

An Analysis of Quantz's Tempo Account

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January 15, 2015

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There were at least five different ways tempo was communicated during the Baroque era: via (1) general descriptions of the basic tempos of time signatures and/or tempo words, (2) written descriptions of tempos based on a universal and fairly stable reference point (e.g. the length of a second, the human pulse rate, the average human walking speed, and etc.), (3) pendulums (similar in principal to our metronomes), (4) suggested length of pieces in minutes and seconds, and (5) the maximum number of playable notes in a span of time.<sup>1</sup> In comparison to all of the other pieces of tempo evidence that we have from the Baroque era, the tempo account provided by German flutist and composer Johann Joachim Quantz (1697-1773)<sup>2</sup> in his book *Versuch einer Anweisung die Flöte traversiere zu spielen* (*On Playing the Flute*) of 1752 is by far one of the most (if not the most) informative and useful pieces of evidence we have on tempo in the Baroque era.<sup>3</sup> In a section of the chapter titled "Of the Duties of Those Who Accom-

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<sup>1</sup>To see many examples of these various types of evidences, consult Ephraim Segerman, "A Re-Examination of the Evidence on Absolute Tempo before 1700 - I," *Early Music* 24, no. 2 (May 1996): xx-xx, <http://www.jstor.org/stable/3128112> (accessed January 5, 2015) and Ephraim Segerman, "A Re-Examination of the Evidence on Absolute Tempo before 1700 - II," *Early Music* 24, no. 4 (November 1996), <http://www.jstor.org/stable/3128063> (accessed January 5, 2015). To learn more about the use of pendulums to record tempo see Rebecca Harris-Warrick, "Interpreting Pendulum Markings for French Baroque Dances," *Historical Performance* 6 (Spring 1993): 9-22.

<sup>2</sup> Edward R. Reilly and Andreas Giger, "Quantz, Johann Joachim," *Grove Music Online*, Oxford Music Online, Oxford University Press, <http://www.oxfordmusiconline.com/subscriber/article/grove/music/22633> (accessed January 5, 2015).

<sup>3</sup> A comparable account would be the one by Saint Lambert from the early 1700s. See Rebecca Harris-Warrick, *Principles of the Harpsichord by Monsieur de Saint Lambert*, (Cambridge: Cambridge University Press, 1984).

pany a Concertante Part"<sup>4</sup> he uses the first and second tempo communication methods listed above to assign tempos to most time signatures, tempo words, and dance pieces used during the late Baroque era. In the following, Quantz's tempo account will be analyzed to show not only his intended tempos but also to reveal his methodological approach to tempo. It will be shown that Quantz takes into account three important factors in deciding the tempo of a piece: (1) its time signature, (2) its assigned tempo word, and (3) the fastest notes used in the piece. Furthermore, it will be demonstrated that Quantz believed that a relationship similar to the relationship between common time and alla breve existed among pieces in triple and compound meters.<sup>5</sup> Lastly, several line graphs will be presented that show both Quantz's tempos and several other hypothetical tempos.

## Quantz's Tempo Account

Living in a time before the invention of the metronome, Quantz used the human pulse rate as a reference point in his tempo account. Admittedly, the human pulse rate can be quite variable making any attempt to use it as a reference point to accurately communicate tempo a futile endeavor. However, Quantz himself recognized this problem and addressed it by explicitly stating that the pulse rate he had in mind was 80

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<sup>4</sup> In the modern English translation Quantz's tempo account is found on pages 282-92. Johann Joachim Quantz, *On Playing the Flute*, Translated by Edward R. Reilly, (London: Faber & Faber, 1966 [1752]).

<sup>5</sup> I have not seen it suggested in modern literature on performance practice that this relationship in triple and compound meters might have existed in the Baroque era so this could be an overlooked or under appreciated fact.

bpm.<sup>6</sup> He further allowed the reference point tempo to vary by as much as five beats per minute making the range of this reference point 75-85 bpm.<sup>7</sup> Additionally, at the beginning of his tempo account he stated that he did not intend that the tempos derived from his account would be rigidly observed. Instead, he intended that any tempos derived from his account would be taken as approximate values.<sup>8</sup>

### Tempo Categories

Before going into the tempos Quantz assigned to the various time signatures, tempo words, and dance types, it is important to understand his tempo classification and terminology. Quantz listed “four main categories” of tempo that existed for pieces in common time (or 4/4) and alla breve time:<sup>9</sup>

1. Allegro assai, which includes the
  - Allegro di molto
  - Presto
  - etc.
2. Allegretto, which includes the
  - Allegro ma non tanto
  - Allegro non troppo
  - Allegro non presto
  - Allegro moderato
  - etc.
3. Adagio cantabile, which includes the

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<sup>6</sup>“Fix approximately eighty pulse beats to a minute as the standard.” Johann Joachim Quantz, *On Playing the Flute*, Translated by Edward R. Reilly, (London: Faber & Faber, 1966 [1752]), 288.

<sup>7</sup> “A few pulse beats more or less make no difference in this regard. For example, five pulse beats more in a minute, or five less, in forty bars shorten or lengthen each bar by only a semi-quaver. This amounts to so little that it is imperceptible.” Ibid., 288.

<sup>8</sup> “...I now consider it necessary to give an idea of how the approximate tempo required for individual pieces can be determined.” Ibid., 282-3.

<sup>9</sup>Ibid., 284.

- Cantabile
  - Arioso
  - Larghetto
  - Soave
  - Dolce
  - Poco Andante
  - Affettuoso
  - Pomposo
  - Maestoso
  - Alla Siciliana
  - Adagio spiritoso
  - etc.
4. Adagio assai, which includes the
- Adagio pesante
  - Lento
  - Largo assai
  - Mesto
  - Grave
  - etc.

