Making sense of the 'vibrato wars': Exploration and application of varying vibrato in Handel's ***opera seria*** arias

by

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Abstract

Making sense of the 'vibrato wars' joins the lively and contentious conversation on vibrato use during the Baroque era and aims to clarify a performance practice for vocal vibrato application in the Italian late Baroque. In contrast to most scholarly work on the subject, this project explores the vocal and instrumental treatises of the Baroque through the lens of a singer instead of an instrumentalist. In addition, the essential influence of the rhetorical performance practice of the Baroque is put front and centre along with the practical application of key aspects of Italian late Baroque vocal production including the use of a neutral and flexible laryngeal position in tandem with a lower breath pressure.

Embarking on a hermeneutic journey of reading the historical accounts and treatises with the additional aid of the scientific community's research on vocal vibrato, I applied the information to five arias from Handel's *Giulio Cesare*. My aim was to restore lost information but also strip away some of the previous assumptions and near-religious fervor around the practice of vocal vibrato use in the Baroque.

Through the exploration and application of rhetorical performance practice in Handel's Cleopatra arias, I discovered that my vibrato was unconsciously changing to meet the artistic demands of rhetorical performance practice with the result being a highly nuanced and constantly varying vibrato which shifted along a spectrum from a straight sounding tone to a large extent-vibrato. Application of the Italian Baroque techniques of neutral larynx, lower breath pressure and lighter high notes, resulted in an increased ease in agility and allowed for a much more efficient waxing and waning of vibrato variation, than did my modern vocal technique. Additionally, less vibrato was produced in my sound overall perhaps due to the more neutral laryngeal position and lower amount of breath pressure in use throughout my range.

I concluded that vibrato was likely used by Italian late Baroque singers as a varying ornamental device that was sometimes consciously applied in terms of reducing it to straight tone but that otherwise was constantly waxing and waning with rhetorical intentions.

Résumé

L'utilisation du vibrato vocal à l'époque baroque suscite bien souvent des discussions animées et controversées au sein de la communauté des chanteurs. Ce travail vise à clarifier la pratique et l'interprétation du vibrato vocal à la fin de l'époque baroque en Italie. Contrairement à la plupart des travaux érudits sur le sujet qui rapporte plutôt le point de vue des instrumentistes, ce projet offre la perspective du chanteur sur les traités vocaux et instrumentaux de l'époque baroque. En outre, l'influence primordiale de la rhétorique dans l'interprétation musicale de l'ère baroque ainsi que les aspects pratiques de la production vocale baroque, incluant la position neutre et flexible du larynx et la faible pression buccale, sont mis de l'avant.

À travers un parcours herméneutique de lecture de traités historiques et de recherches scientifiques sur le vibrato vocal, j'ai appliqué une nouvelle approche à mon interprétation de cinq airs de Giulio Cesare de Haendel. Mon but était de restaurer certaines informations manquantes, mais aussi de remettre en question certaines des hypothèses existantes et une ferveur quasi-religieuse autour de la pratique du vibrato vocal à l'époque baroque.

L'exploration et l'application de la rhétorique baroque aux airs Cleopatra de Haendel m'ont permis de découvrir que mon vibrato s'adaptait inconsciemment aux exigences artistiques dictées par la rhétorique. Mon vibrato devenait très nuancé et variait constamment selon les besoins, allant de sons au vibrato pratiquement inexistant aux sons dotés de vibrato très large. L'utilisation des techniques vocales suggérées en Italie à l'ère baroque, dont un larynx neutre, une faible pression buccale et des notes aigües douces, a augmenté mon agilité vocale et m'a

permis de contrôler, de façon plus efficace qu'avec les techniques d'aujourd'hui, les variations nuancées de mon vibrato. Avec cette approche, mon son semble comporter moins de vibrato dans son ensemble, peut-être en raison de la position laryngée plus neutre et de la plus faible pression buccale.

En conclusion, les chanteurs italiens de la fin de l'époque baroque utilisaient probablement le vibrato en tant que moyen d'ornementation variable. Bien que celui-ci ait pu être consciemment utilisé de façon à créer des sons sans vibrato, en général, il variait, augmentant et diminuant, selon les intentions rhétoriques.

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Introduction

> Historical performance must be recognized as an evolving and necessarily incomplete paradigm…-*Dreyfus*[1]

Nowhere is this more true than in the case of the 'vibrato wars' of the historically inspired performance (HIP) realm. I have felt these evolutionary shifts in 'historically inspired' vibrato usage throughout my 20 plus years of singing Baroque music professionally---both geographically and through the passing of time. What was acceptable and promoted in my early days of performing in the first half of the 1990s was a straight tone with little use of vibrato. By the time I reached the Opéra de Paris in 2002 and had a more sizeable voice and advanced technique, my application of more, but not *continuous,* vibrato in my roles of Handel operas was perfectly acceptable to the early music conductors I was working with in France.

Fast forward to 2016 and all varieties of vibrato application are deemed 'historically inspired'; it simply depends on who you ask. There is no real consensus. Each early music group or conductor has their own interpretation of the treatises in terms of vibrato use and those tastes and styles vary widely from city to city and country to country. This is somewhat predictable as our biases and tastes always inform how we interpret information, but the other issue is that it seems that few of the people making stylistic decisions are singers by trade.[2] The information never seems to be filtered through a singer and thus lacks some level of practical understanding of how the human voice responds to the demands of Baroque music.

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[1] Laurence Dreyfus, "Early Music Defended Against its Devotees: A Theory of Historical Performance in the Twentieth Century." (*The Musical Quarterly*, Vol. 69, No. 3 Summer, 1983), 313.
[2] Richard Bethell, "Vocal Vibrato in Early Music" (Presented at the National Early Music Association International Conference in association with the University of York Music Department and the York Early Music Festival, July, 2009), 3.

Initially, I was drawn to this topic in order to deal with the technical difficulties involved in using a constantly varying vibrato. Major opera houses around the world, including the Metropolitan Opera, the Opéra National de Paris, and the Glyndebourne Festival, have moved definitively towards the use of period orchestras directed by Baroque specialist conductors for their productions of Baroque opera. Opera singers must adapt to these new international parameters for Baroque opera productions by employing historically-informed Baroque ornamentation, which includes the technical challenge of varying their vocal vibrato. Unfortunately, the pedagogical support required to train Baroque opera singers in appropriate use of vocal vibrato has not evolved in response to the situation. Singers are not being prepared to meet the new technical challenges demanded by historical performance practice. As a performer at opera houses such as the Opéra National de Paris, I, along with many of my peers, encountered the vocal fatigue resulting from the demands of achieving effective vibrato variation. This neuromuscular fatigue results "in a reduced capacity to maintain tension in the vocal folds and stability in laryngeal posture",[3] which can be experienced by the singer as throat pain, tightness and swelling of the vocal folds. The cost of such fatigue not only impairs the quality of performance, but may cause long-term damage to the voice.

My first impulse was to explore and try to understand the physiology and breath management involved in vocal vibrato variation. I turned to the scientific research in the hopes that it would provide some insight in how to control my vibrato variation in an efficient and healthy manner. It quickly became apparent to me that there was still a lack of understanding in

[3] Nathan V. Welham and Margaret A. Maclagan, "Vocal Fatigue: Current Knowledge and Future Directions" (*Journal of Voice*, Vol. 17, No.1, 2003), 23.

both the scientific and pedagogical communities on how to vary vocal vibrato.[4] At present, the best guess of what vocal vibrato is and how it functions is the following:

> Vibrato is created physiologically through a combination of bioelectric energy, the cricothyroid muscle (part of the larynx), and airflow. Equal balance of subglottic pressure and airflow creates the most efficient glottal resistance, known as flow phonation, which is balanced in overtones and has a natural vibrato resulting in the coordination between the breath and phonation systems.[5]

There is some speculation that vibrato change can be managed through the coordination between the laryngeal musculature and breath pressure.

> In general, flow phonation made up of low subglottic pressure and low airflow will have the least vibrato (straight tone) and flow phonation made up of high subglottic pressure and high airflow will have the greatest vibrato (vibrant, operatic singing).[6]

This seemed instinctively correct to me from my understanding of vibrato variation in my own singing. However, at this point it became apparent that my first concern really needed to be defining a more concise concept of performance practice for vocal vibrato as ornamental device in late Baroque music before I could continue to investigate how to create a healthy technical approach to producing vibrato variation. I knew I *wanted* to use my vibrato as an ornamental device in singing Handel's *opera seria* arias but I didn't have a clear pragmatic approach for this application other than my use of a few ornaments like the *messa di voce* and *appoggiatura*. I also wondered how singers in earlier times had approached these technical challenges.

As I began to look into performance practice during Handel's time it became obvious, as singer/musicologist Sarah Potter identifies, that "there are comparatively few resources easily

[4] Johan Sundberg, *The Science of the Singing Voice* (Dekalb, IL: Northern Illinois University Press, 1987), 165.
[5] Danya Katok, *The Versatile Singer: A Guide to Vibrato & Straight Tone* (D.M.A diss. CUNY, 2016) 37-38.
[6] Ibid, 55-56.

available to singers that discuss historical voice usage and its practical application in modern performance, and professional singers that actively engage in historical inquiry remain rare."[7] It became apparent that I would need to do this research for myself and then, as musicologist/performer Laurence Dreyfus phrased it, "[funnel] the raw material of historical critique through the contemporary subject to express something new and complex."[8] I would gather the historical information and send it through my brain and vocal instrument to see what results emerged.

Therefore, my focus and aim with this project was to clarify a performance practice for vocal vibrato application in the Italian late Baroque. Since the Baroque era is long (1600-1750) and covers so many different national styles, I narrowed my investigation to the Italian late Baroque (1680-1750). I focused my aim on understanding the performance practice regarding vibrato in the singing of George Frideric Handel's *opera seria* arias, composed between 1705 and 1741, so that I could apply it to my own performances of Handel's Cleopatra arias from *Giulio Cesare* (1724). I chose 5 of the 8 Cleopatra arias to trace her journey from the young, playful, headstrong girl to the strong, emotionally connected woman and queen she becomes by the end of the opera. These arias run the gamut of *affeckts* and created a perfect backdrop for me to display the entire range of Handel's expressive writing in *opera seria*.

I hope my discoveries add a new piece of insight to our constantly evolving understanding of how vocal vibrato may have been used in the Italian late Baroque and that a clear argument may be made for the importance of its inclusion in 21st-century vocal pedagogy.

[7] Sarah Potter, *Changing Vocal Style and Technique in Britain During the Long Nineteenth Century* (PhD diss., The University of Leeds School of Music, 2014), 1.
[8] Dreyfus, "Early Music Defended", 320.

Methodology

I embarked on a hermeneutic journey reading the historical accounts and treatises and applying the information as I best understood it to five arias from Handel's *Giulio Cesare*. I would describe this journey as a hermeneutic spiral as my practical applications led to new questions which sent me in search of more information. My analysis and application of the historical treatises and rhetorical performance practice left me with questions that led me to the scientific community's research on vibrato. This information confirmed some of my findings but raised further questions which sent me back to the treatises to uncover a clearer understanding of vocal production in the Italian late Baroque. I would characterize my hermeneutic quest as dancing between the two poles of hermeneutic inquiry that Dreyfus summarized as follows:

> The first pole /…/ takes the restoration of meaning as its goal. As such, the interpretation figures largely as a revelation /…/ and maintains an attitude of respect toward the symbol. The second pole, on the other hand, attempts a demystification of meaning, which underlies the symbol as a disguise. This hermeneutics is suspicious of the symbol but hopes through interpretation, to minimize the illusion.[9]

I was both respectful and suspicious of the symbols, the historical sources. My aim was to restore lost information but also strip away some of the previous assumptions and near-religious fervor around those sources. I also wanted to be critical of my own 21st-century bias as I interpreted the sources. Therefore, I followed the spiral from source to practical application, back to the source with a new viewpoint gained through practical application, back to sung application, back to the source with a different viewpoint and new questions, back to sung application and so on.

In the next section I will take you through the steps of my hermeneutic journey, starting with an overview of the 'vibrato wars' to set the stage.

[9] Dreyfus, "Early Music Defended", 321.

Background and Exploration

While throwing out a term like 'vibrato wars' may seem overly dramatic, there is in fact a war of words around this topic that persists even today. I believe there is not only a war between the pedagogues of contemporary classical singing and the specialists of the early music world, but there is also a great divide between the pro-vibrato and anti-vibrato camps within the early music movement itself. At one extreme we have a 21st-century pedagogical practice of teaching continuous vibrato for every note sung, sometimes with the focus of having the same amount of vibrato on every note. At the other end of the spectrum, we have members of the movement for historically inspired performance in Baroque music in conflict over performance practice regarding vibrato use. One camp espouses the extremely selective use of vocal vibrato, preferring instead to sing mostly with seemingly straight tone while the other believes that vibrato was much more common, being a feature of the naturally-vibrating voice. All of this has led to much confusion for performers.

In the 1960s and 70s, the early music movement (now referred to as historically informed performance practice or HIP) was most clearly defined by their use of period instruments and the elimination of vibrato use, which set them apart from modern orchestras.[10] The consequence for singers was a removal of vibrato and an attempt to reproduce the pristine quality of boy sopranos. This anti-vibrato idea was furthered by the recording boom of the 1980s on so called authentic instruments. The recording industry at the time was largely UK-centered and disseminated the vibratoless, Anglican (Oxbridge) church choir sound. Recordings were marked with labels like "original instruments" and "authentic instruments" giving an air of authority and

[10] Judith Malafronte, "The Vibrato Wars" (*The Magazine of Early Music America*, 30-34, Summer 2015), 30.

correctness. These labels became synonymous with quality and thus solidified this anti-vibrato approach.

Contemporary musicologist Greta Moens-Haenen, published a large tome on vibrato entitled *Das Vibrato in der Musik des Barock* in 1988 where she put forth the idea that a minimal use of pitch vibrato was used in the Baroque by singers. But then she admitted "the question of to what extent does a singing voice vibrate naturally is much more difficult to answer. One must allow for a possible natural vibrato - even if very small."[11] Despite this uncertainty, she comes to the conclusion that "the ideal situation is a tone without vibrato, in which vibratoless is again understood to be free from an intentional, trained vibrato."[12]

By the 1990s the HIP movement had become polarized in its views on vibrato use during the Baroque era. There was agreement between the pro- and anti-vibrato camps that vibrato was used as an ornament, but the question of how often it was applied remained contentious. The most famous war of words was between musicologists Frederick Neumann[13] and Frederick Gable.[14] Gable espoused a narrow, selectively used vibrato, falling firmly on the 'less is more' side of the equation; whereas Frederick Neumann said, "As to the voice, it's production, training and style have been subject to changing fashions, but its natural, native vibrato, extolled by Praetorius and Mozart, could not have changed. The artificial elimination of vocal vibrato in performances of "early music" is simply historically misinformed."[15] Both of these scholars

[11] Greta Moens-Haenen trans. by Fredrick K. Gable "Vibrato as expressive ornament: translation of a summary chapter from *Das Vibrato in der Musik des Barock* (Presented at the National Early Music Association International Conference, in association with the University of York Music Department and the York Early Music Festival, July, 2009), 3.
[12] Ibid, 5.
[13] Frederick Neumann, "The Vibrato Controversy" (*Performance Practice Review*: Vol. 4: No. 1, Article 3, 1991).
[14] Frederick Kent Gable, "Some Observations Concerning Baroque and Modern Vibrato" (*Performance Practice Review:* Vol. 5: No. 1, Article 9, 1992).
[15] Neumann, "The Vibrato Controversy", 26.

referenced similar quotes from the treatises but they each drew different conclusions from the historical information.

Over the next two decades the arguments appeared to die down a bit, but perhaps only publicly. In 2015, two articles seemed to fire things up again. Beverly Jerold posed the question "Did early string players use continuous vibrato?"[16] in an article in *The Strad* magazine; Judith Malafronte stated in her article "Vibrato Wars" in Early Music America magazine that "The V-word can still raise blood pressures in musicians and music-lovers of all ilk."[17] The modern technological age means that now everybody can get in on the war of words and to that end, Richard Bethell created a document in March 2016 to capture the numerous threads on social media from the last year that fell under the heading "Vibrato Wars." The document consists of some historically based facts and a whole lot of personal, emotion-based opinions.[18]

What has struck me the most is that the majority of the arguments seem to be based on readings of the treatises that emphasize each camp's respective aesthetic tastes; pro-vibrato or anti-vibrato. This is, of course, to be expected to some degree but they also mostly seem to overlook the most important aspect of Baroque performance practice, that of rhetoric and its influence on vocal vibrato. In fact, almost everyone weighing in on how much vibrato singers should be using in Baroque music is a non-singer.[19] It is as ludicrous as me telling a flute player how to finger a *flattement* after having read Jacques-Martin Hotteterre's treatise *Principes de la flûte traversière, ou flûte d'Allemagne, de la flûte à bec ou flûte douce et du hautbois, divisez par traitez* (1701). Without the practical and highly skilled understanding of how to play an

[16] Beverly Jerold, "Did early string players use continuous vibrato?" (*The Strad*, 2005, reprinted February 2015).
[17] Malafronte, "The Vibrato Wars", 31.
[18] Richard Bethell, "Vibrato Wars Threads V1 to V19" (2016).
[19] Some exceptions exist. See for example Sally Sanford, "National Singing Styles" and Julianne Baird, "The Bel Canto Singing Style" in *A Performer's Guide to Seventeenth-Century Music* (1997); Sarah Potter, "Changing Vocal Style".

instrument or use a voice, one cannot really understand fully how to interpret the treatises and the first-person accounts of the day.

