox of playing the movement moderately ("Mässig") and with energetically or resolutely throughout ("Durchaus energisch"). In the autograph, however, Schumann writes "Ruhig und glänzend" ("Calm and shining"). To muddy the waters further, Clara Wieck characterized the second movement as "erhaben" (sublime, majestic) in a letter to Schumann from 1839.[51] For a performer, then, to produce the calm and sublime character of the movement, the double-beat interpretation may be preferred.

"Phantastisch und leidenschaftlich" ("imaginatively and passionately") is how Schumann characterizes the first movement in the published version, to which he also assigned the metronome marking of 𝅗𝅥 = 80. Ruchti concludes:

> I use the metronome indication double beat half note = 80 or single beat quarter note = 80 as an average middle tempo and I speed up above it and slow down below it all the time, being inspired by Schumann's own remark in his autograph that the first movement should be played entirely freely. This way also allows to bring out that constant dissolution element I was talking about earlier. It is like the music constantly strikes eternity, and it is just wonderful to experience that poetic character in that tempo.[52]



51. Clara Schumann, letter to Robert Schumann, 4 June 1839, in *Clara und Robert Schumann, Volume II. 1839*, ed. Eva Weissweiler (Frankfurt am Main: Stroemfeld / Roter Stern, 1987), 549: "Mit wahren Entzücken, so recht innerlichem Genuss spiele ich immer deine Fantasie - der Marsch, Robert, der ist doch gar erhaben." ("With real delight, so real inner pleasure, I always play your Fantasy - the march, Robert, it is really sublime.")

52. Bernhard Ruchti, "Schumann A Tempo: English Introduction (III)," A Tempo Project, 29 March 2020, video: 15:10, https://youtu.be/VXl75ul5jQI?t=910. See also Ruchti's complete performance of the Fantasy at https://youtu.be/IX3qw2MWrD0.

Conclusion

Throughout our examination of tempo and performance history by way of the music of three nineteenth-century composers, we can observe significant interpretation variance due to single-beat and double-beat counting. Beethoven's metronome markings contributed to ambiguity within the same piece, where one movement could be performed as a single beat, and another as a double beat. For Liszt, who preferred to give indications as to the character of the piece rather than metronome markings and for which we occasionally have performance durations, discrepancies in publications can be reconciled by matching tempi to the other known factors. Schumann, whose metronome markings were scant, yields to examination of poetic references, since tempo variations permitted coherent single- and double-beat interpretations.

Studying these three cases, Ruchti determines the effects on performance in slower and faster tempi. His research demonstrates that although we will never be sure how early metronome markings were originally intended, double-beat counting provides clues. Yet, it is by no means a one-size-fits-all solution. Double-beat metronome counting needs to be evaluated for each piece, including the relation between metronome marking and time signature, in order to determine whether or not double-beat counting is appropriate for a given composition.

In the end, though, practice surpasses theory: what prevails is how performers understand a composer's intentions, and the extent to which they can use that information to enhance the audience experience.