Each of these four categories has its own basic tempo that is substantially different from the others.<sup>10</sup> Allegro assai is the fastest category while Adagio assai is the slowest.<sup>11</sup> However, the specific tempo descriptions within each of these categories do not necessarily indicate a particular tempo: "Each of these titles, to be sure, has an individual meaning of its own, but it refers more to the expression of the dominant passions in each piece than to the tempo proper. If the aforementioned four principle categories

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<sup>10</sup> Ibid., 284.

<sup>11</sup> Ibid., 284.

are clearly grasped, the tempos of the others can be learned more easily, since the differences are slight.”<sup>12</sup>

### **The Faster and Slower Categories of Tempo**

Quantz explained that there are two “Principle categories of tempo” for duple meters.<sup>13</sup> In duple meter there is common time (or “tempo minore”) indicated with C and alla breve (or “tempo maggiore”) indicated with  $\text{C}\!\!\!\diagup$ .<sup>14</sup> Alla breve is twice as fast as common time but the notes values used in alla breve are twice as long.<sup>15</sup> A common time Allegro piece consists mostly of sixteenth notes in its passage work.<sup>16</sup> An alla breve Allegro piece however consists mostly of eighth notes in its passage work.<sup>17</sup>

Triple and compound meters have an equivalent two principle categories of tempo, although Quantz did not give any names for these two categories.<sup>18</sup> From here on they will be referred to as the “faster category” and the “slower category.” In 3/4, if only eighth notes occur, the piece is in the faster category (i.e. the triple meter equivalent of alla breve).<sup>19</sup> In 3/8, if only sixteenth notes occur, the piece is in the faster category.

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<sup>12</sup> Ibid., 284.

<sup>13</sup> Ibid., 284-5.

<sup>14</sup> Ibid., 284-5.

<sup>15</sup> Ibid., 284-5.

<sup>16</sup> Ibid., 284-5.

<sup>17</sup> Ibid., 284-5.

<sup>18</sup> Ibid., 285.

<sup>19</sup> Ibid., 284-5.

ry. In 6/8 and 12/8, if only eighth notes occur, then the piece is the faster category.<sup>20</sup> If, however, there are faster notes in pieces using the above mentioned meters (i.e. sixteenths or eighth-note triplets in 3/4, thirty-second notes or sixteenth note triplets in 3/8, or sixteenth notes in 6/8 and 12/8), then they are in the slower category (i.e. the triple meter equivalent of common time) which makes them twice as slow.<sup>21</sup>

All of these classification rules are succinctly summarized in the following:

#### Duple

- If it is marked with C...
  - it is in the slower category (i.e. Common time or tempo minore)
- If it is marked with the  $\text{C}\grave{\text{}}$ ...
  - it is in the faster category (i.e. Alla breve or tempo maggiore)

#### Triple

- If it is in 3/4 and its passage work consists of...
  - eighth notes, then it is in the...
    - faster category (tempo maggiore equivalent)
  - sixteenth notes, then it is in the...
    - slower category (tempo minore equivalent)
- If it is in 3/8 and its passage work consists of...
  - sixteenth notes, then it is in the...
    - faster category (tempo maggiore equivalent)
  - thirty-second notes, then it is in the...
    - slower category (tempo minore equivalent)

#### Compound

- If it is in 6/8 or 12/8 and its passage work consists of...
  - eighth notes, then it is in the...
    - faster category (tempo maggiore equivalent)
  - sixteenth notes, then it is in the...
    - slower category (tempo minore equivalent)

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<sup>20</sup> Ibid., 284-5.

<sup>21</sup> Ibid., 285.

## Quantz's Tempos in Metronomic Terms

### Common Time and Alla Breve

For duple meter Quantz gave the tempos for each of the four categories under common time and alla breve in relation to a human pulse rate fixed at approximately 80 bpm. The following tempos have been converted to modern metronome markings by Edward R. Reilly who produced the modern English translation of Quantz's work:<sup>22</sup>

1. Allegro assai
  - Common time:
    - Half note = 80 bpm
  - Alla breve
    - Whole note = 80 bpm
2. Allegretto
  - Common time
    - Quarter note = 80 bpm
  - Alla breve
    - Half note = 80 bpm
3. Adagio cantabile
  - Common time
    - Eighth note = 80 bpm
  - Alla breve
    - Quarter note = 80 bpm
4. Adagio assai
  - Common time
    - Eighth note = 40 bpm
  - Alla breve
    - Quarter note = 40 bpm

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<sup>22</sup> Ibid., 285-7.



There is then a category that Quantz mentioned is "...the mean between the Allegro assai and the Allegretto."<sup>23</sup> This includes pieces labeled as "...Poco Allegro, Vivace, or, most of all, simply with Allegro alone."<sup>24</sup>

#### Allegro

- Common time
  - Quarter note = 120 bpm
- Alla breve
  - Half note = 120 bpm

#### 2/4

The only other duple meter sign Quantz discussed is 2/4 for which he only gave its tempo when marked Allegro: half note = 80 bpm.<sup>25</sup> Interestingly, the Allegro of this time signature is as fast as the tempo of the Allegro assai in common time. Perhaps therefore you might say that for Quantz, 2/4 pieces are generally faster than common time pieces.

#### 3/4

For 3/4 Quantz gave the tempos for most of the tempo categories.<sup>26</sup>

#### Allegro assai<sup>27</sup>

- Faster category
  - Mostly made up of eighth notes
  - Dotted half note = 107 bpm

#### Allegro

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<sup>23</sup> Ibid., 286.