Vocal Treatises on Vibrato

What light do the vocal treatises of the Baroque shed on vibrato use? I consulted the Italian treatises of Lodovico Zacconi (1555-1627),[20] Giulio Caccini (1551-1618),[21] Pier Francesco Tosi (1653-1732),[22] Giambattista Mancini (1714-1800),[23] Vincenzo Manfredini (1737-1799),[24] and Domenico Corri (1746-1825),[25] with a special focus on the main treatises of the Italian late Baroque of Tosi "*Observations on the Florid Song or Sentiments on the Ancient and Modern Singers*" and Mancini "*Practical Reflections on the Figurative Art of Singing*." I also found Corri's treatise quite interesting as he was the last student of Nicola Porpora (1686-1768), who taught the famed castrati Farinelli (1705-1782) and Caffarelli (1710-1783) from Handel's time. Finally, in order to add to the far too few Italian source descriptions of vibrato and Italian technique, I looked at some German sources that referred to the Italian style of

[20] Lodovico Zacconi, *Prattica di Musica* (1592) as trans. by Edward Foreman in *The Art of Bel Canto in the Italian Baroque: A Study of the Original Sources* (Minneapolis: Pro Music Press, 2006).
[21] Giulio Caccini, *Le Nuove Musiche* (1602) as trans. by Edward Foreman in *The Art of Bel Canto in the Italian Baroque: A Study of the Original Sources* (Minneapolis: Pro Music Press, 2006).
[22] Pier Francesco Tosi, *Opinioni de' cantori antichi, e moderni o sieno osservazioni sopra il canto figurato*. trans. Johann Ernest Galliard *Observations on the Florid Song or Sentiments on the Ancient and Modern Singers* (Bologna: Lelio dalla Volpe, 1723; reprint, New York: Broude Brothers, 1968).
[23] Mancini, Giambattista. *Practical Reflections on the Figurative Art of Singing*, trans. Pietro Buzzi (1774/77 Boston: The Gorham Press, 1912).
[24] Vincenzo Manfredini, *Regole armoniche, o sieno precetti ragionevoli per apprendere la musica* (1797) as trans. by Edward Foreman in *The Art of Bel Canto in the Italian Baroque: A Study of the Original Sources* (Minneapolis: Pro Music Press, 2006).
[25] Domenico Corri, Treatises on Singing: A Select Collection of the most Admired Songs, Duetts, &c. and The Singer's Preceptor volumes 1-2 (1810) (New York & London: Garland Publishing, Inc., 1995).

singing; Daniel Friderici (1584-1638),[26] Michael Praetorius (1571-1621),[27] and Johann Adam Hiller (1728-1804).[28]

And what did I find? In fact, I found very little information on vibrato in these manuals. The reason for this could be that singing was an apprenticeship craft (as it remains to this day), and knowledge was passed on through one-on-one training; as such there was little need for a comprehensive book to be written on the pedagogy of singing. In fact, the treatises from Handel's time were not written to instruct the accomplished professional singers of the day, but rather, they were geared for the amateur singer and more often than not, these treatises railed against what *not* to do. The treatises are thus descriptive rather than prescriptive with regards to what professional singers were doing at the time, and so are useful as a window into their practice. The authors were often trying to address practices of their time that they felt were over-indulgent or in bad taste as can been seen in Pier Francesco Tosi's introductory chapter of his treatise in 1723 "…it is my Design to Demonstrate a great Number of Abuses and Defects of the Moderns to be met with in the Republick of Musick, in order that they may be corrected (if they can)."[29]

Having said that, treatise writers seem to only speak against the use of vibrato when it was faultily produced in the voice as in the case of the too slow 'wobble' and the too fast 'flutter/tremolo.' Although it is not an Italian source, Bénigne de Bacilly's explanation from 1668 of natural vibrato versus faulty vibrato helps to clarify the subject a little:

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[26] Daniel Friderici, *Musica figuralis oder newe Unterweisung der Singe Kunst* (1614) as trans. by James Stark in *Bel Canto: A History of Vocal Pedagogy* (Toronto: University of Toronto Press,1999).
[27] Michael Praetorius, *Syntagma Musicum III* (1619) trans. and ed. Jeffrey Kite-Powell (New York: Oxford University Press, 2004).
[28] Johann Adam Hiller, *Treatise on Vocal Performance and Ornamentation by Johann Hiller* (1780) trans. and ed. Suzanne J. Beiken (Cambridge: Cambridge University Press, 2001).
[29] Tosi, *Opinioni*, introduction:12.

> The quality of a singer's *cadence* [vibrato] is a gift of nature, and yet it can be acquired or at least corrected and perfected through good training and good exercise. Therefore, there are many people who have an acceptable voice without having a *cadence* at all. Others have it, but it is too slow for certain places where the *tremblement* ought to be compact and compressed; others have *cadences* that are too fast or sometimes too coarse, a quality which is commonly called *chevrotante* [wobbly, tremulous, bleating].[30] (translation by Austin B. Caswell)

Returning to Italian sources, the anti-vibrato camp often uses the quote below by Tosi (1723) to prove that he was firmly against vibrato and that a straight tone should be used as the normative sound production when singing Baroque music.

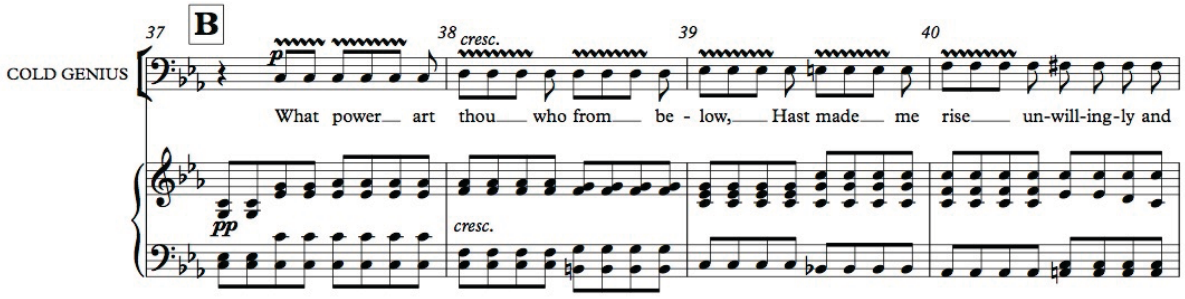
> Let him learn to hold out the Notes without a Shrillness like a Trumpet, or trembling; and if at the Beginning he made him hold out every Note the length of two Bars, the Improvement would be the greater; otherwise from the natural Inclination that the Beginners have to keep the Voice in Motion, and the Trouble in holding it out, he will get a habit, and not be able to fix it, and will become subject to a Flutt'ring in the Manner of all those that sing in a very bad Taste.[31]

To me, this does not sound like a directive to sing every note with a straight tone. Instead it sounds much more like the correct advice to give a beginner (whom he is addressing) as they are learning to gain control over the coordination between their larynx and breath pressure in order that they may develop a steadiness of tone rather than a fluttering, defective tremolo.

The idea of using the vibrato as an ornament never really surfaces in the Italian vocal treatises. Vibrato never appears in the list of essential and free ornaments supplied by the likes of Tosi, Mancini and Corri. The only form of ornamental vocal vibrato that arises can be found actually notated in musical scores. An ornamental intensity vibrato, similar to the 'bow' vibrato of the violin, was very sparingly used for effect. It is similar to the trillo of the 17th century -- a rapid repetition of pitch without any wavering of the pitch. Composers usually marked this

[30] Bénigne de Bacilly, *Remarques curieuses sur l'art de bien chanter* (1668), trans. Austin B. Caswell as *A Commentary upon the Art of Proper Singing* (New York: Institute of Mediaeval Music, 1968), 83.
[31] Tosi, *Opinioni*, ch.1:28.

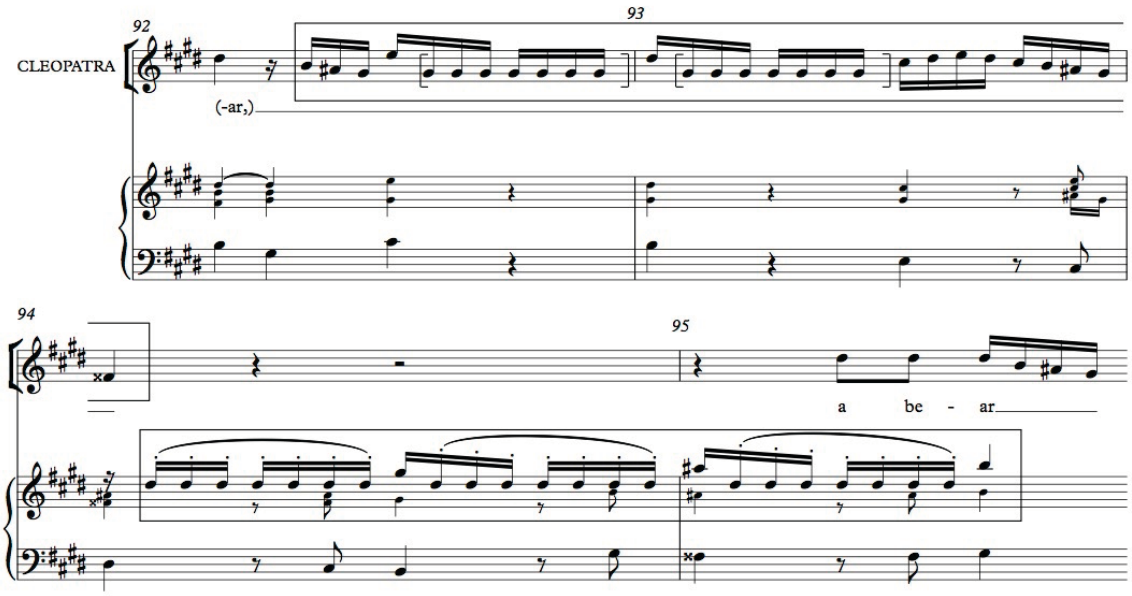
intensity vibrato into the scores because it was not a common practice to use this ornament. Bach used a wavy line to denote it as did Purcell in his "Cold Genius" from *King Arthur* (ex.1).[32] (Musical examples – see footnote)[33]



Ex. 1. Henry Purcell, Cold Genius from *King Arthur* (1691), mm. 37-40. Reduction based on Henry Purcell's *King Arthur*, (1691) piano reduction edited by Margaret Laurie. London: Novello Publishing Ltd, 1972. All musical examples notated by Benjamin Kwong.

Instead of using the wavy line, this intensity vibrato could also be written out through the use of repeated pitch patterns as Handel used in Cleopatra's final aria "Da tempeste il legno in franto" in measures 92-94 which the violins then imitate in bars 94-95. (ex.2).

[32] Henry Purcell, *King Arthur* (1691), ed. by Margaret Laurie (London: Novello Publishing Ltd, 1972), 84.
[33] I will be using musical examples throughout the paper which were notated by Benjamin Kwong based on piano reductions from two scores; George Frideric Handel's *Giulio Cesare*, (1724), Barenreiter Kassel, BA4078a, 2005 and Henry Purcell's *King Arthur*, (1691) edited by Margaret Laurie, Novello Publishing Ltd, 1972.



Ex. 2. G.F. Handel, Da tempeste il legno in franto from *Giulio Cesare* (1724), mm. 92-95. Reduction based on George Fridrich Handel's *Giulio Cesare,* (1724) piano reduction edited by Karl-Heinz Müller. Barenreiter Kassel, BA4078a, 2005.

Since vocal treatises gave little to no information concerning vibrato and did not address the notion of how and where to apply it in the music, I turned next to the instrumental treatises of the day.

Instrumental Treatises on Vibrato

Instrumental treatises from the 18th century counselled players to imitate the voice. This includes not only the rhetorical articulations that speech gives to the musical phrasing but also the natural tremble in the voice which we now call vibrato. Although W.A. Mozart (1756-1791) lived slightly after what we call the Baroque era, he beautifully summed up what many others said during the proceeding century in a letter to his father dated June 12, 1778.

> The human voice quivers already by itself, but in a way [and] to such a degree, that it is beautiful - that is the nature of the voice. One imitates this [effect] not only on the wind-instruments, but also in the violin instruments and even on the clavichord, but if one exceeds the limits, it ceases to be beautiful, because it is against nature. Then it sounds to me like an organ with a bumping bellow.[34]

What becomes confusing when looking at the treatises is the number of terms used to express vibrato. 17th and 18th-century sources in Italy use the terms *tremolo, ardire, trillo;* French sources call it *balancement, flatté, battement*; German sources use *Schwebung, Bebung;* and English sources say *sting, sweet'ning,* and *close-shake.*[35] Why so many different terms in each country? The variety of terms seems to be the key to explaining vibrato's function in the performance practice of the time. Vibrato was considered a tool or ornament in rhetorical performance practice and thus was applied in an effort to move the heart of the listener. Since an instrument such as a violin didn't have a naturally occurring vibrato like the human voice, it had to be added, and it had to be added in a multitude of ways so that it could imitate the variety of vocal vibrato. In his *Traité de la viole* of 1687, Jean Rousseau recommended that the viol player should use two different forms of finger vibrato as a means of imitating the singing voice, saying; "These are never specified for the voice because it does them naturally, but they must be specified for the instrument, because otherwise they would not be practised."[36] Therefore, several kinds of ornamental vibrato were produced by instrumentalists in the late Baroque. For example, a violinist could employ a one-finger vibrato, a two-finger vibrato, and a bow vibrato (also known as an intensity vibrato).[37] Theorists such as Giuseppe Tartini (1692-1770) and

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[34] Maria Bania trans. in "*Sweetenings" and "Babylonish Gabble": Flute Vibrato and Articulation of Fast Passages in the 18th and 19th centuries*" (PhD diss., University of Gothenberg, 2008), 59.
[35] Greta Moens-Haenen trans. by Fredrick K. Gable "Vibrato as expressive ornament", 8.
[36] Jean Rousseau as quoted by Beverly Jerold, "Did early string players use continuous vibrato?" (2015).
[37] Leopold Mozart, *A Treatise on the Fundamental Principles of Violin Playing* (1755), trans. Edith Knocker (Oxford: Oxford University Press, 1948), 204-205.

Leopold Mozart (1719-1787) also called for varying intensities of vibrato for expression which included a slow, even, increasing or rapid oscillation.[38] This sounds very much like an effort to reproduce the micro changes of vibrato that a human voice can produce throughout its shifting spectrum of possibilities.

In terms of where and how often to apply ornamental forms of vibrato, this is where we run into the age-old problem of humans failing to agree. What moves one heart, might be despised by another. Accordingly, some theorists favoured sparing use of vibrato while others advocated for its frequent application. Leopold Mozart cautioned violinists not to overuse the vibrato:

> Now because the tremolo is not purely on one note but sounds undulating, so would it be an error if every note were played with the tremolo. Performers there are who tremble consistently on each note as if they had the palsy.[39]

In terms of where and when vibrato application is appropriate to use, there is also some disagreement. All theorists speak of adding vibrato to long notes, including L. Mozart who said,

> The tremolo must only be used at places where nature herself would produce it; namely as if the note taken were the striking of an open string. For at the close of a piece, or even at the end of a passage which closes with a long note, that last note would inevitably, if struck for instance by a pianoforte, continue to hum for a considerable time afterwards. Therefore a closing note or any other sustained note may be decorated with a tremolo [tremoleto].[40]

Other theorists, such as Lodovico Zacconi (1555-1627), Jean Rousseau (1644-1699), Jacques-Martin Hotteterre (1675-1763), and Francesco Geminiani (1687-1762) went much further and stated that one should add vibrato to any note of length that permits it.[41]

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[38] Frederick Neumann, *Ornamentation in Baroque and Post-Baroque Music* (Princeton, NJ: Princeton University Press, 1978), 517.
[39] L. Mozart, *A Treatise,* 203.
[40] L. Mozart, *A Treatise*, 203-204.
[41] Neumann, "The Vibrato Controversy", 22.

> Of the Close SHAKE… To perform it, you must press the Finger and out slowly and equally, when it is long continued, swelling the Sound by Degrees, drawing the Bow nearer to the Bridge, and ending it very strong it may express Majesty, Dignity, &c. But making it shorter, lower and softer, it may denote Affliction, Fear, &c. and when it is made on short Notes, it only contributes to make their Sound more agreable[sic] and for this Reason it should be made use of as often as possible.[42]

Whenever it comes to questions of taste we can only assume that a variety of practices were in place that fall within the spectrum of the information provided in the treatises.

Since the lists of ornaments contained in the Italian late Baroque vocal treatises never mention vibrato and make no mention of *how* to use the vibrato we could interpret this a few different ways. The lack of information could mean that they didn't use vocal vibrato at all or, a more likely conclusion, that it was such a natural part of the sung voice that it didn't need to be mentioned unless it was violating the boundaries of good taste. In fact, it is probably safe to assume that the advice given to instrumentalists to imitate the voice reveals that singers were in fact using vibrato and were using it in a variety of different ways. The use of so many varying ornamental vibratos of varying intensities reproduced by instrumentalists was most likely an attempt to imitate the micro changes of human vocal vibrato. Perhaps it is even conceivable that singers did not consciously think of vibrato as one of the ornaments in their arsenal the way an instrumentalist did. There is no account of singers being instructed to practice their vibrato application as instrumentalists were instructed to do. Perhaps their varying vibrato was simply a result of their artistic choices. But what governed those choices?

Rhetorical Performance Practice in the Baroque

Since rhetoric was *the* most important aspect of performance practice for the performers of Handel's time it seems that some study of rhetorical performance practice might reveal some

[42] Francesco Geminiani, *The Art of Playing the Violin* (London, 1751), 8.

answers. Bruce Haynes and Geoffrey Burgess pointed out in their recent book *The Pathetick Musician*: *Moving an Audience in the Age of Eloquence* that,

> Recognizing the importance of rhetoric allows us to understand the style of any performance art of the seventeenth and eighteenth centuries - whether oratory, acting, music, or dance - more fully and accurately. Rhetoric was the basis of a large part of the education curriculum. It described composing, writing, performing, and how passions could be elicited from readers, viewers, and audiences.[43]

Rhetoric is an art or disciple that uses discourse to persuade its listeners. Cicero's definition of rhetoric in 46 BC gives us a clear sense of the orator's duties.