<sup>24</sup> Ibid., 286.

<sup>25</sup> Ibid., 286.

<sup>26</sup> Ibid., 286-7.

<sup>27</sup> Quantz here specifically mentioned "presto" but since presto is part of the Allegro assai category, I have decided to use "Allegro assai" instead for consistency.

- Faster category
  - Mostly made up of eighth notes or sixteenth note triplets<sup>28</sup>
  - Dotted half note = 80 bpm
- Slower category
  - Mostly made up of sixteenth notes or eighth note triplets
  - Quarter note = 160 bpm

#### Adagio cantabile

- Faster category
  - Characterized by quarter note movement in the bass combined with a more "arioso" than "melancholy" melody
  - Quarter note = 80 bpm
- Slower category
  - Movement of bass is in eighth notes and melody is more "melancholy" than "arioso"
  - Eighth note = 80 bpm

#### Adagio assai

- Faster category<sup>29</sup>
  - Movement of bass is in eighth notes
  - Quarter note = 40 bpm

It is interesting to note that the 3/4 tempos listed are mostly faster than their common time counterparts. It is also interesting to note that the difference between the faster and slower categories in 3/4 is not always exactly twice as fast like it is in duple meters. The faster category tempo 3/4 Allegro tempo is only 1.5 times faster than the slower category 3/4 Allegro tempo.

### 3/8

The tempos given for 3/8 are similar to those given to 3/4:<sup>30</sup>

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<sup>28</sup> When describing the faster category tempo of 3/4 he did not mention "Allegro" but only "very fast" but since he explicitly described Presto immediately after, this is probably meant for 3/4 Allegro pieces.

<sup>29</sup> Quantz did not list a slower category tempo for a 3/4 Adagio assai piece.

<sup>30</sup> Ibid., 286-7.

Allegro assai<sup>31</sup>

- Faster category
  - Mostly made up of sixteenth notes
  - Dotted quarter note = 107 bpm

Allegro<sup>32</sup>

- Faster category
  - Mostly made up of sixteenth notes
  - Dotted quarter note = 80 bpm

Adagio cantabile<sup>33</sup>

- Faster category
  - Eighth note = 80 bpm

6/8

Allegro<sup>34</sup>

- Faster category
  - Mostly eighth notes
  - Dotted-quarter = 160 bpm

9/8

Allegro<sup>35</sup>

- Faster category
  - Mostly eighth notes
  - Dotted-quarter = 160 bpm

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<sup>31</sup> Quantz here specifically mentioned “presto” but since presto is part of the Allegro assai category, I have decided to use “Allegro assai” instead for consistency.

<sup>32</sup> Like with 3/4, when describing the faster category tempo of 3/8 he did not mention “Allegro” but only “very fast,” but since he explicitly described Presto immediately after, this is probably meant for 3/8 Allegro pieces.

<sup>33</sup> Quantz does not explicitly state whether a 3/8 Adagio cantabile piece at this tempo might be an instance of a faster category or slower category tempo. It seems likely however he would consider it as part of the faster category since the 3/4 equivalent of 3/8 Adagio cantabile (mentioned immediately before) is definitely a faster category tempo.

<sup>34</sup> Ibid., 286.

<sup>35</sup> It is presumably the tempo of a faster category 9/8 (made up of eighth notes) since it is the same as the tempo given for the faster category 6/8 Allegro

## 12/8

Allegro<sup>36</sup>

- Faster category
- Mostly eighth notes
- Dotted-quarter = 160 bpm

Adagio Cantabile<sup>37</sup>

- Faster category
- Dotted-quarter = 53 bpm

## Dance Tempos

Quantz also listed tempos for a number of dance types using the same method:<sup>38</sup>

Entrée, loure, and the courante:

- quarter note = 80 bpm

Sarabande:

- quarter note = 80 bpm

Chaconne:

- half note = 80 bpm

Passecaille:

- somewhat faster than a chaconne

Musette:

- Common time
  - quarter note = 80 bpm
- 3/8
  - eighth note = 80 bpm

Furie:

- 2/4

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<sup>36</sup> It is presumably the tempo of a faster category 12/8 (made up of eighth notes) since it is the same as the tempo given for the faster category 6/8 Allegro

<sup>37</sup> He specifically mentioned "alla Siciliana", not Adagio cantabile but since alla Siciliana is part of the Adagio cantabile category, I decided to label it as Adagio cantabile instead for consistency. He also did not explicitly state whether this Adagio cantabile 12/8 tempo is of the faster or slower category. If you compare the two 12/8 tempos to their common time counterparts you will see that the proportion between them is roughly the same ( $53/40 = 1.325$  and  $160/120 \approx 1.333$ ). This implies to me that both 12/8 tempos are of the same category. Since we know that the 12/8 Allegro tempo given is of the faster category, then the 12/8 Adagio cantabile tempo should probably be too.

<sup>38</sup> Ibid., 291-2.

- half note = 80 bpm
  - 3/4
  - quarter note = 160 bpm
- Bourrée:
- a bar = 80 bpm
- Rigaudon:
- a bar = 80 bpm
- Gigue (in 6/8):
- dotted half note = 80 bpm
- Canarie (in 6/8):
- dotted half note = 80 bpm
- Menuet:
- quarter note = 160 bpm
- Passepied:
- somewhat faster than a menuet
- Tambourin:
- somewhat faster than a bourrée or a rigaudon
- March (alla breve):
- half note = 80 bpm

## Graphing Quantz's Tempos

Line graphs can allow us to more effectively grasp the many different tempos

Quantz gave for all of the different time signatures. The following graphs position metronomic values on the y-axis and the tempo categories on x-axis. All of the tempos that Quantz gave for each tempo category are shown by +, o, and/or □. Quantz did not assign tempos for every possible time signature and tempo word combination. This deficiency is especially apparent in compound meters. For combinations of tempo words and time signatures that Quantz did not cover, I deduced hypothetical tempos each of which is represented by an x. My reasons for each of these hypothetical tempos will be explained shortly. Also shown is the deviation that can happen when you take the pulse

rate to be 75-85 bpm rather than an exact 80 bpm. The lines connecting each of the points can be helpful in finding a tempo for any tempo word that might fall in between two tempo categories. "Andante" for instance might be such a tempo word.<sup>39</sup> Nowhere in Quantz's tempo account does he cover Andante. He only covers Poco Andante which he includes under Adagio cantabile. This might suggest that the proper tempo for Andante lies in between the Adagio cantabile and Allegretto categories. Quantz, relying solely on a fixed reference point of 80 bpm, may have not been able to adequately communicate the tempo of Andante so instead he omitted the Andante tempo from his account.<sup>40</sup> If this is the case then in common time Andante might be about 60 bpm.<sup>41</sup>

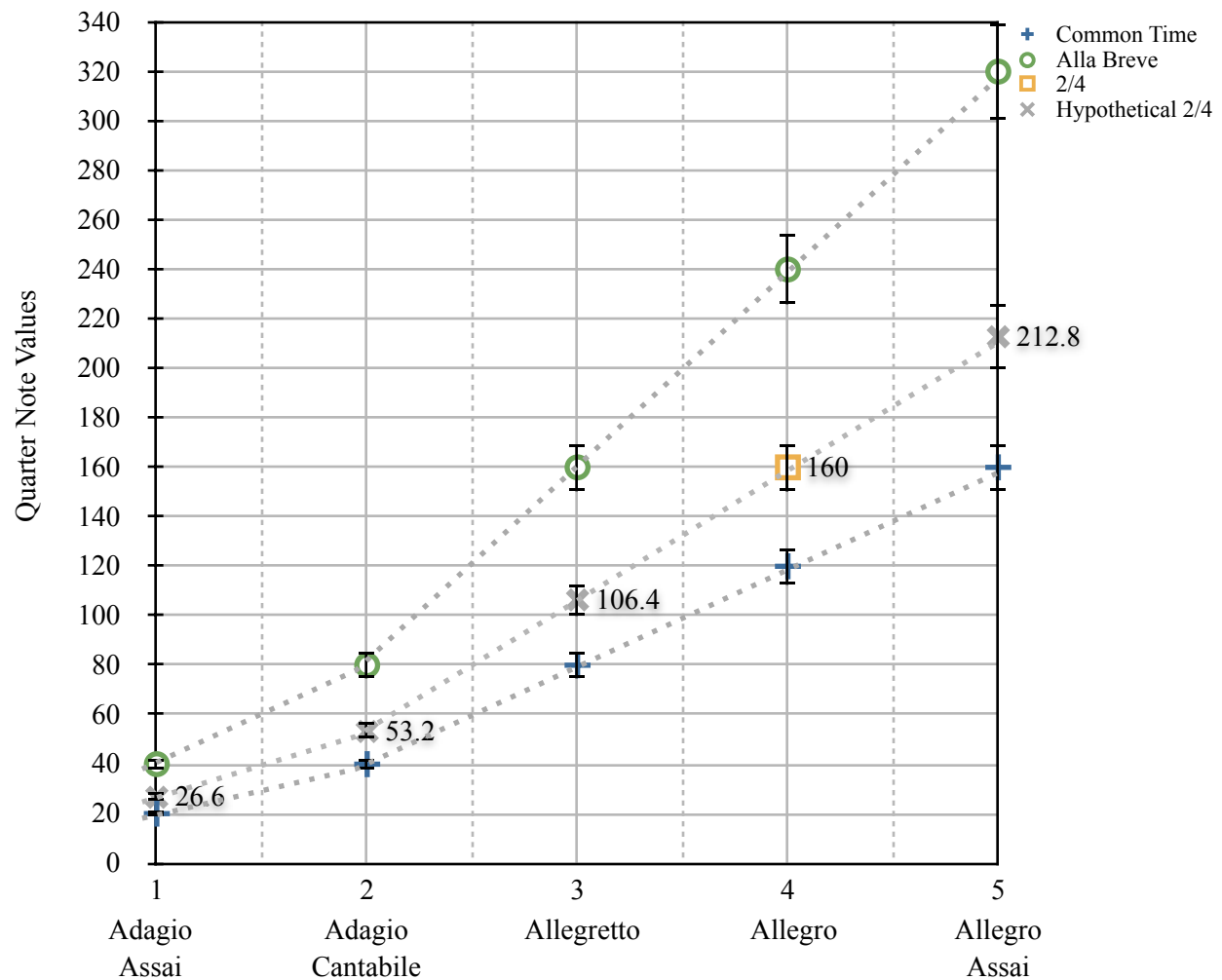
Figure 1 shows the tempos for common time, alla breve, and 2/4. With the exception of the Allegro 2/4 tempo, all of the other 2/4 tempos are hypothetical. They were derived by dividing the 2/4 Allegro tempo by the common time Allegro tempo ( $160/120 \approx 1.33$ ) and multiplying that quotient by all of the other common time tempos.