> The supreme orator, then, is the one whose speech instructs, delights, and moves the minds of his audience. The orator is in duty bound to instruct; giving pleasure is a free gift to the audience, to move them is indispensable.[44]

In 95 AD Quintilian makes the link between oration and the musical arts.

> But eloquence does vary both tone and rhythm, expressing sublime thoughts with elevation, pleasing thoughts with sweetness, and ordinary with gentle utterance, and in every expression of its art is in sympathy with the emotions of which it is the mouthpiece. It is by the raising, lowering or inflection of the voice that the orator stirs the emotions of his hearers, and the measure … of voice and phrase differs according as we wish to rouse the indignation or the pity of the judge. For as we know, different emotions are roused even by the various musical instruments, which are incapable of reproducing speech.[45]

Composers and musicians in Baroque times were trained in the ways of rhetoric, and their duty to 'move the passions' of the listeners was instilled in them. Rhetorical devices were not only employed by composers but also by performers. The five canons of rhetoric are

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[43] Bruce Haynes and Geoffrey Burgess, *The Pathetick Musician: Moving an Audience in the Age of Eloquence* (New York: Oxford University Press, 2016), 4.
[44] Marcus Tullius Cicero, *De optimo genere oratorum* (46 BC) trans. H. M. Hubbell. De inventione/De optimo genere oratorum (Cambridge: Harvard University Press, 1949) 1.3-4.
[45] Marcus Fabius Quintilian, *Institutio Oratoria* (95 AD) trans. Harold Edgeworth Butler (Cambridge: Harvard University Press, 1920), 1.10.24-25.

Inventio: the original idea or argument, *Dispositio*: structure and arrangement of the argument, *Elocutio*: technique and style which include "Physical and technical aspects of performance practice,"[46] *Memoria*: memorization, which includes improvisation and ornamentation, and *Actio*: delivery or performance, which include gesture, pronunciation and tone of voice. A performer's work is grounded in the *elocutio, memoria,* and *actio* elements of rhetorical practice.

Johann Joachim Quantz (1697-1773) in his treatise of 1752 spoke of the orator and musician having the same responsibilities "to make themselves masters of the hearts of their listeners, to arouse or still their passions, and to transport them now to this sentiment, now to that."[47] It is not surprising to find that the rhetorical tools for oration draw on tools also important in musical performance such as articulation, rhythm, accents and dynamics. Quantz advocated for an extremely flexible and diverse application of those tools to music.

> No less must good execution be *varied*. Light and shadow must be constantly maintained. No listener will be particularly moved by someone who always produces the notes with the same force or weakness and, so to speak, plays always in the same colour, or by someone who does not know how to raise or moderate the tone at the proper time.[48]

Rhetorical Tools for Italian Singers

In an effort to persuade and move their listeners, Baroque singers employed numerous rhetorical tools in order to constantly play with their audience's expectations and take them on a journey that would instruct, delight and move them. As musicologist Dietrich Bartel points out in his seminal book on rhetorical music, *Musica Poetica*, Italian singers were encouraged to imitate actors and "dramatic gesture and pathos-laden delivery was to supply the necessary inspiration

[46] Haynes and Burgess, *The Pathetick Musician*, 38.
[47] Johann Joachim Quantz, *On Playing the Flute* (1752) trans. Edward R. Reilly 2nd ed. (London: Faber and Faber, 1985), 119.
[48] Quantz, *On Playing the Flute*, 124.

for musical invention."[49] Bartel also noted that Italian vocal ornamentation was far more advanced than that of other national styles "owing to the Italian emphasis on delivery, on *actio* or *pronuntiatio*, the last of the rhetorical structural steps and the one most important to the actor."[50] These are important factors to keep in mind as we look more closely at the tools the Italian singers employed to move their listeners.

Text - Pronunciation and Punctuation

One of the most essential and obvious tools at a singer's disposal was the text. Much like a classic orator, singers used articulation, pronunciation, punctuation and the syllabic stress or rhythm of the language to produce a constant shift between light and shadow. Vincenzo Galilei's (1520-1591) advice for composers in 1581 was to "observe human behaviour" and to use "natural, affection-directed speech rather than studied, rhetorical theory."[51] Galilei even gave a catalogue of subtleties in human behaviour that a musician should be listening for when they attended the plays and heard the great actors.

> …be so good as to observe when one quiet gentleman speaks with another, in what manner he speaks, how high or low his voice is pitched, with what volume of sound, with what sort of accents and gestures, and with what rapidity or slowness his words are uttered…Let them observe the prince when he chances to be conversing with one of his subjects and vassals; when with the petitioner who is entreating his favour; how the man infuriated or excited speaks; the married woman, the girl, the mere child, the clever harlot, the lover speaking to his mistress as he seeks to persuade her to grant his wishes, the man who laments, the one who cries out, the timid man, and the man exultant with joy.[52]

This is exactly the advice Mancini gave to singers in his treatise from 1777:

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[49] Dietrich Bartel, *Musica Poetica: Musical-Rhetorical Figures in German Baroque Music* (Lincoln and London: University of Nebraska Press, 1998), 59-60.
[50] Ibid, 59-60.
[51] Bartel, *Musica Poetica*, 60.
[52] Ibid, 59.

> Listen to the discourse of a good orator, and hear what pauses, what variety of voice, what diverse strength he adopts to express his ideas; now he raises the voice, now drops it, now he quickens the voice, now harshens, now makes it sweet, according to the diverse passions that he intends to arouse in the listeners.[53]

This is how the singers gained insight for creating their portrayals of various passions and it is still basically the same process for singers today; to observe the world around them and to listen to and watch great actors.

In addition to understanding the passions and being students of human behaviour and history, a singer also needed to understand the language and grammar of the text. Mancini insisted that "an actor or singer cannot express passions and feelings nor transmit them to the public if he does not comprehend the value and meaning of each word; if he does not know well and speak the pure Tuscany tongue (Italian). Above all, he must have a clear though not exaggerated pronunciation."[54]

He goes on to stress the importance of clear enunciation so that the audience can follow every syllable and consonant. "The merit and value of a word does not always lie in its nature, or intrinsic value, but often in the way of saying it…even as a reader is mislead by writing that is not punctuated correctly, so a speaker will be misunderstood if he is not careful in his use of the different shades of voice, pauses, and accentuations of crescendo."[55]

Accents and Articulation

Within an *opera seria* aria, many rhetorical tools or conventions that governed instrumentalists also gave structure to the singer's articulations. The importance of the metrical accents in Baroque music give an added level of articulation above and beyond the accents of the text. Beat hierarchy or the concept of 'good' and 'bad' beats was essential in Baroque music and

[53] Mancini as quoted in Edward Foreman, *The Art of Bel Canto*, 193.
[54] Mancini, Giambattista. *Practical Reflections on the Figurative Art of Singing*, trans. Pietro Buzzi (1774/77), 167.
[55] Mancini, *Practical Reflections*, 168.

it gave a clear structure and strategy for where the strong and weak beats should be placed given the time signature. In common time signature the strong beats are on 1 and 3 and the weak ones are on 2 and 4. In triple metre the stress is on the first of every three beats. A good composer would align the syllabic stress of words with these strong or 'good' beats but there are certainly times when the composer deliberately chose to work against the rules to create a specific effect.

Another important Baroque convention was the use of rhetorical or expressive accents. Accents could be made with changes in volume or attack. Agogic accentuation can be accomplished through prolonging a beat, using a light upbeat followed by an emphasized downbeat, delaying a note's arrival, using pauses or hesitations, and by "the 'placing' of notes in order to clarify metric structure or to draw attention to special events such as a dissonant harmony or the focal point of a gesture."[56]

The accenting of dissonances was an essential tool for moving the passions. C.P.E. Bach (1714-1788) wrote that "dissonances are played loudly and consonances softly, since the former rouse our emotions and the latter quiet them."[57] This stressing of dissonances over consonances creates a tension and release effect in the listener and pulls at their emotions.

Musical Gestures

Rhetorical music is made up of many small musical gestures in contrast to the long-line legato phrasing of 19th-century Romantic music. Baroque melodies consist of small gestures that emphasize a single thought or idea.

[56] Haynes and Burgess, *The Pathetick Musician*, 181.
[57] Carl Philipp Emanuel Bach, *Essay on the True Art of Playing Keyboard Instruments*, trans. and ed. William J. Mitchell (New York and London: W.W. Norton & Company Inc., 1949), 163.

> The long-line was designed to promote a legato ambiance, broad movements, and one important point per phrase; gestures, by contrast, promote a series of silences, quick changes of character, and ever-changing detail – a sound kaleidoscope.[58]

Bruce Haynes' distinction between rhetorical and 19th-century styles of phrasing beautifully articulates Quantz's sound world of rhetorical music in which "light and shadow must be constantly maintained."[59]

These small musical gestures create musical syntax and structure. Larger phrases hold these gestures together much like a sentence in language but the unique character of each musical gesture must be articulated clearly and given its own rhythm, colour and shape. Haynes and Burgess advise that, "Just as oratory calls for clear pronunciation and correct observation of punctuation, musical eloquence depends on the delineation of gestures as well as the timing between them."[60] This is such a fundamental aspect of rhetorical performance practice that to attempt Baroque music with the long, legato phrasing of Romantic music misses the point entirely and loses out on the dynamic intensity of the rhetorical sound world.

Dynamics

The flexible use of dynamics was paramount during the late Baroque and terraced dynamics or the concept of singing an entire phrase at one dynamic level did not exist.[61]

> The proper technique, as I have already mentioned in the preceding article when I spoke of irrational changes of volume, is to increase the volume of the voice up to a certain point and then to diminish it little by little so that the resulting effect is a sort of surge and ebb.[62]

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[58] Bruce Haynes as quoted in Uri Golomb, "Rhetoric and gesture in performances of the *First Kyrie* from Bach's Mass in B minor (BWV 232)" (*JMM: The Journal of Music and Meaning* 3, Fall 2004/Winter 2005).
[59] Quantz, *On Playing the Flute*, 124
[60] Haynes and Burgess, *The Pathetick Musician*, 169.
[61] Ellen T. Harris, "Voices" in *Performance Practice: Music after 1600* edited by Howard Mayer Brown and Stanley Sadie (New York: Norton, 1989), 107.
[62] Bacilly, *Remarques curieuses*, 100.

Christoph Bernhard (1628-1692) also wrote about this flexibility of dynamics saying, "Care must be taken not to shift too abruptly from the piano to the forte, but rather to let the voice wax and wane gradually."[63] This makes perfect sense when we consider the constant shifts between "light and shadow" that Quantz spoke of in terms of rhetorical performance practice. It also aids in our understanding of why the *messa di voce* was so extensively used and why this "swelling and dying of the voice" was considered the "soul of music."[64] Isaac Nathan (1790-1864) in his treatise *Musurgia vocalis* (1836) goes so far to say "it is this swell and dying of the voice, which makes music respond to the various passions, and passes the feeling of one mind to another."[65]

Ornamentation

Reflecting back on the Baroque era, Winton Dean and John Knapp summarize that "the purpose of decoration was to increase the expressiveness of the aria, in strict accordance with the *Affekt,* while allowing the singer to demonstrate his technical skill and his taste."[66] Quantz counselled that,

> The addition of embellishments with which you seek to adorn, and to further enhance, the prescribed air or plain melody must also be adjusted accordingly. These embellishments, whether essential or extempore, must never contradict the prevailing sentiments in the principal melody; and thus the sustained and drawn-out melody must not be confused with the playful, pleasing, half-gay, and lively one, the bold with the flattering, etc. The appoggiaturas connect the melody and augment the harmony; the trills and the other little embellishments such as half-trills, mordents, turns, and *battemens* enliven it.[67]

There are some general rules to consider when ornamenting the traditional *da capo* [ABA] form which was standard at the time in Italian *opera seria*. The general consensus in all

[63] Christoph Bernhard as quoted by Ellen T. Harris in "Voices" in *Performance Practice: Music after 1600*, 107.
[64] Domenico Corri, *Treatises on Singing*, 14.
[65] Isaac Nathan as quoted by Edward Foreman in *The Art of Bel Canto in the Italian Baroque: A Study of the Original Sources*, 291.
[66] Winton Dean and John Merrill Knapp, *Handel's Operas 1704-1726* (Oxford: Oxford University Press, 1987), 29.
[67] Quantz, *On Playing the Flute*, 125.

of the historical treatises was that the majority of ornamentation was applied to the da capo or return of the A section. The first rendition of the A section was given light ornamental treatment by only adding the essential graces or ornaments which include appoggiaturas, cadential trills and *messa di voce*. The B section would also receive a fairly light ornamental treatment with essential ornaments, the occasional free ornament and a short cadenza. The return to the A section or the *da capo* is where the singers could really be creative with free ornamentation. The professional singers of the day were not only well-schooled in all of the essential ornaments and where to place them, but they were also required to be good composers in their own right when adding free ornamentation (divisions or *passaggi)* and *cadenza* material.

The essential ornaments were so fundamental to the piece that the composer did not need to notate them; it would have been unthinkable to perform this music without them. In terms of vibrato application, it is also important to note that certain ornaments are created by deliberately changing the intensity of the vocal vibrato. An *appoggiatura*, for example, is created by reducing the extent of the vibrato until almost no vibrato is detected. This produces an effect of tension on the non-chord tone (or the leaning effect that the word *appoggiatura* implies) and its subsequent release on the lower or higher chord tone as the innate vibrato returns to the sound. The *messa di voce* is another essential ornament from the Baroque period that requires fluctuation in the vibrato extent. It is initiated pianissimo with no vibrato (or small extent vibrato since even what we hear as straight tone contains a small amount of vibrato) and as the voice gradually crescendos on the single pitch the extent of the vibrato increases making it more audible to the ear. The *messa di voce* is concluded by a gradual decrescendo back to pianissimo and the smaller extent vibrato.

Ornamentation for Handel's *Opera Seria* Arias

Since I wanted to apply these rhetorical rules to Handel arias, I also looked at what Handel's taste for ornamentation in his arias might have been. Handel left us with just a few precious scraps of autograph ornamentation for select arias, the most substantial sources being the four arias from the opera *Ottone*[68] and the two arias from the opera *Amadigi di Gaula*, in which there are some basic consistencies. Handel tends to follow the compass of the melodic line but adds increased vocal flexibility through passing notes, turns, runs and rhythmic changes. He often substitutes triplets for duplets and vice versa. Most often he begins and ends each phrase on the original pitches but may ornament in the opposite direction of the original melodic line. If he alters or rewrites an entire phrase it is for special effect. In other words, the original melodies sound ornamented, not rewritten. Handel scholar Winton Dean tells us that the "[ornamentations] retain the original compass almost throughout, raising it by no more than a tone, and that at a single climactic point in each aria. They often fill up rests, but leave a substantial section of the aria unembellished and are more sparing in B sections."[69]

We must also take into account the fact that these Handel autographs are not numerous enough to make any conclusive decisions on what Handel's taste may have been. Since he carefully rehearsed his singers we might assume that he approved of their ornamentation as well. Two of his most famous singers were sopranos Francesca Cuzzoni (1696-1778) and Faustina Bordoni (1697-1781) who were "the first female high sopranos to enjoy the leading roles and adulation given to such male castrato sopranos as Farinelli (1705-1782) and Senesino (1686-1758)."[70] Mancini, writing about Cuzzoni in his 1774 book describes her approach thus:

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[68] Winton Dean, "*Three Ornamented Arias by G.F. Handel*", (Oxford: Oxford University Press, 1976).
[69] Dean and Knapp, *Handel's Operas 1704-1726*, 30.
[70] Isabelle Putnam Emerson, *Five Centuries of Women Singers* (Westport, CT: Greenwood Publishing, 2005), 64.

> …she possessed sufficient agility; the art of leading the voice, of sustaining it, clarifying it, and drawing it back, all with such attention to perfection…If she sang a cantabile aria, she did not fail in fitting places to vitalize the singing with rubato, mixing proportionately with mordents, gruppetti, volatinas, and perfect trills…pauses and passages executed in varied styles, now legato, now vibrant with trills and mordents; now staccato, now held back, now filled with redoubled volatinas; now with a few leaps tied from the low to the high; and finally by perfect execution she gave perfect attention to everything she undertook; all was done with surprising finish; all of this together produced admiration and delight.[71]

And Quantz said that Cuzzoni's "ornamentation did not seem to be artificial due to her nice, pleasant, and light style of delivery, and with its tenderness she won the hearts of her listeners."[72] When people spoke of Faustina, they spoke more of her fire and agility. "[Faustina's] execution was articulate and brilliant. She had a fluent tongue for pronouncing words rapidly and distinctly, and a flexible throat for divisions, with so beautiful and quick a shake that she could put it in motion upon short notice, just when she would."[73] Scholar George Buelow uncovered a copy of the aria "Sciolta dal lido" from Alessandro Scarlatti's *La Griselda* with Faustina's ornaments which "accords nicely with the descriptions of Bordoni's vocal style: frequent, spontaneous trills, frequent repeated pitches often coupled with triplets."[74] Buelow notes that the embellishments are "simpler than might have been anticipated" and that the final cadence is "certainly without the kind of vocal brilliance usually and perhaps incorrectly associated with all Italian virtuoso singing."[75]

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[71] Giambattista Mancini, *Practical Reflections on Figured Singing,* (*Pensieri e riflessioni pratiche sopra il canto figurato*), editions of 1774 and 1777 compared, trans. and ed. by Edward Foreman. Masterworks on Singing, Vol. VII. Champaign, Ill.: Pro Musica Press (1967) as quoted by Emerson in *Five Centuries of Women Singers*, 60.
[72] Johann Joachim Quantz, "The Life of Herr Johann Joachim Quantz, as Sketched by Himself." In *Forgotten Musicians,* ed. by Paul Nettl. New York: Greenwood Press (1969), as quoted by Isabelle Putnam Emerson in *Five Centuries of Women Singers*, 61.
[73] Ibid, 66.
[74] George Buelow as quoted by Emerson in *Five Centuries of Women Singers* (Westport, CT: Greenwood Publishing, 2005), 67.
[75] Ibid, 67.