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<sup>39</sup> Klaus Miehling, "Correspondence," *Early Music* 29, no. 1 (February 2001): 154, <http://em.oxfordjournals.org/content/XXIX/1/153> (accessed January 5, 2015).

<sup>40</sup> Ibid., 154.

<sup>41</sup> Ibid., 154.

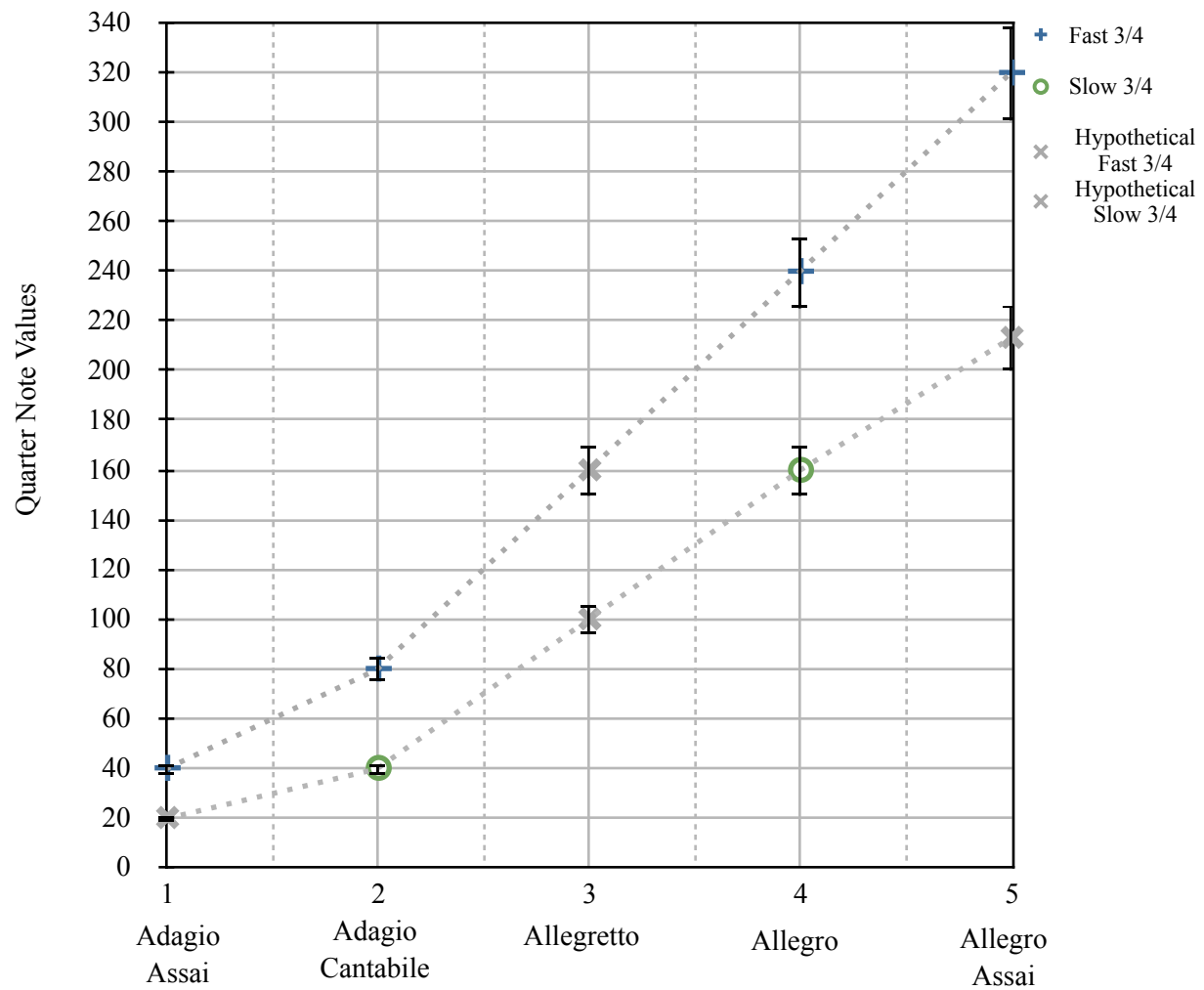


**Figure 1. Common time, alla breve, and 2/4 tempos**

3/4 tempos are shown in figure 2 below. Both fast and slow category tempos are shown. The slow category Adagio assai tempo was derived by dividing its corresponding fast category tempo in half. The Allegretto tempos for both faster and slower categories are simply the mean between the Adagio cantabile and the Allegro tempos. Lastly, the slower category Allegro assai tempo was arrived at by taking the quotient that results from a division of the faster category and and slower category Allegro tempos

( $240 / 160 = 1.5$ ) and dividing the faster category Allegro assai by the same quotient

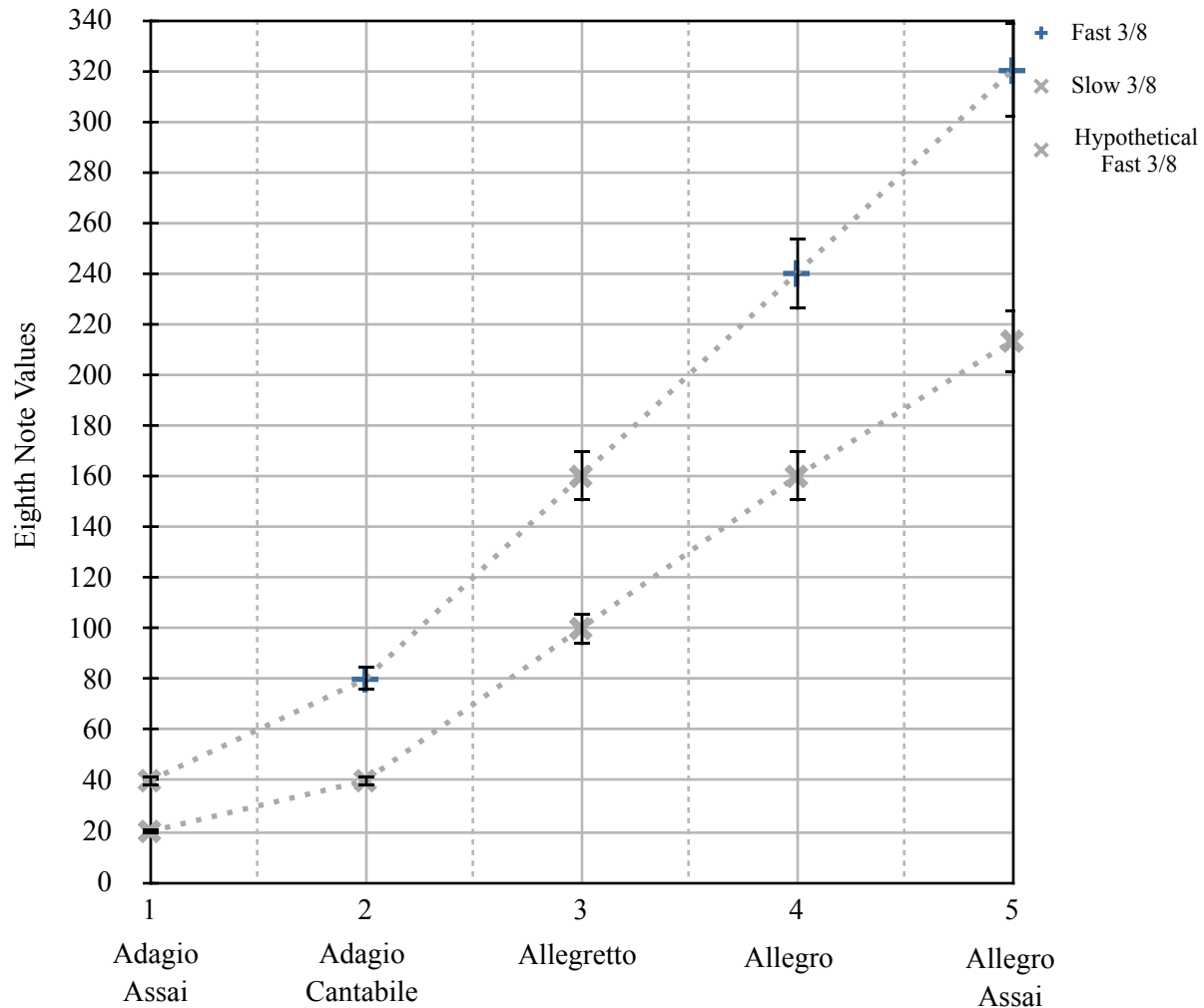
( $320 / 1.5$ ) giving us approximately 213 bpm for the slower category Allegro assai.



**Figure 2. 3/4 tempos**



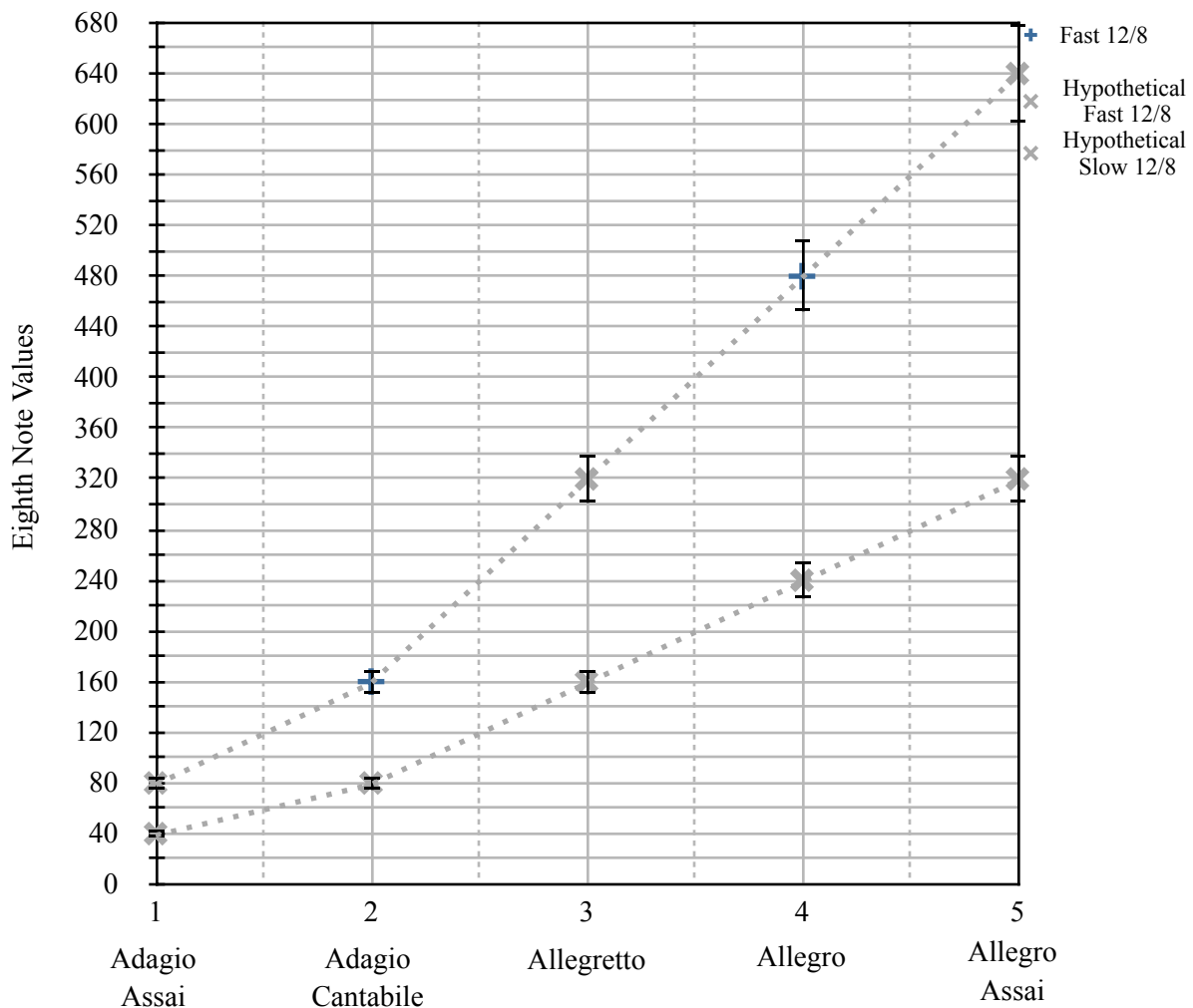
Quantz gave the same tempos to  $3/4$  and  $3/8$ . In keeping with this trend, all hypothetical  $3/8$  tempos in figure 3 below match the  $3/4$  tempos shown in figure 2.