Faustina and Cuzzoni's ornamentation may seem simple when comparing it with the leading castrati of Handel's time. Castrati singers were described as being super-human in their agility, power and breath control. A notated transcription exists of Farinelli's ornaments for his brother Riccardo Broschi's aria "Son qual nave ch'agitata". It displays the height of virtuosity but Geoffrey Burgess believes that Farinelli may have been "playing with audience expectation in a more sophisticated way"[76] and interestingly notes that,

> According to his annotations, on the repetition of the aria's first section Farinelli did not always increase ornamentation. Rather, he started off by actually simplifying his brother's music in order to add trills on every note of a melodically constrained line. This had the effect of highlighting the remarkable runs added to the next passage, which in its original form is one of the simplest sections in the original. In other places, such as immediately before the cadenza, his additions are again minimal, and the *tessitura* is identical to that of this brother's composition. This strategy was no doubt calculated in part for practical reasons, allowing the singer to pace his performance; further, by returning to what the audience had already experienced on the first hearing, Farinelli made the remarkable cadenza seem all the more dazzling.[77]

This points back to what we read in most accounts of the day in that the castrati had incredible power over the audience and were able to 'move the passions' which was of prime importance to the taste and style of the 18th century.

In my reading of these accounts, it seems that the written ornaments can't give us an accurate picture of the abilities these singers possessed for dazzling and surprising the audience through the way in which they actually performed the ornaments. They were expert showmen and women, able to move their listeners with a mere heartfelt appoggiatura. Therefore, the extravagance may lie in the manner in which each ornament was performed in terms of rubato,

[76] Geoffrey Burgess, Review of Martha Feldman *Opera and Sovereignty: Transforming Myths in Eighteenth-Century Italy,* (*Current Musicology*, Volume 85, 2008), 170.
[77] Burgess, Review of Martha Feldman *Opera and Sovereignty*, 170-171.

expressiveness and vocal colour and less in the high notes and *fiorature* of the 21st-century interpretations of Handel's music.

> Many of the surviving ornamented arias suggest the phrase "rhetorical flourishes" for the manner in which the ornaments are employed. They combined both virtuosity - necessary to execute them faultlessly - and a sense of the overall meaning and shape of the arias and the emotional content of the words.[78] - *Foreman*

Physical Gesture

Although it is beyond the scope of this study it also essential to note that the singer's use of physical gesture, "dictated by sane and mature judgment, or copied from actors of renown"[79] was paramount for persuasively transmitting the passions. It was equally important to show all gradations of emotion with one's face. Mancini surmised that this was "the most beautiful part of the art that the actor can possess" but "that these changes of expression must succeed each other with naturalness and at the exact moment."[80]

Commentary from the Baroque - What did vocal vibrato sound like?

Edward Foreman, in his thorough compilation of the original vocal treatises of the Italian Baroque, asserts that, "Describing sound in words is nearly impossible. We could contrast descriptions of the vocal sound of the Italian Baroque with modern vocal sounds, but the Baroque literature does not give us many descriptions."[81] This problem is only further exacerbated when one is looking for descriptions of vocal vibrato. They are few and far between.

> The *tremolo*, that is the tremulous voice, is the true portal by which to enter into *passaggi* and the learning of *gorgie*…this *tremolo* should be narrow and attractive; for if it is coarse and forced, it tires and annoys…the tremolo in music

[78] Foreman, *The Art of Bel Canto*, 177.
[79] Mancini, *Practical Reflections*, 183.
[80] Ibid, 184.
[81] Foreman, *The Art of Bel Canto*, 160.

> may be necessary for expressing sincerity and ardor; it embellishes the vocal melody.[82]

In the 1600s there are several German descriptions of Italian singing techniques:

> The students should, from the beginning, become accustomed to singing with a refined naturalness, and, where possible, with the voice trembling (*zitternd*), floating (*schwebend*), or pulsating (*bebend*) in the throat, and formed in the larynx or neck.[83]

Praetorius (1619) and Herbst (1642) both also spoke of singers needing to have "a beautiful, lovely, trembling and shaking voice and a smooth, round throat for diminutions."[84]

After 1700, when sources spoke about vocal vibrato, they were usually counseling instrumentalists to imitate the voice. "The human voice quivers already by itself, but in a way [and] to such a degree, that it is beautiful - that is the nature of the voice. One imitates this [effect] not only on the wind-instruments, but also in the violin instruments and even on the clavichord."[85]

The lack of descriptions of vocal vibrato in the treatises sent me in search of historical comments made about the castrati and female sopranos Handel employed. According to Hiller in his *Treatise on vocal performance and ornamentation* of 1780, castrato Giovanni Carestini (1704-1760) used vibrato (Bebung) "often and always with success."[86] Roger North reviewed castrato Nicolini's (1673-1732) singing in 1710, saying, "And the swelling and dying of the

[82] Ludovico Zacconi (1592) quoted by James Stark in *Bel Canto*, 124.
[83] Daniel Friderici, *Musica figuralis oder newe Singekunst* (1614) trans. by James Stark in *Bel Canto*, 129.
[84] Johann Andreas Herbst as quoted in James Stark, *Bel Canto,* 129.
[85] Wolfgang Amadeus Mozart as trans. by Maria Bania in "*Sweetenings*", 59.
[86] Hiller, *Treatise on Vocal Performance*, 99.

musicall [sic] notes, with *tremolo* not impeaching the tone, wonderfully represents the waiving of air, and pleasant gales moving, and sinking away."[87]

Handel's most famous female-sopranos, Cuzzoni and Faustina, were always spoken of with great admiration and a few comments exist which suggest their use of vibrato. Charles Burney wrote in his *A General History of Music* from 1789, that "The last air…was calculated to display the seeming natural warble of Cuzzoni" and that during the singing of the aria "a fellow cried out in the gallery 'D—n her! She has got a nest of nightingales in her belly'."[88] And Mancini said, "Our Faustina…formed a rare method, consisting in a distinguished and refined vocal agility, which she used with a facility without equal, which brought her approval from her first appearances in public. Her type of agility was so much more valuable, because [characterized by] the right degree of vibrato…"[89]

These descriptions definitely confirm that Handel's singers used ornamental vibrato but unfortunately, they can't really tell us exactly what that vibrato sounded like and how it compares to our modern classical vibrato. We can, however, note that vibrato is often described as "narrow and attractive"[90] and "not impeaching the tone."[91]

To my surprise, I found more descriptions from the pre-1700s than I did from Handel's own time. Perhaps this is because vocal vibrato was a normal aspect of singing during the late Baroque and only needed to be spoken about when it was breaching the bounds of 'good taste'. But what constituted 'good taste'? How much pitch change in the vibrato was tolerated by the Baroque ear? At this point in my search I turned to the current scientific research to help me

[87] Roger North as quoted in Stark, *Bel Canto*, 131.
[88] Charles Burney, *A General History of Music: From the Earliest Ages to the Present Period Volume 4* (London 1789), 316.
[89] Suzanne Aspden, *The Rival Sirens: Performance and Identity on Handel's Operatic Stage*, (Cambridge: Cambridge University Press, 2013) 31.
[90] Ludovico Zacconi as quoted in Stark, *Bel Canto*, 124.
[91] Roger North as quoted in Stark, *Bel Canto*, 131.

understand what elements we are actually hearing when vibrato is used. I was also hoping to find an explanation of what happens physiologically to the vibrato when we are using it artistically in classical singing and in particular when rhetorical performance practice is in use.

Insights from Scientific Research on Vocal Vibrato

It seems necessary to clarify what a vocal vibrato actually is and what it is not. We need to differentiate a well-balanced vibrato from its defective counterparts of wobble (too slow) and tremolo (too fast). People often lump these all under the heading of vibrato, which muddies the conversation on the use of vibrato in Baroque music. Neumann defines vibrato in this way:

> The vibrato consists of fast, regular fluctuations of pitch, loudness, or timbre, or a combination of these. Its effect rests on the physio-psychological phenomenon of *sonance*, i.e. the fusion of the vibrato oscillations above a definite threshold of speed into the sensation of a richer tone, while the perception of the oscillations is minimized or disappears altogether.[92]

Some of the confusion arises from using the word vibrato to describe many different vocal phenomena that are typically heard or identified as tremulousness. As Montgomery points out, "The major problem with most modern accounts is one of definition and choice of terminology."[93] Gable hits the nail on the head when he asks, "How much fluctuation from a precise pitch or at what speed, and just how much deviation from regularity can be tolerated without vibrato becoming something else or simply turning into defective tone production?"[94]

Two main features we as listeners are aware of when we hear vocal vibrato are the 'rate' and the 'extent' of the vibrato. The **rate** is the number of vibrato cycles or undulations completed in one second and the **extent** measures the amount of pitch variation that occurs above and below

[92] Neumann, *Ornamentation in Baroque*, 511.
[93] David Montgomery, "The Vibrato Thing" (2003).
[94] Gable, "Some Observations", 90.

the main pitch frequency during a vibrato cycle. I decided to only apply the term vibrato to that having a rate between 5.5 and 7.5 cycles per second. This rate was determined as acceptable to our ears through research by Johann Sundberg, who concluded, "Generally a vibrato rate of less than 5.5 undulations per second sounds unacceptably slow, and vibrato rates exceeding 7.5 undulations per second tend to sound nervous."[95] This weeds out the wobble and tremolo which create discord rather than sonance in the sound. This leaves us with the other major audible factor of vibrato, its extent or degree of pitch variation. Sundberg describes the extent of an average vocal vibrato for a contemporary classical singer as being generally narrower than plus or minus 1 or 2 semitones adding that vibrato extents "smaller than plus or minus 0.5 semitones are more typical of wind instruments than of singers."[96]

If the vibrato rate falls within the scope of that which has been found acceptable to our ears (5.5 -7.5 cycles per second) then the main aural shift we are hearing in a vibrato is the change in extent or pitch variation. Therefore, I chose to focus on the scientific research concerning the extent component of the vibrato to see how it varies when different artistic choices are applied.

The most common procedure for understanding how vibrato varies in different singing styles is to measure the vibrato extent from recordings. This often involves recording a singer singing a single pitch and analyzing the extent. The problem with this method is that it allows the measurement of extent only on individual tones. This is not representative of a sung performance which has constantly changing pitches and dynamics and to extract the exact vibrato extent and its variations for various musical passages would require complex and advanced analytic skills. Nevertheless, we can still learn a lot from the studies that have been conducted to this point.

[95] Sundberg, *The Science,* 164.
[96] Sundberg, *The Science*, 164.

One particularly interesting study for my research on varying vibrato was "Acoustic properties of straight tone, vibrato, trill, and trillo" by Hakes, Shipp and Doherty from 1987.

> Recordings were made of four internationally acclaimed early music singers (two women, two men) as they sustained phonation at target frequencies while producing the vocal ornaments straight tone, vibrato, trill, and trillo. Recordings were analyzed for the presence and amount of fundamental frequency oscillation and the frequency location of the vocal ornament performed with respect to the target tone.[97]

Hakes and colleagues found that in straight-tone singing there is still fluctuation of the extent around the main frequency or pitch even when the human ear cannot detect it as vibrato.[98] Sundberg added that choral singers using straight-tone had an extent of around 0.1 semitone.[99] This brings up the question of what our ears actually detect and the idea of sonance. "Sonance, the physio-psychological phenomenon where oscillating pitches fuse into one tone, is key to both vibrato and straight tone. To achieve sonance, vibrato rate must be fast enough and extent must be small enough to avoid perceiving two pitches."[100] But another difficulty is that we all have different tastes in what we perceive to be sonance and our individual perceptions don't always align with the reality of what is occurring. In their 2003 study "The relationship between measured vibrato characteristics and perception in Western operatic singing," researchers Howes, Callaghan, Davis, Kenny and Thorpe found "that the perception of singers' vibrato did not always agree with acoustic measurements"[101] and that their findings seem "to bear out

[97] Jean Hakes, Thomas Shipp and E. Thomas Doherty, "Acoustic properties of straight tone, vibrato, trill, and trillo." (*Journal of Voice* Vol.1, No.2, 1987), 148.
[98] Jean Hakes et al. "Acoustic Properties", 149.
[99] Johan Sundberg, "Acoustic and psychoacoustic aspects in vocal vibrato" *STL-QPSR* Vol.35, No. 2-3 (1994), 51.
[100] Katok, *The Versatile Singer*, 16.
[101] Patricia Howes et al., "The relationship between measured vibrato characteristics and perception in Western operatic singing" (Journal of Voice. Vol. 18, issue 2, 2003), 216.

Seashore's[102] observation that unless the vibrato is inappropriate or obtrusive, the listener does not make fine distinctions about it."[103] This might help to explain why there are so few references to vibrato in the 18th century sources unless it was to condemn an obtrusive vibrato. This idea of sonance also might be the key to understanding comments from the Baroque about the vibrato being "narrow and attractive."[104] Perhaps the late Baroque singers were using a fast enough rate in combination with a small enough extent to have the effect be pleasing and therefore no one felt the need to mention it unless it was a defective vibrato.

Assuming the rate falls in the acceptable parameters of 5.5 – 7.5 cycles per second, how could this smaller extent be achieved? A few studies provide good insight in terms of how the extent varies during artistic singing. In terms of the singing of rapid runs or coloratura, researchers Myers and Michel (1987) found that "in the majority of cases, the singers could alter their vibrato in order to adhere to the timing of the musical line."[105] Sundberg discovered in another study that singers "switched off" the vibrato during coloratura passages.[106] Researchers also found that the human voice naturally has a larger extent in both forte singing and high register singing.[107] In other words, the extent of the vibrato is naturally changing to accommodate dynamics, agility and expressive artistic choices.

Since it is clear that vibrato was used by Baroque-era singers as an ornamental device of varying intensity for expressive means, the big question remaining for me to address was just

[102] Carl Seashore (1866-1949) is recognized as a pioneer in vibrato research with his 1936 publication *Psychology of the vibrato in voice and instrument.*
[103] Howes et al., "The relationship", 225.
[104] Ludovico Zacconi (1592) quoted by Stark in *Bel Canto*, 124.
[105] Denise Myers and John Michel, "Vibrato and pitch transitions" (Journal of Voice. Vol. 1, issue 2, 1987), 157.
[106] Johan Sundberg, "Using Acoustic Research for Understanding Various Aspects of the Singing Voice" (*Transcripts of the Thirteenth Symposium: Care of the Professional Voice*, 1:90-104. New York: The Voice Foundation, 1985), 1:127.
[107] Sundberg, "Acoustic and psychoacoustic", 52.

how large or small the extent of the vibrato being used at that time really was. It seemed like this final piece of the puzzle might lie in an understanding of Italian high Baroque vocal production.

Italian Late Baroque Vocal Production

According to the treatises, one of the most noticeable differences in the vocal production of the Italian late Baroque period compared to the 21st-century, was that singers used separate registers of chest and head voice with a blended *passaggio*. Prior to the 18th century, singers would use only the natural or chest voice register since most compositions fell within the range of a tenth or eleventh and they would simply transpose them to suit their needs. As compositions increased in range in the later Italian Baroque there was a need to employ both registers. The solution put forth by the likes of Tosi and Mancini was to unify the two registers and "conceal the break or 'jerk' by blending the four or five notes over the *passaggio*"[108] while maintaining the distinct qualities of each register. Tosi advises:

> A diligent Master, knowing that a *Soprano*, without the *Falsetto*, is constrained to sing within the narrow Compass of a few Notes, ought not only to endeavour to help him to it, but also to leave no Means untried, so to unite the feigned and the natural Voice, that they may not be distinguished; for if they do not perfectly unite, the Voice will be of divers Registers, and must consequently lose its Beauty. The Extent of the full natural Voice terminates generally upon the fourth Space, which is *C*; or on the fifth Line, which is *D*; and there the feigned Voice becomes of Use, as well in going up to the high Notes, as returning to the natural Voice; the Difficulty consists in uniting them.[109] (translator Galliard's emphasis)

The "natural Voice" or chest voice that Tosi spoke of was the preferred sound for singing and the "feigned Voice" or falsetto was thought to be rather weak but of great use for the newly expanded vocal range of late Baroque arias. These treatises were mostly written by castrati and

[108] Ellen T. Harris, "Voices", 102.
[109] Tosi, *Opinioni*, Ch. I:21.

seem to have dealt mainly with how to train castrati voices. Some mention is made of female and normal voices, however, including Tosi's observation that,

> Among the Women, one hears sometimes a *Soprano* entirely *di Petto*[110], but among the Male Sex it would be a great Rarity, should they preserve it after having past the age of Puberty.[111]

While it is possible that Tosi meant that some women could sing in full chest voice to the top of their range like a pop singer today, it seems unlikely since the soprano range at this time period extends beyond the scope of full chest voice application. Perhaps he meant that some women could use a fully mixed head and chest voice sound rather than allowing for the lighter head registration or *falsetto* used by most women and castrati at the time. It seems likely that the 'normal' voices were trained in a similar manner but these voices were not the target audience for these treatises.

This feigned voice or falsetto was preferred for high notes which helps to explain the advice given in the treatises of the time to sing one's high notes softly and low notes loudly.[112] Tosi advised the singer to take care "that the higher the Notes, the more it is necessary to touch them with Softness, to avoid Screaming."[113] By the 19th century this rule had reversed as Corri wrote in his treatise of 1810:

> …in ascending passages rise the Voice by gradation that the last note of the phrase or sentence be the loudest; In descending passages the contrary effect.[114]

By Corri's time the use of more chest and head mixture was also more common with a result of louder high notes being produced.