**Figure 3.  $3/8$  tempos**

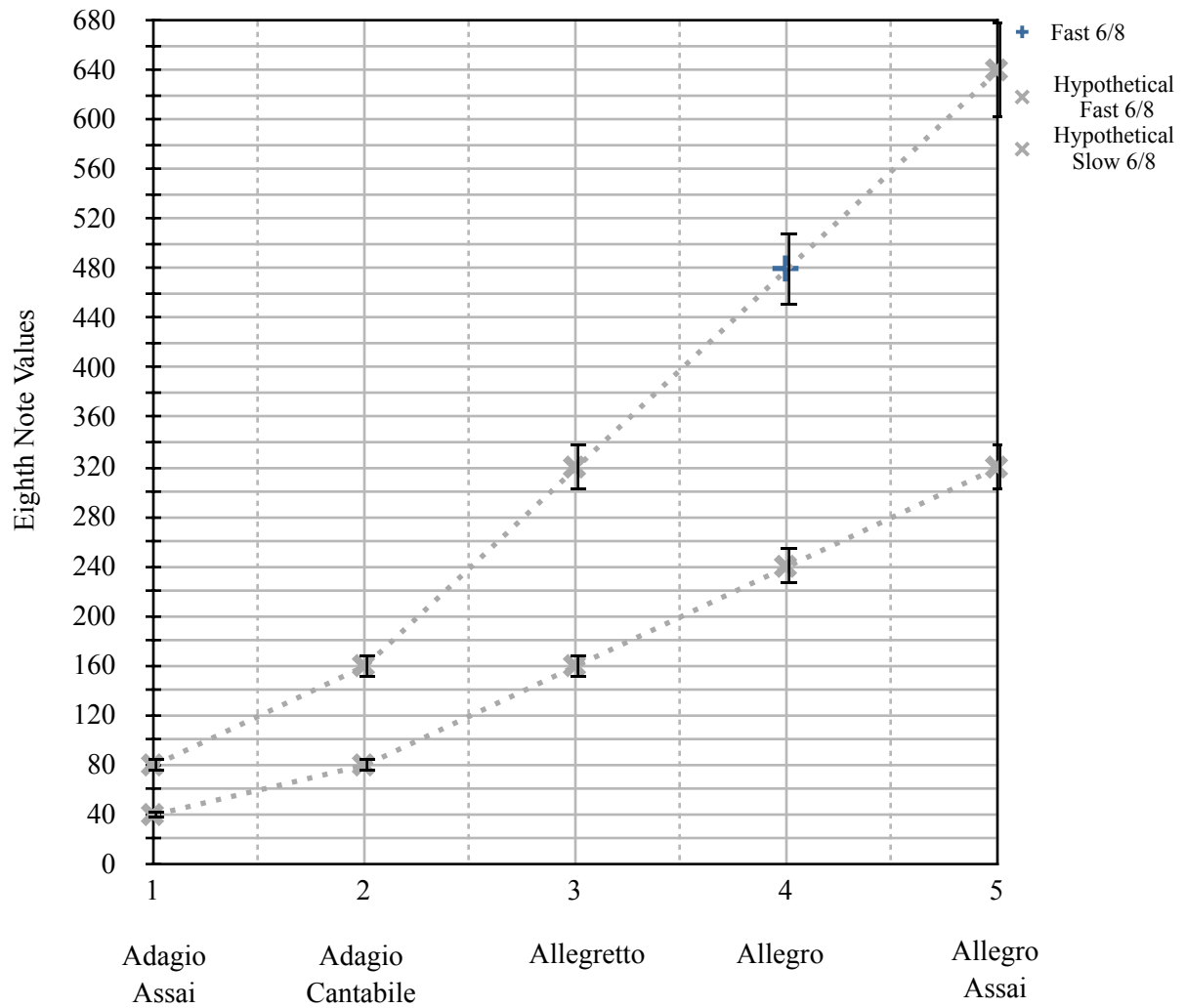
Figure 4 below shows the two tempos given for the faster category of  $12/8$  plus several hypothetical tempos of my own. The slower category Adagio cantabile tempo is half the speed of its faster category equivalent. Both Adagio assai tempos are half of the Adagio cantabile tempos. The Allegretto category tempos are twice as fast as the Adagio

cantabile tempos. Likewise, the Allegro assai tempos are twice as fast as the Allegretto tempos. The slower category Allegro tempo is merely the mean between the Allegretto and the Allegro assai categories.