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[110] *di Petto* refers to the chest voice
[111] Tosi, *Opinioni*, Ch. I:21.
[112] Ellen T. Harris, "Voices", 103.
[113] Tosi, *Opinioni*, Ch. I:14.
[114] Corri, *Treatises on Singing*, 52.

This brings us to the matter of the vertical larynx position during singing and what changes occurred to laryngeal position during the 18th century. The sources from the 18th century generally do not speak about how vocal sound is produced but rather focus on the basics of posture, breath and musical style. Little was understood at this time about the mechanics of the larynx and "intentional manipulation of the vocal apparatus"[115] was not part of the training. There are, however, a few descriptions of larynx position during this time that can bring some insight. Quantz (1756) spoke of the larynx rising for higher pitches[116] and Corri (1810) also reported the larynx rising and falling with pitch:

> You may observe, that the different tones of the voice are produced by the different positions which the larynx may assume in its rising and falling; therefore, if only accustomed to one set of positions or exertions, it becomes extremely difficult to render it flexible to any other; from hence may be derived imperfect intonation.[117]

This rising and falling of laryngeal position follows the natural contours of the speaking voice but is in sharp contrast to the general trend found in modern professional singers where the larynx is lowered as the pitch rises.[118]

This laryngeal-lowering trend can be traced through the 18th and 19th centuries. The mixing of the chest and head voice gradually increased over the 18th century with what one might call a watershed moment occurring with the first full-voiced high C from tenor Gilbert-Louis Duprez in Rossini's *Guglielmo Tell* in 1831. The most common theory associated with laryngeal lowering is that due to the increase in size of orchestras and opera houses over the last three centuries, voices grew in size and strength. "The necessary strength was presumably gained

[115] Potter, "Changing Vocal Style", 18.
[116] Quantz, *On Playing the Flute*, 49.
[117] Corri, *Treatises on Singing*, 5.
[118] Sundberg, *The Science*, 99.

through an increase in breath pressure, which also necessitated an increase in glottal resistance and a concomitant lowering of the larynx, putting all the singing muscles under greater stress leading to a more pronounced vibrato."[119]

In *A Complete Treatise on the Art of Singing* (1841), Garcia wrote about the various colours or timbres produced by a voice in relation to laryngeal height. He espoused the use of both the *voix claire* (clear or bright) and the *voix sombrée* (dark or sombre).

> These two opposite qualities are obtained principally through the agency of the larynx and the soft palate. The larynx rises when the soft palate falls, and when the larynx falls the soft palate rises. The high vault produces the dark *timbres* and the lower arch the clear ones.[120]

The *voix claire* was associated with a neutral larynx that rose gently and gradually with pitch in contrast to the *voix sombrée* which remained low and fixed as the pitch ascended.[121] By the 1900s the *voix sombrée* had all but taken over the classical singing world. Gregory W. Bloch notes in his 2007 paper "The pathological voice of Gilbert-Louis Duprez" that

> …the one thing scientists were able to agree on in the 1830s – that the larynx could (and should) be observed to ascend during high notes – was, seventy years later, completely overturned. Indeed, in pedagogical publications in the years around 1900, the lowered larynx became a central concept. In much pedagogy today, the lowered larynx retains this supremacy, though under a different name, 'the open throat'.[122]

Returning to the early 18th century, the documented use of separate but blended registers in addition to the statements of Quantz and Corri on laryngeal movement during singing, suggest

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[119] Stark, *Bel Canto*, 151.
[120] Manuel Garcia, *Hints on singing* trans. Beata Garcia (New York: Ascherberg, Hopwood and Crew Ltd., 1894), 11.
[121] Stacey L. Helley, *Laryngeal height as seen in modern and historical vocal treatises, and instructional literature on historical performance practices* (Master's thesis, Faculty of the Graduate School University of Southern California, 2015), 40.
[122] Gregory W. Bloch, "The pathological voice of Gilbert-Louis Duprez" (*Cambridge Opera Journal*, 19, 1, Cambridge University Press, 2007), 16-17.

the more neutral larynx position of normal speech was the norm at this time. I use the term *neutral* not to mean that the larynx always remains fixed in a central resting position but that it would be free to move slightly with ascending and descending pitch in contrast to an intentionally lowered larynx that is anchored low and does not move much with pitch change.

This use of a neutral larynx position seems even more likely when we address the question of the agility required for singing late Baroque arias. The singing of divisions or melismas reached a dazzling height of complexity in Handel's time. The larynx needed to change pitch at an incredibly quick rate in order to produce the coloratura passages. In my experience as a performer and teacher, a consistently lowered and fixed laryngeal position will simply not allow those changes to happen quickly enough.

If we add the fact that divisions were to be sung both "Mark'd" and "Gliding"[123] and that "the *mark'd Divisions*, being more frequently used than the others, require more Practice,"[124] a neutral and loose larynx is the only possible configuration that would allow these divisions to happen with clarity and ease. Through the use of words like "that light Motion of the Voice," to describe how to produce mark'd divisions, Tosi is espousing a neutral, loose larynx in order to produce the amount of articulation required.

> …the Master ought to teach the Scholar that light Motion of the Voice, in which the Notes that constitute the Division be all articulate in equal Proportion, and moderately distinct, that they be not too much join'd, nor too much mark'd.[125]

In Johann Friedrich Agricola's translation of Tosi's treatise in 1757, he goes even further and explains how to approach this type of articulation for singing the mark'd divisions:

[123] Tosi, *Opinioni*, Ch. IV.3.
[124] Tosi, *Opinioni*, Ch. IV.6.
[125] Tosi, *Opinioni*, Ch. IV:4.

> To achieve this, one must, when practicing, imagine that the vowel sound of the division is gently repeated with each note; for example, one must pronounce as many a's in rapid succession as there are notes in the division – just as with a stringed instrument, [where] a short bow stroke belongs to each note of the division; and in the transverse flute and some other wind instruments, [where] each note receives its own gentle impetus by the correct tongue stroke, whether single or double…One must feel, as it where, the articulation of each note in the glottis.[126]

This concept of feeling "the articulation of each note in the glottis" refers to a gentle throat articulation that is produced through a loose and flexible larynx. The 21st-century technique of utilizing a lowered and fixed larynx will simply not allow for this type of mark'd articulation to occur in divisions.

The Italian late Baroque vocal production practices of using distinct head and chest registers with a blended *passaggio,* soft high notes and a neutral and flexible larynx would create a smaller extent in the vibrato when compared with the increased glottal resistance and lowered laryngeal position in modern operatic singing.[127] In addition, scientific research has also proven that increased agility, which was an essential component of late Baroque music, results in a decreased vibrato extent. Today's research leads us to believe that the Baroque use of a neutral, agile larynx in combination with a light falsetto registration would have been producing a narrower vibrato extent overall and that the constant shifts of rhetorical expression would have produced a constantly varying vibrato extent.

[126] Johann Friedrich Agricola, *Introduction to the Art of Singing by Pier Francesco Tosi* (1757) trans. Julianne C. Baird (Cambridge: Cambridge University Press, 1995), 151-152.
[127] Sundberg, "Acoustic and psychoacoustic", 52.

Application of Rhetorical Performance Practice

After familiarizing myself with rhetorical performance practice, its various tools, and the possible physiological explanation of what was going on with singers, I applied the information to five Cleopatra arias from Handel's *Giulio Cesare* to discover what effect it would have on my vibrato. ("Non disperar" Act I, Sc. V, "Venere bella" Act II, Sc. VII, "Se pietà di me non senti" Act II, Sc. VIII, "Piangerò la sorte mia" Act III, Sc. III, "Da tempeste il legno in franto" Act III, Sc. VII) As I applied the rhetorical performance practice tools, I emphasized the overarching ideas of light and shadow and constant waxing and waning in order to fully express the passions inherent in each aria. I recorded my practice sessions alone and with my mentor and coach Michael McMahon over several months. Through careful study of the recordings in conjunction with Michael's real-time feedback, what I found was that my vibrato was constantly varying in response to my artistic decisions. My constant shifts in speed, dynamics and articulation in conjunction with the music's demand for extreme agility and large vocal range were naturally and unconsciously shifting my vibrato along a spectrum from 'straight' tone (no perceived vibrato) to the opposite extreme of a large extent-vibrato on the loudest and highest notes. This, in fact, was in direct correlation with my findings on artistic vibrato changes from the scientific research I had studied. How exciting!

In an effort to transmit the process that produced this constantly varying vibrato, I searched for the best way to relay the information in a written context. The factors I was applying in terms of rubato, agogic accents, subtlety in dynamics and ornamentation could not be well notated because as Geoffrey Burgess put it, "what is essential about all ornaments is their

spontaneous, ephemeral nature that defies accurate transcription."[128] Mancini also cautioned us when looking at notated scores in the hand of a great singer, saying

> …if the scholar wishes to take this as a model, he sees it only as a skeleton, and it neither reveals by what means, with what fire, nor with what skill it was set forth, and ought to be executed.
>
> Let us take, for example, an aria sung by the celebrated Farinelli, and separately written out, those variations with which he used to embellish it. We will certainly discover from this his talent, and his knowledge, but we cannot ascertain what was his precise method, which made his execution so perfect and so amazing, for this cannot be expressed in notation.[129]

Therefore, instead I have chosen to share what my thought process was as I made artistic choices in these Handel arias rather than only putting down in a score the exact intricacies of each stress and ornament I used in the exact moment of performance. A performance is one moment in time and a performer will be inspired to make slightly different choices each time they sing a piece. It seems more beneficial to understand the process that shapes the performance.

A Performer's Process - Rhetorical Application

Decoding the Text

> All the rules of Cicero, of Quintillian, and of the Illustrious Moderns who might have written on declamation, are useless to the orator, if he does not follow the first, which is, to clearly understand what he is saying and feel it strongly himself, in order to make it perceptible to the Listener.[130]-*Jean Poisson (1717)*

When applying rhetorical performance practice to a Handel *opera seria* aria, the first step is to read the text and discover the main passion conveyed. This is essential. But just like real human emotions, the main passion is made up of various gradations of that passion.

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[128] Haynes and Burgess, *The Pathetick Musician*, 151.
[129] Foreman, *The Art of the Bel Canto*, 232.
[130] Jean Poisson, *Reflexions sur l'art de parler en publique*, 1717:36, cited in Bruce Haynes *The End of Early Music* (New York: Oxford University Press, 2007), 174.

> In the majority of pieces one Passion constantly alternates with another, the performer must know how to judge the nature of the Passion that each idea contains, and constantly make his execution conform to it.[131]

A great composer will set this complexity of passions through the use of varying musical gestures and shifting harmonies. It is the singer's responsibility to respond to these variations with equal creativity.

With regard to text, a singer must understand the syllabic stress and flow of the Italian language which provides an important first layer of articulation in the music. Next the singer must pay careful attention to the punctuation both in the written text and in the composer's musical setting. This provides the next level of musical articulation and begins to give a clearer sense of phrasing. However, a modern performer must remember that phrasing in rhetorical music is made up of smaller musical gestures rather than long romantic phrases. The composer's setting of a text on strong and weak beats indicates which words to emphasize but a singer must take that a step further and make artistic choices about subtle differences in word emphasis. This is where the true art of the orator comes into play. Choices in colour, speed, emphasis and the waxing and waning of dynamics can persuade the listeners and move their sensibilities.

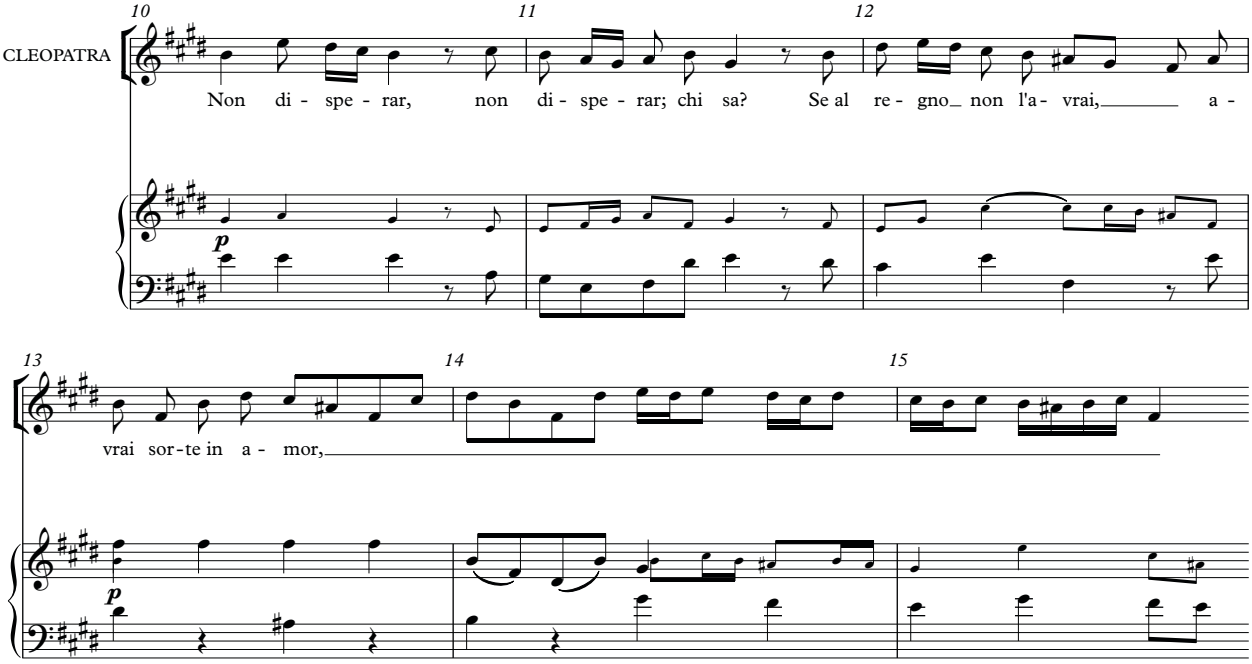
Let us take Cleopatra's first aria from *Giulio Cesare*, "Non disperar" and see what artistic choices can be made if we follow the process above. Cleopatra's main purpose in this aria is to mock and tease her brother Tolomeo in an effort to hurt him and gain the upper hand. They are currently co-rulers of Egypt but each wants the throne for themselves and has been working to oust the other. Cleopatra's main passions in this aria are anger and hatred toward her brother but Handel's setting chooses to express these passions in a multitude of ways. She is by turns falsely sweet and mocking, angry and vitriolic and blatantly mean and condescending.

[131] Quantz, *On Playing the Flute*, 125.

It is essential to understand the text emphasis and structure here.

Non disperar, chi sa? Se al regno non l'avrai, avrai sorte in amor.

(Don't despair, who knows? If the kingdom isn't yours, perhaps you'll have luck in love.)



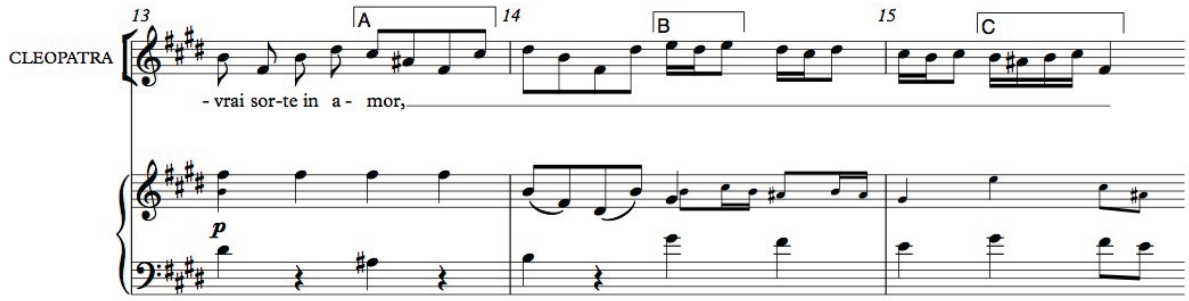
Ex. 3. G.F. Handel, Non disperar from *Giulio Cesare* (1724), mm. 10-15. Reduction based on George Fridrich Handel's *Giulio Cesare,* (1724) piano reduction edited by Karl-Heinz Müller. Barenreiter Kassel, BA4078a, 2005.

Handel has set the text (Ex. 3) with the natural Italian syllabic emphasis for the 4/4 time signature, having the strong syllables fall on beats 1 and 3. For example, NON dis-pe-RAR, chi SA? Se al RE-gno non l'a-VRAI, a-VRAI sor-te in a-MOR. Moreover, he has shown us that 'non disperar' (don't despair) is to be emphasized not only by his having set it on strong first beats but also by his use of repetition. He also indicates that the word 'regno' (kingdom) should be 'pointed up' by placing it on a strong first beat and the word 'amor' (love) is emphasized by a long melisma.

Next, looking at punctuation, the second phrase of 'non disperar, chi sa?' should actually consist of two smaller phrases or musical gestures to convey the sentence's rhetorical meaning.

Even though Handel does not make a break of silence for the comma, he uses two distinct musical gestures. The 'chi' should be sung as a light upbeat for the strong downbeat of 'sa'. At this point it would be good to remind ourselves that rhetorical music is made up of many small musical gestures in contrast to the long legato phrasing of 19th-century Romantic music. These smaller gestures allow for constantly shifting rhetorical expression to be applied in an incredibly flexible manner.

In speaking of musical gestures, it is also important to note these small units make up the structure for longer melismas. A singer must understand these small gestures in order to articulate the melisma correctly. In the melisma in bar 13 on 'amor' (Ex. 4), Handel repeats the four eighth-note gesture (A) twice on beat 3 of bar 13 and beat 1 of bar 14. He then follows that with a gesture of two sixteenth notes and an eighth note (B) which is repeated three times and then concludes the melisma with a gesture of four sixteenth notes followed by a quarter note (C).



Ex. 4. G.F. Handel, Non disperar from *Giulio Cesare* (1724), mm. 13-15. Reduction based on George Fridrich Handel's *Giulio Cesare,* (1724) piano reduction edited by Karl-Heinz Müller. Barenreiter Kassel, BA4078a, 2005.

Here is where a keen understanding of harmonic movement is needed. The first gesture (A) is in keeping with the strong and weak beat structure of beats 1 and 3 receiving the emphasis. Thus, the second, third and fourth notes of each gesture get much less stress than the first. With the second gesture (B), Handel speeds up the harmonic rhythm with new chords on every beat including the weak beat of 4 in bar 14 instead of every two beats. Therefore, the singer must

articulate the first note in each iteration of the gesture (B) and not sing these as a string of three figures in a legato fashion. The amount of agogic stress on the first note and lightness on the subsequent two notes of the gesture (B) are up to the discretion and creativity of the performer.

The Passions - Singing with Eloquence

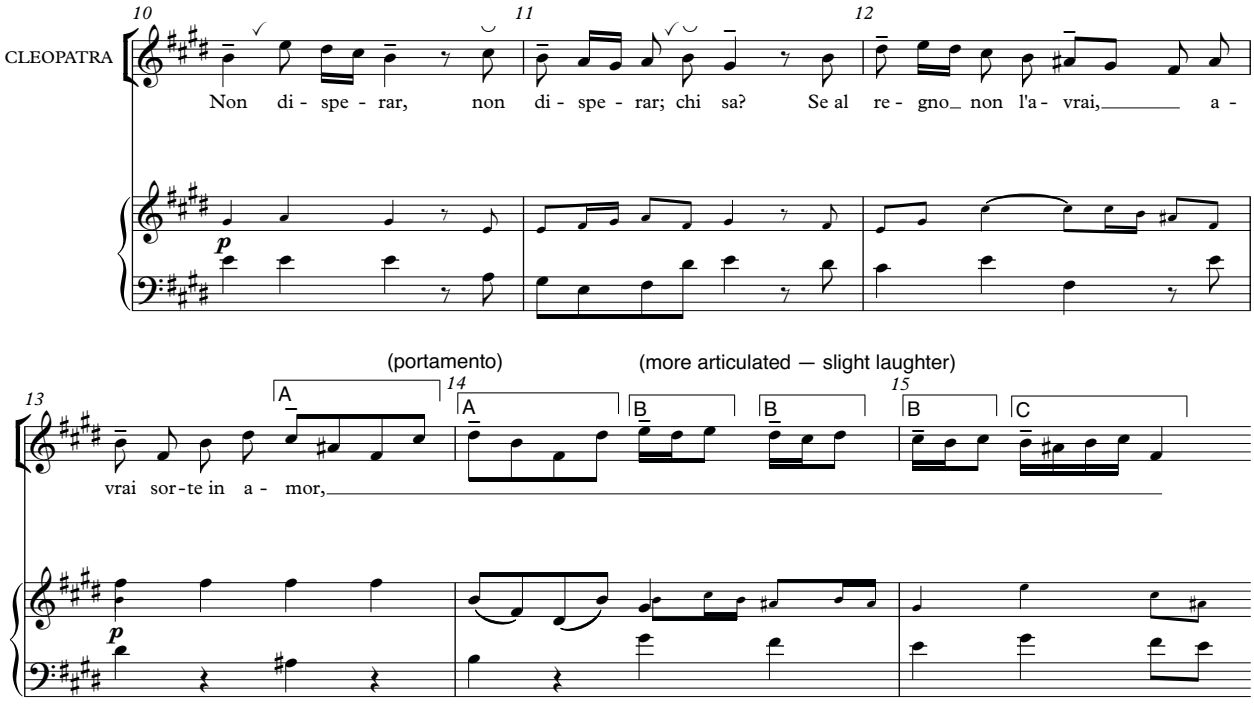
Now that we have a clear idea of the structure and articulation required to sing these opening phrases of "Non disperar," we can return to the passions which are at the heart of understanding how to build one's interpretation and create a moving and persuasive performance. Let us look at Quantz's advice for executing the passions:

> Finally, good execution must be expressive, and appropriate to each passion that one encounters. In the Allegro, and in all the gay pieces of this type, liveliness must rule, but in the Adagio, and pieces of this character, delicacy must prevail, and the notes must be drawn out or sustained in an agreeable manner. The performer of a piece must seek to enter into the principle and related passions that he is to express. And since in the majority of pieces one passion constantly alternates with another, the performer must know how to judge the nature of the passion that each idea contains, and constantly make his execution conform to it. Only in this manner will he do justice to the intentions of the composer, and to the ideas that he had in mind when he wrote the piece.[132]

Entering into the passions of the aria, I might choose to articulate the first and second words of the opening vocal statement in bar 10 (Ex. 5) with a little lift and silence between them, rather than one legato line, to help capture the lively, playful and mocking character with which Cleopatra addresses her brother. In the second phrase of bar 11 (Ex. 5), Handel has stressed the unstressed syllable of *di* in disperar. I could choose to play up this choice that Handel made by putting extra time and stress (agogic accent) on the downbeat syllable of *di* in order to further mock Tolomeo and sarcastically feign concern and then regain the time I've lost in the rubato by playfully quickening the remaining notes of the gesture on *disperar*. This waxing and waning of

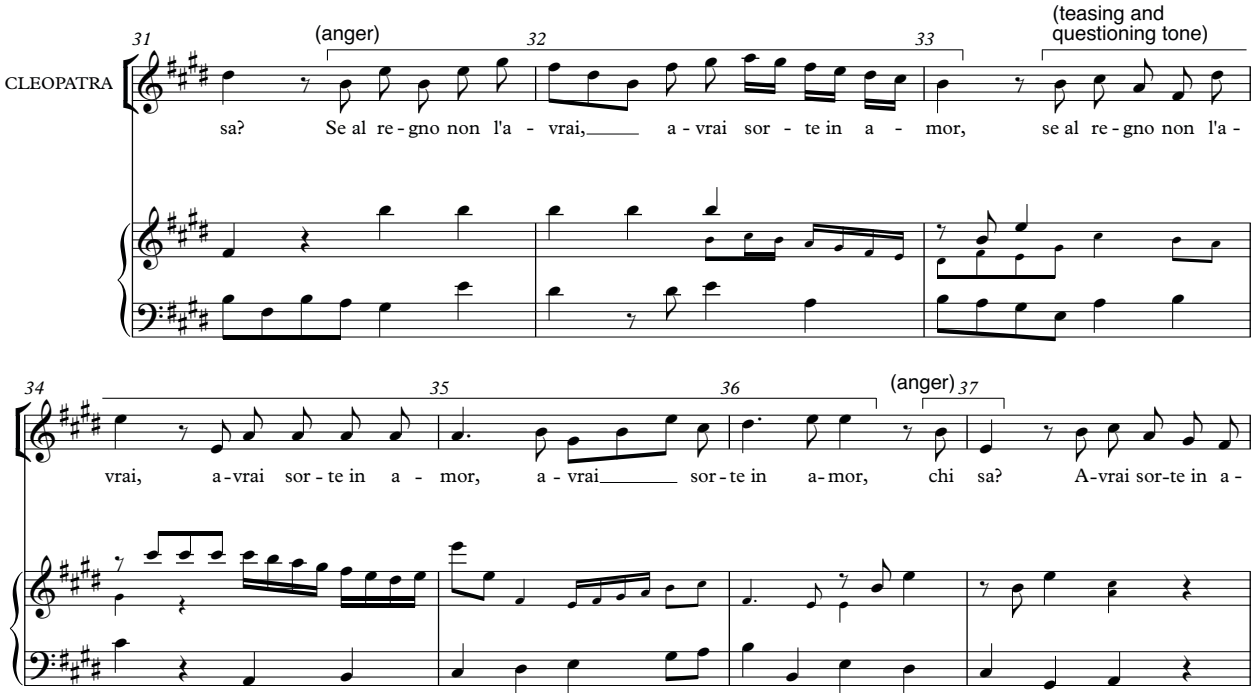
[132] Quantz, *On Playing the Flute*, 124-125.

rubato can also be mirrored in the ebbing and flowing of the dynamics and should be used throughout the aria at the performer's discretion. The melisma in bars 13-15 (Ex. 5) can continue to play up the mocking condescension in Cleopatra's voice by using a straight tone with some *portamento* in the first gesture (A), followed by a highly articulated laughing-quality in the second (B) and third (C) gestures. My personal choice would be to incorporate some throat articulation in combination with a steady airflow to create the more articulated coloratura.



Ex. 5. G.F. Handel, Non disperar from *Giulio Cesare* (1724), mm. 10-15. Reduction based on George Fridrich Handel's *Giulio Cesare,* (1724) piano reduction edited by Karl-Heinz Müller. Barenreiter Kassel, BA4078a, 2005.

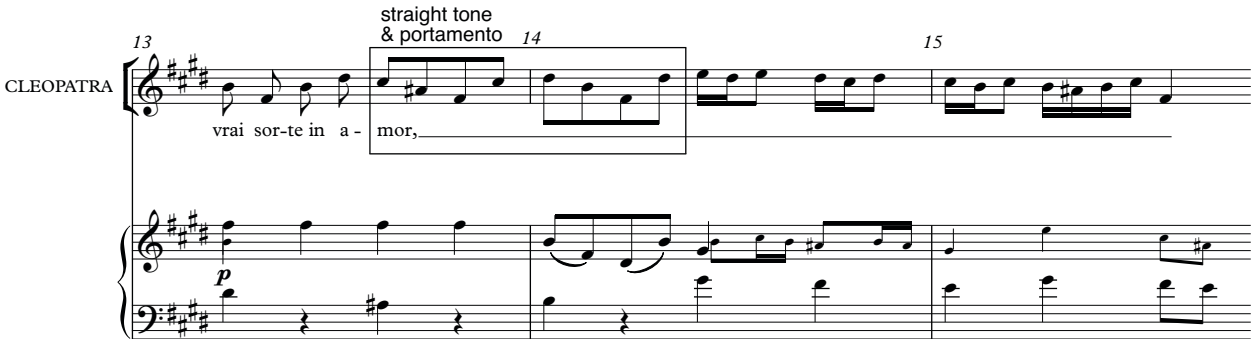
Flashes of Cleopatra's unbridled anger and hatred could be thrown in at various moments. The high tessitura and strong musical gestures of "Se al regno non l'avrai, avrai sorte in amor" in bars 31- 33 (Ex. 6) could be used to display her anger and power, followed by a quick retreat back to a quiet, teasing and questioning tone on "se al regno non l'avrai" in bars 33-35, with another opportunity to display her blatant anger in the text "chi sa?" in bars 36-37.



Ex. 6. G.F. Handel, Non disperar from *Giulio Cesare* (1724), mm. 31-37. Reduction based on George Fridrich Handel's *Giulio Cesare,* (1724) piano reduction edited by Karl-Heinz Müller. Barenreiter Kassel, BA4078a, 2005.

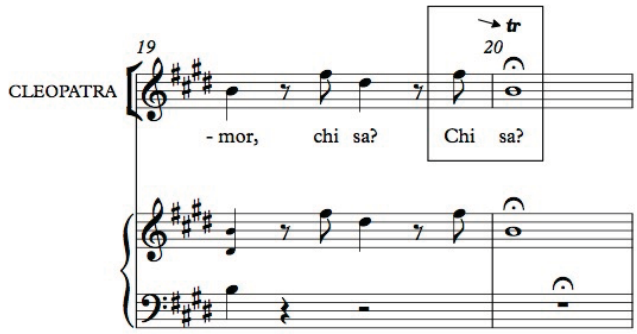
This question, "chi sa?" (who knows?), is never set with an upward interval as one might expect. It is almost exclusively set with a downward interval of a third or fifth which seems to express Cleopatra's mocking disbelief that Tolomeo will even find success in the realm of love.

In terms of vibrato, the waxing and waning quality of rhetorical performance practice unconsciously creates the same ebbing and flowing in the vocal vibrato but there are times when a singer might choose to purposefully change their vibrato use for expressive purposes.



Ex. 7. G.F. Handel, Non disperar from *Giulio Cesare* (1724), mm. 13-15. Reduction based on George Fridrich Handel's *Giulio Cesare,* (1724) piano reduction edited by Karl-Heinz Müller. Barenreiter Kassel, BA4078a, 2005.

As previously mentioned, in the melisma in bar 13-15 (Ex. 7), I could purposely straighten the vibrato to produce a more sweetly mocking tone and add a little slippy-slidey *portamento* to increase the level of condescension in the voice. I also consciously make the choice of straightening my sound for all *appoggiaturas* to emphasis the dissonance involved and in bar 20 (Ex. 8), I could take this effect even further into the passion as I start the trill with an extremely straight-toned "sa" on the main pitch of b which I very slowly start to trill back and forth on the notes of c# and b with absolutely no vibrato until I finally release the larynx into a full-blown trill.



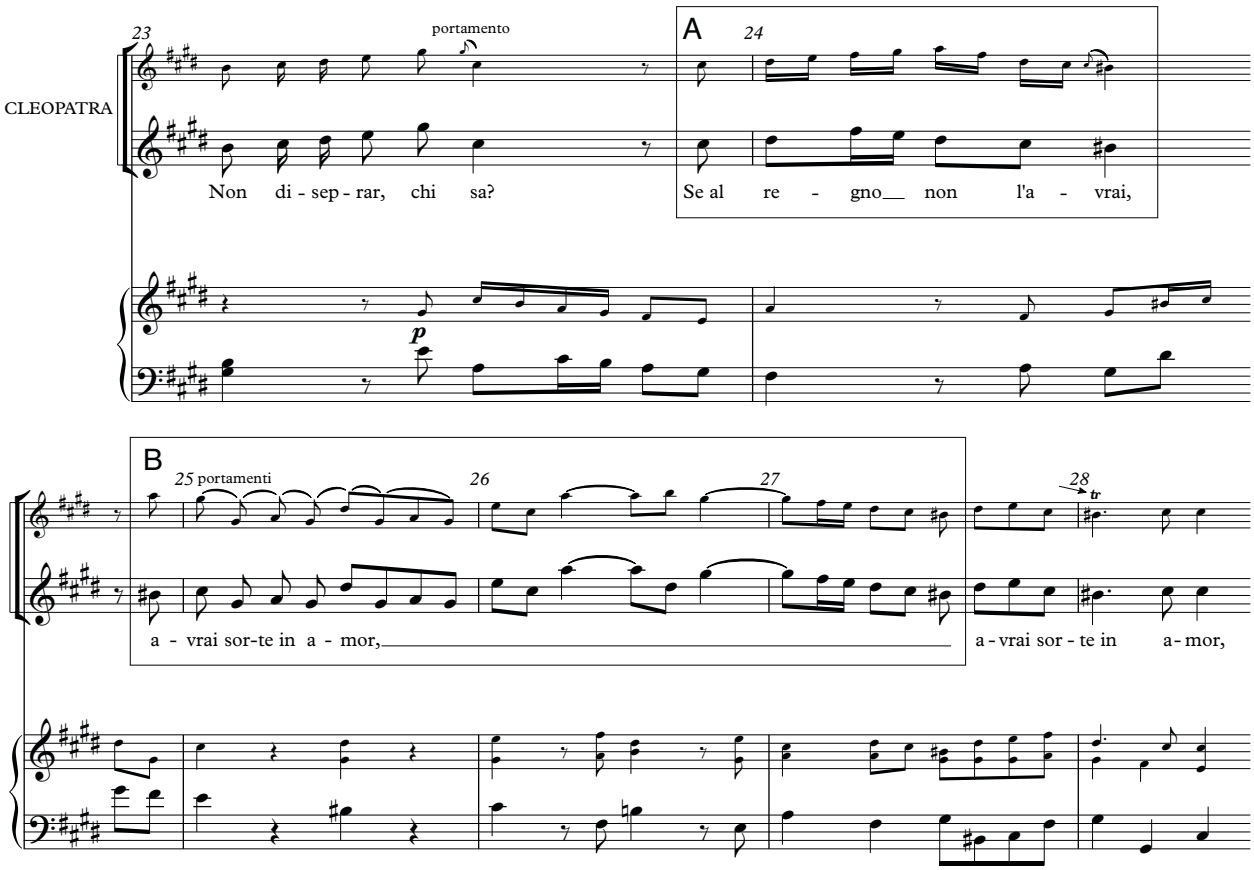
Ex. 8. G.F. Handel, Non disperar from *Giulio Cesare* (1724), mm. 19-20. Reduction based on George Fridrich Handel's *Giulio Cesare,* (1724) piano reduction edited by Karl-Heinz Müller. Barenreiter Kassel, BA4078a, 2005.

The emotionally-driven context could be that Cleopatra wishes to injure Tolomeo with her words so she uses the trill as if she were sticking a knife into him with the straight-toned "sa" and then slowly, slowly twists it as she moves the voice back and forth for the slow section of the trill. I might also choose to have a slightly ugly and aggressive tone in the fast section of the trill to display her rage.

Here, I have included three different recorded versions of the opening A section of "Non disperar" to compare and contrast some of the rhetorical choices that I made at different points in my process. The first recording (link: https://www.youtube.com/watch?v=fHg9uaOAfSg or use track 1on CD) was made at home (March 8, 2016) while I was practicing alone and I was focusing on breath management and playing with varying my vibrato and dynamics but the result is rather legato and lacking much of the rhetorical punctuation and shorter musical gestures needed. The second recording (link: https://www.youtube.com/watch?v=cPJv7e28nrM or use track 2 on CD) comes from my first rehearsal with my Baroque players on April 26, 2016 and it contains much more playfulness and articulation. There is more variation in dynamics, vocal colours and clearer punctuation of phrases. The teasing and mocking qualities are more evident through my use of larger dynamic shifts, straight-tone and *portamento*. The third recording (link: https://www.youtube.com/watch?v=jFcV2gpqEFA&t=2m23s or use track 3 on CD) comes from my lecture-recital performance of May 28, 2016. This live-performance version displays even more intensity in the passions with quick switching back and forth between teasing and anger. It is also much more articulated than previous versions through use of waxing and waning dynamics and shorter musical gestures including the almost laughing quality in some of the melismatic phrases. Through these three examples one can witness the process I underwent in my practical application of rhetorical ideas. I was understanding the rhetorical tools better and better over time and layering more and more aspects of them throughout my singing of this aria. The final performance version even included some rhetorical choices which I made in the spur of the moment as I entered more deeply into the character and passion of the aria in front of the audience.