**Figure 4. 12/8 tempos**

Figures 5 and 6 below show Quantz's tempos for 6/8 and 9/8 plus several other hypothetical tempos which all come from the tempos in the 12/8 diagram above.



**Figure 5. 6/8 tempos**

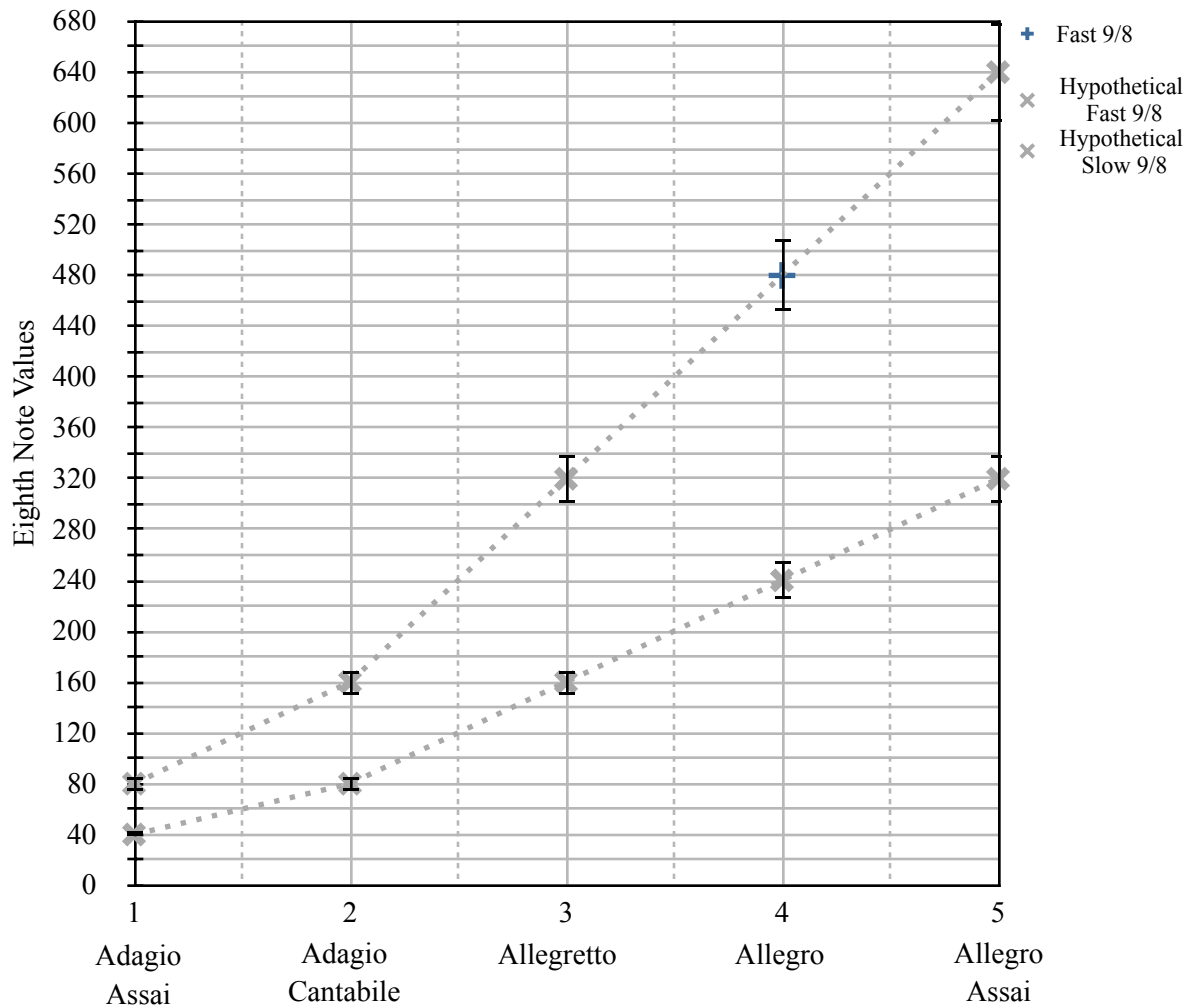


Figure 6. 9/8 tempos

## Conclusion

As demonstrated, Quantz's tempo system is quite sophisticated. His method factors into account the time signature, tempo word, and notational characteristics of a given piece of music in determining its appropriate tempo. In analyzing Quantz's tempo account several interesting relationships between time signatures were revealed: (1) alla breve tempos are twice as fast in relation to common time tempos, (2)  $3/4$  tempos are generally faster than common time tempos, (3)  $3/8$  and  $3/4$  have the same tempos, (4)  $2/4$  tempos are faster than common time tempos, and (5) compound meters  $6/8$ ,  $9/8$ , and  $12/8$  probably all share the same tempos. Another important finding was that Quantz believed that pieces in triple and compound meter had relationships analogous to the relationship between common time and alla breve.

## References

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My paper is an expanded and revised version of this website posting I wrote two years ago. I am including it here for completeness.

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