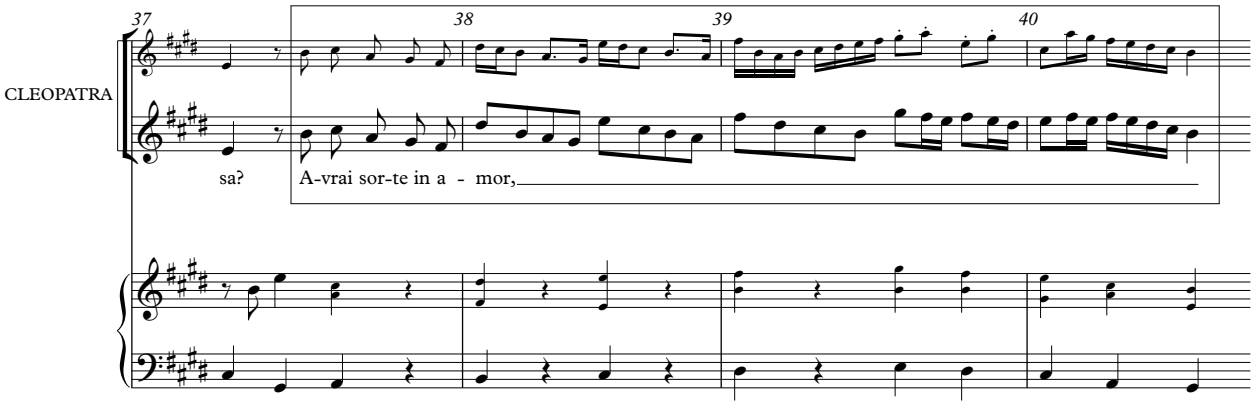
Ornamentation

Ornamentation is one of the most expressive and creative rhetorical tools at the singer's disposal. The core passion or passions must always inform the ornaments chosen and also shade the amount of rubato used to inflect each ornament with emotion. This makes even well-rehearsed ornaments sound spontaneous and heartfelt and therefore heightens the passions and moves the listener. In this aria, "Non disperar", I would choose to add ornaments that highlight the playful, mocking quality by adding leaps upward and by filling in thirds with quick passing notes (Ex. 9-A). I could play up the condescension towards, and feigned concern for, Tolomeo through the use of long appoggiaturas and 'whining' portamentos from great heights (Ex. 9-B).



Ex. 9-A and 9-B. G.F. Handel, Non disperar from *Giulio Cesare* (1724), mm. 23-28. Reduction based on George Fridrich Handel's *Giulio Cesare,* (1724) piano reduction edited by Karl-Heinz Müller. Barenreiter Kassel, BA4078a, 2005.

I could even break into a mocking form of laughter in my coloratura passages (Ex. 10).



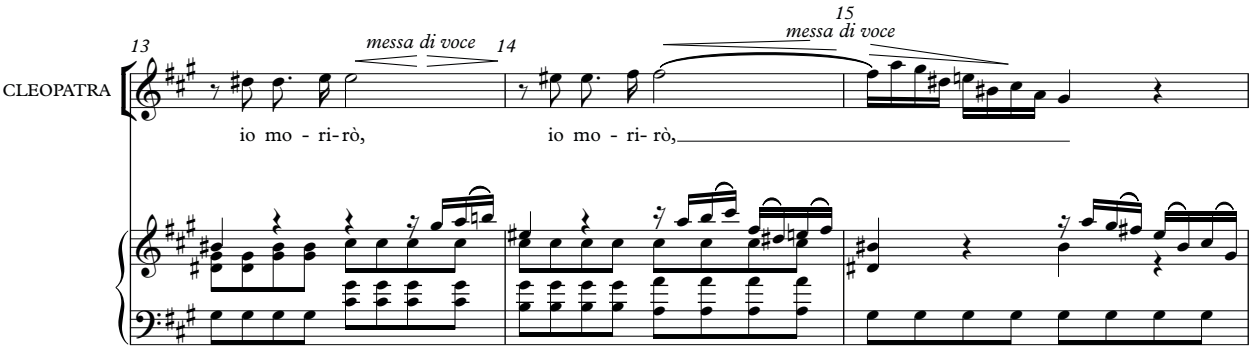
Ex. 10. G.F. Handel, Non disperar from *Giulio Cesare* (1724), mm. 37-40. Reduction based on George Fridrich Handel's *Giulio Cesare,* (1724) piano reduction edited by Karl-Heinz Müller. Barenreiter Kassel, BA4078a, 2005.

Since ornamentation choices are so dependent on the tempo and passion of an aria, let us turn now to, "Se pietà di me non senti", an aria with a completely different passion, that of despair. In this aria, Cleopatra has just warned her beloved Caesar to flee as her brother is coming to kill him. He refuses and instead rushes into battle; and Cleopatra hears the cries of the crowd shouting "Death to Caesar!" Fearing the worst, she sings a prayer to the heavens for his safe return. For the first time, she realizes the depth of her love for Caesar and fears she will die of grief if he is killed.

> Se pieta di me non senti, giusto ciel, io morirò.
>
> Tu da' pace a miei tormenti, o quest' alma spirerò.
>
> (If you feel no pity for me, just heaven, I shall die.
>
> Grant relief to my torments, or this soul will expire.)

The core passion is despair but it is tinged with fear, desperation and grief. In order for the pleading and desperation to show through, I would probably choose a tempo for this Largo that is a bit closer to an Andante, which would keep the 'heartbeat in the bass' at a slightly elevated level which is more in line with human expression of desperate pleading.

Keeping these various passions in mind as I apply both the essential and free ornaments, I would allow the authentic ebbing and flowing of human despair to be my guide in colouring every gesture and phrase. The essential grace of *messa di voce* can be used as the perfect tool for pointing up the anguish in her tormented pleading. For example, it can be applied to the long notes in bars 13 and 14 (Ex. 11) with an intentional intensification of emotion in the second *messa di voce* to mirror Handel's intensification of harmony over the course of the two iterations of "io morirò" (I shall die).



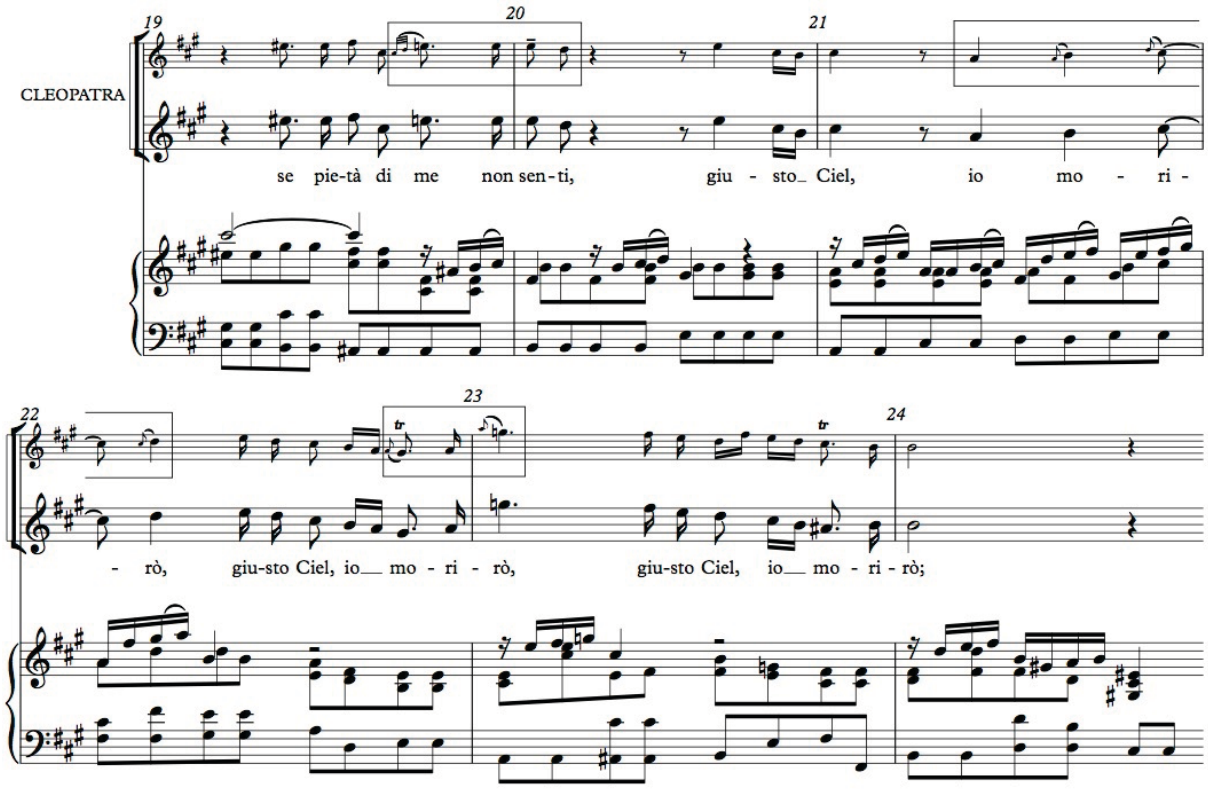
Ex. 11. G.F. Handel, Se pietà di me non senti from *Giulio Cesare* (1724), mm. 13-15. Reduction based on George Fridrich Handel's *Giulio Cesare,* (1724) piano reduction edited by Karl-Heinz Müller. Barenreiter Kassel, BA4078a, 2005.

I might begin the first "io morirò" in bar 13 (Ex. 11) very quietly with as straight a tone as possible allowing almost no vibrato into the sound as I gently crescendo and decrescendo the *messa di voce*. The second "io morirò" on bar 14 could also be started with a quiet straight tone that builds greatly in volume to be released into an emotional vibrato over the bar line which then decrescendos during the melisma of bar 15. The building up of the anguish and pain which

eventually spills over into the sobbing downward gesture of the melisma in bar 15 sounds much like 'keening'.[133] (Link: https://www.youtube.com/watch?v=jFcV2gpqEFA&t=12m45s or use track 4 on CD to hear an excerpt from "Se pietà" taken from my lecture-recital of May 28, 2016)

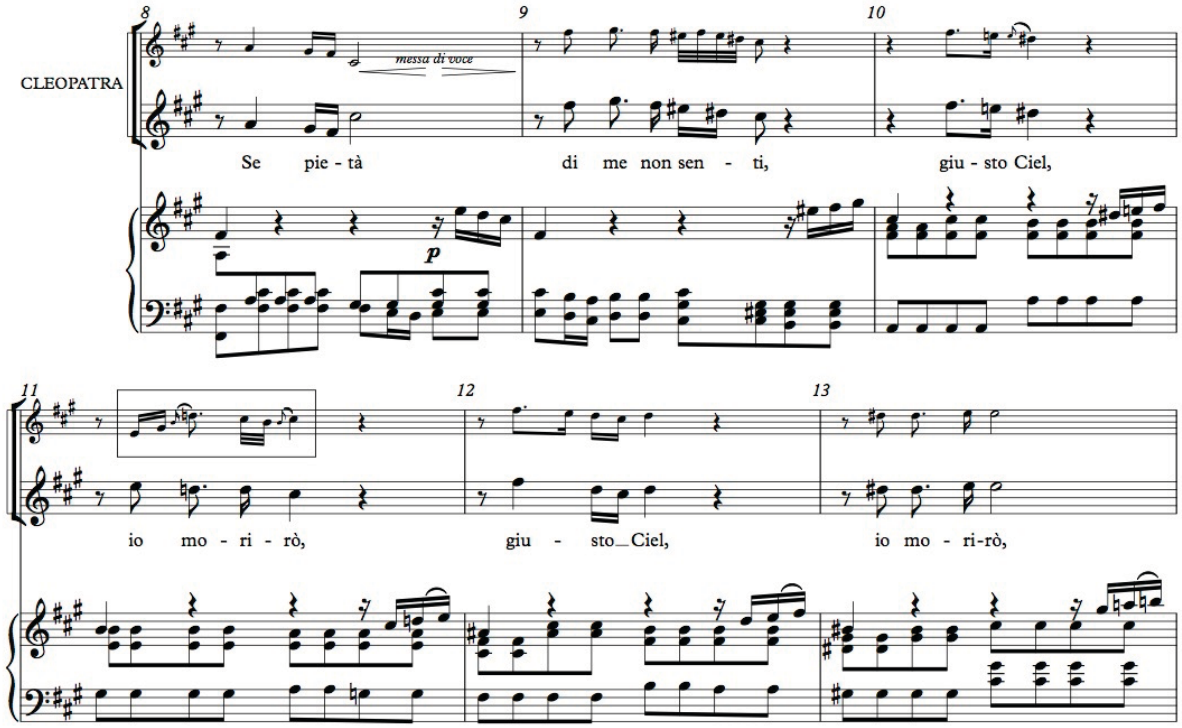
In an aria of such deep emotion and pain, when adding ornaments I would heed Quantz's advice that "delicacy must prevail, and the notes must be drawn out or sustained in an agreeable manner".[134] Instead of adding a lot of extra notes, I would play up the pain and anguish by using another essential ornament, the *appoggiatura*. You may recall that an *appoggiatura* is created by reducing the extent of the vibrato until almost no vibrato is detected followed by its subsequent 'release' on the lower or higher chord tone as the audible vibrato returns to the sound. Intense, grief stricken appoggiaturas of both upper and lower notes could be added throughout (Ex. 12) by leaning on them in bars 20 and 22, adding some to the melodic contour in bars 21-22 and concluding with an especially heart-wrenching leaping appoggiatura on the word *morirò* (shall die) on the downbeat of bar 23.

[133] 'Keening'- Caoin-ing- Irish or Scottish Gaelic lament style.
[134] Quantz, *On Playing the Flute*, 124-125.

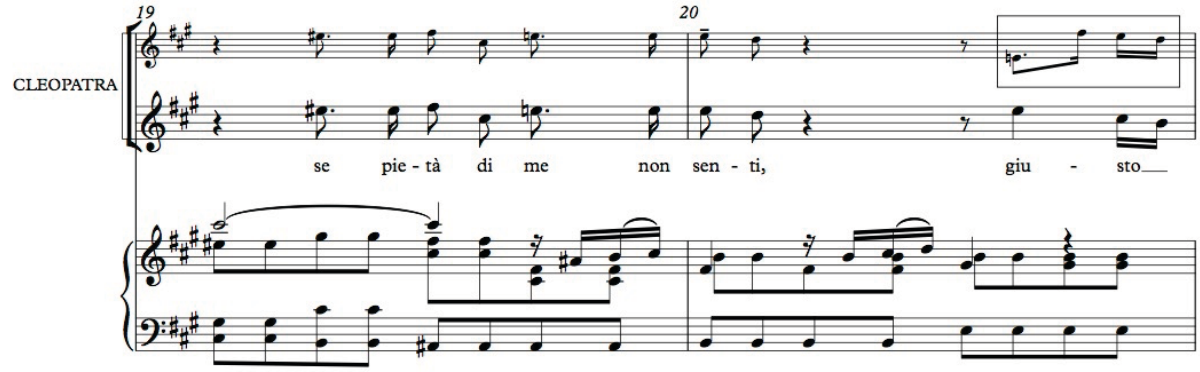


Ex. 12. G.F. Handel, Se pietà di me non senti from *Giulio Cesare* (1724), mm. 19-24. Reduction based on George Fridrich Handel's *Giulio Cesare,* (1724) piano reduction edited by Karl-Heinz Müller. Barenreiter Kassel, BA4078a, 2005.

I could also play with audience expectations in a similar manner to Farinelli as stated earlier, by starting ornaments in the low register to bring the intensity to a more intimate level of pain, which would allow me to build the emotion up again. (Ex. 13, bar 11 and Ex. 14, bar 20)



Ex. 13. G.F. Handel, Se pietà di me non senti from *Giulio Cesare* (1724), mm. 8-13. Reduction based on George Fridrich Handel's *Giulio Cesare,* (1724) piano reduction edited by Karl-Heinz Müller. Barenreiter Kassel, BA4078a, 2005.



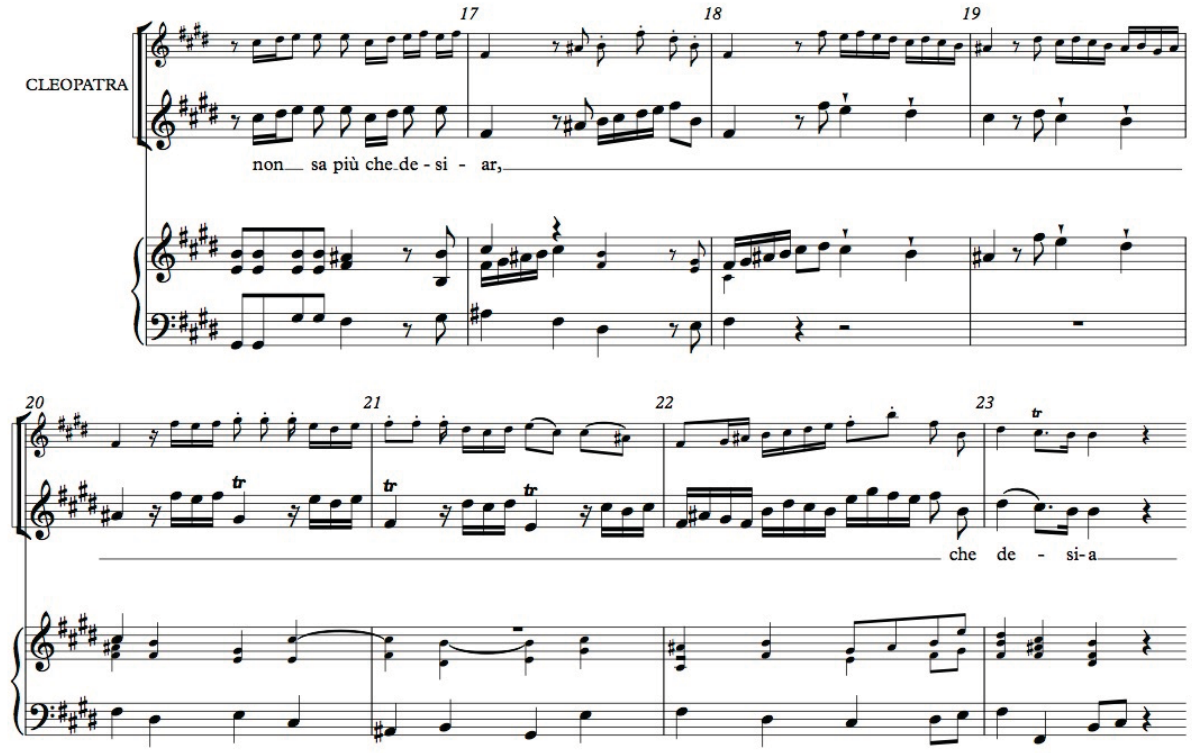
Ex. 14. G.F. Handel, Se pietà di me non senti from *Giulio Cesare* (1724), mm. 19-20. Reduction based on George Fridrich Handel's *Giulio Cesare,* (1724) piano reduction edited by Karl-Heinz Müller. Barenreiter Kassel, BA4078a, 2005.

This constant play of ‘light and shadow’ through the variation of vocal registers also reflects the human heart and mind reeling from despair. One minute Cleopatra is gently pleading with the heavens; the next she is wailing.

This is all in sharp contrast to the kind of ornamentation we might use in Cleopatra’s final aria “Da tempeste il legno in franto” which displays her surprise and overwhelming joy at having been saved at the very last minute by Caesar whom she had assumed was dead.

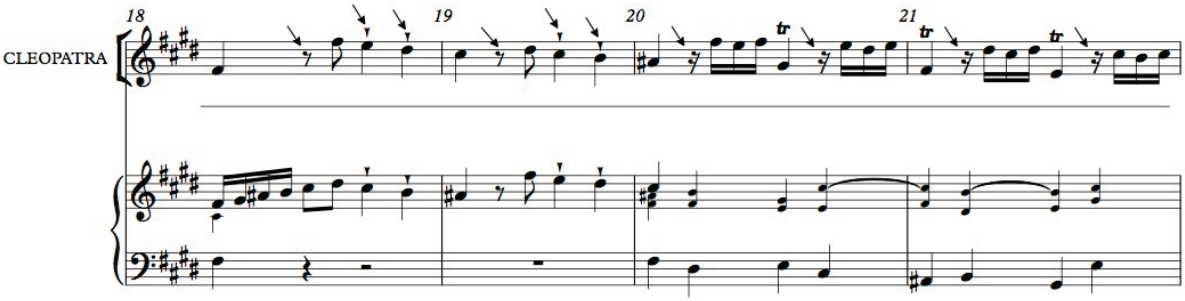
> Da tempeste il legno infranto, se poi salvo giunge in porto, non sa più che desiar.
>
> Così il cor tra pene e pianto, or che trova il suo conforto, torna l'anima a bear.
>
> (When the ship, broken by storms, succeeds at last in making it to port, it no longer knows what it desires.
>
> Thus, the heart, after torments and woes, once it recovers its solace, is beside itself with bliss.)

Here I would choose to use a profusion of divisions and high notes to express the most extravagant and exuberant explosions of joy that Cleopatra is now experiencing (Ex. 15).



Ex. 15. G.F. Handel Da tempeste il legno in franto from *Giulio Cesare* (1724), mm. 16-23. Reduction based on George Fridrich Handel's *Giulio Cesare,* (1724) piano reduction edited by Karl-Heinz Müller. Barenreiter Kassel, BA4078a, 2005.

In terms of expressing passions, I would intersperse this explosive joy with moments of surprise and astonishment that she finally finds herself safely 'ashore' by playing up the accents and rests Handel supplies with agogic stresses and using an astonished tone in the voice (Ex. 16).



Ex. 16. G.F. Handel, Da tempeste il legno in franto from *Giulio Cesare* (1724), mm. 18-21. Reduction based on George Fridrich Handel's *Giulio Cesare,* (1724) piano reduction edited by Karl-Heinz Müller. Barenreiter Kassel, BA4078a, 2005.

Applying these various rhetorical tools to Cleopatra's arias, emphasizing a constant waxing and waning of emotion and colour, resulted in a highly nuanced and constantly varying vibrato in my voice. The vibrato was shifting along a spectrum from a straight sounding tone to a large extent-vibrato. Sometimes the choice of vibrato extent was consciously chosen as noted above, but mostly the vibrato was unconsciously responding to the rhetorical artistic choices made.

Application of Italian Late Baroque Vocal Production

The other big question from the 'vibrato wars' dialogues that plagued me was what did the "slight and pleasing"[135] vibrato described in the historical accounts actually sound like? How much vibrato extent can be used before the sound is no longer pleasing? Does our modern concept of pleasing match the Baroque aesthetic? There is probably no way to really answer that question but it occurred to me that if the rhetorical performance practice tools had changed my vibrato then perhaps by applying the vocal production of the Italian late Baroque I might get a little closer to the desired sound of the time period.

I decided to focus on the most fundamental differences between contemporary and Italian late Baroque vocal production; the concept of a neutral and flexible laryngeal position in tandem with a lower breath pressure that remained flexible for artistic fluctuation. I also added the idea of singing my high notes with a lighter head voice registration and my low notes with more chest voice in keeping with the ideals of the late Baroque. I was already singing my divisions in more or less the manner that Tosi prescribed in his treatise with a mixture of throat articulation and breath flow for both the "beaten and glided" articulations but I was curious to see what effect the new laryngeal position would have on my agility.

Rejiggering one's technique is not as simple as it sounds. The muscle memory involved in decades of training (I was 43 at this point) is resistant to any quick changes. I enlisted my mentor and coach Michael McMahon as my eyes and ears on the outside to help me apply these different vocal techniques. Michael and I met for a year of weekly coaching sessions, which I recorded and reviewed in between meetings. My first goal was to learn to start each sung phrase without any lowering of the larynx or extra muscular activity in the neck. Michael's process for

[135] Zacconi as translated by Edward Foreman, *A Comparison of Selected Vocal Tutors of the Period Circa 1550 to 1800* (diss., University of Illinois, 1969), 73.

helping me to achieve this was to watch from the outside and "look for a calm breath that [was] a response to a thought and which [did] not create unnecessary tension."[136] The mental thought and action that I worked with the most, was to take the breath as if I were simply going to speak the phrase and then start the sung sound in that neutral position. Sounds simple, right? Not so much. My body was so used to adding the increased subglottal pressure and high breath pressure associated with modern, vibrant operatic singing[137] that it took thousands of repetitions to get this new vocal onset right. Michael would stop me before I even uttered a sound if he saw that the breath I took was setting up any extra muscular activity which usually felt like laryngeal lowering to me. We repeated this over and over until I could sense the new sensation of not applying this extra muscular work. This took months and months. We would also use the mirror for visual confirmation of when the process was working or not.

As I became more skilled at this new neutral-larynx vocal onset, I found my breath management was changing and shifting. I was taking in less air when I breathed because I realized that without the higher subglottal pressure associated with a lowered larynx, I was using less breath pressure overall and therefore needed less breath to sing each phrase. My desire to apply the shifting contours of rhetorical performance practice also resulted in my breath pressure constantly shifting to accommodate those artistic choices. I was slowly gaining more and more subtle control over my breath from my lower abdominal muscles. I felt that I could make refined breath pressure changes with only small amounts of muscle engagement. The subtle breath pressure changes were allowing for the waxing and waning of dynamics essential to rhetorical performance practice and this waxing and waning was unconsciously being mirrored in my vibrato output. This was getting interesting! Michael even commented, with fascination, that my

[136] Michael McMahon, email message to author, July 14, 2016.
[137] Katok, *The Versatile* Singer, 55.

desire to make these artistic changes of waxing and waning had resulted in my developing a much more advanced breath management that sounded free and organic, adding "What I really like is [that] none of your straighter tones sound like you are doing them artificially."[138] In other words, it didn't sound like I was *trying* to change my vibrato by over-engaging laryngeal muscles or holding back too much airflow but that my breath was doing it organically. My breath was free and flowing even in the straight tones and not held back with tension as it previously had been to achieve this effect.

The straight tones felt and sounded a lot like Danya Katok's definition of straight tone "as a minimally perceived vibrato that remains resonant, focused and balanced."[139] She goes on to point out that "Perception plays an important role in the acoustics of vibrato because the uninitiated ear does not recognize narrow vibrato for what it is. Rather the tone sounds straight with a pleasing shimmer"[140] This perception is backed up by the scientific research on straight tone which indicates that a small amount of pitch change is still occurring on these sounds although the human ear doesn't detect the undulations but hears sonance instead.

The scientific research on vibrato also helped me to unravel the puzzling advice given in all of the treatises to sing one's high notes softly and sweetly and low notes loudly. Tosi admonished the singer to "take care, however, that the higher the Notes, the more it is necessary to touch them with Softness, to avoid Screaming."[141] I say puzzling because the modern ear is accustomed to and yearns for the excitement of loud high-notes. I believe this advice must partly be chalked up to Baroque aesthetic preferences for sweet sounding high notes but it might also be that they wished to avoid the large vibrato sound that resulted from loud high-notes. As we

[138] Michael McMahon, coaching and conversation with author, Mp4, March 30, 2016.
[139] Katok, *The Versatile Singer*, 105.
[140] Ibid, 104.
[141] Tosi, *Opinioni*, Ch. I:14.

now know from scientific studies, vibrato extent increases with pitch range and increased volume resulting in the largest vibrato extents for loud high-notes. By applying this aesthetic preference from the treatises to my singing of Handel arias, the result was a smaller vibrato extent on high notes.

The technical approach to singing my high notes more lightly was achieved by continuing to use a neutral, flexible laryngeal position with the added concept of keeping distinct head register colour in the sound by not blending as much chest voice as I would for my modern operatic sound. I also was conscious of using less breath pressure to produce my high notes than I would when singing a Strauss aria for example. It resulted in the sensation of playing a thin pipe of air through the middle of my torso and throat with the delicate edges of the vocal folds gently creating the notes in my higher range. The laryngeal sensation was light and loose and flexible without the downward tug of increased subglottal pressure. I am speaking here of sensations which seem to be backed up by the scientific research to date but I would love in a future project to make scientific measurements of these sensations of airflow and laryngeal position.

To be honest, this was rather challenging, and I would probably have to admit that I didn't go to the full extreme of using only head register above my mixed *passaggio* (d-f#) as I found it too weak and less expressive. There is no way to know how much mix of chest the female singers of Handel's time were using in their head register but it's possible that my modern taste prefers a little more mix in the head voice than the Baroque audiences may have heard. However, there are accounts of some female singers using 'chest' to the top of their range which may have been a more modern sounding mix of chest and head voice. Since most of the literature addresses castrati and their unique registers, it is difficult to know what the writers

meant when they spoke of women using chest voice. Most female classical sopranos use a mostly mixed voice (chest and head) throughout their entire range instead of a pure chest voice like male voices.

Returning to the neutral larynx and my felt sensation of playing a thin pipe of air through my body, I experienced a new-found agility in my singing of divisions. I have always had an incredible ease with coloratura and have found an easy mix of throat articulation and breath flow when producing Baroque melismas, but now I experienced something quite new. The neutral and loose larynx allowed me to scale the large Handelian coloratura passages with the sensation of all of the notes being on the same plane or 'next door' to one another rather than subtly up and down. And the looseness of my larynx allowed for an increase in agility and speed with the sensation of only the edges of the vocal folds being engaged in a delicate and speedy manner. In fact, I felt very little in my larynx. Instead, I felt the lower abdominal muscles lightly engaging in order to quickly change the breath pressure for the divisions. For higher notes and leaps, I felt a slight tugging as the lower abdominal muscles, next to the inside edge of my pelvic bones, lightly engaged. This increased the breath pressure to produce the high notes and sudden leaps without adding extra muscular work around the larynx. This felt like my vocal folds were 'dancing' through the difficult divisions and I always had enough air to spare due to the lower level of breath pressure used overall. (Link: https://www.youtube.com/watch?v=AcnssjRrdeg or use track 5 on CD to hear this neutral, flexible laryngeal application in my coloratura ornaments for the *da capo* of Handel's "Da tempeste il legno in franto" during the first rehearsal with my baroque players on April 26, 2016).

Applying these Italian Baroque techniques of neutral larynx, lower breath pressure and lighter high notes felt truly joyful and allowed for an incredible flexibility of artistic choices. I had the strange sensation of playing my vocal folds by remote control from my lower abdominal

muscles through the use of micro changes in muscle engagement to change the breath pressure and, therefore, the notes above. This increased agility also allowed for the waxing and waning vibrato variation I was originally seeking when I began this project! The effect of applying these vocal techniques produced less vibrato in my sound overall perhaps due to the more neutral laryngeal position and lower amount of breath pressure in use throughout my range.

Conclusions

Research unfailingly takes you to a place you couldn't quite imagine at the beginning and down roads you never thought to venture. I began this journey searching for the technical means for producing healthy vibrato variation but quickly realized I needed the focus of my project to be about uncovering a clear performance practice for vocal vibrato application in the Italian late Baroque. Amazingly, the practical process of applying rhetorical performance practice and Italian late Baroque vocal production techniques to these Handel arias over many, many months, actually resulted in my devising a new breath management system with which I could vary my vibrato.

I also discovered that if one is really engaging with rhetorical performance practice and all of its tools, then the vibrato is changing automatically in response. The conscious part comes in the learning process of the student who is not familiar with these tools and also through some of the vocal production factors that allow this flexibility of vibrato to occur through a flexibility of breath pressure. This is the part that needs to be consciously taught by modern pedagogues because the lowered larynx and constant application of a higher breath pressure that many teachers advocate does not allow for the flexibility of expression required for rhetorical music. There seems to be confusion between freely flowing breath and legato singing. Legato singing is about evenness of tone and is not the only means for achieving vocal freedom and health.

The Italian late Baroque vocal techniques of neutral larynx, lower breath pressure and lighter high notes helped me achieve a more nuanced breath management system which allowed me to make subtle vibrato variations more easily and efficiently than my modern vocal technique. The neutral larynx allows for increased ease in agility and the lower breath pressure, associated with neutral versus lowered larynx, uses less air. In addition, refined breath pressure

changes which help to shape the contours of rhetorical performance practice can be made with only small amounts of muscle engagement from the lower abdominal muscles. The resultant ease and efficiency allows for an incredible flexibility of artistic choices and I would argue for its inclusion in 21st century pedagogy for singing Italian late Baroque music.

As for my contribution to the 'vibrato wars' discussion, I hope I have shown the need for singers to truly engage with rhetorical performance practice. The pro- and anti-vibrato stances are overly simplified and don't take into account the natural vibrancy of the human voice and how it responds to the shifting contours of rhetorical performance. To speak of applying ornamental vibrato in such an overly conscious way is more a reflection of instrumental playing than of how the voice naturally functions. It might be more useful for singers to think of vibrato as a varying ornamental device that is sometimes consciously applied in terms of reducing it to straight tone but that otherwise is constantly waxing and waning with rhetorical intentions.

> Absolute authenticity is like searching for the end of the rainbow.[142]

We cannot completely imitate the vocal sound of the 1700s, nor should that necessarily be our ultimate goal. Three centuries of change have created a different sound world in which we have been raised and that must surely affect our aesthetic choices. I think the point isn't to achieve exact imitation but to get closer to the spirit of the music and performance of the time in an attempt to produce exciting 21st-century versions that are laced with our modern tastes while remaining true to rhetorical performance practice. Trying on the vocal techniques of the Italian late Baroque is for a singer much like a modern violinist having a Baroque violin and bow placed

[142] Nicolas McGegan quoted by Sally Bradshaw, "Taste and common sense in the singing of baroque opera" (Presented at the National Early Music Association International Conference, in association with the University of York Music Department and the York Early Music Festival, July, 2009), 1.

in their hands. The instrument is different and allows for different possibilities in articulation and expression. Playing/singing Handel through an instrument that is setup in a late Baroque manner will produce a different result in the music. For a singer, that means using a neutral and flexible larynx position with a lower breath pressure that is fluid and flexible enough to respond to the rhetorical performance practice of the Baroque. The result of this application was for me personally, an increase in agility and ease in these difficult arias with an increased palette of expression.

"Theorists of the time did not have a vocabulary that could adequately describe vibrato - nor do we. Such is the limitation of treatises on musical performance in any period."[143] Can we ever know the true sound of their vocal vibrato and how often it was detectable above the natural shimmer of sonance? No, but it fascinated me that the application of rhetorical performance practice and Italian late Baroque vocal techniques produced a narrower and widely varying vibrato in my voice as a result. And the best result I could have wished for was realized when my lecture-recital performance of Cleopatra's arias drew the response from my audience and professors that I had indeed "moved the passions" of my listeners.

[143] Baird, "The *Bel Canto* Singing Style", 41.

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Handel, George Fridrich. "Se pietà di me non senti" from *Giulio Cesare.* Tracy Smith Bessette (soprano), Gabriele Thielmann (baroque violin), Peter Lekx (baroque violin), Sari Tsuji (baroque viola), Amanda Keesmaat (baroque cello), Gili Loftus (harpsichord), lecture-recital, recorded in Tanna Schulich Hall, McGill University, May 28, 2016, 2 compact discs.

Videos

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